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Evaluating Flavor and Aroma Attributes of Arkansas-grown Horticultural Crops

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Food Science

by

Jordan Chenier University of Central Arkansas Bachelor of Science in Biology, 2012

> August 2022 University of Arkansas

This thesis is approved for recommendation to the Graduate Council.

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Overall Abstract

Arkansas has a climate and geography that allows for the production of unique horticultural crops, including hops (*Humulus lupulus* L.), blackberries (*Rubus* subgenus *Rubus*), and muscadine grapes (Vitis rotundifolia). These crops not only have potential for growers in Arkansas but have unique flavor and aroma attributes that impact marketability. Volatile compounds present in many different agricultural plants are the primary source of biologicallyderived aromas and flavors. Therefore, the volatile and other quality attributes of hops, blackberries, and muscadine grapes were evaluated at the University of Arkansas (UA System) Division of Agriculture. The quality, volatile, and sensory attributes of four hops cultivars (Cascade, Cashmere, Crystal, and Zeus) grown at the UA System Division of Agriculture Fruit Research Station in Clarksville, AR were evaluated in 2020 and 2021. In general, cultivar impacted individual and total alpha and beta acids levels with total alpha and beta levels as follows; 'Cascade' (6.0-9.2% and 5.7-9.1%, respectively), 'Cashmere' (4.9-6.9% and 5.5-8.5%. respectively), 'Crystal' (2.9-3.6% and 7.5-10.1%, respectively), and 'Zeus' (4.6-5.7% and 4.1-4.8%, respectively). In both 2020 and 2021, 'Crystal' had the highest volatile concentration (6,278 and 8,106 µg/kg, respectively) followed by 'Cashmere' (6,668 and 5,434 µg/kg, respectively) and 'Cascade' (5,829 and 4,132 µg/kg, respectively) with 'Zeus' (3,230 and 2,072 $\mu g/kg$, respectively) containing the lowest concentration. In both years, the five volatile aroma compounds with the highest levels found in Arkansas-grown hops were beta-pinene (monoterpene with herbal and pine aromas), beta-myrcene (spicy monoterpene), caryophyllene (sesquiterpene with woody aromas), beta-Selinene (herbal sesquiterpene with celery notes), and humulene (spicy/woody sesquiterpene). In both years, the descriptive sensory panelists (n=5-7) could differentiate between cultivars for aged cheese, overall citrus complex, lemon, overall

green herb complex, and overall pepper complex with overall impact as the highest rated attribute (5-7 on a 15-point scale). Since blackberry quality can vary during a harvest season, blackberries grown at the UA System Fruit Research Station were harvested on three harvest dates (early, middle, late) in 2020 (four cultivars) and 2021 (three cultivars). In general, cultivars differed for berry weight (5-13 g), soluble solids (9-13%), pH (3.3-4.2), titratable acidity (0.4-1.0%), and solids/titratable acidity ratio (9.8-31.0), but harvest date impact varied by cultivar and year. 'Sweet-Ark[®] Ponca' late harvest date in 2021 had the lowest concentration of volatile compounds (1,370 µg/kg), and 'Sweet-Ark Ponca' middle harvest date in 2020 had the highest $(4,693 \mu g/kg)$. In 2021, six seeded and ten seeded and seedless muscadines genotypes (cultivars and breeding selections) were harvested in Arkansas and North Carolina, respectively. Muscadine grape soluble solids ranged from 14-19 %, pH ranged from 3.0-3.9, titratable acidity ranged from 0.25-1.14 %, soluble solids/titratable acidity ratio ranged from 16-70. Volatile compound levels $(2,151-5,746 \,\mu g/kg)$ were impacted by genotype, and in the 16 cultivars harvested in both locations, there were 181-198 volatile aroma compounds identified across nine compound classes including 52 esters, 38 monoterpenes, 31 sesquiterpenes, 29 alcohols, 27 aldehydes, 16 ketones, four lactones, two aromatic hydrocarbons, and two epoxides. The three muscadine genotypes with the highest concentrations of volatiles were AM-154 (5,745 µg/kg), 'Lane' (5,285 μ g/kg), and 'Hall' (5,107 μ g/kg), while the three muscadine genotypes with the lowest concentration of volatiles were AM-77 (2,151 µg/kg), JB 06-30-2-20 (2,367 µg/kg), and AM-148 (2,468 µg/kg). Data generated from this project provided information on volatile and other quality attributes of hops, blackberries, and muscadine grapes that can be used to support the future growth of these industries.

Acknowledgments

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Overall Introduction	
Objectives	2
Literature Review	
Introduction	
Hops	7
World hops production	8
U.S. hops production	8
Hop yards and plants	9
Harvesting hops	
Hops cones drying and storage	
Hops cones	
Hops alpha and beta acids	
Hops polyphenolic compounds	
Hops volatile compounds	
Hops and beer sensory	
Blackberries	
World blackberry production	
U.S. blackberry production	
Blackberry breeding	
Blackberry plant morphology and physiology	
Blackberry fruit structure	
Blackberry volatiles	
Blackberry sensory	
Muscadine Grapes	
U.S. muscadine production	
Muscadine grape breeding	
Muscadine cultivars	
Muscadine nutraceutical impacts	
Muscadine composition	
Muscadine volatiles	
Muscadine sensory	
Literature Cited	
Chapter 1	
Evaluation of flavor and aroma attributes of Arkansas-grown hops	
Abstract	
Introduction	
Materials and Methods	
Hopyard	
Hop harvest	
Drying and storing hop cones	
Dried hops analysis	
Moisture content analysis	
Alpha and beta acid analysis	
Standards and calibration	

Table of Contents

Descriptive sensory analysis	49
Design and statistical analysis	
Results and Discussion	
Alpha and beta acids	
2020	
2021	
Volatile aroma attributes	53
2020	54
2021	55
Descriptive sensory attributes	55
2020	56
2021	56
Correlation of descriptive sensory and volatile attributes	57
2020	
2021	
Conclusion	58
Literature Cited	61
Tables	65
Figures	77
Chapter II	83
Impact of Harvest Date on Size, Composition and Volatiles of Arkansas Fresh-ma	arket
Blackberries	83
Abstract	83
Introduction	85
Materials and Methods	
Blackberry plants and culture	91
Blackberry harvest	
Berry weight analysis	
Berry weight analysis Composition attribute analysis	92
Composition attribute analysis	
Composition attribute analysis	
Composition attribute analysis Soluble solids pH	
Composition attribute analysis Soluble solids pH Titratable acidity	
Composition attribute analysis Soluble solids pH Titratable acidity Soluble solids/titratable acidity ratio	
Composition attribute analysis Soluble solids pH Titratable acidity Soluble solids/titratable acidity ratio Volatile aroma attribute analysis	
Composition attribute analysis Soluble solids pH Titratable acidity Soluble solids/titratable acidity ratio Volatile aroma attribute analysis Statistical design and analysis.	
Composition attribute analysis Soluble solids pH Titratable acidity Soluble solids/titratable acidity ratio Volatile aroma attribute analysis Statistical design and analysis Results and Discussion.	92 92 93 93 93 93 94 94 94 95
Composition attribute analysis Soluble solids pH Titratable acidity Soluble solids/titratable acidity ratio Volatile aroma attribute analysis Statistical design and analysis. Results and Discussion. Berry weight attributes	92 92 93 93 93 93 94 94 94 94 95 95
Composition attribute analysis Soluble solids	92 92 93 93 93 93 94 94 94 94 95 95 95 96
Composition attribute analysis Soluble solids	92 92 93 93 93 93 94 94 95 95 95 95 96 96
Composition attribute analysis Soluble solids	92 92 93 93 93 93 94 94 94 94 95 95 95 95 96 96 96
Composition attribute analysis Soluble solids	92 92 93 93 93 93 94 94 94 95 95 95 95 96 96 96 96 97
Composition attribute analysis Soluble solids	92 92 93 93 93 93 94 94 95 95 95 95 96 96 96 97 97
Composition attribute analysis	92 92 93 93 93 93 94 94 94 94 94 95 95 95 95 96 96 96 97 97 100

Tables	
Figures	
pter III	
tification of flavor and aroma attributes of fresh-market and p	
<i>les</i>	
Abstract	
Introduction	
Materials and Methods	
Plants and Culture	
Arkansas	
North Carolina	
Harvest	
Arkansas	
North Carolina	
Berry weight	
Composition attribute analysis	
Soluble solids	
<i>pH</i>	
Titratable acidity	
Soluble solids/titratable acidity ratio	
Volatile analysis	
Statistical design and analysis	
Results and Discussion	•••••••••••••••••••••••••••••••••••••••
Berry weight	
Arkansas	
North Carolina	
Composition attributes	
Arkansas	
North Carolina	
Volatile attributes	
Arkansas	
North Carolina	
Principal component analysis	
Arkansas	
North Carolina	
Conclusion	
Literature Cited	
Tables	
Figures	

Overall Introduction

Arkansas has a unique geography that allows for production of different specialty horticultural crops. Some horticultural crops of agricultural interest in Arkansas include hops (*Humulus lupulus L.*), blackberries (*Rubus* subgenus *Rubus*), and muscadine grapes (*Vitis rotundifolia*). These crops not only have potential for growers in Arkansas but have unique flavor and aroma attributes that impact marketability. The overall flavor of horticultural crops results from perception of basic tastes and volatile aroma compounds. The basic tastes include sweet, sour, salty, bitter, and umami (savory) and can result from composition attributes of the crop including sugars, acids, and phenolics. Volatile organic compounds are present in many agricultural plants and are the primary source of biologically derived aromas and flavors. Volatile organic compounds have a high volatility or vapor pressure at room temperature (Koppmann, 2007). Identifying and quantifying volatiles can provide insight to the aromatic and flavor attributes of horticultural crops.

Instrumental methods for examining flavor can provide feedback about the individual compounds associated with flavors. There are many different methods, but each is based on separation, identification, and quantification of compounds either in headspace of vials or within the actual product matrix. These methods are particularly good at identification of compounds that may result in flavor changes, and some instrumental methods can be implemented to run continually to provide immediate or near immediate information about products (Chambers and Koppel, 2013).

High Performance Liquid Chromatography (HPLC) can be used to analyze composition, such as sugars or acids, of hops, blackberries, and muscadines. Gas Chromatography-Mass Spectroscopy (GC-MS) is a solvent-free method of evaluating volatile chemicals, primarily

utilizing headspace solid phase micro extraction (HS-SPME). GC-MS with flame ionization detection (FID) is one of the most widely-applied techniques in analytical chemistry, both for its large range of detection and relative cost effectiveness (Pacchiarotta et al., 2010). The FID method utilizes a helium and air flame that results in charged ions in the sample that create a small electric potential measured by the detector (Hinshaw, 2005). The detected values can be compared to standards, databases, and libraries to establish a chemical profile. Volatile extraction is typically achieved via liquid-liquid extraction, simultaneous distillation and extractions, HS-SPME, or stir bar sportive extraction techniques. SPME solvent-free technique allow the detection and isolation of trace compounds (Lee et al., 2016; Sánchez-Palomo et al., 2005).

Since the University of Arkansas System Division of Agriculture endeavors address diverse specialty horticultural crops with state, national, and world economic impacts, the volatile and other key quality attributes of hops, fresh-market blackberries, and muscadine grapes were evaluated.

Objectives

1) Evaluation of flavor and aroma attributes of Arkansas-grown hops

2) Impact of harvest date on size, composition and volatiles of Arkansas fresh-market blackberries

3) Identification of flavor and aroma attributes of fresh-market and processing muscadine grapes

Literature Review

Introduction

Arkansas has a unique geography that allows for production of different specialty horticultural crops. The University of Arkansas System Division of Agriculture (UA System) has research and outreach endeavors in many specialty horticultural crops that have state, national, and world economic impacts. Cultivar selection, production methods, harvest dates, and storage methods can impact the quality of the horticultural crops. Collaborative projects between horticulture and food science can bridge gaps between how crops are grown and impact on quality, especially marketability attributes important to consumers.

Some horticultural crops of agricultural interest in Arkansas include hops, (*Humulus lupulus L.*), blackberries (*Rubus* subgenus *Rubus*), and muscadine grapes (*Vitis rotundifolia*). Hops plants produce hops cones that are the main ingredient in beer brewing but can be used in other beverages. Hops are a new crop for growers in Arkansas, but this crop has potential in Arkansas for beginning growers and growers that would like to diversify farm operations. Another unique crop for Arkansas is fresh-market blackberries. The UA System is known worldwide for the breeding, patenting, and release of new cultivars of fresh-market blackberries. This breeding program work with cultivars and breeding selections (genotypes) to release these new cultivars. The fresh-market blackberry industry in Arkansas is expanding. Lastly, muscadine grapes are grown in Arkansas and the southeast mostly for processing (juice, wine, jams, or jellies) but also for fresh markets. Muscadine grapes have a long history of production in Arkansas is one of the leading muscadine juice and wine producers in the United States. In addition, the UA System has a muscadine breeding program that is working on developing *Vitis* \times *Muscadinia* hybrids to combine the disease resistance of muscadine grapes with the fruit quality of *V. vinifera*, typical table and wine grapes.

These crops not only have potential for growers in Arkansas but have unique flavor and aroma attributes that impact marketability and consumer interests. Flavor of horticultural crops arise from perception of basic tastes and volatile aroma compounds. The basic tastes include sweet, sour, salty, bitter, and umami (savory) and can result from composition attributes of the crop including sugars, acids, and phenolics. Volatile organic compounds are present in many different agricultural plants and are the primary source of biologically-derived aromas and flavors. Primarily, volatiles found in flowers and fruiting bodies are classified by their unique aromas which are used to attract or deter other biological organisms. Volatile organic compounds have a high vapor pressure at room temperature or volatility (Koppmann, 2007). Examining and analyzing volatiles can provide researchers with an objective way of identifying and quantifying aromatic and flavor attributes of horticultural crops.

Instrumental methods for examining flavor can provide feedback about the individual compounds associated with flavors. There are many different methods, but each is based on separation, identification, and quantification of compounds either in headspace of vials or within the actual product matrix. These methods are particularly good at identification of compounds that may result in flavor changes, and some instrumental methods can be implemented to run continually to provide immediate or near immediate information about products (Chambers and Koppel, 2013).

High Performance Liquid Chromatography (HPLC) can be used to analyze composition, such as sugars or acids, of hops, blackberries, and muscadines. Gas Chromatography-Mass Spectroscopy (GC-MS) is a solvent-free method of evaluating volatile chemicals, primarily

utilizing headspace solid phase micro extraction (HS-SPME). GC-MS with flame ionization detection (FID) is one of the most widely-applied techniques in analytical chemistry, both for its large range of detection and relative cost effectiveness (Pacchiarotta et al., 2010). The FID method utilizes a helium and air flame that results in charged ions in the sample that create a small electric potential measured by the detector. The amount of electric potential and temperature in which the ions burn is specific to each chemical structure (Hinshaw, 2005). The detected values can be compared to standards, databases, and libraries to establish a chemical profile.

Volatile extraction is typically achieved via liquid-liquid extraction, simultaneous distillation and extractions, HS-SPME, or stir bar sportive extraction techniques. SPME solvent-free technique allow the detection and isolation of trace compounds (Lee et al., 2016; Sánchez-Palomo et al., 2005). HPLC is useful in analyzing compounds that are less volatile, or those with salts or free ions. Using both of these techniques simultaneously can be useful for analyzing samples that contain compounds with a wide range of volatility.

Gas chromatography-olfactometry (GC-O) methods are used in flavor research to determine the odor active compounds in food (Van Ruth, 2001). GC-O couples the use of traditional GC separation techniques with human assessors. The advantages of GC-O techniques are that these human assessors can determine odor activity of volatile compounds from a given sample and also assign those compounds a relative importance and intensity (Delahunty, 2006). These techniques have been applied to a wide variety of foods including meats and dairy, rice and other grains, as well as fruits and vegetables. This technology continues to advance. A research team in France utilized GC-O-associated taste (AT) to determine how certain compounds affected sweet perception (Barba et. al., 2018). GC-O and dilution analysis shows that even though some compounds are present in large concentrations, they do not necessarily have as great of an overall impact in aroma perception, and vice versa (Zellner et al., 2008).

Measurements determining the odor thresholds of volatile organic compounds have been documented as early as 1886, where researchers dispersed a weighed amount of a compound into a room of specific volume (Buttery, 1999). The introduction of GC allowed for a more objective method of determining, and most modern methods of determining aroma threshold values utilize GC-O methods. This is advantageous for numerous reasons firstly, that it is a relatively simple method, secondly, the sample is presented to the judge/panelists in a purified form after separation in the GC column, and thirdly, judges/panelists can determine the odor active volatiles of an unidentified compound (Tan et al., 2022). These values are also generally consistent, as odor thresholds identified in different laboratories, including those in Europe, Australia, and the United States, all agree within a factor of less than 10 (Buttery, 1999).

In addition to analytical methods, sensory science can be a powerful tool for analysis of horticultural crops. Sensory science is "a scientific discipline used to evoke, measure, analyze, and interpret reactions to those characteristics of food and other materials as they are perceived by the senses of sight, smell, touch, taste, and hearing" (Stone and Sidel, 2004). Descriptive sensory analyses have been conducted to determine attributes that are commercially acceptable, such as appearance, aroma, basic tastes, aromatics, and feeling factors. Descriptive sensory analysis involves a trained panel that uses a lexicon (terms to describe the product) and references to evaluate products on a line scale. In contrast, consumer sensory studies use a large number of consumers (over 75 panelists needed to ensure a representative population) to assess acceptability of a sample usually in terms of likeability or preference. Several review papers have addressed sensory-instrumental relationships or sensory interactions of food on quality.

Poinot et al. (2013) reviewed methods used to analyze aroma-related interactions, Ross (2009) reviewed the human-machine interface in sensory science examining texture, sound, aroma, and flavor, Croissant et al. (2011) reviewed sensory and instrumental volatile analyses applications of dairy products. Auvray and Spence (2008) reviewed multisensory interactions between taste, smell, and the trigeminal system.

Since UA System research and outreach endeavors address diverse specialty horticultural crops with state, national, and world economic impacts, this literature review includes an overview of hops, fresh-market blackberries, and muscadine grapes presented in separate sections.

Hops

Hops (*Humulus lupulus L.*) plants are a significant agricultural crop due to their worldwide production and have been used historically for thousands of years. Hops production in the United States began in Virginia with the first European colonists, and eventually cultivation spread from northeastern America to what is present day Washington, Oregon and California (Edwardson, 1952). Hops are part of the Cannabacea family of plants, which includes about 170 species of plants, primarily consisting of Cannabis (hemp, marijuana) Humulus (hops) and Celtis (hackberries) (Stevens, 2001). While Celtis contains the majority of the species variation, only hemp and hops are economically significant as a horticultural crop.

Hops are one of the primary ingredients used in brewing and contribute to the bitter taste and unique aroma present in beer. The hops plant is a perennial, meaning that the same plant will continue to grow and flower each year and can produce hops for 20 years (Almaguer et al., 2014). The hop female flower is called a cone and is similar in shape to a pinecone, although much smaller and more leaf-like in texture. The cones are the part of the plant used in brewing, and the crop is consistently in great demand domestically and internationally. Cones produce oils, polyphenols, and resins (lupulin) that provide the distinct aroma and flavor compounds that impact the quality of beer and other beverages (Almaguer et al., 2014).

World hops production

Optimal growth conditions for hops plants are dependent on many factors, including temperature, rainfall, soil nitrogen levels, and daylength, but the plants are mostly grown between the latitudes of 33°N and 55°N (Dodds, 2017). The best summer temperature range for hops is $5-20 \Box$ (40-70 °F) with a wide range of precipitation levels, if irrigation is provided. Hops plants require four months of frost-free days to mature with optimal day length of 15 hours or longer prior to flower initiation. The long daylength requirement generally limits hops production to the narrow 33-55° latitude geographic area in the northern and southern hemispheres. There are over 80 cultivars of hops commercially grown in Europe and the United Kingdom (43°-54°), Asia (35°-44°), North America (38°-51°), Australia (37°- 3°S), New Zealand (41°-42°S), and South Africa at 34°S (Verzele, and De Keukeleire, 1991).

U.S. hops production

In the United States, hops are grown in the United States Department of Agriculture (USDA) plant hardiness zones 4-8 with production mainly in the Pacific Northwest (Washington, Idaho, and Oregon). In 2020, production of hops in Idaho, Oregon, and Washington totaled over 47 million kg (104 million pounds), with over 23,000 hectares (58,000 acres) of production (USDA, NASS 2020). The top five cultivars grown in Washington were 'Citra®', 'Columbus/Tomahawk/Zeus', 'Mosaic®', 'Simcoe®,' and 'Cascade', and in Idaho were 'Columbus/Tomahawk/Zeus', 'Mosaic®', 'Citra®', 'Idaho 7TM', and 'Chinook', and in Oregon were 'Citra®', 'Nugget', 'Mosaic®', 'Cascade', and 'Willamette' (USDA, NASS 2020). The 2020 value of hops production for the United States totaled \$619 million (USDA, NASS 2020).

While the Pacific Northwest region of the United States accounts for over 95% of hops grown in 2020, there are many other states growing small amounts of hops commercially. California, Colorado, Michigan, Minnesota, New York, and Wisconsin had over 50 hectares (125 acres) harvested in 2020, with other states following closely behind (Hop Growers of America, 2021). North Carolina, which is on a similar latitude to Arkansas, had 10 hectares (25 acres) reported for 2020, which demonstrates that commercial hops production is possible in Arkansas (Hop Growers of America, 2021).

Hop yards and plants

Hops are herbaceous, perennial plants that utilize bines to climb. The bines are the above ground stems; one of the major components of the plant together with the roots and rhizomes, the leaves, and the flowers (hop cones). Hops bines can grow up to 6 m (20 feet) tall in a single summer but die back in the winter. Hops start to grow in late spring, with hop cone harvest occurring in August to September in the northern hemisphere. Hops are a dioecious species of plant, producing both male and female flowering plants. Only female plants are grown commercially, while male plants are used for breeding (Briggs et al., 2004). Proper hop cultivation requires some form of infrastructure, such as a trellis system, to support plant growth. The structure needs to be strong enough to support the weight of the plant, high enough to maximize bine growth and fruiting, but also allow for easy harvesting. The hops plant grows quickly, typically between 3-4 m in June and 6-10 m in July and August (Briggs et al., 2004). The hop cones typically form in 2-3 weeks beginning in July and early August in the United States, but need another three weeks to fully mature.

Harvesting hops

The growth, development, and handling of the cones produced by hops are crucial for growers since these affect hop cone qualities. Hops harvest in the United States usually occurs between mid-August through late September, and the final yield is dependent on many factors, including cultivar, age of plant, soil characteristics, growing location, and weather conditions throughout the growing season (Briggs et al., 2004; Lilley and Campbell, 1999; Morcol et al., 2020; Rodolfi et al., 2019 Santagostini et al., 2020; Sharp et al., 2014;).

While it can be difficult to determine when to harvest the cones from H. lupulus, there are several characteristics used to decide the ideal timing and method of collection. Growers typically evaluate cone maturity by assessing the tactile and aromatic qualities of the cones while still attached to the lateral branches. Immature cones have a damp, soft feel when squeezed, while mature hops have a distinctive paper-like, light texture, and the hops spring back when compressed (Verzele and De Keukeleire, 1991). Another method for determining cone maturity entails picking a hops sample and cutting the cone lengthwise down the center with a knife. When fully mature, the internal resin (lupulin sacs containing the essential oils and bitter compounds) will appear dark yellow and emit a pungent aroma reminiscent of a "hoppy" beer (Verzele and De Keukeleire, 1991). Prior to harvest, a few hop cones can be collected and dried to determine the moisture content (or dry matter) to determine harvest dates. Hops at harvest should have a moisture content of 80% (Sharp et al., 2014).

Determining when to harvest cones is important for quality purposes since overly ripe cones can brown and oxidize if left on the bines too long, while immature cones contain a smaller quantity of lupulin. In the northern hemisphere, the first traces of lupulin resin can be detected in early August, where the beta acids develop several days prior to the alpha acids, and

resin synthesis is nearly complete by September (Rossini et al., 2021). Once mature, whole hop bines are cut at ground level from the trellis.

Hops can be harvested by machine or by hand depending on the size of the hop yard. Commercial hop producers with large acreage often use machines to facilitate and hasten harvesting. Growers place the bines within a trackway and, depending on the design, the mature plants enter the machine either horizontally or vertically. The hops and leaves are stripped from the bine by numerous moving wire hooks and then passed over screens to separate the hop cones from debris (Rossini et al., 2021). Debris can be composted and returned back to the hop yard as a supplement for mulch or fertilizer (Briggs et al., 2004; Turner et al., 2011). Hops can be used by brewers as a fresh product or dried for use as whole cones, ground cones, or pelletized.

Hops cones drying and storage

To ensure optimal quality for brewing, hop cones must be harvested and stored properly. Freshly harvest hops are approximately 80% water and will spoil rapidly if not treated correctly. Directly after harvesting, most of the water is removed from hop cones using kilns, oasts, or drying rooms. The final moisture content of the cones is reduced to 7-10% which reduces the rate of oxidation and spoilage (Raut et al., 2021). The drying process needs to be strictly monitored as alpha acids can be degraded at temperatures above 60 °C (140 °F) (Heřmánek et al., 2018). Once the hops are dried, the cones should be vacuum sealed or placed in other oxygen-depleted containers, then the cones are frozen (0.2 °C or 33 °F) to prolong quality. Cold storage can prevent rapid deterioration of secondary metabolites, but loss of quality can be expected after several months of storage depending on hop cultivar (Briggs et al., 2004).

Hops cones

The hop cone is considered a condensed inflorescence, similar in shape to a pinecone

(Davis, 1957). The cones contain the lupulin glands, multicellular balloon-shaped glands on the bracts and bracteoles responsible for the production of lupulin. Lupulin is a yellow resinous substance giving hops its distinctive aroma and is the primary component of commercial interest (Yedilova and Inelova, 2019). Hops cones contain several secondary metabolites, which are chemicals produced by plants that are not necessary for the survival of the plant. The secondary metabolites of hops can be divided into three main groups: acids (alpha and beta acids), essential oils, and polyphenols (De Keukeleire, 2000). Composition of the hop cones is about 30% alpha and beta acids and 3-6% polyphenols and tannins, with essential oils ranging from 0.5-5% (Clark et al., 2013; De Keukeleire et al., 2003; Eyres and Dufour, 2008; Probasco and Murphey, 1996; Van Cleemput et al., 2009).

Hops alpha and beta acids

The most substantial component of dried hops is the alpha acids, complex enolic acids that contain a six-carbon ring with several substituent groups. While there are more than seven prominent alpha acids within the lupulin glands of the hops, humulone, cohumulone, and adhumulone constitute 98-99% of the alpha-acids (Killeen et al., 2017; Rutnik et al., 2021). Humulone is the primary alpha acid found in many hop cultivars and is known to impart a soft bitter flavor during brewing. Humulone, also known for its anti-bacterial, anti-cancer, and antioxidant properties, imparts the majority of the bitter flavor that is characteristic of a beer's taste (Karabín et al., 2016). Like humulone, cohumulone is another alpha acid that imparts flavors into beer during isomerization, but cohumulone is often described by brewers as harsher in bitter flavors (Briggs et al., 2004). The remaining alpha acids, adhumulone, posthumulone, and prehumulone, also add to the overall flavor profile of beers, yet additional research is needed to ascertain the specific effects these acids have on a taste perception of a beer (Morcol et al., 2020).

The beta acids present within the hops cone are only a minor contribution to a beer's flavor, but they are a crucial component in the brewing process, especially for preservation. Beta acids are another secondary metabolite that are characteristic of hop cultivars, and the quantities vary with cultivar and maturity (Rutnik et al., 2021). While the number of analogues is the same in alpha acids, the beta acids are chemically disparate from the alpha acids due to the isopentenyl side chain in place of the second hydroxyl group at ring position six. Previous studies regarding these compounds have noted that the ratio of alpha to beta acids varies depending on the stage of development, growing location (terroir), and cultivar, but the alpha to beta acid ratio often ranges from 1:1 to 4:1 (Forteschi et al., 2019; Rodolfi et al., 2019; Rutnik et al., 2021; Santagostini et al., 2020). This ratio is often used by brewers to determine how hops will be used in beer production.

Hops polyphenolic compounds

Like alpha and beta acids, which are important to brewers because of their flavor and microbial properties, polyphenols are imperative for beer quality. Phenolic substances present in the lupulin glands can be both anti and pro-oxidants, flavor precursors with different phytochemicals that impact a few quality attributes of beer. For example, flavor, shading, colloidal, and flavor solidness of beer quality are all affected by phenolic compounds (Wannenmacher et al., 2018). While phenolic acids are probably not going to impact flavor, phenolic acids do act as flavor precursors in beer. Polyphenol extracts used in beer production influence mouthfeel, sharpness, and astringency (Jaskula-Goiris et al., 2014). Like other isoalpha acids, phenolic compounds go through underlying changes during separation and

enzymatic delivery throughout the brewing process. Eventually the phenolic compounds precipitate out of the beer along with protein and other unfermentable byproducts, and their impact declines during fermenting (Briggs et al., 2004; Wannenmacher et al., 2018). While the specific impact that hop polyphenols have on the quality, flavor, and fragrance of lager (light beer brewed at cool temperatures by slow fermentation with a slow-acting yeast) have not specifically been investigated, their antioxidant nature and effect on the shelf life of beer will continue (Briggs et al., 2004; Wannenmacher et al., 2018).

Hops volatile compounds

In hops, the primary volatile compounds are present in essential oils that are secreted in the lupulin glands of the hop cones (Brendel et al., 2020; Liu et al., 2018; Pallottino et al., 2020). The volatiles are responsible for the distinctive aroma of hops, which in turn, contribute to beer flavor. GC-FID has been used to identify over 400 different volatile compounds that can be divided into the groups, hydrocarbons, oxygenated compounds, and sulfur-containing compounds (Almaguer et al., 2014). The compounds can be aliphatic, monoterpenes, and sesquiterpenes (Rutnik et al., 2021). Yield of essential oils in dried hop cones is around 0.3% for most cultivars (Malizia et al., 1999).

The proportions of volatile oils (α -humulene, myrcene, and β -caryophyllene) fluctuate among cultivar, with the degree of oils increasing logarithmically as cones mature (Briggs et al., 2004; Danenhower et al., 2008; Killeen et al., 2017; Steenackers et al., 2015). Maintaining the proper amounts of essential oils in hops cones is especially important for brewers, as levels can decline during storage through oxidation, polymerization, or resignification and are impacted by machine harvesting, drying, and deficient baling and pelleting methods (Rutnik et al., 2021). Steinhaus and Scheiberle (2020) found that while there are hundreds of volatile compounds contained within hop cones, only 23 had a flavor dilution factor range of 16-4,096. This indicates that only a small number of volatile compounds are responsible for the overall hop aroma similar to other studies (Guadagni et al., 1966; Tressl et al., 1978).

With the rise in popularity of hoppy beer styles, craft brewers have started utilizing dryhopping as a method of enhancing beer aroma and flavor (Lafontaine and Shellhammer, 2018a; 2018b). Dry hopping is a cold extraction of hops in fermented or partially fermented beer, which can add intense hop aroma to beer, without imparting as much bitterness as kettle hopping (Lafontaine et al., 2019). This is advantageous to many brewers, as consumers only tolerate a certain level of bitterness, but still desire a strong hoppy aroma and flavor. Oladokun et al. (2017) found that dry hopping could also increase the alpha acid levels in beer, but those results were only significant when using a hop cultivar that had high alpha acids (Oladokun et al., 2017). Craft brewers and hop growers can use this information to determine what hop cultivars are optimal for providing as much hoppy aroma and flavor as possible.

Hops and beer sensory

Trained descriptive panelists can identify and describe different sensory attributes, which can be used to create profiles for different hop cultivars. The profiles are used by brewers to emphasize and create specific flavors in beer (Hahn et al., 2018). Volatiles in hop oils induce diverse aroma and flavor sensations, ranging from floral, to fruity, to spicy (Dietz et al., 2020; Kishimoto et al., 2006; Lafontaine and Shellhammer, 2018a; Stucky and McDaniel, 2018). Bober et al. (2020) showed that small changes in hop composition will have a noticeable difference in the final taste of beer, further demonstrating the need to establish quantitative profiles for different cultivars. The profiles would allow for more objective and reproducible methods of beer production, as well as a greater degree of specificity when selecting hops

cultivars, which is incredibly valuable to brewers who are looking to increase consistency in their production. While there have been many studies on the impact of hops on the sensory evaluation of beer, there are not many sensory studies on dried hops aroma.

Blackberries

Blackberry (*Rubus* subgenus *Rubus*) plants are grown both domestically and internationally and can be cultivated for both fresh-market and processing purposes. Freshmarket berries are harvested to be sold directly to the consumers, while processing berries are intended for other uses including freezing, jellies, or beverage production. The intended final destination of the fruit will have an impact on both production and harvesting methods, with fresh-market berries typically harvested by hand to preserve the integrity of the berry, while processing berries are often harvested by machine to reduce labor costs.

World blackberry production

Blackberries are native to Europe and North America, but grow wild in temperate regions all over the world, including Asia and South America (Hummer, 2018). Blackberry cultivation began over 2,000 years ago by Europeans, and the first known cultivated blackberry (*R. laciniatus*) was first mentioned in 1691 (Jennings, 1988). From 1995 to 2005, there was a 45% increase in hectares of global commercial and organic blackberry production (Hummer, 2018; Strik et al., 2007). The increased awareness of potential health benefits of blackberries, increased globalization, and faster refrigerated transportation contribute to the growing blackberry market (Safley, 2009).

U.S. blackberry production

In the United States, blackberry production in Oregon, and Washington, is predominantly grown for the processing industry. According to the National Agricultural Statistics Service

(USDA, 2017), the total blackberry acreage in the United States was around 23,500 ha (58,000 acres) for both fresh-market and processing blackberries harvested. In terms of the fresh-market industry, in 2013, Oregon ranked first for largest number of hectares of blackberry production (300 ha), California ranked second (280 ha), Texas ranked third (270 ha), Arkansas ranked fourth (240 ha), and North Carolina ranked fifth (180 ha) (Takeda et al., 2013). Blackberry production in the Southeast has been a growing part of the United States market for the past decade (Fernandez et al., 2016). Although blackberry acreage in Arkansas has lagged as other southern states across the Southeast, including Georgia, North Carolina, and Texas have expanded acreage for retail-market sales (Clark and Finn, 2014), the establishment of a new Arkansas Blackberry Growers Association has invigorated the state's industry.

Blackberry breeding

Blackberry breeders use existing cultivars and breeding selections to develop and release new cultivars. Blackberry breeding programs are important because new cultivars are needed to enhance profits obtained by growers and to meet the consumer needs for fresh-market blackberries. In the United States, blackberry breeding programs work to enhance favored traits and reduce undesirable traits in plants and fruit. The oldest currently active program is at the USDA-Agricultural Research Service at Corvallis, OR and was initiated in 1928 (Clark and Finn, 2008). Fresh-market blackberry cultivars released by USDA include 'Obsidian', 'Metolius' and the newest releases 'Eclipse', 'Galaxy' and 'Twilight' (USDA, 2020).

The UA System blackberry breeding program was initiated 1964 by Dr. James N. Moore and is currently directed by Dr. John Clark and Dr. Margaret Worthington. The UA System blackberry breeding program, based at the UA System Fruit Research Station, Clarksville, AR, prioritized development efforts focused on plant attributes including thornlessness, erect growth habit,

mechanical harvesting capability, disease resistance, productivity, and environmental and geographic adaptation (Clark and Finn, 2008). The fruit improvement objectives included large fruit size, desirable flavor, firmness, and high fertility. The UA System blackberry breeding program has developed and patented 43 fresh-market blackberry cultivars and is regarded as one of the leading public blackberry breeding programs in the world. In 2020, the UA breeding program profited \$1.48 million dollars from blackberry royalties from plant patents (University of Arkansas Division of Agriculture, 2021). The UA System blackberry breeding program also produced advancements in thornless plants, erect cane structures, increased fruit firmness, and the development of primocane-fruiting, which is plants that fruit on first-year primocanes, cultivars to lengthen the harvest season (Clark, 2005). 'Ouachita' and 'Osage' are two of the most widely grown cultivars from the UA System are 'Sweet-Ark® Caddo', (Clark et al., 2019) released in 2018, 'Sweet-Ark® Ponca' released in 2019, and 'Prime-Ark® Horizon' released in 2020.

Blackberry plant morphology and physiology

Blackberries are a crown-forming perennial that produce above-ground stems called canes that are typically biennial (produce flowers and fruit then die in the second year) (Hummer, 2018). Cultivated blackberries vary in cane morphology and can be trailing, semierect, and erect (Finn and Clark, 2017). Trailing cultivars have canes that are typically flexible and grow along the ground, while erect cultivars have stiff, self-supporting main canes (Strik, 2017), and semi-erect cultivars have canes that are self-supporting and grow vertical but may arch towards the ground while maturing (Strik, 2017). All of these cane types can be either 'thorned' or 'thornless' (Finn and Clark, 2017). First-year blackberry canes are called primocanes but in the second year, the canes are called floricanes and each fruiting lateral branch will have compound leaves containing three leaflets that produce inflorescences (flower cluster) at each node (Strik, 2017). A node is where the leaf petiole is attached on a main shoot or cane and is where the fruit and leaf buds are located; node numbers and complexity ultimately determine the yield or fruitfulness of the plant (Thompson et al., 2007). Blackberry buds will break during spring to produce one shoot with five to more than forty flowers depending on the cultivar or production system (Takeda, 1987). Floricane lateral length and fruitfulness and can also be influenced by position on the main floricane and by applied nitrogen fertilization rate (Strik, 2017).

Blackberry fruit structure

Blackberries are an aggregate fruit comprised of drupelets surrounding a soft tissue receptacle (torus). Each drupelet has a thin exocarp, a fleshy mesocarp, and a hard-lignified endocarp, or pyrene that encloses a single seed (Tomlik-Wyremblewska et al., 2010). As blackberries ripen, they turn from red to black. The blackberries are harvested weekly for 3-4 weeks from plants as the fruit ripens. Previous studies have shown a relationship between harvest date and different quality attributes and dependent on cultivar (Cavender et al., 2019; Jacques et al., 2014). The size (berry weight, length, and width) of a fully ripened blackberry varies among cultivars. On average, the weight of each blackberry will range from 5-15 g with length of 15-30 mm (Carvalho and Betancour, 2015). The berries can have different shapes, such as a round shape, or the berries can be long and oval shaped.

In addition, firmness, measured by the force to compress an individual blackberry can vary. Firmness is influenced by protopectin in the inter-cellular structures of blackberry drupelets, which act like cement to give blackberries a firm texture, but hydrolysis, large

respiration rates, and warmer conditions during ripening decrease protopectin. Evaluation of many genotypes of blackberries showed that the average firmness was 3-8 Newtons (Salgado and Clark, 2016; Segantini et al., 2017, 2018; Threlfall et al., 2016).

Blackberry volatiles

Aromatic attributes, or volatiles perceived by the olfactory system while chewing a sample in the mouth, impact the flavor consumers experience when eating a blackberry. Volatile compounds in blackberries include acids, esters, alcohols, aldehydes, ketones, lactones, and terpenoids. Early studies focused on the volatile constituents of blackberries and blackberry products (Georgilopoulos and Gallois, 1987; Gulan et al., 1973; Scanlan et al., 1970). Compounds, such as 2-Heptanol, p-cymen-8-ol, 2-heptanone, 1-hexanol, a-terpineol, pulegone, 1-octanol, isoborneol, myrtenol, 4-terpineol, carvone, elemicine, and nonanal, have been identified as the major volatiles in blackberries. Blackberry aroma profiles are diverse, with different genotypes each having their unique aroma profile. Jacques et al. (2014) identified 45 volatile compounds in 'Tupy', the predominant cultivar available commercially. The majority of volatiles in blackberries were comprised of terpenoids with limonene as the predominate individual compound (Du et al., 2010).

Volatiles extracted using GC-MS with hexane, were mainly hydrocarbons and those extracted with acetone were furans and pyrans. Wang et al. (2005) reported that only 13% of the compounds were aromatic. In a similar study, Du et al. (2010) quantified volatiles of eight different genotypes of blackberries. The results showed a range of compounds, such as esters, terpenoids, aldehydes and ketones, alcohols, norisoprenoids, lactones, acids and furanones. The compounds were quantified, but the values of each compound did not distribute uniformly across all genotypes. GC-MS, along with GC-O can be used to evaluate the aroma of fresh-market

blackberries. Barba et al. (2018) evaluated odorant compounds that enhanced sweet flavor in sugar-reduced juice using GC-O to isolate taste-enhancing compounds and showed that ethyl 2-methylbutonate enhanced flavor sweetness. The data could be helpful to target odorant compounds that enhance desired flavors. Limited GC-O research has been conducted on blackberries, however research conducted on other food products can help identify and isolate desired compounds in blackberries. It is possible that specific cultivar may have optimal harvest dates that differ from each other, depending on the preferred volatile composition, as is the case with grapes and other produce (Bindon et al., 2013; 2014; Jordão et al., 2017; Meyers, 2022).

Blackberry sensory

Consumers want a fresh-market blackberry that is uniform in color, fresh, has a good shelf life, fair-priced, rich in nutraceuticals, and has unique flavors and aromas (Threlfall et al., 2020, 2021). Descriptive sensory analyses have been conducted to determine attributes that are commercially acceptable, such as appearance, aroma, basic tastes, aromatics, feeling factors. Descriptive sensory analysis involves a trained panel that uses a lexicon (terms to describe the product) and references to evaluate products on a line scale. Threlfall et al. (2016) developed a fresh-market blackberry lexicon in an evaluation of UA System blackberries. In the lexicon, eight appearance, three basic tastes, two feeling factors, and eight aromatics were evaluated. Segantini et al. (2017) studied sensory attributes in postharvest storage and reported panelists could not perceive a significant difference in color, uniformity of color, glossiness, firmness or sweetness after storage, but could identify blackberries as being more astringent and less sour and bitter after storage.

Muscadine Grapes

Muscadine grapes (Vitis rotundifolia Michx.) are a disease-resistant specialty crop native to the southeastern United States. The black, bronze, and red grapes are traditionally used for the production of juice, wine, jelly, or jams, but have potential for increased fresh-market expansion. Advances in U.S. muscadine breeding have resulted in unique traits emerging with commercial, fresh-market potential providing opportunity to strengthen the market presence for muscadines as a southern region crop. Muscadines differ markedly from V. vinefera 'bunch' grapes in terms of genetics, morphology, production, and consumer experience. The genus Vitis is commonly divided into two subgenera, Euvitis Planch. (bunch grapes) and Muscadinia Planch, though some authors even consider Muscadinia a separate genus (Bailey, 1934; Reisch and Pratt, 1996). While Euvitis grapes, such as the European wine and table grapes (V. vinifera) and the American 'Concord' grape (V. labrusca), have 38 chromosomes, Muscadinia grapes have 40 chromosomes. Muscadinia grapes also differ from bunch grapes in that muscadines have smaller clusters, unbranched tendrils, berries that abscise (shatter) at maturity, and distinctive fruity/floral aromas and thick skins. Of the three Muscadinia species, only V. rotundifolia is grown commercially.

U.S. muscadine production

Muscadines are grown from Delaware to central Florida and from the Atlantic coast to eastern Texas (Lane, 1997). Native grapes have been cultivated for over 400 years and have a strong heritage in U.S. viticulture (Olien, 2019). Muscadine grape production can be a profitable enterprise for commercial growers (Noguera et al., 2005), but is dependent on availability of consumer markets. The top commercial muscadine-producing states are North Carolina (1,052 ha or 2,600 acres), Georgia (688 ha or 1,700 acres), and Florida (486 ha or 1,200 acres) (USDA NASS, 2012).

Muscadine grape breeding

There are public and private muscadine breeding programs across the southern United States in Arkansas, Florida, Georgia, and North Carolina. Previous advances in muscadine breeding include the development of perfect-flowered and self-fruitful cultivars, increased berry size and sugar content, presence of dry picking scars, and the introduction of a seedless muscadine grape (Conner, 2010). Other traits undergoing development include more cultivars with perfect flowers and large fruit, improved textures, thinner skins, a broader range of ripening dates and an expansion of the germplasm base used in muscadine breeding. Retaining the unique flavors and aromas of muscadines are a focus in creating new cultivars for the commercial fresh markets. The UA System Fruit Breeding Program began breeding muscadines in 2007 with a focus on large fruit size, crisp texture, edible skin, self-fruitful flowers, seedlessness, and improved postharvest storability (Barchenger et al., 2015a). The UA System is working on developing Vitis × Muscadinia hybrids to combine the disease resistance of muscadine grapes with the fruit quality of *V. vinifera*.

Muscadine cultivars

Over the past few decades, the muscadine industry has developed into a multimilliondollar industry with over 100 cultivars released. The most commonly-grown muscadine cultivars for processing are 'Noble', a black cultivar, and 'Carlos', a bronze cultivar. Fresh-market cultivars have different quality requirements than processing cultivars, such as flavor, texture, color, and storability. Seedless muscadine cultivars are also of great commercial interest for commercial markets. New cultivars have been developed by crossing muscadines with *V*. *vinifera* cultivars. Jeff Bloodworth (Bloodworth, 2017), a private fruit breeder in North Carolina collaborated with Gardens Alive! (Lawrenceburg, IN), developing seedless muscadines,

including the first seedless muscadine cultivars, 'Oh My!®' and 'RazzMatazz®'.

'RazzMatazz®' (Gardens Alive, 2022b) was the first of the new cultivars, which is a continuously-fruiting vine producing small, red seedless berries. Another cultivar developed in 2019 was 'Oh My!®' (Gardens Alive, 2022a), that produces a bronze mid-size to large berry. Since these cultivars are new, neither 'RazzMatazz®' nor 'OhMy! ®' have been extensively evaluated for market potential (Hoffman et al., 2020).

Muscadine nutraceutical impacts

Muscadines grapes and products fit well in consumer-driven niche markets and local food systems trends (Brown et. al. 2016). Muscadines are a unique regional crop that can be marketed as a sustainable, locally produced table grape. Many consumers consider muscadine a nostalgic food, fondly recalling eating fresh berries from backyard vines or local farmers markets, while newer consumers are interested in the nutraceutical potential of muscadines (Perkins-Veazie et al., 2012; Striegler et al., 2005). A 10-berry serving of muscadines has 16% of the recommended daily fiber intake and 13 to 14% of vitamin C (USDA, 2011). In addition, muscadine grapes contain many health bioactives, including resveratrol, ellagic acid, anthocyanins and proanthocyanidin phenolic compounds (Ector et al., 1996; Lee et al., 2005; Pastrana-Bonilla et al., 2017; Striegler et al., 2005). Barchenger et al. (2015a) found that nutraceutical in muscadine grapes differed by grape segment and during storage.

Muscadine composition

Muscadine grapes typically have three sections: the flesh (pulp), skins, and seeds. The flesh contains primary metabolites of the grape, such as water, sugar, acids, and pectin, whereas skins and seeds contain more secondary metabolites, such as phenolic and aroma compounds (Yu 2012). Mature grapes contain water, sugar, organic acids, and pectin. Sugars (glucose and

fructose) make up a majority of grape carbohydrate content with muscadine grapes having 15-23% soluble solids at harvest. In grapes, the acidity attributes measured are pH and titratable acidity (% tartaric acid). Mature muscadine grapes grown in Arkansas typically have 0.50-0.70% titratable acidity and 3.0-3.3 pH (Barchenger, et al., 2015b, Felts et al., 2020).

Muscadine volatiles

Muscadine volatiles are primarily composed of esters, alcohols, terpenes, and carbonyl compounds, which can be identified using GC-MS (Lee et al., 2016). The volatiles vary significantly by cultivar, ripening stage, and different stress factors during growth, both biotic and abiotic. Analysis of volatile compounds can be used to establish and predict consumer preferences, especially when correlated with consumer sensory data. Lamikanra (1987) determined that higher alcohols and fatty acid ethyl esters were numerically the largest classes of volatile aroma compounds in 'Noble' muscadine wine. Lamikanra et al. (1996) reported that 2-phenylethanol (rose and honey aroma) was predominantly synthesized during fermentation of "Noble' wine, Mayfield (2020) reported that fruity esters were the largest class of volatile aroma compounds, followed by higher alcohols, notably 2-phenylethanol (rose and honey aroma). Baek et al. (1997) analyzed volatile aroma compounds in juice from 'Carlos' grapes and showed that furaneol and o-aminoacetophenone were likely responsible for characteristic candy and foxy-like aroma notes of muscadine grape juice.

Muscadine sensory

Sensory research has been done on muscadine grapes and products from grapes. Felts et al. (2018) developed a sensory lexicon for fresh-market muscadine grapes grown at the UA System Fruit Research Station and showed that panelists detected differences between genotypes

in grape/overall, grape/muscadine, and fruity. Threlfall et al. (2007) identified that muscadine juices from Arkansas had cooked muscadine, apple, pear, cooked grape, green/unripe, and slightly musty aromas and flavors. In a consumer study by Brown et al. (2016), thinner skins and greater juice pH were associated with greater overall liking of muscadine grapes. Consumer acceptability of muscadines can be quantified with soluble solids analysis, texture analysis, and sensory analysis (Brown et al., 2016). An important attribute of muscadine grapes is the balance of sugars to acids in the berries at harvest. Flora et al. (1979) found the optimal titratable acidity to soluble solids ratio to be 30, including an acceptable range of 25-35, regardless if the juice is from a bronze or black cultivar. Meullenet et al. (2008) reported positive correlations between general muscadine flavor and musty flavor, general grape flavor and metallic flavor, green/unripe flavor and sourness/astringency, and sweetness and floral, apple, and pear flavors for Arkansas muscadine juice. Sensory evaluations of muscadine grapes have shown wide variation in consumer rating of flavor among muscadine genotypes (Meullenet et al., 2008), indicating that there is likely significant variation in the profiles of flavor and aroma compounds. It is important to note that few studies have paired GC-MS analysis of flavor volatiles with sensory assessments of aroma. Furthermore, no fresh-market muscadine cultivars have been analyzed for aroma volatiles.

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Chapter I

Evaluation of flavor and aroma attributes of Arkansas-grown hops Abstract

Hops (*Humulus lupulus* L.) plants are a significant agricultural crop due to their worldwide production and as primary ingredients in brewing beer. Hops are herbaceous, perennial climbing plants, called bine plants that produce flowers or cones used in brewing. The hop cones produce lupulin, a yellow resinous substance, that gives hops a distinctive aroma and contains volatile compounds for brewing. The quality, volatile, and sensory attributes of four hops cultivars (Cascade, Cashmere, Crystal, and Zeus) grown at the University of Arkansas System (UA System) Division of Agriculture Fruit Research Station in Clarksville, AR were evaluated in 2020 and 2021. In general, cultivar significantly impacted the individual and total alpha and beta acids in 2020 and 2021. In both years, 'Cascade' (9.20 and 9.06% in 2020; 5.97 and 5.67% in 2021) and 'Zeus' (5.66 and 4.79% in 2020; 4.62 and 4.06% in 2021) had higher levels of alpha acids than beta acids, while 'Cashmere' (8.48 and 6.86% in 2020; 5.48 and 4.90% in 2021) and 'Crystal' (10.05 and 3.62% in 2020; 7.53 and 2.91% in 2021) had higher levels of beta acids than alpha acids. In the four cultivars harvested in both years, there were 88-127 volatile aroma compounds identified across seven compound classes including monoterpenes, alcohols, aldehydes, sesquiterpenes, esters, ketones, and aromatic hydrocarbons. In both 2020 and 2021, 'Crystal' had the highest volatile concentration (6,278 and 8,106 µg/kg, respectively) followed by 'Cashmere' (6,668 and 5,434 µg/kg, respectively) and 'Cascade' (5,829 and 4,132 $\mu g/kg$, respectively) with 'Zeus' (3,230 and 2,072 $\mu g/kg$, respectively) containing the lowest concentration. In both years, the five volatile aroma compounds with the highest levels found in Arkansas-grown hops were beta-pinene (monoterpene with herbal and pine aromas), betamyrcene (spicy monoterpene), caryophyllene (sesquiterpene with woody aromas), beta-Selinene (herbal sesquiterpene with celery notes), and humulene (spicy/woody sesquiterpene). The trained descriptive sensory panel (5-7) from the UA System Sensory Science Center evaluated the aroma of dried, ground hops cones from plants harvested in 2020 and 2021. In both years, the panelists could differentiate between cultivars for aged cheese, overall citrus complex, lemon, overall green herb complex, and overall pepper complex. The panelist found that the cultivars differed for more attributes in 2020 than in 2021. In both years the overall impact was the highest rated attribute (5-7 on a 15-point scale). Generally, principal component analysis showed grouping of sensory descriptive attributes with volatile compound classifications. In both years, cultivars were not grouped near each other, but sesquiterpenes, umami/savory, and white pepper were clustered together. This combination of quality, volatile, and sensory evaluation can be used to for brewing production and to evaluate which cultivars have the greatest potential for use in Arkansas.

Introduction

Hops (*Humulus lupulus* L.) plants are a significant agricultural crop due to their worldwide production and as primary ingredients in brewing beer. Hops are herbaceous, perennial climbing plants, called bine plants that produce flowers or cones used in brewing. Hops plants are mostly grown between the latitudes of 33°N and 55°N with temperature ranges of 5-20 \Box and 15 hours of day length. There are over 80 cultivars of hops commercially grown worldwide.

Hops are grown in the United States Department of Agriculture (USDA) plant hardiness zones 4-8 with production mainly in the Pacific Northwest (Washington, Idaho, and Oregon). In 2020, production of hops in Idaho, Oregon, and Washington totaled over 47 million kg with over 23,000 hectares of production with a value of \$619 million (USDA, NASS 2020). The top five hops cultivars grown in Washington were 'Citra[®]', 'Columbus/Tomahawk/Zeus', 'Mosaic[®]', 'Simcoe[®],' and 'Cascade', and in Idaho were 'Columbus/Tomahawk/Zeus', 'Mosaic[®]', 'Citra®', 'Idaho 7[™], and 'Chinook', and in Oregon were 'Citra[®]', 'Nugget', 'Mosaic[®]', 'Cascade', and 'Willamette' (USDA, NASS 2020). While the Pacific Northwest accounts for over 95% of hops grown in the United States, there are many other states growing hops commercially. California, Colorado, Michigan, Minnesota, New York, and Wisconsin harvested over 50 hectares in 2020 with other states such as North Carolina harvesting 10 hectares (Growers of America, 2021).

The bine is one of the major components of the hop plant, as well as the roots and rhizomes, the leaves, and the flowers (hop cones). Hops bines can grow up to 6 m tall in a single summer but die back to the ground in the winter. Hops start to grow in late spring, with hop cone harvest occurring in August to September in the northern hemisphere. Hops are a dioecious species of plant, producing both male and female flowers with female plants grown

commercially, while male plants are used for breeding (Briggs et al., 2004). Proper hop cultivation requires some form of infrastructure, such as a trellis system, to support plant growth. The hops plant grows quickly, typically between 3-4 m in June and 6-10 m in July and August (Briggs et al., 2004). The hop cones typically form in 2-3 weeks beginning in July and early August but need another three weeks to fully mature.

The growth, development, and handling of the cones are crucial for growers since these affect hop cone qualities, as well as determining when to harvest cones. Hops harvest is dependent on many factors, including cultivar, age of plant, soil characteristics, growing location, and weather conditions (Briggs et al., 2004; Lilley and Campbell, 1999; Morcol et al., 2020; Rodolfi et al., 2019; Santagostini et al., 2020; Sharp et al., 2014). To determine when to harvest, growers can evaluate cone maturity by assessing the tactile and aromatic qualities of the cones while still attached to the plant. Immature cones have a damp, soft feel, while mature hops have a paper-like, light texture that springs back when compressed (Verzele and De Keukeleire, 1991). Cone maturity can also be evaluated by picking hops cones and cutting the cone lengthwise. When fully mature, the internal resin (lupulin sacs containing the essential oils and bitter compounds) of the cone will appear dark yellow and emit a pungent aroma reminiscent of a "hoppy" beer (Verzele and De Keukeleire, 1991). Hops cones can also be collected and dried to determine the moisture content (or dry matter) of the cones for harvest. Hops at harvest should have a moisture content of 80% (Briggs et al., 2004). Hops can be harvested by machine or by hand depending on the size of the hop yard.

To ensure optimal quality for brewing, hop cones must be harvested and stored properly. Since hops are harvested at 80% moisture, the water is removed from hop cones using kilns, oasts, or drying rooms to a final moisture content of 7-10% which reduces the rate of oxidation

and spoilage. The drying temperature must not exceed 60 °C or hop cone quality will be impacted. Once the hops are dried, the cones must be stored at low temperatures in an oxygendepleted receptacle. Growers often place harvested cones in commercial freezers once the dried product is vacuum sealed in polypropylene bags.

The hop cones contain multicellular balloon-shaped glands on the bracts and bracteoles of the cone and are responsible for the production of lupulin. Lupulin is a yellow resinous substance that gives hops its distinctive aroma and is the primary component of commercial interest for brewing (Yedilova and Inelova, 2020). Hops cones contain secondary metabolites that can be divided into three main groups: acids (alpha and beta acids), essential oils, and polyphenols (De Keukeleire, 2000). Composition of the hop cones is about 30% alpha and beta acids (Clark et al., 2013; De Keukeleire et al., 2003; Eyres and Dufour, 2008; Probasco and Murphey, 1996; Van Cleemput et al., 2009) and 3-6% polyphenols and tannins, with essential oils ranging from 0.5-5.0% (De Keukeleire et al., 2003; Van Cleemput et al., 2009).

Alpha acids are structurally complex enolic acids that contain a six-carbon ring with several substituent groups. While there are more than seven prominent alpha acids within the lupulin glands of the hops, humulone, cohumulone, and adhumulone constitute 98-99% of the alpha-acids (Killeen et al., 2017; Rutnik et al., 2021). Humulone is the primary alpha acid found that has anti-bacterial, anticancer, and antioxidant properties, and imparts the majority of the bitter flavor that is characteristic of beer (Karabín et al., 2016). Like humulone, cohumulone is another alpha acid that imparts flavors into beer during isomerization, but cohumulone is often described by brewers as much harsher in bitter flavor (Briggs et al., 2004). The remaining alpha acids, adhumulone, posthumulone, and prehumulone, also add to the overall flavor profile of

beers, yet additional research is still needed to ascertain the specific effects these acids have on a consumer taste perception of a beer (Morcol et al., 2020).

Beta acids are another secondary metabolite that are characteristic of hop cultivars, and the quantities vary with cultivar and ripening age (Rutnik et al., 2021). The beta acids in the hops cone are only a minor contribution to a beer flavor but are a crucial component in the brewing process, especially for preservation. While the number of analogues is the same in alpha acids, the beta acids are chemically disparate from the alpha acids due to the isopentenyl side chain in place of the second hydroxyl group at ring position six. Previous studies regarding these compounds have noted that the ratio of alpha to beta acids varies depending on the stage of development, growing location (terroir), and the cultivar, but the alpha to beta acid ratio often ranges from 1:1 to 4:1 (Forteschi et al., 2019; Rodolfi et al., 2019; Rutnik et al., 2021; Santagostini et al., 2020). This ratio is often used by brewers to determine how hops will be used in beer production.

Phenolic substances in the lupulin glands can be both anti and pro-oxidants, flavor precursors, and respond with different phytochemicals that impact a few quality attributes of beer. For example, flavor, shading, colloidal, and flavor solidness are all affected by phenolic compounds (Wannenmacher et al., 2018). Polyphenol extracts used in beer production influence mouthfeel, sharpness, and astringency (Jaskula-Goiris et al., 2014). Like other iso-alpha acids, phenolic compounds go through underlying changes during separation and enzymatic delivery throughout the brewing process. Eventually the phenolic compounds precipitate out of the beer along with protein and other unfermentable byproducts, and their impact declines during fermenting (Wannenmacher et al., 2018). While the specific impact that hop polyphenols have on the quality, flavor, and fragrance of lager (light beer brewed at cool temperatures by slow

fermentation with a slow-acting yeast) have not specifically been investigated, their antioxidant nature and effect on the shelf life of beer will continue (Wannenmacher et al., 2018).

In hops, the primary volatile compounds are present in essential oils that are secreted in the lupulin glands of the hop cones (Liu et al., 2018; Brendel et al., 2020; Pallottino et al., 2020). The volatiles are responsible for the distinctive aroma of hops, which in turn, contribute to beer flavor. Gas chromatography (GC) has been used to identify over 400 volatile compounds in hops that can be divided into the groups, hydrocarbons, oxygenated compounds, and sulfur-containing compounds (Almaguer et al., 2014). Gas chromatography coupled with a flame ionization detector (FID), quantitatively measure analytes in a gas stream. The compounds can be aliphatic, monoterpenes, and sesquiterpenes (Rutnik et al., 2021). Yield of essential oils in dried hop cones is around 0.3% for most cultivars (Malizia et al., 1999). The proportions of volatile oils (α humulene, myrcene, and β -caryophyllene) fluctuate among cultivar, with the degree of oils increasing logarithmically as cones mature (Briggs et al., 2004; Danenhower et al., 2008; Killeen et al., 2017; Steenackers et al., 2015). Maintaining the proper amounts of essential oils in hops cones is especially important for brewers, as levels can decline during storage through oxidation, polymerization, or resignification and are impacted by machine harvesting, drying, and baling (compressing hops into large bales) and pelleting (creating pellets from dried, ground cones) methods (Rutnik et al., 2021). Steinhaus and Scheiberle (2020) found that while there were hundreds of volatile compounds contained within hop cones, only 23 had a flavor dilution factor (ratio of the concentration of the odorant in the initial extract to its concentration in the most dilute extract in which the odour is still detectable by GC-Olfactory analysis) range of 16-4,096. This indicates that only a small number of volatile compounds are responsible for the overall hop aroma which has been shown in other studies (Guadagni et al., 1966; Tressl et al., 1978).

With the rise in popularity of hoppy beer styles, craft brewers have started utilizing dryhopping as a method of enhancing beer aroma and flavor (Lafontaine and Shellhammer, 2018a; 2018b). Dry hopping is a cold extraction of hops in fermented or partially fermented beer, which can add intense hop aroma to beer, without imparting as much bitterness as kettle hopping (Lafontaine et al., 2019). This is advantageous to many brewers, as consumers only tolerate a certain level of bitterness, but still desire a strong hoppy aroma and flavor. Oladokun et al. (2017) found that dry hopping could also increase the alpha acid levels in beer, but those results were only significant when using a hop cultivar that had high alpha acids. Craft brewers and hop growers can use this information to determine what hop cultivars are optimal for providing hoppy aroma and flavors.

The sensory and quality of hop cones and beer-derived products varies between seasons and cultivars due to the climate, cultivation method, soil conditions, cone maturity at harvest, root condition, and other abiotic factors (Lafontaine, et al., 2019; Matsui et al., 2013). While there are many attributes that impact hops plant and cone quality, the sensory profiles of beer can be fruity, herbal, floral, and citrus and result from the distinct profiles imparted from the hop cones into a beer during brewing (Missbach et al., 2017). Other research determined which descriptive sensory analysis method is optimal for the complex flavor profiles found in beer (Vázquez Araújo et al., 2013). Volatiles in hop oils induce diverse aroma and flavor sensations, ranging from floral, to fruity, to spicy (Dietz et al., 2020 Stucky and McDaniel, 2018). Bober et al. (2020) showed that small changes in hop composition will have a noticeable difference in the final taste of beer, further demonstrating the need to establish quantitative profiles for different cultivars. Lafontaine et al. (2018a; 2018b) conducted two sensory studies to examine the impact of dry-hopping rate and mixed cultivar dry-hopping effects on the sensorial and analytical

characteristics of beer indicating that the addition of more hops by dry-hopping does not lead to increased aroma intensity and it is possible to produce a beer that exhibits similar aroma profiles when dry-hopped with blends of cultivars. Although beer flavor profiles can be challenging to assess due to the variability of complex flavor attributes, sensory analysis can provide useful information to brewers to make decisions on how best to use hops.

Hops can be grown successfully in the United States outside of the Pacific Northwest, and research on hops production is currently underway in North Carolina and Florida. Since Arkansas has similar growing environments as North Carolina, there is potential for Arkansasgrown hops to support the expanding craft brewing industry in Arkansas. Thus, the objective of this research was to evaluate flavor and aroma attributes of Arkansas-grown hops.

Materials and Methods

Hopyard

The hopyard was established at the University of Arkansas System (UA System) Division of Agriculture Fruit Research Station, Clarksville, AR in September 2018 [West-Central Arkansas, lat. 35.3158°N and long. 93.2412°W; U.S. Dept of Agriculture (USDA) hardiness zone 7a; soil type Linker fine sandy loam (Typic Hapludult)]. The hopyard was composed of nine 1.2 m wide x 7.3 m long plots divided into three blocks with three replications of six hop cultivars/block (Fig. 1). Plug plants for 'Cascade', 'Cashmere', and 'Crystal' were sourced from Agristarts (Apopka, FL), and 'Centennial', 'Nugget', and 'Zeus' were sourced from Great Lakes Hops (Zeeland, MI).

The hops were grown on a 3.66 m-high trellis with equal spacing (76.2 cm) between plants. Three bines/plant were trained using three lines of bailing twine suspended to the top of the horizontal trellis wire. A shallow layer of mulch 10-15 cm deep was placed around each plant

after planting to conserve soil moisture and reduce invasive grasses. One line of drip irrigation was installed with drip emitters (Rain Bird® PCEM20SPB 1.0 GPH) spaced every 76.2 cm to deliver water directly to each plant along the fertility trial row.

The hops entered dormancy during the winter months (November through March), and all above ground growth died back to the ground. Bines from all cultivars that survived dormancy emerged from the perennial crowns around mid-March through early April. Fertility treatments for the hops plants included three rates, low (32.01 g), standard (48.02 g), and high (63.87 g). The plants received four applications of 13N-13P-13K (Oakley Fertilizer, Inc., Beebe, AR) granular fertilizer that consisted of equal parts N, P, and K applied by hand broadcast methods in biweekly intervals on May 15, June 1, June 15, and June 30 in 2020 and 2021. Drip irrigation emitters were rated for 1 mm³ per hour (1 gph) and used 6-8 hours 1-3 times/week during the peak summer months (June-August). Daily maximum and minimum temperatures at the Fruit Research Station were recorded using a Nimbus Digital Thermometer (Sensor Instrument Co. Inc., Center Point, OR). Rainfall was measured using a rain gauge.

Hop harvest

The moisture content and ripeness of the hop cones were assessed during late summer and early fall to determine the ideal time of harvest. Hops were harvested when the moisture content of the cones were 75-80%, the color and texture of the bracts were light and papery to the touch, and the internal lupulin glands were dark yellow and pungent. A sample of 30 cones per plant were picked one to two weeks prior to harvest, weighed, dried until devoid of moisture, and reweighed to determine the moisture content of the cones. All plants were harvested between mid-August through mid-September.

Drying and storing hop cones

At harvest the cones from each plant were removed, combined and placed into paper bags (17.8 cm wide x 11.4 cm long x 34.9 cm long) labeled with wet (harvest) cone weight/bag. The cones in the bags were placed in a dehydrator custom built for this site (Herrera et al., 2021). The temperature of the dehydrator was 43-49 °C, and a dehumidifier was used to remove moisture from the air. The hops were removed when the cones reached 8-10% moisture content. To ensure the cones were dried to these specifications, the individual bags were weighed every 2-4 hrs after 14-16 hrs elapsed until the intended moisture level was achieved. Additionally, other visual indicators were used to evaluate if hops were sufficiently dried. These included the presence of yellow powdery lupulin when handled and the texture of the bracts (springy, papery, and light in color).

After the cones were dried, the hops were packaged and vacuum sealed in food-grade plastic bags (UltraSource Vacuum Chamber Pouches, 4 mil, 20.3 x 30.4 cm). A Floor Model Chamber Vacuum Packaging Machine (VacPak-It VMC20FGF, Clark Associates, Lancaster, PA) was used to vacuum seal the bags with about 95% air removal from each package. This vacuum strength (removal of air from pouches) varied depending on the number of hops in the package. If the vacuum strength was too high, the cones were crushed, and the lupulin would fall from the cones and settle at the bottom of the plastic bag. The bags of hops were placed into a freezer at -2 °C for later analysis.

Dried hops analysis

Dried, frozen hops were taken to the UA System Food Science Department for analysis. For this study, the four most productive Arkansas-grown cultivars 'Cascade', 'Cashmere', 'Crystal', and 'Zeus' with the standard fertility treatment were evaluated in 2020 and 2021 with three replications. For the analysis of the dried hop cones, hops bags were removed from the freezer, samples were removed, and the unused hops were resealed with the vacuum sealer and returned to the freezer. The whole-cone hops were ground for analysis using a Magic Bullet blender (MBR - 1101, Los Angeles, CA) with cross blades in a 473-mL container. Analysis of dried hops included moisture content and alpha and beta acids by High Pressure Liquid Chromatography (HPLC) using American Society of Brewing Chemists (ASBC) methods. The extractions of alpha and beta acids were done in analytical triplicate per sample, and HPLC injections were done in duplicate. The moisture content of the hops was done in analytical duplicate per sample.

Moisture content analysis. The moisture content of the dried hops must be analyzed because the moisture content after drying can deviate from the optimal 8-10%. The hops were dried 100% to determine the moisture content for the hops cones to calculate alpha and beta acids levels using the ASBC method Hops-4C (Moisture by Routine Air Oven Method). Approximately 2.5 g of unground hops were placed in an aluminum dish. The dish was covered with aluminum foil, then the dishes with hops were weighed on a precision scale (0.001 g) and placed in a Fischer Scientific Isotemp Oven Model 655F (Houston, TX) at 103-104 °C. The dish covers were removed, the hops were dried for 1 hr, then the covers were replaced while the dish was in the oven. The dishes were transferred to a desiccator containing Drierite Absorbent (8 mesh DX2515-1, Millipore Corporation, Burlington, MA). The lid was placed on the desiccator and sealed with high vacuum silicone grease. The hops were cooled in the desiccator and reweighed. After weighing, the percent moisture of the hops was calculated using the formula:

moisture in hops (%) = (loss in weight*100)/(weight of undried sample)Dry weight of the samples can also be calculated from the moisture content.

<u>Alpha and beta acid analysis.</u> Dried hops were analyzed by HPLC using the ASBC Hops-14 (alpha acids and beta acids in Hops and Hop Extracts by HPLC) procedure. This procedure was modified because of the limited amount of sample. A 2-g sample of dried hops were placed in 50-mL centrifuge tubes and weighed. Then, 4 mL of methanol and 20 mL of diethyl ether were added to each tube. The tube was capped and placed on a shaker for 30 min. After 30 min., flasks were opened and 8 mL of 0.1M hydrochloric acid was added. The original method for Hops-14 instructs to use 10 g of hops with 20 mL of methanol, 100 mL of diethyl ether and after shaking 40 mL of hydrochloric acid. So, for this project, the HPLC extraction was downscaled by a factor of five as compared to the original procedure. The flasks were capped and placed on the shaker for 10 min. After this, the flasks were kept in the dark for 10 min as the phases separated. After the phases separated, 1.0 mL of the supernatant phase was pipetted in a 10 mL volumetric flask and brought up to volume with methanol. The contents of the flask were sealed with parafilm and mixed. The solution was syringe filtered using a 25 mm 0.45 nylon membrane filters (VWR, Radnor, PA) before injection into the HPLC.

Samples (50 μ L) were analyzed using a Waters HPLC system equipped with a model 600 pump, a model 717 Plus autosampler and a model 996 photodiode array detector. Separation was carried out using a Phenomenex (Torrance, CA) Nucleosil-5 C18 chromatographic column (250 × 4 mm, 5- μ m ODS RP18). The mobile phase was a combination of methanol, water, and phosphoric acid in an 85:17:0.25 ratio (v/v) that was mixed and filtered through a 0.45- μ m filter. To achieve adequate resolution, the column was conditioned with mobile phase for 1 hr prior to use. The flow rate was 0.8 mL/min, and the detection wavelength was 314 nm at an ambient temperature. Each sample was injected and analyzed in duplicate with a run time of 30 minutes. Samples were either run on the HPLC immediately or stored at 2 °C and protected from light for

analysis within 24 hours. After analysis, the HPLC peak areas were converted to levels of the alpha and beta acids using the standard curves. The percentage of the fraction per gram of hops was calculated using the following formula:

% w/w= (HPLC conc (mg/ml) *methanol volume (mL)*(mL methanol+mL ether+mL hydrochloric acid))/(mL supernatant taken*1000*starting weight of sample (g)).

Standards and Calibration. The calibration curve was made using Standard hop extract ICE-4 (ASBC, Saint Paul, MN) for HPLC analysis. This is a hop extract containing a specified concentration of alpha and beta acids. ICE-4 contains cohumulone (10.98%), n+adhumulone (31.60%), colupulone (13.02%), and n+adlupulone (13.52%) with total alpha acids levels of 42.58% and total beta acids levels of 26.54%. Alpha acids can be subdivided in three main individual acids: cohumulone, n-humulone, and adhumulone. The procedure of ASBC Hops-14 that was used to separate cohumulone as an individual fraction and n-humulone and adhumulone together as a fraction. This gives two fractions: "cohomulone" and "n+-adhumulone". The same applies to the beta acids. Colupulone was separated from the other beta acids, nlupulone and adlupulone. From the ICE-4 standard, 1.500 ± 0.001 g was weighed and diluted in 25 mL of toluene in a 25-mL volumetric flask. The standard was first diluted (dissolved) with toluene. The toluene dilution was then diluted by a factor of 10 volumetrically with methanol (standard A) followed by subsequent dilutions. The calibration curve of each of the standards was achieved by plotting the levels of cohumulone, n+adhumulone, colupulone, and n+adlupulone in the standard against the acquired area.

Descriptive sensory analysis

Descriptive sensory analysis was performed at the Sensory and Consumer Research Center at the UA System, Fayetteville, AR in 2020 and 2021. The descriptive sensory panelists (n=5-7)

evaluated the aroma of dried, ground hops for each cultivar in triplicate. The ages of the descriptive panelists varied with four females and one male on the panel in 2020 and five females and two males on the panel in 2021. Only four cultivars (Cascade, Cashmere, Crystal, and Zeus) were evaluated due to limited availability of 'Centennial' and 'Nugget'. The samples for sensory analysis for each cultivar were from the standard fertility rate and field replications were combined for sensory analysis, but panelists evaluated the hops in triplicate. The hops were ground and served to the panelists one at a time at room temperature (25 °C) in Snap-SealTM translucent polypropylene containers (45 mL) labeled with three-digit codes. Serving order was randomized across each replication to prevent presentation order bias. Panelists were trained to use the Sensory Spectrum method, an objective method for describing the intensity of attributes in products using references for the attributes. Intensities of the aroma were based on the Universal Scale, where a saltine cracker was equal to 2.0, applesauce was equal to 5.0, orange juice was equal to 7.5, grape juice was equal to 10.0, and Big Red Gum® (Mars, Inc., MeLean, VA) was equal to 15.0. The panelists developed a lexicon of descriptive sensory terms through consensus during orientation and practice sessions for the aroma attributes of dried, ground hops (Table 1). The descriptive panel evaluated the hops for 23 aroma attributes using a 15-point scale, where 0 = less of an attribute and 15 = more of an attribute. Panelists also listed a defining attribute to characterize each sample.

Design and statistical analysis

For this study, the four most productive Arkansas-grown cultivars 'Cascade', 'Cashmere', 'Crystal', and 'Zeus' with the standard fertility treatment were evaluated in 2020 and 2021 with three replications. The alpha and beta acid attributes were also extracted in triplicate, with HPLC injections run in duplicated. The moisture content analysis was assessed in

analytical duplicate. Statistical analyses were conducted using JMP® (version 16.1.0; SAS Institute, Cary, NC). To determine if there was a significant difference among cultivars, a univariate analysis of variance (ANOVA) was used to analyze the levels of variance. Tukey's honest significant difference (HSD) test was used to detect significant differences (p < 0.05) among means and verify interactions at 95% significance level. For descriptive sensory evaluation, four cultivars were evaluated in triplicate using a univariate ANOVA to detect the significance of the cultivar main effect for each attribute. The panelist main effect and genotype x panelist interaction were included in the model to account for the error explained by betweenpanelist and within-panelist variation. Associations among all dependent variables were determined using multivariate pairwise correlation coefficients of the mean values using JMP. Principal component analysis was done using XLStat (Addinsoft Inc., New York, NY).

Results and Discussion

Average monthly temperature and rainfall at the Fruit Research Station in Clarksville, AR were recorded from January to September, the end of hops harvest (Fig. 2.) through reports generated by the Southern Regional Climate Center (Texas A&M University, 2022) and with a Nimbus Digital Thermometer (Sensor Instrument Co. Inc., Center Point, OR). While the 2020 hops season in Clarksville, AR was mild in terms of temperature and rainfall, the 2021 season had notable cold weather events in February and April. There were record cold temperatures (-5 °C) with 178 mm of snow in February of 2021 followed by a freeze in late April (-1 °C overnight). Shoots of the hops plants emerged mid-March and early April both years. The average high temperature was 22 °C and low temperature was 12 °C in both years. Average (January-September) rainfall in 2021 (103 mm) was less than rainfall in 2020 (139 mm). The total precipitation from January to September was 1,247 mm and 929 mm in 2020 and 2021, respectively. During July to September in 2021, there was less rainfall each month with 239 mm less during these months compared to 2020 (445 mm). Maximum day length for both years occurred June 20 with 14 hours and 36 minutes of daylight (1 hour and 18 minutes less than commercial regions in the Pacific Northwest). The average day length was 12 hours and 48 minutes during the measured time interval.

The alpha and beta acids were much lower in 2021 than in 2020, likely due to a number of contributing factors. When examining rainfall during peak growing months (May-August) there was a large reduction in the amount of rainfall during the end of the growing season in 2021 compared to 2020 (Fig 1). Both July and August had similar average temperatures in 2020 and 2021, but those months had much less total precipitation in 2021 than in 2020. Studies from Nakawuka et al. (2017) and Fandino et al. (2015) showed that reduced precipitation or irrigation leads to lower hops yield and cone quality, especially in hops plants that are not fully mature. Hops harvest also occurred a few weeks later in 2021 than in 2020. Darby and Bruce (2019) showed that in Vermont, hops quality slowly increased until peaking, then sharply declined. It is possible that hops harvested in 2021 experienced loss in quality from being harvested too late in the season.

Alpha and beta acids

Cultivar significantly impacted the individual and total alpha and beta acids in 2020 and 2021 (Table 2). For both years, hops had 1.1-5.1% cohumulone, 1.5-4.1% n+ adhumulone, 2.9-9.2% total alpha acids, 2.3-4.3% colupulone, 1.4-7.0% n+ adlupulone, and 4.1-10.1% total beta acids. In 2020 and 2021, 'Crystal had the lowest total alpha acids (3.62 and 2.91%, respectively) and the highest total beta acids (10.05% and 7.53%, respectively), and 'Zeus' had the lowest (3.83% and 3.72%, respectively). In both years, 'Cashmere' and 'Crystal' had higher levels of

beta acids than alpha acids, while 'Cascade' and 'Zeus' had higher levels of alpha acids than beta acids.

2020. 'Crystal' had lower cohumulone (1.43%) and total alpha acids (3.62%) than the other cultivars (Table 2). 'Cascade' had the highest levels of total cohumulone (5.12%), n+- adhumulone (4.07%), and total alpha acids, (9.20%), while 'Cascade' and 'Crystal' had the highest total beta acids (9.06 and 10.05% respectively). 'Cascade' (4.32%) had higher colupulone than all other cultivars, and 'Crystal' (7.00%) had a higher level of n+-adlupulone than all other cultivars.

2021. 'Crystal' had lower cohumulone (1.14%) and total alpha acid (2.91%) levels than any other cultivar (Table 2). 'Crystal' had the highest levels of n+ adlupulone (5.25%) and total beta acids (7.53%). There was no significant difference between any cultivars for colupulone, and 'Zeus' had the lowest levels of n+-adlupulone.

Volatile aroma attributes

In the four cultivars harvested in both years, there were 88-127 volatile aroma compounds identified across seven compound classes including monoterpenes, alcohols, aldehydes, sesquiterpenes, esters, ketones, and aromatic hydrocarbons (Table 3). Compound categories included chemical, floral, fruity, green/fat, roasted/caramelized, vegetal alcohols, floral, green/fat, vegetal, and roasted/caramelized aldehydes, fruity and vegetal aromatic hydrocarbons, fruity esters, vegetal and fruity ketones, vegetal, fruity, floral, green/fat monoterpenes, and green/fat, and fruity sesquiterpenes. Across all cultivars and both years, monoterpenes (9-49%) and sesquiterpenes (40-72%) were the major compound categories (Fig. 3). Terpenes are the largest group of natural compounds, and all terpenes are synthesized from the same two five carbon compounds: isopentenyl diphosphate and dimethylallyl diphosphate.

Enzymes called prenyltransferases synthesize linear prenyl disphosphates at the reaction site, and the active isoprene unit is repetitively added to dimethylallyl diphosphate to form various terpene skeletons (Wang et. al, 2005). Variations in the number of isoprene unit repetitions, cyclic reactions, and rearrangements are responsible for the structural and chemical diversity of terpenes. Based on the number of five-carbon isoprene units, terpenes are classified as C₅ hemiterpenes, C₁₀ monoterpenes, C₁₅ sesquiterpenes, C₂₀ Diterpenes, C₂₅ sesterterpenes, and C₃₀ triterpenes. Esters, alcohols, ketones, aromatic hydrocarbons, and aldehydes were also present in low amounts. In both 2020 and 2021, 'Crystal' had the highest volatile concentration (6,279 and 8,107 µg/kg, respectively) followed by 'Cashmere' (6,668 and 5,434 µg/kg, respectively) and 'Cascade' (5,830 and 4,132 µg/kg, respectively) with 'Zeus' (3,230 and 2,073 µg/kg, respectively) containing the lowest concentration in each year (Fig. 3 and Table 4). In both years, the five volatile aroma compounds with the highest levels found in Arkansas-grown hops were beta-pinene (monoterpene with herbal and pine aromas), beta-myrcene (spicy monoterpene), caryophyllene (sesquiterpene with woody aromas), beta-selinene (herbal sesquiterpene with celery notes), and humulene (spicy/woody sesquiterpene) (Table 4).

Su and Yin (2021) investigated 'Cascade' and 'Chinook' hops grown in Virginia to determine the most impactful aromas and found 33 aroma active peaks using GC-O. They identified six esters, five monoterpenes, 11 sesquiterpenes, five terpenoids, one aldehyde and one alcohol were positively identified, with 4 other unknown compounds. Of those 29 positively identified compounds, this research found 12 of the same compounds in the four hops cultivars examined: alpha-cubebene, alpha-pinene, beta-myrcene, beta-Ocimene, beta-pinene, betaselinene, caryophyllene, cis-beta-famesene, geraniol, humulene, linalool, and ylangene (Fig.4). Cymene was also identified in 2020, and humulene epoxide II and Caryophyllene oxide were found in 2021, but these levels were less than 10 μ g/kg. In both years, 'Crystal' had the highest levels of impactful volatiles, followed by 'Cashmere', then 'Cascade', with 'Zeus' having the lowest levels in each year. Humulene (woody monoterpene) had the highest levels of the impactful volatiles in each year, followed by beta-myrcene (a spicy monoterpene), and caryophyllene (a peppery sesquiterpene). Levels of impactful volatiles were lower in 2021 than in 2020, similar to the reduction in overall volatiles identified between the two years.

Volatile levels of hops were much lower in 2021 than in 2020, in both total and impactful volatile levels. While specific harvest dates were not examined in this study, a study performed at the University of Vermont showed that hops harvested later in the season had a drastic reduction in volatile and alpha and beta acid levels (Darby and Bruce, 2019). **2020.** In the four cultivars harvested, 88 volatile aroma compounds were identified across 10 compound classes including 28 esters, 22 monoterpenes, 18 sesquiterpenes, seven ketones, seven aldehydes, five alcohols, and one aromatic hydrocarbon (Table 3). In 2020, 'Crystal' had the highest volatile concentration (8,107 µg/kg) followed by 'Cashmere' (6,668 µg/kg) and 'Cascade' (5,829 µg/kg) with 'Zeus' (3,230 µg/kg) containing the lowest concentration. For all cultivars, monoterpenes and sesquiterpenes represented the largest percentage of total volatile concentration (92 and 96%, respectively) (Fig. 3). In 2020, 'Cascade' had the highest levels of beta-pinene (monoterpene with herbal notes) and beta-myrcene (spicy monoterpene) (634 and 1,293 μ g/kg, respectively), 'Cashmere' (1,168 μ g/kg) had the highest levels of caryophyllene (sesquiterpene with woody/citrus notes), and 'Crystal' had the highest levels of beta-selinene (herbal sesquiterpene) and humulene (woody sesquiterpene) (321 and 2,812 µg/kg, respectively). **2021.** In the four cultivars harvested, there were 127 volatile aroma compounds identified across seven compound classes including 36 esters, 34 sesquiterpenes, 27, monoterpenes, 15 ketones,

nine aldehydes, four alcohols, and two aromatic hydrocarbons (Table 3). In 2021, 'Crystal' had the highest volatile concentration (6,278 μ g/kg) followed by 'Cashmere' (5,434 μ g/kg) and 'Cascade' (4,132 μ g/kg) with 'Zeus' (2,072 μ g/kg) containing the lowest concentration. For all cultivars, monoterpenes and sesquiterpenes represented the largest percentage of total volatile concentration (96%) (Fig. 4). In 2021, Cascade had the highest levels of beta-pinene (monoterpene with herbal notes), caryophyllene (sesquiterpene with woody/citrus notes), and humulene (woody sesquiterpene) (475, 753, and 2,812 μ g/kg respectively). Cashmere (747 μ g/kg) had the highest levels of beta-selinene (herbal sesquiterpene), and 'Crystal' (825 μ g/kg) had the highest levels of beta-myrcene (spicy monoterpene).

Descriptive sensory aroma

The descriptive sensory panel evaluated the aroma of dried, ground hops cones from plants harvested in 2020 and 2021. In both years, the panelists could differentiate between cultivars for aged cheese, overall citrus complex, lemon, overall green herb complex, and overall pepper complex. The panelist found more that the cultivars differed for more attributes in 2020 than in 2021. This could have been due to a number of contributing factors, but notably both the overall volatile level and impactful volatile levels were lower in 2021 than in 2020. Dietz et al. (2020) showed that there can be both eliminative and antagonistic effects between volatile compounds, and as there were more compounds identified in 2021 than in 2020, it is possible that some of these additional compounds had a non-synergistic effect and reduced the perception of some of these sensory attributes. In both years the overall impact was the highest rated attribute (5-7 on a 15-point scale) which is equivalent to intensities of the aroma on the Universal Scale with applesauce equal to 5.0 and orange juice equal to 7.5.

2020. In 2020, the panelists could differentiate 14 hops aroma attributes (fruity, terpenes, aged cheese, umami savory, overall citrus complex, lemon, lemongrass, citrus other, overall green herb complex, floral, mint, garlic, overall pepper complex, and overall impact (Table 5). 'Crystal' (6.7) and 'Cashmere' (6.6) had a higher overall aroma impact than 'Cascade' (6.1) and 'Zeus' (5.9). The hops cultivars differed in overall green herb complex (2.5-3.2), overall citrus complex (2.0-3.4), and overall pepper complex (1.6-2.8). 'Cascade' had the highest overall citrus complex, and 'Crystal' had the highest overall green herb and pepper complexes. Cultivars also differed for fruity, terpenes, aged cheese, umami, lemon, lemongrass, other citrus, floral, mint, and garlic, but these levels were less than 2.7. The panelists could not differentiate grass, foliage, sage, thyme, green herb other, dill, white pepper, or black pepper attributes for these cultivars. The panelists were asked to use one word to define the aroma for each cultivar, and 'Cascade' was "citrusy", 'Cashmere' was "terpene", 'Crystal' was "savory", and 'Zeus' was ""grass/foliage".

2021. In 2021, the panelists could differentiate seven hops aroma attributes (aged cheese, overall citrus complex, lemon, overall green herb complex, thyme, overall pepper complex, and black pepper (Table 6). Although not significant, 'Cascade' (5.7) had the highest overall impact, followed by 'Crystal' (5.3), 'Cashmere' (5.2) and 'Zeus' (5.1). The hops cultivars differed in aged cheese (1.4-2.4), overall citrus complex (2.5-3.2), lemon (1.9-2.8), overall green herb complex (3.3-4.7), thyme (2.5-3.8), overall pepper complex (2.8-3.4), and black pepper (2.2-2.9). Cascade had the highest overall green herb complex and pepper complexes. The panelists could not differentiate grass, foliage, fruity, terpenes, umami, lemongrass, citrus other, sage, green herb other, floral, mint, garlic, dill, or white pepper attributes for these cultivars. The panelists were

asked to use one word to define the aroma for each cultivar, and Cascade was "herbal", Cashmere was "foliage", Crystal was "herbal/citrus", and Zeus was "herbal".

Correlation of descriptive sensory and volatile attributes

The descriptive sensory attributes identified in the four Arkansas-grown hops were correlated with the volatile attributes. Generally, PCA analysis showed grouping of sensory descriptive attributes with compound classifications. In both years, cultivars were not grouped near each other, but sesquiterpenes, umami/savory, and white pepper were clustered together in both years.

2020. When a PCA was conducted on the compound class variables in 2020 (Fig. 5), two components explained 91% of the variation in the data. PC1 (74.00%) had positive loadings for compound categories (alcohols, monoterpenes, and aromatic hydrocarbons) and sensory attributes (grass, overall citrus complex, lemongrass, foliage, lemon, fruity, floral, dill, thyme, mint, and, other citrus). Cultivars positively loaded for PC1 included 'Zeus' and 'Cascade'. Compound categories (Aldehydes, ketones, and sesquiterpenes) and sensory attributes (terpenes/off note, aged cheese, garlic, other green herb, overall green herb, overall pepper complex, black pepper, white pepper, sage, esters, and umami/savory) were all loaded negatively on PC1 along with cultivars 'Cashmere' and 'Crystal'. PC2 (17.33%) had positive loadings for sensory attributes (overall green herb, other green herb, overall citrus, lemongrass, foliage, lemon, fruity, overall pepper complex, black pepper, white pepper, sage, umami/savory, thyme and other citrus) and compound categories (alcohols, aromatic hydrocarbons, ketones, sesquiterpenes, and esters) along with cultivars 'Crystal' and 'Zeus'. Compound categories (aldehydes, and monoterpenes), sensory attributes (mint, dill, floral, grass, aged cheese, garlic, terpene, and overall impact), and cultivars Cashmere and Cascade.

2021. When a PCA was conducted on the compound class variables in 2021 (Fig. 6), two components explained (77.45%) of the variation in the data. PC1 (49.94%) had positive loadings for sensory attributes (white pepper, overall impact, overall pepper complex, other green herb, fruity, floral, lemon, overall citrus complex, thyme, mind, black pepper, lemongrass, overall green herb complex, sage, terpenes/off notes, and dill), compound categories (monoterpenes and aldehydes) along with cultivars Crystal Cascade and Zeus. Sensory attributes (aged cheese, umami/savory, other citrus, garlic, grass, and foliage) and compound categories (sesquiterpenes, ketones, esters, alcohols, and aromatic hydrocarbons) all loaded negatively on PC1 along with 'Cashmere'. PC2 (27.51%) had positive loadings for sensory attributes (aged cheese, umami/savory, white pepper, other green herb, overall impact, other citrus, floral, overall pepper complex, fruity, lemon, and overall citrus complex), compound categories (sesquiterpenes, ketones, esters, aldehydes, and monoterpenes) as well as cultivars Crystal and Cascade. Sensory attributes (mint, black pepper, lemongrass, overall green herb complex, sage, terpenes/off note, dill, foliage, grass, and garlic) and compound categories (alcohols, and aromatic hydrocarbons) were all negatively loaded for PC2. Cultivars negatively loaded for PC2 included 'Cashmere' and 'Zeus'.

Conclusion

The quality, volatile, and sensory attributes of four hops cultivars (Cascade, Cashmere, Crystal, and 'Zeus') grown at the UA System Fruit Research Station in Clarksville, AR were evaluated in 2020 and 2021. Although the quality, in terms of alpha and beta acid, and sensory attributes varied, the values were typical of previously reported research done on these cultivars. In both years, 'Cashmere' and 'Crystal' had higher levels of beta acids than alpha acids, while 'Cascade' and 'Zeus' had higher levels of alpha acids than beta acids. In the four cultivars harvested in both

vears, there were 88-127 volatile aroma compounds identified across seven compound classes including monoterpenes, alcohols, aldehydes, sesquiterpenes, esters, ketones, and aromatic hydrocarbons. In both 2020 and 2021, 'Crystal' had the highest volatile concentration followed by 'Cashmere', and 'Cascade' with 'Zeus' containing the lowest concentration in each year. In both years, the five volatile aroma compounds with the highest levels found in Arkansas-grown hops were beta-pinene, beta-myrcene, caryophyllene, beta-selinene, and humulene. In both years, the panelists could differentiate between cultivars for aged cheese, overall citrus complex, lemon, overall green herb complex, and overall pepper complex. The panelist found the cultivars differed for more attributes in 2020 than in 2021 with the overall impact the highest rated attribute (5-7 on a 15-point scale). The panelists were also asked to name a defining attribute for each cultivar and in 2020 chose "citrusy" for 'Cascade', "terpenes" for 'Cashmere', "savory" for 'Crystal' and "grass/foliage" for 'Zeus', while in 2021 the panelists chose "herbal" for 'Cascade', "foliage" for 'Cashmere', "herbal/citrus" for 'Crystal' and "herbal" for 'Zeus'. When a PCA was conducted on descriptive sensory attributes, cultivars were not grouped near each other, but sesquiterpenes, umami/savory, and white pepper clustered together in both years. Volatile analysis shows that Arkansas-grown hops could offer unique aromas and attributes that would allow local brewers the opportunity to craft specialty beers made with local hops. Further analysis of OAVs would be useful in determining the key aroma compounds, however different methodologies and instrumentation would be needed to specifically identify the aroma active compounds in Arkansas-grown hops. Data generated from this project provided information on, quality, sensory, and volatile attributes of hops that can be used for developing recommendations for beer brewing, marketing, and supporting local breeding efforts.

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Table 1: Descriptive sensory lexicon used to evaluate aroma attributes from dried, ground hop cones harvested from hop plants grown at the University of Arkansas System Division of Agriculture Fruit Research Station, in Clarksville, AR (2020 and 2021)

Aroma attributes ^z	Aroma definition
Grass	Green, slightly sweet aroma associated with cut grass/dry grass/hay
Green plant (foliage)	Freshly cut leaves or weeds
Citrus complex	General impression of citrus fruits
Lemon	Lemon
Lemongrass	Lemongrass
Other	Citrus, other than lemon and lemongrass
Emit y	Mixture of nonspecific fruits: berries, apples/ pears, tropical,
Fruity	melons; usually not citrus fruits
Green herb complex	General impression of dried herbs
Sage	Sage
Thyme	Thyme
Other	Green herbs, other than sage and thyme
Pepper complex	General impression of pepper, peppercorns
White pepper	Freshly ground white pepper
Black pepper	Freshly ground black pepper
Terpenes/skunk/off-	Hemp or Cannabis, also reminiscent of skunk like character
note	Themp of Camabis, also remainscent of skulk like character
Aged cheese	Aged (ripened) cheese
Umami/savory	General impression of cooked meat
Garlic	Garlic
Dill	Dill seeds
Floral	Sweet, fragrant aroma associated with flowers
Mint	Mint family (sweet, green and menthol): peppermint, spearmint,
171111	wintergreen
Overall impact	Intensity associated with overall aroma of the sample
Defining attribute	Term that can be used to characterize the sample

^z The Universal Aromatic Scale was used as the reference for the aroma attributes. The aroma attribute definition is aromas associated with the attribute listed.

Intensity 2.0 = Soda note of saltine cracker (Nabisco Premium Unsalted Tops Saltine Crackers, Nabisco, East Hanover, NJ)

Intensity 5.0 = Cooked apple note of applesauce (Dr. Pepper Snapple Group, Plano, TX)

Intensity 7.5 = Orange note of orange juice (Minute Maid Frozen Concentrate Orange Juice

(Coca-Cola, Atlanta, GA), reconstituted with 36 oz of filtered water

Intensity 10.0 = Grape note of grape juice (Welch's, Concord, MA)

Intensity 15.0 = Big Red Gum® (Mars, Inc., MeLean, VA)

Table 2: Total alpha and beta acid levels^z of dried, ground hop cones harvested from hop plants grown at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020 and 2021)

Cultivar	Cohumulone (%)	n+-adhumulone ^y (%)	Total alpha-acids (%)	Colupulone (%)	n+-adlupulone (%)	Total beta-acids (%)
2020						
Cascade	<mark>5.12 a^x</mark>	<mark>4.07 a</mark>	<mark>9.20 a</mark>	<mark>4.32 a</mark>	4.74 b	9.06 ab
Cashmere	3.54 b	3.32 b	6.86 b	3.36 b	5.13 b	8.48 b
Crystal	<u>1.43 c</u>	<u>2.19 c</u>	<u>3.62 d</u>	3.05 b	<mark>7.00 a</mark>	10.05 a
Zeus	3.44 b	2.22 c	5.66 c	<u>2.88 b</u>	<u>1.91 c</u>	<u>4.79 с</u>
P-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
2021						
Cascade	2.55 a	2.35 ab	<mark>5.97 a</mark>	<mark>2.67 a</mark>	2.99 bc	5.67 ab
Cashmere	2.89 a	<mark>3.09 a</mark>	4.90 a	2.30 a	3.19 b	5.48 ab
Crystal	<u>1.14 b</u>	1.77 b	<u>2.91 b</u>	2.29 a	<mark>5.25 a</mark>	<mark>7.53 a</mark>
Zeus	<mark>3.12 a</mark>	<u>1.50 b</u>	4.62 a	2.63 a	<u>1.43 c</u>	<u>4.06 b</u>
P-value	0.0002	0.0015	0.0022	0.4621	0.0005	0.0156

^z Hop cones were analyzed with high performance liquid chromatography analysis using American Society of Brewing Chemists (ASBC) methods ^yn+adhumulone refers to the level of n-humulone and ad-humulone combined in one fraction, analogue for n+-adlupulone for n-lupulone and ad-lupulone combined

^x Means with different letters within each year for each attribute are significantly different (p<0.05) according to Tukey's Honest Significant Difference (HSD) test, in each year the highest value is highlighted and lowest values is underlined

Table 3. Volatile aroma compounds^z identified in hops cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020 and 2021)

	Retention	n Index	Aroma	Aroma		20	020			202	21	
Compound Name	2020	2021	Category	Description	Cascade	Cashmere	Crystal	Zeus	Cascade	Cashmere	Crystal	Zeus
					5829.78±296.66	6668.09±469.86	8106.65±964.62	3230.47±352.93	4132.45±167.48	5434.16±2398.94	6279.23±687.04	2072.87±430.36
llcohols												
3-Buten-2-ol, 2-methyl	567		Herbal	hearbal earthy oily fusel alcholic	10.12±9.01	2.72±2.36	18.11±15.91	14±11.14	0±0	0±0	0±0	0±0
1-Butanol, 3-methyl	724		Fermented	whiskey fruity banana fusel ethereal alcoholic fatty	1.63±1.43	3.23±0.97	1.13±1.96	5.88±6.14	0±0	0±0	0±0	0±0
1-Butanol, 2 methyl	728	712	Ethereal	greasy winey whiskey leathery cocoa fruity green lavender	0.68±1.18	10±7.15	0±0	9.27±8.41	0±0	4.74±3.37	0±0	3.17±0.8
Prenol 3-Hexen-1-ol,	851	749	Fruity Green	fermented yeasty green leafy mushroom earthy green	0±0 4.81±0.59	0±0 1.32±2.3	0±0 2.55±0.72	0±0 7.44±1.09	0.56±0.98 0±0	0±0 0±0	5.42±0.43 0±0	0±0 0±0
1-Octen-3-ol		960	Earthy	oily fungal raw chicken fatty chicken	0±0	0±0	0±0	0±0	2.66±2.37	0±0	0±0	6.06±1.34
Octadien-1-ol 4-tert-Amylphenol	1232	1386	Fatty -	creamy waxy	0±0 0±0	1.12±0.09 0±0	1.76±0.11 0±0	0±0 0±0	0±0 0±0	0±0 2.17±0.39	0±0 0.33±0.58	0±0 0±0
Total Alcohols	5	4			17.24	18.39	23.55	36.59	3.22	6.91	5.75	9.23
Aldehydes Tiglic aldehyde		719	Green	pungent green ethereal nutty anisic fruity pungent green					0±0	2.5±1.27	0±0	0±0
2-Pentenal	746		Green	apple orange tomato ethereal aldehydic	1.65±1.43	1.46±1.27	1.92±3.34	1.54±1.54				
3-Methyl-2-butenal	777	760	Aldehydic	chocolate peach fatty fresh green fatty aldehydic grassy leafy	19.09±1.29	4.58±3.97	42.11±2.36	16.67±1.74	8.12±0.58	2.47±0.32	18.93±1.24	4.78±0.63
Hexanal	794	780	Green	sweaty sweet almond bitter fruity green leafy	4.51±0.29	2.98±2.59	6.06±0.96	10.74±1.65	0±0	0.41±0.72	0±0	1.38±1.07
2-Hexenal	847	832	Green	apple plum vegetable fresh aldehydic fatty green	30.08±2.54	38.15±6.72	15.66±2	19.69±6.6	11.48±2.67	15.01±2.18	5.89±1.06	5.13±1.97
Heptanal	899	883	Green	herbal cognac ozone sharp sweet	5.15±2.86	29.07±13.46	1.9±0.15	4.24±1.34	4.44±0.92	6.15±7.02	0±0	5.41±0.83
Benaldehyde	965		Fruity	bitter almond cherry aldehydic waxy citrus orange peel green	6.43±0.8	3.65±0.24	1.88±0.12	8.65±1.73	0±0	0±0	0±0	0.9±0.19
Octanal	1002	983	Aldehydic	herbal fresh fatty	1.56±0.43	4.5±2.9	1.66±0.18	2.56±0.79	0±0	0±0	0.28±0.49	1.86±0.53

Pheny	lacetaldehyde Nonanal		1033 1090	Green Aldehydic	green sweet floral hyacinth clover honey cocoa waxy aldehydic rose fresh orris orange peel fatty sweety aldehydic waxy					0.26±0.09 9.33±0.88	0.1±0.17 0±0	0±0 12±0.28	0.43±0.4 14.34±3.11
	Decanal		1194	Aldehydic	orange peel citrus floral					0±0	2.37±1.47	0±0	0±0
Total Aldehydes	Decaliar	7	9	Aldeliyule	citrus norai	68.47	84.39	71.19	64.09	28.93	22.76	37.1	28.39
Aromatic Hydrocarbons				_									
	Toluene	763	742	Sweet	benzene sweet balsamaic	1.74±1.62	2.15±1.87	2.14±1.87	4.65±2.23	1.03±0.55	0.56±0.25	0.71±0.65	2.01±0.58
	Styrene		875	Balsamic	floral plastic					3.45±0.54	9.82±1.46	4.42±0.85	0.51±0.89
Total Aromatic Hydrocar	bons	1	2			1.74	2.15	2.14	4.65	15.07	16.63	5.13	15.26
<i>Esters</i> Isobut	yl isobutyrate		894	Fruity	ethereal fruity tropical pineapple grape banana ethereal pineapple fruity apricot strawberry					3.78±3.27	1.2±0.55	2.19±0.25	0.43±0.38
Hexanoic acid	, methyl ester		904	Fruity	banana bacon acidic dairy					0.91±0.26	0.64±0.56	1.23±1.09	0.61±0.53
	ropanoic acid Iexanoic acid	912 924		Acidic -	fruity - sweet fruity apricot banana	0±0 6.19±0.33	29.29±23.63 3.48±2.57	0±0 2.74±0.07	3.81±0.03 0.46±0.79				
Pent	yl propionate		949	Fruity	tropical pineapple					0±0	0±0	0±0	0.47±0.43
	yl propionate		950	Fruity	sweet fruity ethereal rummy					0±0	33.58±2.3	0±0	0±0
I Methyl 5-met	Iexanoic acid hylhexanoate	966	967	Fatty	sour fatty sweaty cheesy	4.19±1.24	4.96±4.3	5.19±0.2	3.65±0.21	2.11±0.38	0.54±0.94	0.92±0.92	0±0
1-Butanol, 2-methyl	-, propanoate	969		Fruity	sweet fruity ethereal rummy	4.48±2.54	22.9±1.77	4.34±0.65	20.73±1.24				
Isobutyl 2-m	ethylbutyrate	976	984	Fruity	fruity citrus melon sweet fruity green orris waxy floral	2.34±1.06	1.87±0.56	2.52±0.56	8.4±0.73	0±0	0.93±0.83	0±0	0±0
Heptanoic acid	, methyl ester	985		Fruity	berry ethereal fruity tropical pineapple grape	3.5±0.26	1.03±0.25	3.2±0.23	1.88±0.02				
Isobut	yl isovalerate		988	Fruity	banana fruity ethereal tropical green grape cherry banana apple					1.84±0.07	5.25±4.57	1.07±0.24	5.44±0.24
Isopent	yl isobutyrate		995	Fruity	cocoa					0±0	0±0	0±0	0±0
2-Methylbut	yl isobutyrate		1000	Fruity	fruity ethereal tropical banana sweet fruity green orris					0±0	1.57±1.36	0±0	0±0
Meth	yl heptanoate	1026	1005	Fruity	waxy floral berry green fruity	5.41±0.73	9±3.16	11.33±0.18	1.86±0.27	0±0	3.44±0.47	0±0	0±0
Geran	yl isovalerate	1008		Fruity	apple blueberry pineapple	1.19±0.08	2.73±1.35	1.15±0.07	1.35±0.05				

Butanoic acid, 3-methylbutyl ester	1013	1012	Fruity	fruity green apricot pear banana	2.44±0.18	11.85±0.61	0.99±0.12	2.87±0.23	1.87.0.2	10.2010.42	0.4410.48	2.05+0.16
Methyl 4-ethyl-4-pentenoate		1013	-	- rancid sour					1.87±0.3	10.26±0.43	0.44±0.48	2.05±0.16
Heptanoic acid (E)-2-Methyl-2-butenyl isobutyrate	1030	1043	Cheesy	cheesy sweaty	5.4±0.63	9.38±6.75	14.15±0.71	9.96±0.25	3.48±0.49	44.09±2.97	2.26±0.16	12.02±1.14
Methyl 2-methylheptanoate	10.00	1045	-	-	0.0510.44	1.24+0.20	0.64+0.07	0.55+0.01	5.09±0.3	11.07±0.47	11.03±0.12	1.47±0.27
Methyl 6-methylheptanoate	1066	1070	-	- sweet fruity citrus cherry	0.25±0.44	1.24±0.38	0.64±0.07	0.55±0.01	5.18±0.43	5.08±0.28	13.35±0.69	7.58±0.61
3-Methylbutyl 2-methylbutanoate	1087	1087	Fruity	blueberry apple	3.78±0.44	1.71±1.03	5.76±0.29	6.85±0.73	0±0	2.88±0.48	0±0	0±0
2-Methyl-6-methylene-7-octen-3-one	1103	1106	-	- waxy green sweet orange aldehydic vegetable	3.76±0.22	11.06±0.99	4±0.14	6.29±1.81	4.33±0.47	2.84±0.2	6.57±0.2	6.63±0.42
Methyl octanoate	1107	1112	Waxy	herbal	1.4±0.1	16.17±1.27	1.04 ± 0.08	1.84±0.1	0±0	11.06±0.89	0±0	0±0
4-Octenoic acid, methyl ester		1114	-	- sweet fruity banana apple pineapple					1.76±0.17	19.62±1.35	1.45±0.15	1.88±0.12
Allyl isovalerate	1124	1128	Fruity	cherry acidic sweaty	4.12±0.51	4.79±0.04	12.71±1.2	2.84±0.52	0±0	0 ± 0	0.35±0.36	0±0
Valeric acid	1149	1138	Cheesy	rancid fatty waxy rancid oily vegetable	0.64±0.05	1.07±0.51	0±0	0.34±0.3	4.82±0.27	5.66±0.26	15.69±1.18	3.49±0.89
Octanoic acid		1163	Fatty	cheesy sweet fruity pear waxy					0.04±0.07	0±0	0.54±0.15	0.1±0.18
Methyl nonanoate Methyl 8-methylnonanoate		1170 1174	Fruity -	tropical winey waxy dirty					$\begin{array}{c} 0 \pm 0 \\ 0 \pm 0 \end{array}$	0±0 1.59±0.37	0.35±0.07 0±0	$0\pm 0 \\ 0\pm 0$
Nonanoic acid	1181		Waxy	cheesy dairy	0.75±0.18	2.76±0.46	2.39±0.31	0.88±0.26				
4-Nonenoic acid, methyl ester		1194	-	- sweet fruity pear waxy					1.94±0.38	0±0	6.43±0.23	0±0
Methyl nonanoate		1209	Fruity	tropical winey waxy dirty					0±0	0±0	0±0	3.03±0.48
2-Nonenoic acid	1211		Waxy	cheesy dairy waxy floral	2.12±0.16	2.02±0.15	3.44±0.43	0.43±0.37				
Geranyl laurate		1220	Waxy	leafy rose sweet green fruity warm floral apple					2.84±0.03	2.81±0.04	4.89±0.44	0.72±0.19
Heptyl isobutyrate	1246	1229 1236	Fruity	cherry apricot	0±0	1.05±0.04	0±0	0±0 1.53±0.33	4.17±0.34 0.23±0.12	5.99±0.39 0.89±0.19	15.55±1.55 1.15±0.32	1.74±0.48 0.23±0.41
2-Methylbutyl hexanoate Methyl 8-methylnonanoate	1256 1282	1236	Ethereal	-	4.31±0.3 1.07±0.21	1.68±0.14 4.28±0.41	3.69±0.41 1.57±0.19	1.55±0.55 0.35±0.3	0.23±0.12 0±0	0.89±0.19 1.16±0.23	1.15±0.52 0±0	0.23±0.41 0±0
Methyl (E)-4-decenoate	1202	1291	-	-	1.07=0.21	1.20-0.11	1.07-0.17	0.55-0.5	3.05±0.48	1.66±0.06	6.73±0.94	4.51±0.81
Methyl (E)-5-decenoate		1296	-	- waxy green fruity fatty					0±0	1.63±0.07	0±0	0±0
9-Decenoic acid		1301	Waxy	soapy					19.19±0.98	19.58±1.47	61.5±6.95	9.72±2.42
Methyl decanoate 4-Decenoic acid	1287 1299	1305	Fermented Fruity	oily winey fruity floral	2.59±0.17 0.67±0.09	1.18±0.14 0.67±0.67	3.98±0.57 1.88±0.51	3.42±0.67 0.46±0.4	11.92±0.48	12.08±0.21	43.51±6.11	4.58±1.36
			·	- waxy buttery oily creamy dairy green lactonic plum								
Decenoic acid 5-Hexenoic acid, 5-bromo-, methyl	1309		Waxy	skin	13.99±0.66	14.88±0.8	51.6±8.3	7.96±1.63				
5-Hexenoic acid, 5-bromo-, methyl ester	1314		-	- waxy green	8.4±0.53	8.83±0.69	36.38±5.57	3.34±0.85				
trans-Geranic acid methyl ester Methyl 3-undecenoate	1323	1355	Waxy -	fruity floral	1.71±0.36	1.1±0.09	6.35±1.08	2.34±0.56	2.08±0.14	1.55±0.24	8.35±1.51	3.05±0.67

Methyl undecanoate 2-Undecenoic acid 6.9.12.15-Docosatetraenoic acid	1387 1410	1369 1397	Waxy	fatty waxy fruity -	2.04±1.35	2.11±0.39 0.68±0.62	3.43±0.45 2.96±0.37	3.07±0.76 0.92±0.16	0±0 2.26±0.79	0±0 0±0	0.58±0.11 2.86±2.49	0±0 2.35±2.21
Total Esters	28	36	-	-	91.41	179.07	199.14	<u>99.77</u>	83.66	212.23	209.88	72.6
Ketones	20			citrus green musty lemongrass							20100	
6-Methyl-5-hepten-2-one		961	Citrus	apple fresh sweet green weedy					0±0	0.69±0.84	0±0	0±0
2-Nonanone 6-Benzyltetrahydro-2H-pyran-2-one	1091	1074 1076	Fruity -	earthy herbal fruity citrus	38.29±2.93	104.06±4.52	187.48±13.75	31.97±1.9	8.31±1.68 0±0	22.09±1.17 2.68±2.4	39.06±2.85 0±0	6.26±0.78 0±0
2-Dodecanone 7-Decen-2-one 2-Decanone	1159	1145 1164 1176	Citrus - Floral	floral orange - orange floral	5.14±0.58	1.59±0.13	10.94±1.03	4.17±0.55	1.11±0.29 1.53±0.96 14.52±1.26	1.78±0.7 4.23±0.18 49.77±0.24	14.84±1.27 4.56±0.23 53.17±4.79	4.53±1.04 0.92±0.2 0±0
2-Decanone 2-Nonadecanone Decanone Undecenone	1139 1187 1193 1279	1176 1179 1240	- Fruity	fatty peach	2.64±0.37 3.01±0.14 2.15±0.23	1.39±0.13 1.2±0.26 10.84±0.52 4.86±0.33	10.94±1.05 8.32±0.78 11.16±1.34 5.41±0.72	4.17±0.33 4.37±0.55 2.71±0.33 1.08±0.14	14.32±1.20 0±0 10.45±0.62	49.7/±0.24 0±0 24.31±2.06	0±0 17.62±2.72	13.17±3.12 6.92±1.03
(Z)-Undec-6-en-2-one	1217	1262	-	waxy fruity creamy fatty	2.15-0.25		0.71-0.72	1.00-0.17	6.5±1.07	16.4±0.62	16.39±1.87	3.32±0.48
2-Undecanone 2-Dodecanone	1294	1276 1342	Fruity Citrus	orris floral fruity citrus floral orange	5.84±0.22	10.47±0.48	15.39±2.38	3.51±0.64	29.51±1.78 4.59±1.67	55.74±2.4 0±0	73.21±7.79 4.32±0.51	17.11±4.23 2.36±0.5
(Z)-Tetradec-6-en-2-one 2-Nonadecanone (Z)-6-Pentadecen-2-one 2-Pentadecanone	1359	1559 1580 1660 1676	- -	-	1.21±0.86	0.23±0.39	0.83±0.08	0.66±0.23	2.07±1.44 0±0 3.97±0.73 0±0	3.22±0.47 3.39±0.75 0±0 3.01±2.21	4.21±1 0.35±0.61 2.5±0.24 0±0	1.17±0.24 0±0 0±0 0±0
2-Feittauecailoite		10/0	-	-					0±0	5.01-2.21	0±0	0±0
Total Vatamas	7	15			50.20	122.25	220 52	49.47	97 56	197 21	220.22	EE 76
Total Ketones Monoterpenes .alphaPinene	7 936	919	Herbal	fresh camphoreous sweet pine earthy woody dry woody resionous pine hay green eucalyptus	58.28	133.25 107.28±52.69	239.53 106.38±10.98	48.47 99.96±3.56	82.56 157.56±3.12	187.31 119.89±18.14	230.23 98.5±14.71	55.76 72.39±9.11
Monoterpenes	· · ·	919 963	Herbal	camphoreous sweet pine earthy woody dry woody resionous pine hay green					157.56±3.12 10.09±0.59	119.89±18.14 6.27±0.48	98.5±14.71 8.4±0.42	72.39±9.11 5.37±0.59
Monoterpenes .alphaPinene	936	919 963 971		camphoreous sweet pine earthy woody dry woody resionous pine hay green eucalyptus camporeous peppery terpenic spicy	174.47±12.8	107.28±52.69	106.38±10.98	99.96±3.56	157.56±3.12	119.89±18.14	98.5±14.71	72.39±9.11
Monoterpenes .alphaPinene .betaPinene	936	919 963	Herbal	camphoreous sweet pine earthy woody dry woody resionous pine hay green eucalyptus camporeous peppery terpenic spicy balsamic peppery terpenic spicy balsamic plastic plastic woody terpenic lemon herbal	174.47±12.8	107.28±52.69	106.38±10.98	99.96±3.56	157.56±3.12 10.09±0.59	119.89±18.14 6.27±0.48	98.5±14.71 8.4±0.42	72.39±9.11 5.37±0.59
Monoterpenes .alphaPinene .betaPinene Myrcene beta Myrcene alpha-Terpinene	936 980 991 1017	919 963 971	Herbal Spicy Spicy Woody	camphoreous sweet pine earthy woody dry woody resionous pine hay green eucalyptus camporeous peppery terpenic spicy balsatic peppery terpenic spicy balsatic plastic woody terpenic lemon herbal medicinal citrus fresh citrus terpenic woody	174.47±12.8 633.89±40.57 1292.7±68.94 7.33±0.68	107.28±52.69 381.73±33.93 836.94±55.89 94.33±4.9	106.38±10.98 474.53±44.33 627.53±28.48 5.06±0.5	99.96±3.56 373.95±11.19 825.25±65.78 31.42±2.47	157.56±3.12 10.09±0.59 1.29±0.12	119.89±18.14 6.27±0.48 0±0	98.5±14.71 8.4±0.42 1.37±0.5	72.39±9.11 5.37±0.59 0.59±0.13
Monoterpenes .alphaPinene .betaPinene Myrcene beta Myrcene	936 980 991	919 963 971 973	Herbal Spicy Spicy	camphoreous sweet pine earthy woody dry woody dry woody resionous pine hay green eucalyptus camporeous peppery terpenic spicy balsamic peppery terpenic spicy balsamic plastic woody terpenic lemon herbal medicinal citrus fresh citrus	174.47±12.8 633.89±40.57 1292.7±68.94	107.28±52.69 381.73±33.93 836.94±55.89	106.38±10.98 474.53±44.33 627.53±28.48	99.96±3.56 373.95±11.19 825.25±65.78	157.56±3.12 10.09±0.59 1.29±0.12 517.34±10.52	119.89±18.14 6.27±0.48 0±0 387.58±13.87	98.5±14.71 8.4±0.42 1.37±0.5 314.18±5.27	72.39±9.11 5.37±0.59 0.59±0.13 336.99±21.78

					citrus herbal								
					terpenic green woody pepper								
	.alphaPhellandrene	1037	1021	Terpenic	black pepper warm floral	86.34±2.03	31.67±27.42	44±1.75	79.59±6.39	0±0	0±0	10.67±18.48	0±0
	(E)-beta-ocimene	1042	1024	Floral	herbal sweet citrus tropical	2.22±0.17	2.37±1.46	2.42±0.13	2.09±0.07	1.71±0.09	2.65±0.17	2.08±0.6	1.44±0.3
	beta-Ocimene	1053	1036	Floral	green terpenic woody green oily woody terpenic lemon lime tropical	10.74±0.54	53.81±4.15	7.27±0.45	4.85±0.16	8.37±0.46	44.06±0.21	5.94±0.51	3.31±0.35
	gamma-Terpinene	1069	1048	Terpenic	herbal	1.22±0.25	1.46±0.3	4.9±0.29	1.19±0.15	1.07±0.23	0±0	0.67±0.6	0.45±0.55
	2-Carene	1073		-	- herbal spicy chamomile	1.67±0.13	1.54±1.34	1.48±0.09	1.78±0.8				
	Terpinolene	1094	1082	Herbal	green basil citrus floral sweet bois de rose green	3.84±0.15	5.34±0.31	6.3±0.27	3.28±0.21	0.82±1.42	0±0	4.79±0.24	1.18±1.04
	Linalool	1099	1083	Floral	blueberry	32.13±2.57	17.17±2.33	206.59±14.6	54.96±3.1	25.22±3.87	14.61±2.25	157.28±10.12	37.7±1.23
	Neo-allo-ocimene Cosmene		1117 1118	-	-					0±0 0.23±0.39	1.98±0.21 3.99±0.23	0±0 0.29±0.26	0±0 0±0
					terpeneic camphoreous								
	p-Mentha-1,3,8-triene		1123	Terpenic	herbal woody	1.00.0.00	10 10 10			0.34±0.6	0±0	0.39±0.68	0.83±0.21
	Octatriene Octatetraene	1132 1135		Green	green plastic	1.36±2.36 6.06±0.52	12.57±1.18 22.73±1.59	5.05±1.24 5.18±0.32	4.44±0.69 4.27±0.49				
					sweet floral nut skin pepper								
	Allo-ocimene	1146	1129	Floral	herbal tropical	7.93±0.47	44.99±5.32	5.62±1.72	6.27±0.81	1.2±0.41	9.09±0.25	0±0	0±0
	trans-2-Pinanol		1180	-	- pine terpenic					0±0	1.9±0.25	0±0	0±0
	(-)-alpha-Terpineol	1198	1187	Terpenic	lilac citrus woody floral minty	1.21±0.03	2.19±0.18	2.53±0.21	1.22±0.18	1.05±0.25	0±0	2.35±0.02	1±0.48
					spearmint cooling green herbal caraway								
	Carveol Geraniol	1222.956867 1259	1239	Minty	spicy sweet floral	2.88±0.19 7.62±0.74	4.08±0.57 15.55±0.69	10.48±1.38 14.35±2.44	1.39±0.31 4.99±0.83	2.5±0.24	0.96±0.19	1.97±0.42	0.81±0.18
	Citral		1258	Floral	fruity rose waxy citrus					0.68±0.15	0.26±0.22	0.28±0.14	0.3±0.27
	Methyl geranate	1326	1308	Waxy	waxy green fruity floral	34.97±1.16	29.22±0.51	149.34±22.69	16.84±2.08	15.11±1.1	13.33±0.62	57.98±6.73	7.35±1.79
					citrus herbal lavender bergamot myrrh neroli								
	alpha-Farnesene		1308	Woody	green sweet woody balsamic					0.28±0.06	0±0	0±0	0±0
	alpha-Guajene		1360	Woody	peppery floral rose lavender green					0±0	0±0	2.07±0.34	0±0
	Geranyl acetate	1383	1360	Floral	waxy sweet floral fruity green	15.69±0.71	1.43±1.49	1.42±0.07	1.47±0.26	10.12±8.78	1.17±1.06	0±0	1.15±0.49
	Geranyl isobutyrate	1514	1495	Floral	peach apricot	19.77±1.45	8.05±1.55	1.11±0.96	24.02±3.27	19.62±0.72	4.95±1.21	0±0	17.07±1.69
	squiterpenes	22	27			2413.29	1723.52	1717.53	1592.77	917.24	715.93	743.43	588.44
Je	gamma-Elemene	10/2	1308	-	-	(00 · 0 05			1.00.0.1	0±0	0±0	1.37±1.26	0±0
	alpha-Cubebene Aciphyllene	1367 1377	1349	Herbal	herbal waxy	6.92±2.27 1.11±0.04	3.67±0.57 2.76±1.22	5.59±0.6 1.09±0.1	1.29±0.4 0±0	15.47±2.9	10.51±1.06	15.4±2.43	2.91±0.27
į 📃	Ylangene	1393	1376	-	-	11.67±2.29	22.44±0.87	16.07±2.01	5.63±0.93	28.72±3.38	66±4.5	42.16±3.77	14.64±4.38

1542 1547 1550 1565 1573	1534 1541 1546 1555 1606 1620 1632 1641 1653 1669 1669	- Spicy - Woody - Woody - Herbal - - Herbal Herbal Herbal	- spicy fruity mango - green woody woody - woody dry woody yry woody spicy - - - - herbal spicy honey -	51.21±2.67 81.26±3.06 19.03±0.94 10.88±2.67 9.37±0.2 7.24±1.2	88.58±2.98 160.69±5.85 49.25±11.94 16.42±0.35 12.81±1.4 9.84±3.55	93.11±13.21 154.9±20.85 55.03±7.46 16.43±2.15 10.48±1.54 21.31±2.43	21.4±3.34 33.25±5.25 13.81±6.5 4.3±0.76 3.32±0.75 3.17±0.64	8.85±0.54 12.34±0.6 14.38±0.45 1.17±1.45 0±0 6.03±3.77 1.75±0.46 16.81±2.14 0±0 6.23±0.6 7.58±3.93	$\begin{array}{c} 14.85{\pm}1.71\\ 23.06{\pm}1.31\\ 18.71{\pm}0.92\\ \end{array}\\\\ \begin{array}{c} 0.91{\pm}0.32\\ 0{\pm}0\\ 0{\pm}0\\ 10.49{\pm}1\\ 5{\pm}1.38\\ 13{\pm}11.46\\ \end{array}\\\\ \begin{array}{c} 3.97{\pm}6.88\\ 0{\pm}0\\ 19.58{\pm}2.65\\ \end{array}$	13.54±1.9 21.61±2.61 16.2±1.8 0±0 1.63±0.14 24.23±5.35 1.58±1.9 0±0 3.01±5.22 0±0 13.74±4.34	2.42±1.18 5.71±1.98 6.18±0.64 0±0 0.6±0.09 0±0 2.06±0.24 5.74±0.4 0±0 0±0 3.47±3.19
1547 1550 1565 1573	1541 1546 1555 1606 1620 1620 1632 1641 1653 1669	Spicy - Woody - Woody - Herbal - - Herbal	mango green woody woody dry woody dry woody spicy - - herbal spicy honey	81.26±3.06 19.03±0.94 10.88±2.67 9.37±0.2	160.69±5.85 49.25±11.94 16.42±0.35 12.81±1.4	154.9±20.85 55.03±7.46 16.43±2.15 10.48±1.54	33.25±5.25 13.81±6.5 4.3±0.76 3.32±0.75	$\begin{array}{c} 8.85{\pm}0.54\\ 12.34{\pm}0.6\\ 14.38{\pm}0.45\\ \end{array}$	23.06±1.31 18.71±0.92 0.91±0.32 0±0 10.49±1 5±1.38 13±11.46 3.97±6.88	21.61±2.61 16.2±1.8 0±0 0.63±0.14 24.23±5.35 1.58±1.9 0±0 3.01±5.22	5.71±1.98 6.18±0.64 0±0 0.6±0.09 0±0 2.06±0.24 5.74±0.4 0±0
1547 1550 1565 1573	1541 1546 1555 1606 1620 1620 1632 1641 1653	Spicy - Woody - Woody - Herbal - -	mango green woody woody dry woody dry woody sweet fresh dry woody spicy - - - - herbal spicy	81.26±3.06 19.03±0.94 10.88±2.67 9.37±0.2	160.69±5.85 49.25±11.94 16.42±0.35 12.81±1.4	154.9±20.85 55.03±7.46 16.43±2.15 10.48±1.54	33.25±5.25 13.81±6.5 4.3±0.76 3.32±0.75	$\begin{array}{c} 8.85{\pm}0.54\\ 12.34{\pm}0.6\\ 14.38{\pm}0.45\\ \end{array}$	$\begin{array}{c} 23.06{\pm}1.31\\ 18.71{\pm}0.92\\ 0{,}91{\pm}0.32\\ 0{\pm}0\\ 10.49{\pm}1\\ 5{\pm}1.38\\ 13{\pm}11.46\\ \end{array}$	21.61±2.61 16.2±1.8 0±0 1.63±0.14 24.23±5.35 1.58±1.9 0±0	5.71±1.98 6.18±0.64 0.6±0.09 0±0 2.06±0.24 5.74±0.4
1547 1550 1565 1573	1541 1546 1555 1606 1620 1620 1632 1641	Spicy - Woody - Woody - Woody - Herbal -	mango green woody woody dry woody dry woody spicy - - -	81.26±3.06 19.03±0.94 10.88±2.67 9.37±0.2	160.69±5.85 49.25±11.94 16.42±0.35 12.81±1.4	154.9±20.85 55.03±7.46 16.43±2.15 10.48±1.54	33.25±5.25 13.81±6.5 4.3±0.76 3.32±0.75	8.85±0.54 12.34±0.6 14.38±0.45 1.17±1.45 0±0 0±0 0.03±3.77 1.75±0.46	23.06±1.31 18.71±0.92 0.91±0.32 0±0 10.49±1 5±1.38	21.61±2.61 16.2±1.8 0±0 0±0 1.63±0.14 24.23±5.35 1.58±1.9	5.71±1.98 6.18±0.64 0.6±0.09 0±0 0±0 2.06±0.24
1547 1550 1565 1573	1541 1546 1555 1606 1620 1620 1632 1641	Spicy - Woody - Woody - Woody - Herbal -	mango green woody woody woody dry woody sweet fresh dry	81.26±3.06 19.03±0.94 10.88±2.67 9.37±0.2	160.69±5.85 49.25±11.94 16.42±0.35 12.81±1.4	154.9±20.85 55.03±7.46 16.43±2.15 10.48±1.54	33.25±5.25 13.81±6.5 4.3±0.76 3.32±0.75	8.85±0.54 12.34±0.6 14.38±0.45 1.17±1.45 0±0 0±0 0.03±3.77 1.75±0.46	23.06±1.31 18.71±0.92 0.91±0.32 0±0 10.49±1 5±1.38	21.61±2.61 16.2±1.8 0±0 0±0 1.63±0.14 24.23±5.35 1.58±1.9	5.71±1.98 6.18±0.64 0.6±0.09 0±0 0±0 2.06±0.24
1547 1550 1565 1573	1541 1546 1555 1606 1620 1620 1620	Spicy - Woody - Woody - Woody - Herbal	mango green woody woody woody dry woody sweet fresh dry	81.26±3.06 19.03±0.94 10.88±2.67 9.37±0.2	160.69±5.85 49.25±11.94 16.42±0.35 12.81±1.4	154.9±20.85 55.03±7.46 16.43±2.15 10.48±1.54	33.25±5.25 13.81±6.5 4.3±0.76 3.32±0.75	8.85±0.54 12.34±0.6 14.38±0.45 1.17±1.45 0±0 0±0 6.03±3.77	23.06±1.31 18.71±0.92 0.91±0.32 0±0 10.49±1	21.61±2.61 16.2±1.8 0±0 0±0 1.63±0.14 24.23±5.35	5.71±1.98 6.18±0.64 0.6±0.09 0±0 0±0
1547 1550 1565	1541 1546 1555 1606 1620 1620	Spicy - Woody - Woody - Woody - Herbal	mango green woody woody woody dry woody sweet fresh dry	81.26±3.06 19.03±0.94 10.88±2.67	160.69±5.85 49.25±11.94 16.42±0.35	154.9±20.85 55.03±7.46 16.43±2.15	33.25±5.25 13.81±6.5 4.3±0.76	8.85±0.54 12.34±0.6 14.38±0.45 1.17±1.45 0±0 0±0	23.06±1.31 18.71±0.92 0.91±0.32 0±0 0±0	21.61±2.61 16.2±1.8 0±0 0±0 1.63±0.14	5.71±1.98 6.18±0.64 0±0 0.6±0.09 0.6±0.09 0±0
1547 1550 1565	1541 1546 1555 1606 1620	Spicy - Woody - Woody - Woody	mango green woody woody woody dry woody sweet fresh dry	81.26±3.06 19.03±0.94 10.88±2.67	160.69±5.85 49.25±11.94 16.42±0.35	154.9±20.85 55.03±7.46 16.43±2.15	33.25±5.25 13.81±6.5 4.3±0.76	8.85±0.54 12.34±0.6 14.38±0.45 1.17±1.45 0±0	23.06±1.31 18.71±0.92 0.91±0.32 0±0	21.61±2.61 16.2±1.8 0±0 0±0	5.71±1.98 6.18±0.64 0±0 0.6±0.09
1547 1550 1565	1541 1546 1555	Spicy - Woody - Woody - Woody	mango green woody woody woody dry woody sweet fresh dry	81.26±3.06 19.03±0.94 10.88±2.67	160.69±5.85 49.25±11.94 16.42±0.35	154.9±20.85 55.03±7.46 16.43±2.15	33.25±5.25 13.81±6.5 4.3±0.76	8.85±0.54 12.34±0.6 14.38±0.45 1.17±1.45	23.06±1.31 18.71±0.92 0.91±0.32	21.61±2.61 16.2±1.8 0±0	5.71±1.98 6.18±0.64 0±0
1547 1550 1565	1541 1546 1555	Spicy - Woody - Woody -	mango green woody woody woody dry woody sweet fresh dry	81.26±3.06 19.03±0.94 10.88±2.67	160.69±5.85 49.25±11.94 16.42±0.35	154.9±20.85 55.03±7.46 16.43±2.15	33.25±5.25 13.81±6.5 4.3±0.76	8.85±0.54 12.34±0.6 14.38±0.45	23.06±1.31 18.71±0.92	21.61±2.61 16.2±1.8	5.71±1.98 6.18±0.64
1547 1550 1565	1541 1546	Spicy - Woody -	mango - green woody woody - woody dry woody	81.26±3.06 19.03±0.94 10.88±2.67	160.69±5.85 49.25±11.94 16.42±0.35	154.9±20.85 55.03±7.46 16.43±2.15	33.25±5.25 13.81±6.5 4.3±0.76	8.85±0.54 12.34±0.6	23.06±1.31	21.61±2.61	5.71±1.98
1547 1550	1541 1546	Spicy - Woody -	mango green woody woody	81.26±3.06 19.03±0.94	160.69±5.85 49.25±11.94	154.9±20.85 55.03±7.46	33.25±5.25 13.81±6.5	8.85±0.54 12.34±0.6	23.06±1.31	21.61±2.61	5.71±1.98
1547	1541 1546	Spicy	mango - green woody	81.26±3.06	160.69±5.85	154.9±20.85	33.25±5.25	8.85±0.54 12.34±0.6	23.06±1.31	21.61±2.61	5.71±1.98
	1541 1546	Spicy	mango - green woody					8.85±0.54 12.34±0.6	23.06±1.31	21.61±2.61	5.71±1.98
	1541	Spicy	mango					8.85±0.54			
1542	1541			51.21±2.67	88.58±2.98	93.11±13.21	21.4±3.34	8.85±0.54			
1542				51 21±2 67	88 58±2 98	93 11±13 21	21 4±3 34		14.85±1.71	13.54±1.9	2.42±1.18
									14 85+1 71	13 54+1 0	2 42+1 18
	1534	-	-								
								25.34±4.54	64.26±5	59.31±5.65	13.83±5.63
1527	1528	Herbal	woody dry	202.1±8.73	90.27±5.23	709.78±106.4	87.01±3.8	106.65±3.48	213.95±12.31	189.35±17.75	48.62±9.92
			thyme herbal			500 50 40 C	05.04.0.0	100.00.0.10		100.05.15.5	10 (0.00
1520	1524	-		218.85±10.39	182.88±2.08	741.63±108.89	103.08±3.18	62.64±0.97	116.42±5.46	110.85±13.32	27.19±5.62
1505	1509	-	amber	13.46±0.28	19.05±1.62	3.16±0.07	7.04±2.17	222.01±2.4	115.9±5.99	717.64±79.64	99.22±25
1501	1501	Herbal	-	130.23±3.78	165.06±3.62	320.69±45.88	55.9±8.48	269.56±3.35	238.11±6.23	746.66±80.44	118.01±27.16
	1487	-	- *					5.57±4.89	12.83±0.97	0±0	1.08±1.87
	1483	Woody	spicy					88.44±4.07	115.98±6.89		38.81±8.6
			herbal woody								
1400	1446	woody	woody -	1244.34±37.93	2304.1±39.38	2011.92±330.78	/03.21±102.25	0±0	1229.45 ± 1056.98 617.76 ± 1069.99	193.39 ± 27.76	596./4±106./5 0±0
1462 1485	1446	Woody Woody	herbal sweet woody	538.24±16.64 1244.54±37.95	64.12±11.99 2304.1±59.58	20.77±1.02 2811.92±336.78	34.09±3.28 703.21±102.25	999.96±18.68	1229.45±1056.98	8.68±0.71 2042±167.9	596.74±106.73
14(2		W	woody citrus	529.24+16.64	(4.12) 11.00	20 77 1 02	24.00+2.29			0 (0 0 71	
1457	1444	Woody	herbal sweet	49.68±1.57	88.09±1.75	66.66±8.69	22.14±2.75	527.34±6.52	69.27±5.48	24.33±3.95	42.28±12.89
			woody citrus								
	1440	-	-					20.28±0.44	39.05±1.45	27.87±3.52	8.97±1.8
1451	1432	Spicy	spicy clove dry	544.55±15.1	1167.47±11.24	752.78±91.34	267.68±36.88	467.74±17.18	1049.02±26.62	641.93±65.94	225.94±35.71
	141/	-	sweet woody					2.07±1.00	1.31-4.47	0-0	00
	1417 1417	Spicy	spicy clove dry					2.8±1.34 2.09±1.83	5.76±0.82 1.31±2.27	4.24±0.4 0±0	0±0 0±0
	1417	C i	sweet woody					2.8+1.24	5 76 10 82	12410.4	0.0
	1405	Spicy	spicy clove dry					1.36±0.67	0±0	2.21±1.93	1.94±0.36
		-	sweet woody								
	1405	Woody	fir needle					0±0	4.37±1.1	0.57±0.98	0±0
			rose medicinal								
	1401	Woody	fir needle sweet woody					2.5±0.45	4.63±0.85	2.71±1.48	0±0
	1401	W	rose medicinal					251045	4 (2) 0.95	2 71 1 49	0.0
			sweet woody								
	1387	Herbal	fresh					3.34±2.58	4.54±0.41	7.69±1.93	2.23±1.33
1390	1380	woody		30.4±2.2	/1.33±2.98	44.01±0.02	15.0±2.15	/5.41±5.52	182.3±8.79	111.//±13.92	55.02±1.59
1209	1280	Woody		20 4+2 2	71 55+2 08	44 81+6 62	12 6+2 15	72 41+2 22	192 5+9 70	111 77+12 02	33.62±7.59
1398			5	herbal waxy 1387 Herbal fresh sweet woody	1380 Woody honey 30.4±2.2 herbal waxy 1387 Herbal fresh sweet woody	1380 Woody honey 30.4±2.2 71.55±2.98 herbal waxy 1387 Herbal fresh sweet woody	1380 Woody honey 30.4±2.2 71.55±2.98 44.81±6.62 herbal waxy 1387 Herbal fresh sweet woody	1380 Woody honey 30.4±2.2 71.55±2.98 44.81±6.62 13.6±2.15 1387 Herbal fresh sweet woody sweet woody	1380 Woody honey 30.4±2.2 71.55±2.98 44.81±6.62 13.6±2.15 73.41±3.32 herbal waxy 1387 Herbal fresh 3.34±2.58 sweet woody 3.34±2.58 3.34±2.58 3.34±2.58	1380 Woody honey 30.4±2.2 71.55±2.98 44.81±6.62 13.6±2.15 73.41±3.32 182.5±8.79 herbal waxy 1387 Herbal fresh 3.34±2.58 4.54±0.41	1380 Woody honey 30.4±2.2 71.55±2.98 44.81±6.62 13.6±2.15 73.41±3.32 182.5±8.79 111.77±13.92 herbal waxy 1387 Herbal fresh 3.34±2.58 4.54±0.41 7.69±1.93 sweet woody 5 5 5 5 5 5 5

^z Relative peak area percent compounds were identified by comparison of mass spectra with NIST14 (National Institute of Standards and Technology, Gaithersburg, MD, USA), Flavors and Fragrances of Natural and Synthetic Compounds (FFNSC3, John Wiley & Sons, Inc., Hoboken, NJ, USA), and Adams Essential Oils (Adams 2007) mass spectral libraries and comparison of calculated Kovats retention indices (Kováts 1958) with previously reported values; yellow highlighted compounds were the same in both years and cultivars.

2		,	, (/	
			Compound		
	Beta-pinene	Beta-myrcene	Caryophyllene	Beta-selinene	Humulene
			Compound cla	ISS	
	Monoterpene	Monoterpene	Sesquiterpene	Sesquiterpene	Sesquiterpene
			Aroma catego	ry	
	Herbal	Spicy	Spicy	Herbal	Woody
			Aroma descript	ors	
Cultivar	Pine, woody,	Peppery, woody,	Woody, citrus,	Green, herbal,	Woody, oceanic,
	spicy, balsamic	herbaceous	peppery	Celery	spicy-clove
2020					
Cascade	633.89±40.57	1292.7±68.94	544.55±15.10	130.23±3.78	1244.54±37.95
Cashmere	381.73±33.93	836.94±55.89	1167.47±11.24	165.06 ± 3.62	2304.10±59.58
Crystal	474.53±44.33	627.53±28.48	752.78±91.34	320.69±45.88	2811.92±336.78
Zeus	373.95±11.19	825.25±65.78	267.68±36.88	55.90±8.48	703.21±102.25
2021					
Cascade	474.53±44.33	627.53±28.48	752.78±91.34	320.69±45.88	2811.92±336.78
Cashmere	98.5±14.71	314.18±5.27	641.93±65.94	746.66±80.44	2042.00±167.9
Crystal	373.95±11.19	825.25±65.78	267.68±36.88	55.90±8.48	703.21±102.25
Zeus	72.39±9.11	336.99±21.78	225.94±35.71	118.01±27.16	596.74±106.73

Table 4. Highest volatile aroma compounds ^z (μ g/kg) of dried, ground hop cones harvested from hop plants grown at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020 and 2021)

^z Means and standard deviations

Attributes ^z	Cascade	Cashmere	Crystal	Zeus	P-value
Grass	2.0 a ^y	1.9 a	1.5 a	2.4 a	0.145
Foliage	1.9 a	1.9 a	1.5 a	1.9 a	0.451
Fruity*	1.1 ab	0.1 c	0.3 bc	1.5 a	0.005
Terpenes off note skunk*	0.5 c	3.2 a	1.4 b	0.3 c	<0.0001
Aged cheese*	0.3 b	1.4 a	1.0 a	0.2 b	<0.0001
Umami savory*	0.6 bc	1.1 ab	1.3 a	0.3 c	0.001
Overall citrus complex*	3.4 a	2.0 b	2.7 ab	2.7 ab	0.013
Lemon*	1.8 a	1.0 b	1.3 ab	1.5 a	<0.0001
Lemongrass*	2.7 a	0.9 b	1.6 b	1.6 b	0.002
Other*	0.3 ab	0.0 b	0.0 b	0.8 a	0.016
Overall green herb complex*	2.7 b	2.6 b	3.2 a	2.5 b	0.034
Sage	1.5 a	2.0 a	2.3 a	1.5 a	0.076
Thyme	1.6 a	1.1 a	1.0 a	0.8 a	0.255
Other	0.2 a	0.1 a	0.5 a	0.7 a	0.053
Floral*	0.6 b	0.5 b	0.4 b	1.5 a	0.001
Mint*	0.4 a	0.1 bc	0.0 c	0.2 ab	0.005
Garlic*	0.3 c	1.9 a	1.2 b	0.3 c	<0.0001
Dill	0.5 a	0.4 a	0.2 a	0.5 a	0.466
Overall pepper complex*	2.2 b	2.3 ab	2.8 a	1.6 c	0.001

Table 5. Descriptive sensory evaluation ^z (n=5) of dried, ground hop cones from cultivars of hop grown at the University of Arkansas

 System Division of Agriculture Fruit Research Station, Clarksville, AR (2020).

White pepper	1.1 a	1.4 a	1.7 a	1.0 a	0.096
Black pepper	1.3 a	1.4 a	1.5 a	0.7 a	0.105
Overall impact*	6.1 b	6.6 a	6.7 a	5.9 b	0.001
		Terpenes/off-			
Defining attribute ^x	Citrusy	note	Savory	Grass/foliage	

² The Universal Aromatic Scale (0 to 15 points) was used as the reference for the aroma attributes. The aroma attribute definition is aromas associated with the attribute listed as Intensity 2.0 = Soda note of saltine cracker; Intensity 5.0 = Cooked apple note of applesauce; Intensity 7.5 = Orange note of orange juice; Intensity 10.0 = Grape note of grape juice; Intensity 15.0 = Big Red Gum®

^y Means with different letters for each attribute are significantly different (p<0.05) according to Tukey's Honest Significant Difference (HSD) test, highlighted row are significant attributes

^x Defining attribute is the term used to characterize the sample

Attributes	Cascade	Cashmere	Crystal	Zeus	P-value
~					
Grass	2.7 a	3.1 a	2.6 a	3.0 a	0.179
Foliage	3.7 a	4.1 a	3.4 a	3.5 a	0.099
Fruity	1.2 a	1.2 a	1.5 a	1.5 a	0.47
Terpenes off note skunk	2.5 a	2.1 a	2.4 a	2.6 a	0.585
Aged cheese*	2.3 a	2.0 ab	2.4 a	1.4 b	0.030
Umami savory	1.8 a	2.0 a	1.9 a	1.5 a	0.111
Overall citrus complex*	3.2 a	2.5 b	3.2 a	3.2 a	0.006
Lemon*	2.7 a	1.9 b	2.8 a	2.8 a	0.026
Lemongrass	2.0 a	1.5 a	1.8 a	1.9 a	0.134
Other	0.6 a	0.7 a	0.6 a	0.5 a	0.734
Overall green herb complex*	4.7 a	3.3 b	4.1 a	4.5 a	0.001
Sage	3.3 a	2.4 a	3.0 a	3.2 a	0.062
Thyme*	3.8 a	2.5 b	3.5 a	3. 7 a	0.001
Other	1.3 a	1.4 a	1.7 a	1.5 a	0.051
Floral	1.9 a	1.6 a	2.2 a	2.1 a	0.08
Mint	1.9 a	1.5 a	1.9 a	2.0 a	0.097
Garlic	1.0 a	1.2 a	0.8 a	1.2 a	0.391
Dill	2.0 a	1.7 a	2.0 a	2.1 a	0.204
Overall pepper complex*	3.4 a	2.8 b	2.9 b	2.8 b	0.019

Table 6. Descriptive sensory evaluation^z (n=7) of dried, ground hop cones from cultivars of hop grown at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2021)

White Pepper	2.7 a	2.3 a	2.4 a	2.0 a	0.067
Black Pepper*	2.9 a	2.2 b	2.5 ab	2.6 ab	0.042
Overall Impact	5.7 a	5.2 a	5.3 a	5.1 a	0.236
Defining attribute	Herbal	Foliage	Herbal/citrus	Herbal	

² The Universal Aromatic Scale (0 to 15 points) was used as the reference for the aroma attributes. The aroma attribute definition is aromas associated with the attribute listed as Intensity 2.0 = Soda note of saltine cracker; Intensity 5.0 = Cooked apple note of applesauce; Intensity 7.5 = Orange note of orange juice; Intensity 10.0 = Grape note of grape juice; Intensity 15.0 = Big Red Gum®

^y Means with different letters for each attribute are significantly different (p<0.05) according to Tukey's Honest Significant Difference (HSD) test, highlighted row are significant attributes

^x Defining attribute is the term used to characterize the sample

Table 7. Principal components (PC) analysis of volatile aroma compounds and sensory aroma descriptors dried, ground hop cones harvested from hop plants grown at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020) *Percent of variation in data explained by each component*.

Compound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified compounds within each compound class (Table 3) and the descriptive sensory attributes (Table 5)

		Principal Component 1 (74.00%) Overall impact \rightarrow Mint	Principal Component 2 (17.33%) Aldehydes \rightarrow Overall green herb complex
	Compound	•	· · · · · ·
	classifications	Alcohols	Esters
		Monoterpenes	Sesquiterpenes
		Aromatic Hydrocarbons	Aromatic Hydrocarbons
		2	Ketones
			Alcohols
	Sensory		
	Attributes	Grass	Thyme
		Overall citrus complex	Umami savory
		Lemongrass	Other citrus
Positive		Lemon	Sage
loadings		Foliage	Fruity
louuing ⁵		Floral	White Pepper
		Dill	Foliage
		Fruity	Lemon
		Other citrus	Black Pepper
		Thyme	Lemongrass
		Mint	Overall pepper complex
			Overall citrus complex
			Other green herb
			Overall green herb complex
	Cultivar	Cascade	Zeus
		Zeus	Crystal
Negative	Compound		
loadings	classifications	Esters	Monoterpene
		Ketones	Aldehyde

	Sesquiterpenes Aldehydes	
Sensory		
Attributes	Overall green herb complex	Dill
	Other green herb	Floral
	Terpenes/off note skunk	Aged cheese
	Overall pepper complex	Garlic
	Garlic	Grass
	Aged cheese	Terpenes/off note skunk
	Black pepper	
	White pepper	
	Sage	
	Umami savory	
	Overall impact	
Cultivar	Cashmere	Cascade
	Crystal	Cashmere

Table 8. Principal components (PC) analysis of volatile aroma compounds and sensory aroma descriptors dried, ground hop cones harvested from hop plants grown at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2021) Percent of variation in data explained by each component.

Compound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified compounds within each compound class (Table 3) and the descriptive sensory attributes (Table 6)

-		Principal Component 1 (49.94%)	Principal Component 2 (27.51%)
		Other citrus \rightarrow Thyme	Garlic \rightarrow Aged cheese
	Compound		
	classifications	Monoterpenes	Esters
		Aldehydes	Aldehydes
			Ketones
			Monoterpenes
			Sesquiterpenes
	Sensory		
	Attributes	White pepper	Thyme
		Overall impact	Lemongrass
		Other green herb	Lemon
		Fruity	Overall citrus complex
		Overall pepper complex	Floral
Positive		Black pepper	Black pepper
loadings		Floral	Other green herb
		Overall green herb complex	Other citrus
		Dill	Overall pepper complex
		Mint	Overall impact
		Lemon	Umami savory
		Lemongrass	White pepper
		Sage	Aged cheese
		Terpenes/off note skunk	
		Overall citrus complex	
		Thyme	
		Crystal	Cascade
	Cultivar	Zeus	Crystal

		Cascade	
	Compound		
	classifications	Alcohols	Aromatic hydrocarbons
		Aromatic hydrocarbons	Alcohols
		Sesquiterpenes	
		Ketones	
		Esters	
	Sensory		
	Attributes		
		Aged cheese	Sage
Negative		Garlic	Foliage
loadings		Grass	Overall green herb complex
		Umami savory	Fruity
		Foliage	Mint
		Other citrus	Terpenes/off note skunk
			Dill
			Grass
			Garlic
	Cultivar	Cashmere	Cashmere
			Zeus

plot number	cultivar	block
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	3	
8	2	
9	1	block 1
10	4	
11	6	
12	5	
13	5	
14	2	
15	4	
16	3	
17	1	
18	6	
19	1	
20	6	
21	3	
22	2	
23	5	
24	4	
25	3	
26	6	
27	2	
28	4	block 2
28	5	
30	1	
31	5	
32	2	
33	6	
34	1	
35	4	
36	3	
37	2	
38	5	
39	3	
40	4	
41	1	
42	6	
43	6	
44	3	
45	4	
46	5	block 3
47	2	
48	1	
48	1	
50	5	
51	6	
52	4	
53 54	3	

<u>Cultivars</u> 1=Cascade 2=Nugget 3=Zeus 4=Cashmere 5=Centennial 6=Crystal

Fig. 1. Plot map of hop cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR divided in three blocks with three replicates of each cultivar planted in a completely randomized block design (2020 and 2021)

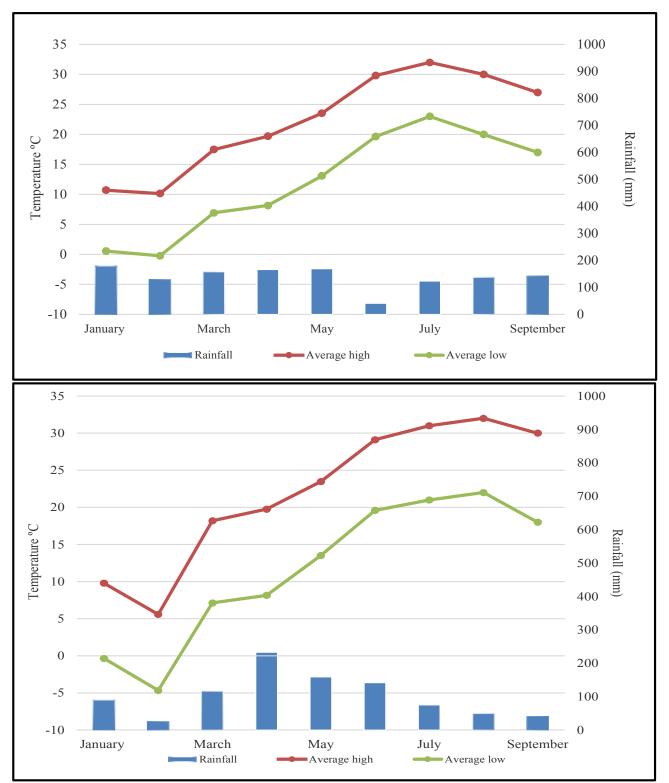


Fig. 2. Temperature and rain conditions from January to September at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020 top and 2021 bottom)

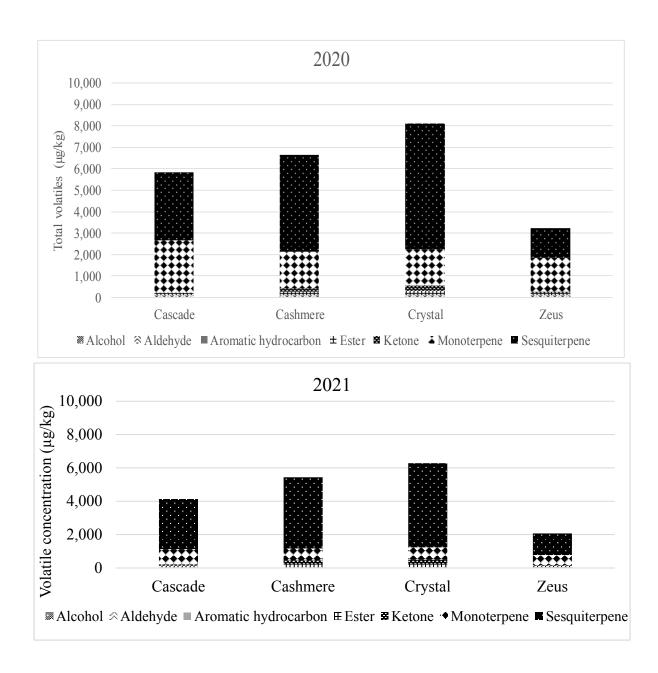
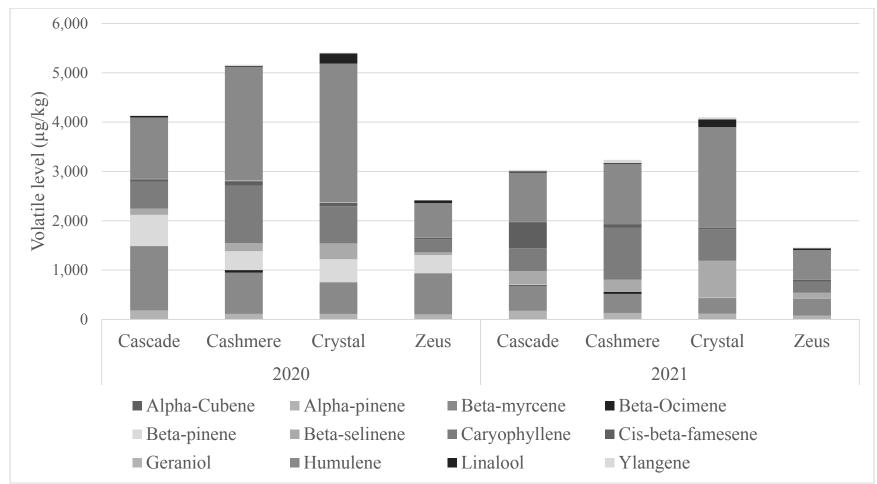
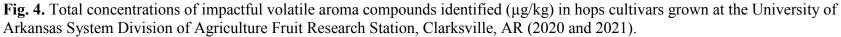


Fig. 3. Total concentrations of volatile aroma compounds identified in dried, ground hop cones harvested from hop plants grown at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020 and 2021)





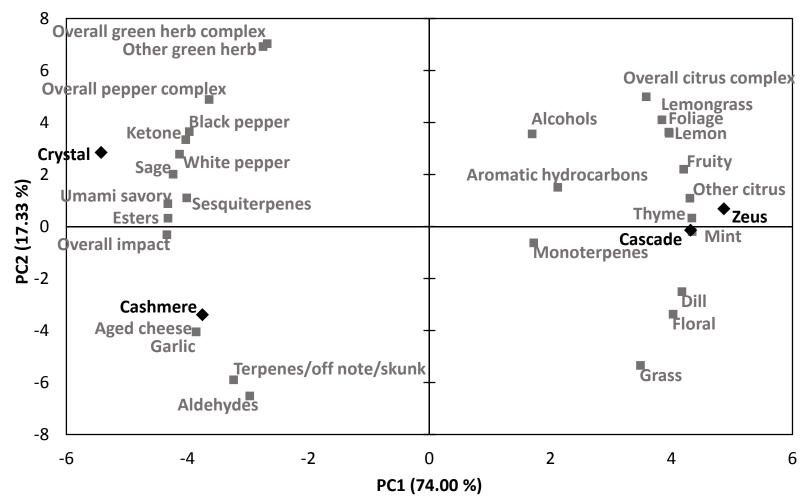
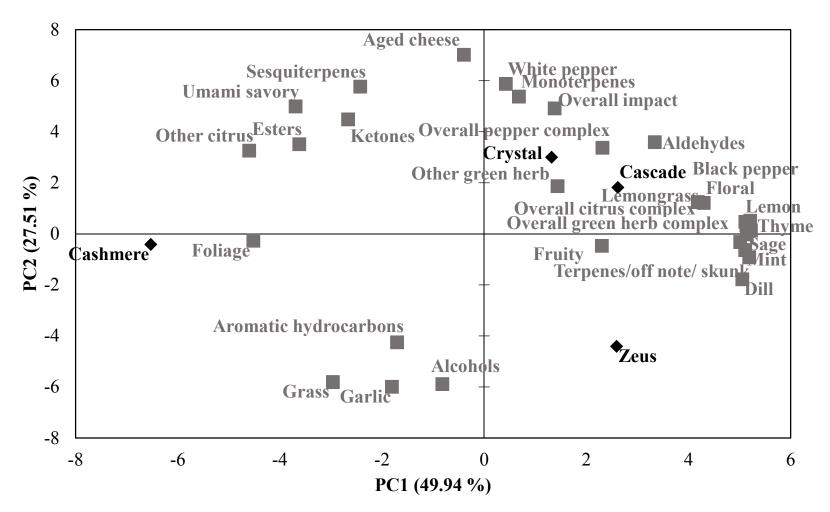
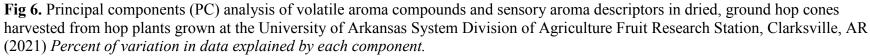


Fig 5. Principal components (PC) analysis of volatile aroma compounds and sensory aroma descriptors dried, ground hop cones harvested from hop plants grown at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020) *Percent of variation in data explained by each component*.

Compound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified compounds within each compound class (Table 3) and the descriptive sensory attributes (Table 5)





Compound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified compounds within each compound class (Table 3) and the descriptive sensory attributes (Table 6)

Chapter II

Impact of Harvest Date on Size, Composition and Volatiles of Arkansas Fresh-market Blackberries

Abstract

As demand for fresh-market blackberries (Rubus subgenus Rubus Watson) increases, new cultivars with unique attributes are being released. These robust flavors of blackberries are influenced by basic tastes and volatile aroma compounds. However, within a blackberry cultivar, fruit quality can vary during a harvest season. The impact of harvest date (early, middle, and late) on four fresh-market blackberry cultivars ('Natchez', 'Prime-Ark[®] Horizon', 'Prime-Ark[®] Traveler', and 'Sweet-Ark® Ponca') in 2020 and three cultivars ('Natchez', 'Prime-Ark® Traveler', and 'Sweet-Ark[®] Ponca') in 2021 grown at the University of Arkansas System (UA System) Division of Agriculture Fruit Research Station in Clarksville, AR were evaluated. The blackberries were hand-harvested on three dates one week apart and frozen (-10 °C) for evaluation of berry weight, composition, and volatile aroma attributes. In general, cultivars differed for berry weight (5-13 g), soluble solids (9-13%), pH (3.3-4.2), titratable acidity (0.4-1.0%), and solids/titratable acidity ratio (9.8-31.0), but harvest date impact varied by cultivar and year. In the cultivars harvested on three dates for both years, there were 139-165 volatile aroma compounds identified across 9-10 compound classes including monoterpenes, alcohols, aldehydes, sesquiterpenes, esters, ketones, fatty acids, aromatic hydrocarbons, furans, and lactones. Sweet-Ark[®] Ponca' late harvest date in 2021 had the lowest cumulative concentration of volatile compounds (1,369.96 µg/kg), and 'Sweet-Ark Ponca' middle harvest date in 2020 had the highest (4,692.89 µg/kg). In both years, six impactful volatiles, ethyl butanoate (2.84-38.49 μg/kg) (fruity, apple-like), linalool (38.30-61.79 μg/kg) (floral, perfume), ethyl 2methylbutanoate (2.59-19.24 µg/kg) (fruity), 2-hexenal (45.14-286.25 µg/kg) (green, leafy), geraniol (28.48-55.44 µg/kg)(sweet, rose-like), and *allo*-ocimene (0.57-2.57 µg/kg) (floral, citrus) were identified in Arkansas-grown fresh-market blackberries with 2-hexenal and linalool in the highest concentrations. Generally, principal component analysis showed clustering around both harvest dates and cultivar, and the two primary components covered 63.9%-63.3% in 2020 and 2021, respectively. This research provided a critical data berry attributes that impact the aroma and flavor of blackberries and can be used by blackberry breeders to help southern U.S. growers market blackberries.

Introduction

Blackberry (*Rubus* subgenus *Rubus* Watson) plants are grown domestically and internationally and can be cultivated for both fresh-market and processing. Fresh-market berries are harvested and sold directly to the consumers, while processing berries are intended for other uses including freezing, jellies, or beverages. Fresh-market berries are typically harvested by hand to preserve the berry integrity, while processing berries are harvested mechanically to increase harvest volume. The increased awareness of potential health benefits of blackberries, expanded globalization, and expedited refrigerated transportation methods contributed to the growing blackberry market (Safley, 2009).

In the United States, blackberry production in Oregon, Washington, and California is predominantly for the processing industry. According to the National Agricultural Statistics Service (USDA NASS, 2017), the total blackberry acreage in the United States was around 23,500 ha (58,000 acres) for both fresh-market and processing blackberries. In terms of the fresh-market industry in 2013, Oregon ranked first for the largest blackberry production (300 ha), California ranked second (280 ha), Texas ranked third (270 ha), Arkansas ranked fourth (240 ha), and North Carolina ranked fifth (180 ha) (Takeda et al., 2013). Fresh-market blackberry production in the Southeast has been a growing part of the United States market for the past decade (Fernandez et al., 2016).

Blackberries are a crown-forming perennial that produce above-ground stems called canes that are typically biennial (produce flowers and fruit then die in the second year) (Hummer, 2018). First-year blackberry canes are primocanes, but the second-year canes are floricanes. Blackberries produced by the plant are an aggregate fruit comprised of drupelets surrounding a soft tissue receptacle (torus). Each drupelet has a thin exocarp, a fleshy mesocarp,

and a hard-lignified endocarp, or pyrene that encloses a single seed (Tomlik-Wyremblewska et al., 2010). As blackberries ripen, the drupelets on the blackberries turn from red to black. The blackberries are harvested weekly for 3-4 weeks from plants as the fruit ripens. Previous studies have shown a relationship between harvest date and quality attributes but was dependent on cultivar (Cavender et al., 2019; Jacques et al., 2014). The size (berry weight, length, and width) and shape of a fully ripened blackberry varies among cultivars. The weight of each blackberry will range from 5-15 g with length of 15-30 mm (Carvalho and Betancour, 2015). The berries can have different shapes, such as a round shape, or the berries can be long and oval shaped.

The U.S. blackberry breeding programs play a critical role in global blackberry production, using current cultivars and breeding selections (genotypes) to develop and release new cultivars. In the United States, the United States Department of Agriculture (USDA)-Agricultural Research Service at Corvallis, OR (Clark and Finn, 2008) is the oldest currently active blackberry breeding program. Fresh-market blackberry cultivars released by USDA include 'Obsidian', 'Metolius' and the newest releases 'Eclipse', 'Galaxy' and 'Twilight' (USDA, 2020). The University of Arkansas System Division of Agriculture (UA System) Blackberry Breeding Program located at the UA System Fruit Research Station, Clarksville, AR, has developed and patented 43 fresh-market blackberry cultivars. The UA System blackberry breeding program also produced advancements in thornless plants, erect cane structures, increased fruit firmness, and primocane-fruiting (plants fruit on first year primocanes), and cultivars to lengthen the harvest season (Clark, 2005). 'Ouachita' and 'Osage' are two of the most widely-grown cultivars released from the UA System (personal communications, Dr. John *Clark*). The most recent cultivars from the UA System are 'Sweet-Ark[®] Caddo' (Clark et al., 2019) released in 2018, 'Sweet-Ark® Ponca' released in 2019, and 'Prime-Ark® Horizon'

released in 2020. Although blackberry acreage in Arkansas has lagged as other southern states across the Southeast, including Georgia, North Carolina, and Texas, have expanded acreage for retail-market sales (Clark and Finn, 2014), this breeding program and the establishment of a new Arkansas Blackberry Growers Association has invigorated the state's industry.

The aroma, appearance, flavor, and texture of blackberries varies by cultivar. Although the basic tastes (sweetness, sourness, and bitterness) impact the flavor of blackberries, volatile aroma compounds (substances in fruit which vaporize easily at ambient temperature) are also responsible for typical aromas and aromatic flavors of blackberries. Sugars (mostly glucose and fructose) are the major soluble solids in blackberries that impact the sweetness and sourness (Mikulic-Petkovsek et al., 2012). The soluble solids of commercially acceptable fresh-market blackberry ranges from 8-11% (Threlfall et al., 2016). The titratable acidity is a measure of the predominant acid (usually citric) in the fruit and is inversely related to the pH. The pH of a commercially-acceptable fresh-market blackberry ranges from 3.0-3.6 and titratable acidity aranges from 0.7-1.4% (Threlfall et al., 2016). Segantini et al. (2018) determined important attributes for quality, demonstrating fresh-market blackberries had a good balance of acidity and sugar content, as noted by descriptive sensory panelists. The balance of sugars and acids are important attributes for fresh-market blackberries, especially to target consumer markets.

Volatile organic compounds are also impact consumer perceptions and preferences of blackberry flavor. Unlike the basic tastes which are perceived by taste receptors on the tongue, volatiles are perceived through smell detected by olfactory receptors in the nose and mouth (Klee and Tieman, 2018). The olfactory system and odor thresholds of individuals vary widely, making olfactory perception a difficult trait to quantify (Hasin-Brumshtein et al., 2009). While many different volatiles affect blackberry flavor, specific compounds that drive consumer preferences

vary (Klee and Tieman, 2018). Volatiles are extracted using gas chromatography mass spectrometry (GC-MS) then quantified using flame ionization detector (FID). Solid Phase Micro Extraction (SPME) fibers can capture analytes in the headspace of a sample for analysis. Gas chromatography-Olfactometry (GC-O) can also be used to evaluate the aroma of fresh-market blackberries. The GC-O separates compounds using GC, and as a peak is detected, that odor is separated and delivered to a trained panelist to evaluate the intensity of the aroma detected (Wang et al., 2005).

Volatile compounds in blackberries include acids, esters, alcohols, aldehydes, ketones, lactones, and terpenoids. Early studies focused on the volatile constituents of blackberries and blackberry products (Georgilopoulos and Gallois, 1987; Gulan et al., 1973; Scanlan et al., 1970). Compounds, such as 2-heptanol, p-cymen-8-ol, 2-heptanone, 1-hexanol, a-terpineol, pulegone, 1octanol, isoborneol, myrtenol, 4-terpineol, carvone, elemicine, and nonanal were identified as major volatiles in blackberries. Blackberry aroma profiles are diverse, with different genotypes having unique aroma profiles. Jacques et al. (2014) identified 45 volatile compounds in 'Tupy', the predominant cultivar available commercially. The majority of volatiles in blackberries were comprised of terpenoids with limonene as the predominate compound (Du et al., 2010).

Wang et al. (2005) examined volatiles in 'Chickasaw' blackberries, a UA System cultivar, grown in Oregon and Arkansas. While the number volatiles and the aroma compositions of the samples from the two locations were similar, there were differences in aroma impact of the blackberries between the two regions. The flavor and aroma of the fruit were strongly influenced by the local growing environment within the same cultivar. The berries grown in Oregon had cut grass, green, fruity, citrus, and watermelon aromas, while the Arkansas berries had cinnamon, piney, floral, sweet, and caramel aromas. The most potent aroma compounds in Oregon-grown 'Chickasaw' were ethyl butanoate (fruity, apple-like), linalool (floral, perfume), methional (cooked potato), trans,cis2,6-nonadienal (green, cucumber), cis-1,5-octadien-3-one (green, grass), and 2,5-dimethyl-4-hydroxy-3(2H)-furanone (sweet, strawberry-like), while in Arkansas-grown 'Chickasaw' were ethyl butanoate, linalool, methional, ethyl 2-methylbutanoate (fruity), beta-damascenone (rose-like, berry), and geraniol (sweet, rose-like).

In a similar study, Du et al. (2010) quantified volatiles of eight Oregon-grown genotypes of blackberries identified a range of compounds, such as esters, terpenoids, aldehydes, ketones, alcohols, norisoprenoids, lactones, acids, and furanones. The compounds were quantified, but the values of each compound did not distribute uniformly across genotypes. Barba et al. (2018) evaluated odorant compounds that enhanced sweet flavor in sugar-reduced juice using GC-O to isolate taste-enhancing compounds and showed that ethyl 2-methylbutonate enhanced flavor sweetness. The data help target odorant compounds that enhance desired flavors. It is possible that specific cultivars may have optimal harvest dates that differ from each other, depending on the preferred volatile composition, as is the case with grapes and other produce (Bindon et al., 2013; 2014; Jordão et al., 2017; Meyers, 2022).

Flavor dilution (FD) is the ratio of the concentration of the odorant in an initial extract to the concentration in the most dilute extract, but the odor is still detachable by GC-O. The compounds with the most impactful aromas found by Wang et al. (2005) in Arkansas-grown 'Chickasaw' determined by their FD were ethyl butanoate, linalool, methional, ethyl 2-methylbutanoate, β -damascenone, geraniol, allo-ocimene, trans-2-hexenal, and 2,5-dimethyl-4-hydroxy-3(2H)-furanone; all with a FD = 512. Whereas, the odor activity value (OAV) estimates odor potency as a ratio of the volatile concentration to its odor detection threshold (Patton, 1957). Du et al., 2010) calculated OAVs and found furaneol, linalool, β -ionone, 2-heptanol, and

carvone that contributed to the major aroma compounds in blackberries grown in the Pacific Northwest. The volatile concentrations are calculated based on comparing volatile peak areas from GC response to the internal standard and external databases. In contrast to Wang et al. (2005), methional, β-damascenone, allo-ocimene, ethyl 2-methylbutanoate, and 2,5-dimethyl-4-hydroxy-3(2H)-furanone were not detected in Arkansas-grown blackberries by Morin nor Meyers (Meyers, 2021; Morin 2021) who also investigated volatiles in Arkansas-grown blackberries.

Consumers want a fresh-market blackberry that is uniform in color, fresh, has a good shelf life, fair-priced, rich in nutraceuticals, and has unique flavors and aromas (Threlfall et al., 2020, 2021). A study conducted on blueberries showed lipid-derived volatiles explained 15% of overall liking scores in a sensory panel, and the carotenoid/terpene compound group explained 21% of the overall liking score (Colantonio et al., 2020). Descriptive sensory analyses have been conducted to determine attributes that are commercially acceptable for fresh-market blackberries, such as appearance, aroma, basic tastes, aromatics, feeling factors. Threlfall et al. (2016) developed a fresh-market blackberry lexicon to evaluate UA System blackberries. In the lexicon, eight appearance, three basic tastes, two feeling factors, and eight aromatics were evaluated. Segantini et al. (2017) studied sensory attributes in postharvest storage and reported panelists could not perceive a difference in color, uniformity of color, glossiness, firmness or sweetness after storage, but could identify blackberries as more astringent and less sour and bitter after storage. Gilbert et al. (2015) identified breeding priorities for blueberry flavor using biochemical, sensory, and genotype by environment analyses and found many of the compounds affecting flavor including β -caryophyllene oxide and 2-heptanone were genetically controlled.

There is a critical need to determine the key volatile attributes that that impact the aroma and flavor of blackberries and can be used by blackberry breeders to help southern U.S. growers market blackberries. Since the UA System Blackberry Breeding Program contributes to the global blackberry industry, the objectives of the research were to evaluate the impact of harvest date on size, composition, and volatiles of Arkansas fresh-market blackberries.

Materials and Methods

Blackberry plants and culture

The blackberry plants were grown at the UA System Fruit Research Station in Clarksville, AR (West Central Arkansas, lat. 35 °31'58" N and long. 93 °24'12" W). Four blackberry cultivars (Natchez, Prime-Ark[®] Horizon, Prime-Ark[®] Traveler, and Sweet-Ark[®] Ponca) were evaluated in 2020, and three cultivars (Natchez, Prime-Ark® Traveler, and Sweet-Ark[®] Ponca) were evaluated in 2021. Plants were trained to a T-trellis with two lower wires ~0.5 m from the soil surface spaced 0.5 m apart and two upper wires ~ 1.0 m high spaced 0.8 m apart. The blackberry plants that were harvested for this project were in three plots with five plants per plot, and the plots were established in 2017, 2018, and 2019. Standard cultural practices for erect blackberry production were used including annual spring nitrogen fertilization (56 kg/ha N) using ammonium nitrate. The plants were irrigated as needed using trickle irrigation. Dormant pruning consisted of removing dead floricanes and removing primocane tissue to a point below the flowering area on the primocanes. The plants received a single application of liquid lime sulfur (94 L/ha) at budbreak for control of anthracnose (*Elsinoë veneta* [Burkholder] Jenk.). Raspberry crown borer (*Pennisetia marginata* [Harris]) was controlled by a single application of a labeled insecticide with bifenthrin as the active ingredient in October of each year. Insecticides labeled for commercial use in Arkansas were used for spotted wing drosophila (Drosophila

suzukii Matsumura) control. Average monthly temperature and rainfall at the Fruit Research Station in Clarksville, AR were tracked, recorded, and reported from January to June each year (Fig 1).

Blackberry harvest

Blackberries were hand harvested from the floricanes from $7:00_{AM}$ to $10:00_{AM}$. The fruit was harvested at the shiny-black stage of ripeness and were free of major blemishes, flaws, or damage. About 2 kg of blackberries were harvested three consecutive weeks in June 2020 and 2021 for each cultivar and placed directly into 312 g (11oz) vented clamshells. After harvest, the clamshells of blackberries were placed in chilled coolers and transported to the UA System Department of Food Science, Fayetteville and frozen (-10 °). After the blackberries were frozen, the blackberries were divided into three replications (10 berries/replication) for each of the evaluations for berry weight, composition attributes, and volatile attributes.

Berry weight analysis

Ten berries per cultivar, harvest date, and replication were used for berry weight. Each berry was weighed (g) using a precision digital scale (PA224 Analytic Balance, Ohaus Corporation, Parsippany, NJ). These berries were also used for composition.

Composition attribute analysis

Composition of the juice from ten berries per cultivar, harvest date, and replication were measured for soluble solids, pH, and titratable acidity. The ten berries were thawed at room temperature (21 °C) and squeezed through cheesecloth to extract the juice for analysis. <u>Soluble solids.</u> Soluble solids of the juice were measured and expressed as percent (%) using an Abbe Mark II refractometer (Bausch and Lomb, Scientific Instrument, Keene, NH). <u>pH</u>. The pH of juice was measured using a pH700 Benchtop pH meter (APERNA Instruments, Columbus, OH).

<u>Titratable acidity.</u> The titratable acidity of the juice was measured using a Metrohm 862 Compact Titrosampler (Metrohm AG, Herisau, Switzerland) fitted with a pH meter. Three grams of sample was added to 50 mL degassed, deionized water and titrated with 0.1 N sodium hydroxide to an endpoint of pH 8.2. The titratable acidity of juice was expressed as % w/v (g/100 mL) citric acid.

<u>Soluble solids/titratable acidity ratio.</u> The soluble solids/titratable acidity ratio was calculated as the soluble solids divided by the titratable acidity.

Volatile aroma attribute analysis

Ten berries per cultivar, harvest date, and replication were used for volatile aroma attribute analysis. Gas chromatography analysis was performed using a Shimadzu GC-2010 Plus Gas Chromatograph equipped with a Flame Ionization Detector (GC-FID) and a GCMS-QP2010 SE Mass Spectrometer (GC-MS). The analysis includes identification and quantitation of odoractive compounds. For the analysis of blackberry volatiles, frozen blackberries (10 g), deionized water (10 mL), and NaCl (3 g) were mixed using a ratio of 1:1:0.3 (w/v/w). Two samples (one for GC-MS and one for FID) of 4 mL berry/deionized water/NaCl solution were placed in 20 ml headspace vials. The vials were incubated for 20 minutes with agitation and heat at 65 °C, and then the volatiles were absorbed using an 85 µm DVB/CAR/PDMS Solid Phase Microextraction (SPME) fiber was placed in the headspace above the sample for an additional 30 minutes. The SPME fiber was removed from the vial and placed into GC injection ports.

Samples were analyzed on both GC-FID and GC-MS and separation was performed on each using a HP-5 (30 m \times 0.25 mm inner diameter, 5% phenyl-methylpolysiloxane, 1.0 μ m film thickness) capillary column. For both GC-MS and GC-FID analysis, the injector temperature was

250 °C. Helium was used as the carrier gas and column flow rate was 1.92 mL/min for GC-FID and 1.20 mL/min for GC-MS. The oven temperature was programmed for a 4 min hold at 30 °C, then 30 °C to 180 °C at 6 °C/min, then from 180 °C to 280 °C at 8 °C/min, and with a 3 min hold at 280 °C. The GC-FID detector temperature was 280 °C, and the interface temperature for the GC-MS had an ion source temperature of 230 °C and an interface temperature of 250 °C. GC-MS was performed in full scan mode, with a scan range of 20-300 *m/z*. The volatiles were identified by comparison of their mass spectra with the spectral library, literature data, and retention indices, and expressed as μ g/kg.

Statistical design and analysis

For berry weight, composition, and volatiles cultivars and harvest dates were evaluated in triplicate by year. In both years, three harvest dates were evaluated (early, middle, and late). Four cultivars (Natchez, Prime-Ark[®] Horizon, Prime-Ark[®] Traveler, and Sweet-Ark[®] Ponca) were evaluated in 2020, and three cultivars (Natchez, Prime-Ark[®] Traveler, and Sweet-Ark[®] Ponca) were evaluated in 2021. The data was analyzed by analysis of variance (ANOVA) using JMP[®] (version 16.0.0; SAS Institute Inc., Cary, NC). Tukey's Honestly Significant Difference was used for mean separations (p = 0.05). Associations among all dependent variables were determined using multivariate pairwise correlation coefficients of the mean values using JMP (version 16.0.0; SAS Institute Inc., Cary, NC). Principal component analysis was done using XLStat (Addinsoft Inc., New York, NY).

Results and Discussion

Average monthly temperature and rainfall were reported from January to June, the end of blackberry harvest at the Fruit Research Station in Clarksville (Fig. 1.) The 2020 blackberry season in Clarksville, AR was typical in terms of temperature and rainfall. However, the 2021

season had notable weather events in February and April. In both years the high temperatures in June were 33 °C. The low temperatures in 2020 were 14 °C, and the low temperatures in 2021 were 11 °C. There was record cold temperatures (-5 °C) with 178 mm of snow in February of 2021 at the Fruit Research Station followed by a freeze after budbreak in late April (-1 °C overnight). The cultivars available for harvest were impacted by both low temperature events in 2021. Total rainfall in 2021 (765 mm) was less than rainfall in 2020 (843 mm). Rainfall in June 2021 (142 mm) was triple the rainfall in June 2020 (41 mm). There was rainfall the day before the early harvest date (23 mm) and late harvest date (7 mm), but no precipitation prior to the middle harvest date.

Berry weight attributes

The cultivar x harvest date interaction was significant for berry weight in 2020 but not 2021 (Table 1 and 2). In general, 'Sweet-Ark[®] Ponca' had the smallest berries in both years, and harvest date had minimal impact on berry weight. For both years, berries were 5-13 g, which falls within ranges established by previous research on Arkansas-grown fresh-market blackberries (Felts et al., 2020; Threlfall et al., 2016, 2020, 2021). Felts et al. (2020) harvested nine Arkansas genotypes in 2017 with berry weights 4-9 g. Carvalho and Betancur (2015) found the average weight of blackberries grown in Colombia ranged from 5-15 g and 15-30 mm in length. Berries harvested in 2021 were larger than berries in 2020. This is likely due to the April freeze which occurred during flowering, and greatly reduced the total number of berries per plant. Ciobotari et al. (2013) also found that both 'Thornfree' and 'Lochness' blackberries increased fruit yield under optimal sunlight and irrigation conditions, but berry size differed between cultivars when the plant was given reduced sunlight and irrigation. 'Thornfree' berries were generally smaller in low water conditions, while 'Lochness' berries were generally larger.

This indicates that cultivars handle water and nutrient stressors differently, and further research is necessary to determine how each cultivar responds to different environmental factors.

2020. 'Prime-Ark[®] Horizon' from the middle harvest (11.26 g) had the largest berry weight, and 'Prime-Ark[®] Traveler' regardless of harvest date (4.74-4.86 g) had the smallest (Table 1). There were not any differences among the harvest dates within the cultivars except in 'Prime-Ark[®] Horizon' where the berries from the middle harvest had higher berry weight than the early harvest (8.10).

2021. Cultivar impacted berry weight with 'Natchez' (13.02 g) higher than 'Sweet-Ark[®] Ponca' (5.89 g) and 'Prime-Ark[®] Traveler' (5.39 g). Harvest date did not impact berry weight but had an average berry weight of 8.1 g.

Composition attributes

The cultivar x harvest date interaction was significant for soluble solids and soluble solids/titratable acidity ratio in both years (Figs. 2 and 3). In general, cultivars differed for the composition attributes, but harvest date impact on composition attributes varied by cultivar and year. For both years, berries had 9-13% soluble solids, 3.3-4.2 pH, 0.4-1.0% titratable acidity, and 9.8-31.0 soluble solids/titratable acidity ratio. Cavender et al. (2019) found that harvest date affected berry weight, soluble solids, pH, and titratable acidity, but that the values for pH and titratable acidity followed fewer trends. The same study also showed that different fertilizers affected berry production and composition, indicating that nitrogen availability throughout the harvest period has an effect on fruit yield and quality. This relationship between nitrogen and fruit quality has been previously established (Al-Kharusi, 2009; Beckles, 2012; Christensen et al., 1994; Skupien and Oszmianski, 2007; Wang and Lin, 2002)

The composition attributes were within ranges established by previous research on Arkansas-grown fresh-market blackberries. Segantini et al. (2017) harvested 11 Arkansas-grown genotypes in 2015 with soluble solids 4.7-19.5%, pH 3.0-3.4, and titratable acidity 0.5-1.5%. In a consumer sensory study on Arkansas-grown fresh market blackberries, Threlfall et al. (2016) concluded that for a majority of the consumers the fresh-market blackberries should have soluble solids of 9-11%, titratable acidity of 0.9-1.0%, and a soluble solids/titratable acidity ratio of 10-13.

2020. Cultivar and harvest date impacted titratable acidity (Table 1). The titratable acidity for 'Natchez', 'Prime-Ark[®] Traveler' and 'Sweet-Ark[®] Ponca' was 0.93%, 0.77%, 0.73%, and 0.38%, respectively. The titratable acidity for the early harvest date (0.82%) was higher than the middle (0.65%) and late (0.64%). 'Sweet-Ark[®] Ponca' early harvest date (13.80%) had the highest soluble solids, and 'Natchez' late harvest date (7.67%) had the lowest (Table 1, Fig. 2). Harvest date did not impact the soluble solids within each cultivar, however, while not significant, the early harvest date had slightly higher soluble solids than the late harvest date in all the cultivars. The cultivar x harvest date was also significant for pH (Fig. 2). In terms of pH, 'Prime-Ark[®] Traveler' late harvest date had the highest pH (4.54), and harvest date did not impact the pH of 'Natchez', 'Sweet-Ark[®] Ponca'' or 'Prime-Ark[®] Horizon', but pH increased as harvest date increased in 'Prime-Ark[®] Traveler'. 'Prime-Ark[®] Traveler' last harvest (41.08) had the highest solids/titratable acidity ratio and 'Natchez' early harvest (7.76) had the lowest. Harvest date impacted soluble solids/titratable acidity ratio of 'Prime-Ark[®] Traveler' with the middle and late harvest dates having a higher than the early harvest date.

2021. Cultivar impacted the pH but not the harvest date. 'Sweet-Ark[®] Ponca' (3.71) had a higher pH than Natchez (3.35) and 'Prime-Ark[®] Traveler' (3.48), but harvest date did not impact pH

(Table 2). 'Sweet-Ark[®] Ponca' early harvest date (14.63%) had the highest soluble solids, and 'Prime-Ark[®] Traveler' late harvest date (9.33%) had the lowest (Table 2). Harvest date impacted the soluble solids of 'Natchez' and 'Sweet-Ark[®] Ponca' with the early harvest date higher in soluble solids than the late harvest date. The cultivar x harvest date was significant for titratable acidity (Table 2). Natchez late harvest date had the highest titratable acidity and lowest soluble solids/titratable acidity ratio (1.14% and 8.83, respectively), and 'Prime-Ark[®] Traveler' middle harvest date had the highest titratable acidity ratio (24.03 and 0.44%, respectively). Harvest date did not impact titratable acidity or soluble solids/titratable acidity ratio for any cultivar.

Volatile aroma attributes

In the four cultivars harvested on three dates for both years, there were 139-165 volatile aroma compounds identified across 9-10 compound classes including monoterpenes, alcohols, aldehydes, sesquiterpenes, esters, ketones, fatty acids, aromatic hydrocarbons, furans, and lactones (Tables 3 and 4). Across all cultivar/harvest date combinations and both years, alcohols (14-37%), aldehydes (7-41%), esters (15-44%), and monoterpenes (7-40%) were the major compound categories (Figs. 4 and 5). Monoterpenes are a class of terpenes that contain two isoprene molecules and are predominantly the product of secondary metabolism of plants known for their biological activities such as antimicrobial, anti-inflammatory, and anti-plasmodial properties and have been used in flavorings and fragrances (Tchimene et al., 2013). Esters with a fruity aroma were the second largest class of compounds in all blackberries. Sesquiterpenes, ketones, aromatic hydrocarbons, norisoprenoids, acids, and lactones were also present in low amounts.

These results varied from Du et al. (2010a) and Qian and Wang (2005) for blackberries grown in the Pacific Northwest who found that acids, alcohols, and monoterpenes (32, 32, and 24%, respectively) were the major classes. In a study performed on Spanish and Italian blackberries (*Rubus* ulmifolius *Schott*), D'Agostino et al. (2015) found that esters and alcohols were the predominant class of volatiles followed by monoterpenes, aldehydes, and ketones. Discrepancies between other studies and our results is to some degree expected, as variations in genetics, ripening stage, harvest, storage conditions, and sample preparation and gas chromatography procedures affect the volatile composition of blackberries (El Hadi et al., 2013; Qian & Wang, 2005).

While extraction method can impact volatile identification and quantification when comparing values from different research, our study conditions were optimized to achieve ideal results. All samples were prepared the same using a DVB/CAR/PDMS SPME fiber (preferable for berry volatiles), 4 mL-sample amount, 20 min pre-equilibrium time, 30 min extraction time, and 65 °C extraction temperature.

Wang et al. (2005) investigated 'Chickasaw', an Arkansas bred and grown cultivar, to determine the most impactful aromas in 'using flavor dilution (FD) factors and found that the impactful aromas were ethyl butanoate, linalool, methional, ethyl 2-methylbutanoate, β -damascenone, geraniol, *allo*-ocimene, trans-2-hexenal, and 2,5-dimethyl-4-hydroxy-3(2H)-furanone; all of which had a FD \geq 512. Figures 6-7 show the total concentration of the impactful volatile aroma compounds in 2020 and 2021. Six of the nine impactful volatiles found in Wang et al. (2005) were identified in Arkansas-grown fresh-market blackberries in both 2020 and 2021. The compounds found were ethyl butanoate, linalool, ethyl 2-methylbutanoate, geraniol, allo-ocimene, and trans-2-hexenal, but compounds not found in our research were methional,

beta-damascenone, and 2,5-dimethyl-4-hydroxy-3(2H)-furanone. The 2-hexenal (a floral aldehyde) and linalool (a floral monoterpene) had the highest levels of the six impactful compounds in the Arkansas-grown blackberries in both years, followed by ethyl 2-methylbutanoate, an ester with a fruity aroma. Levels of the six impactful compounds was much less (almost 50% less) in 2021 than in 2020, with levels of 2-hexenal seeing the largest reduction in total concentration. 'Sweet-Ark[®] Ponca', regardless of harvest date, had the highest levels of linalool in both 2020 and 2021, and 'Sweet-Ark[®] Ponca' middle harvest date had the highest level of impactful volatiles in both 2020 and 2021.

Du et al. (2010a) used OAVs to identify the impactful aroma contributing compounds in blackberries grown in the Pacific Northwest and found furaneol, linalool, β -ionone, 2-heptanol, and carvone as the most impactful aromas. In contrast to Wang et al. (2005), methional, β damascenone, ethyl 2-methylbutanoate, and 2,5-dimethyl-4-hydroxy-3(2H)-furanone were not detected in our Arkansas-grown blackberries. This indicated measuring impactful volatiles rather than evaluating the entire volatile profile is a better approach for screening blackberries for aroma.

In general, overall volatiles were similar levels in 2020 and 2021, but impactful volatiles were much lower, most notably 2-hexenal was recorded at much higher levels in 2020 in all cultivars than in 2021. Other impactful volatiles were found at similar levels in both years, for example, 'Sweet-Ark[®] Ponca' had higher levels of linalool and 'Natchez' had relatively high levels of geraniol when compared to other cultivars. This reinforces previous research indicating that individual cultivars have unique volatile profiles (El Hadi et al., 2013; Qian and Wang, 2006). To clearly determine which of the identified odor-active volatiles contribute to the distinctive aromas of blackberries, including those volatiles that add subtle background aromas

required for a "natural, complete" blackberry aroma, further studies are required. In addition, volatile composition may change during the storage as well as during the freezing and thawing process.

2020. In the four cultivars harvested on three dates, there were 165 volatile aroma compounds identified across 10 compound classes including 45 monoterpenes, 31 alcohols, 28 aldehydes, 18 sesquiterpenes, 15 esters, nine ketones, nine fatty acids, six aromatic hydrocarbons, three furans, and one lactone (Table 3). Compound categories included chemical, floral, fruity, green/fat, roasted/caramelized, vegetal alcohols, floral, green/fat, vegetal, and roasted/caramelized aldehydes, fruity and vegetal aromatic hydrocarbons, fruity esters, vegetal and fruity ketones, vegetal, fruity, floral, green/fat monoterpenes, and green/fat, and fruity sesquiterpenes. 'Natchez' Early harvest date had the lowest cumulative concentration of volatile compounds (1,257.72 μ g/kg), and 'Sweet-Ark[®] Ponca' Middle harvest date had the highest (3,777.34 μ g/kg).

Figure 4 shows the total volatile concentration for each cultivar and harvest date with different compound categories. For every cultivar except for 'Prime-Ark[®] Traveler' late harvest had a higher overall volatile concentration than did the early harvest date. In addition, 'Natchez' and 'Sweet-Ark[®] Ponca' middle harvest had a higher overall volatile levels than did the early harvest date. The four volatile aroma compounds with the highest levels found in Arkansas-grown blackberries were 2-methylbutanoic acid (fatty acid with fruity aromas), 5-hexenal, 4-methylene (aldehyde with fruit and cocoa aromas), hexanal (aldehyde with grassy and fruity notes), and 2-phenylethanol (alcohol with floral and honey notes) (Table 4). In 'Natchez' and 'Sweet-Ark[®] Ponca', 2-methylbutanoic acid and hexanal all increased in level as the harvest dates progressed. Natchez' also showed the same trend 2-phenylethanol, however, 'Sweet-Ark[®] Ponca' also increased in 5-Hexenal, 4-methylene as the harvest dates progressed.

The impactful volatile aroma compounds with the highest levels in 2020 were 2-hexenal $(33.70 - 589.09 \ \mu\text{g/kg})$, a floral aldehyde, and linalool $(0 - 281.57 \ \mu\text{g/kg})$, a floral monoterpene (Fig. 6). The next highest impactful compound was geraniol $(7.32 - 69.88 \ \mu\text{g/kg})$, a monoterpene with floral and fruity aromas.

When a PCA was conducted on the compound class variables in 2020 (Fig. 8), two components explained 64% of the variation in the data. PC1 (42.9%) had positive loadings for ketones, acids, sesquiterpenes, esters, aromatic hydrocarbons, and lactones. Cultivar/harvest date combinations positively loaded for PC1 included 'Prime-Ark[®] Traveler' late, 'Natchez' early, 'Natchez' middle, and 'Natchez' late. Monoterpenes, alcohols, furans, and aldehydes were all loaded negatively on PC1 along with cultivar/harvest date combinations 'Prime-Ark[®] Horizon' middle, 'Prime-Ark[®] Horizon' late, 'Prime-Ark[®] Traveler' middle, 'Sweet-Ark[®] Ponca' late, 'Sweet-Ark[®] Ponca' middle, 'Prime-Ark[®] Horizon' early, 'Prime-Ark[®] 'Traveler' early, and 'Sweet-Ark[®] Ponca' early. PC2 (21.0%) had positive loadings for furans, aromatic hydrocarbons, lactones, esters, aldehydes, monoterpenes, acids, ketones, and alcohols. Cultivar/harvest date combinations 'Sweet-Ark[®] Ponca' late, 'Prime-Ark[®] Horizon' early, 'Prime-Ark[®] Traveler' early, 'Prime-Ark[®] Horizon' late, 'Prime-Ark[®] Traveler' late, 'Natchez' late, and 'Sweet-Ark[®] Ponca' middle. Sesquiterpenes and the cultivar/harvest date combinations 'Sweet-Ark[®] Ponca' early, 'Prime-Ark[®] Traveler' middle, 'Prime-Ark[®] Horizon' middle, and 'Natchez' early were all negatively loaded for PC2.

Berry weight was negatively correlated ($r^2 = -0.58$, p = 0.0462) with aldehydes and positively correlated with aromatic hydrocarbons ($r^2 = 0.82$, p = 0.0012), esters ($r^2 = 0.77$, p = 0.0035), lactones ($r^2 = 0.89$, p = 0.0001), and sesquiterpenes ($r^2 = 0.78$, p = 0.0029). The pH was negatively correlated with sesquiterpenes ($r^2 = -0.58$, p = 0.0471). Titratable acidity was

negatively correlated with aldehydes ($r^2 = -0.60$, p = 0.0381), while soluble solid/titratable acidity ratio was positively correlated with aldehydes ($r^2 = 0.60$, p = 0.0383) and negatively correlated with sesquiterpenes ($r^2 = -0.60$, p = 0.0407).

2021. In the three cultivars harvested on three dates, there were 139 volatile aroma compounds identified across 9 compound classes including 31 monoterpenes, 23 esters 23 alcohols, 23 aldehydes, 17 sesquiterpenes, 7 acids, 7 ketones, 5 aromatic hydrocarbons, 3 lactones (Table 4). Compound categories included chemical, floral, fruity, green/fat, roasted/caramelized, vegetal alcohols, floral, green/fat, vegetal, and roasted/caramelized aldehydes, fruity and vegetal aromatic hydrocarbons, fruity esters, vegetal and fruity ketones, vegetal, fruity, floral, green/fat monoterpenes, and green/fat, and fruity sesquiterpenes. 'Sweet-Ark[®] Ponca' Late harvest date had the lowest cumulative concentration of volatile compounds (1,369.27 µg/kg), and 'Prime-Ark[®] Traveler' middle harvest date had the highest (3,665.85 µg/kg).

Figure 5 shows the total volatile concentration for each cultivar and harvest date with different compound categories. For each cultivar, the middle harvest date had a higher overall volatile level than did the early harvest date. The four volatile aroma compounds with the highest levels found in Arkansas-grown blackberries were 2-butanol (alcohol with fruity apricot aromas), ethyl acetate (ester with ethereal grape-like notes), 2-hexen-1-ol (alcohol with fruity, green and banana aromas), and methyl octanoate (ester with waxy orange and vegetable notes) (Table 6).

The impactful volatile aroma compounds with the highest concentrations in 2021 were geraniol (0 - 107.47 μ g/kg), a fruity monoterpene, and linalool (2.11 - 170.16 μ g/kg), a floral monoterpene (Fig. 5). The next highest impactful compounds were 2-hexenal (1.28- 145.13 μ g/kg), an aldehyde with fruity aromas, and ethyl 2-methylbutanoate, an ester with fruity aromas.

When a PCA was conducted on the compound class variables in 2021 (Fig. 9), two components explained (63.3%) of the variation in the data. PC1 (35.6%) had positive loadings for aromatic hydrocarbons, esters, aldehydes, alcohols, sesquiterpenes, monoterpenes, lactones, and acids. Cultivar/harvest date combinations positively loaded for PC1 included 'Sweet-Ark[®] Ponca' middle, 'Prime-Ark[®] Traveler' early, 'Natchez' late, 'Natchez' middle, and 'Prime-Ark[®] Traveler' middle. Ketones loaded negatively on PC1 along with cultivar/harvest date combinations 'Prime-Ark[®] Traveler' late, 'Natchez' early, 'Sweet-Ark[®] Ponca' early, and 'Sweet-Ark[®] Ponca' late. PC2 (27.7%) had positive loadings for sesquiterpenes, alcohols, acids, monoterpenes, ketones, and aromatic hydrocarbons. Cultivars/harvest date positively loaded for PC2 included 'Natchez' late, 'Natchez' middle, and 'Natchez' early. Aldehydes, lactones, and esters were all negatively loaded for PC2. Cultivars/harvest date negatively loaded for PC2 included 'Sweet-Ark[®] Ponca' middle and 'Sweet-Ark[®] Ponca' late. In addition, berry weight was positively correlated with aromatic hydrocarbons ($r^2= 0.63$, p=0.0006), and pH was positively correlated with esters ($r^2= 0.69$, p=0.0411).

Conclusion

The physical, composition, and volatile attributes of Arkansas-grown fresh-market blackberries were evaluated. Four cultivars were harvested on three harvest dates (early, middle, and late) from the UA System Fruit Research Station in Clarksville, AR in 2020, and three cultivars were harvested on three harvest dates in 2021. Although the physical and composition attributes varied, the values were typical of previously-reported values from other research done on these cultivars. 'Sweet-Ark[®] Ponca' early had highest soluble solids in both years (13.80-14.63%). There were 165 volatile aroma compounds identified in Arkansas-grown blackberry cultivars in 2020 and 139 in 2021, mainly monoterpenes, esters, aldehydes, and alcohols. Total volatiles levels in 2020 were higher than values in 2021. 'Sweet-Ark[®] Ponca' middle (4,692.89 μ g/kg) had the highest total volatiles in 2020 and 'Prime-Ark[®] Traveler' (3,666.48 μ g/kg) had highest in 2021. In both years, six impactful volatiles were identified in Arkansas-grown fresh-market blackberries including ethyl butanoate, linalool, ethyl 2-methylbutanoate, geraniol, alloocimene, and trans-2-hexenal. Levels of the six impactful compounds was much less (almost 50% less) in 2021 than in 2020, with levels of 2-hexenal seeing the largest reduction in total concentration. Generally, principal component analysis showed clustering around both harvest dates and cultivar, and the two primary components covered 63.9%-63.3% in 2020 and 2021 respectively. In both years, berry weight was positively correlated with aromatic hydrocarbons, grassy-vegetal aromas. The combination of physical, composition, and volatile attribute information can be a useful tool to steer breeding decisions, help southern U.S. growers market blackberries better, and determine commercial potential of Arkansas-grown, fresh-market blackberries.

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Table 1. Main effect and interactions on berry weight and composition of fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2020).

Effect ^z	Berry	Soluble	рН	Titratable	Soluble
	weight (g)	solids (%)		acidity (%) ^y	solids/titratable acidity ratio
Cultivar					
Natchez	8.97 a	8.78 d	3.55 bc	0.93 a	9.84 c
Prime-Ark [®] Horizon	9.71 a	11.40 b	3.42 c	0.77 b	18.69 b
Prime-Ark [®] Traveler	4.81 b	10.30 c	4.15 a	0.73 b	14.84 b
Sweet-Ark [®] Ponca	5.50 b	13.19 a	3.66 b	0.38 c	31.02 a
P-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Harvest date					
Early	6.81 b	11.40 a	3.56 b	0.82 a	15.13 b
Middle	7.51 a	11.25 a	3.71 a	0.65 b	19.84 a
Late	7.42 ab	10.10 b	3.56 b	0.64 b	20.83 a
P-value	0.0301	<0.0001	<0.0001	0.0003	0.0009
Cultivar x Harvest date (<i>P-value)</i>	0.0100	0.0115	<0.0001	0.0584	0.0001

^z Cultivars and harvest dates were evaluated in triplicate. Means with different letters for each attribute are significantly different (p<0.05) using Tukey's Honestly Significant Difference test. ^y Titratable acidity expressed as % citric acid.

Table 2. Main effect and interactions on berry weight and composition of fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2021).

Effect ^z	Berry weight (g)	Soluble solids (%)	рН	Titratable acidity (%) ^y	Soluble solids/titratable acidity ratio
Cultivar					
Natchez	13.02 a	9.79 b	3.35 b	1.01 a	10.92 b
Prime-Ark [®] Traveler	5.39 b	12.72 a	3.48 b	0.78 b	19.37 a
Sweet-Ark [®] Ponca	5.89 b	10.84 c	3.71 a	0.56 c	17.22 a
P-value	<0.0001	<0.0001	0.0004	<0.0001	0.0006
Harvest date					
Early	8.27 a	12.05 a	3.54 a	0.80 ab	15.86 ab
Middle	8.26 a	11.27 b	3.58 a	0.68 b	18.24 a
Late	7.77 a	10.03 c	3.42 a	0.86 a	13.40 b
P-value	0.3453	<0.0001	0.0997	0.0070	0.0499
Cultivar x Harvest date (P-value)	0.1316	<0.0001	0.1910	0.0076	0.0170

²Cultivars and harvest dates were evaluated in triplicate. Means with different letters for each attribute are significantly different (p<0.05) using Tukey's Honestly Significant Difference test. ⁹Titratable acidity expressed as % citric acid.

Table 3. Volatile aroma compounds^z identified in fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates (early, middle, and late), Clarksville, AR (2020).

	U			Natchez			Prime-Ark® Ho	rizon	-	Prime-Ark® Tra	veler		Sweet-Ark* Ponc	za	
Compound	Retention index	Aroma category	Aroma description	Early	Middle	Late	Early	Middle	Late	Early	Middle	Late	Early	Middle	Late
Total				1257.72±761. 07	2920.86±2596. 64	3519.66±1546. 94	2544.32±517. 93	1881.85±1425. 22	2736.5±556.1 1	3321.62±1524. 25	2190.6±516. 45	2931.32±3193. 94	2596.97±1102. 17	3777.34±1080. 04	3317.35±2568 81
Acids Butanoic acid, 3-methyl	832	Fruity	apple fruity pineapple	2.49±4.31	1.13±0.57	0.65±0.15	0.97±0.18	1.35±2.35	1.22±1.35	1.22±0.21	0.56±0.15	36.24±47	6.06±9.57	0.59±0.53	0±0
Butanoic acid, 2-methyl	845	Fruity	fruity pear apricot apple tropical gooseberry spicy rummy	0±0	0±0	0±0	0±0	0.8±0.91	0.64±1.12	0.43±0.75	0±0	0±0	0±0	0±0	0±0
2-Methylvaleric acid 4-Methylpentanoic acid	931 940	Cheesy	sour cheesy	0±0 4 39±5 95	0±0 23.16±24.14	0±0 41.26±26.98	2.53±0.57 73.4±39.32	2.76±3.78 65.36±87.81	2.4±0.54 96.71±59.65	11.66±7.19 0±0	5.1±2.11 0±0	13.65±17 0±0	0±0 57.33±59.45	0±0 47 87±9 72	0±0 45 35±42 48
2-Butenoic acid, 2-methyl-	940	Cheesy	pungent cheesy	4.39±3.93 5.24±9.08	18.12±18.92	41.20±20.98 89.45±80.31	0±0	0±0	0±0	0±0	0±0	0±0	0±0	47.87±9.72 0±0	43.33±42.48 0±0
			A	112.02±170.8							157.36±174.	815.04±1139.7			
Hexanoic acid 2-Methylbutanoic acid	979 993	Fatty Acidic	sour fatty sweaty cheesy pungent acidic cheesy roquefort cheese	5 0±0	345.28±134.98 0+0	188.31±51.62 0±0	82.36±22.75 12.67±11.05	38.25±34.9 29.55±31.18	94.83±49.89 29.58±17.64	331.11±294.64 2.51±4.35	41 7.24±6.28	5 0±0	36.68±33.89 0+0	200.99±252.22 0+0	171.13±296.4
Octanoic acid	1165	Fatty	fatty waxy rancid oily vegetable	24.01±14.86	53.87±66.35	65.86±30.73	8.8±3.79	13.99±8.58	11.92±3.66	24.14±10.44	23.62±17.1	17.7±18.9	6.95±4.74	49.11±68.99	12.62±8.05
Decanoic acid	1361	Fatty	rancid sour fatty citrus	1.6±1.3	3.89±5.71	3.45±1.88	0.76±0.31	1.11±0.71	1±0.5	1.35±0.48	1.89±1.55	4.95±3.95	0.49±0.42	3.57±5	2.66±3.75
Total Acids	9			149.76±206.3 7	445.47±250.7	389.01±191.69	181.52±77.99	153.2±170.26	238.33±134.3 8	372.43±318.09	195.79±201. 62	887.61±1226.6 3	107.54±108.09	302.15±336.48	231.77±350.7
Alcohols			fusel ethereal alcoholic fatty greasy winey whiskey leathery												
2-Butanol, 2-methyl-	644 644	Ethereal	cocoa fusel oily sweet balsamic whiskey	0±0 0±0	0.15±0.27 0±0	1.38±1.22	18.42±16.01 1.86±3.22	0±0 0±0	34.05±25.57 0±0	0±0 0±0	0±0 2.4±0.11	0±0 0±0	0±0 0±0	0±0 0±0	0±0 0±0
1-Butanol	644	Fermented	fusel only sweet balsamic whiskey fusel ethereal alcoholic fatty greasy winey whiskey leathery	0±0	0±0	0±0	1.80±3.22	0±0	0±0	0±0	2.4±0.11	0±0	0±0	0±0	0±0
Butanal, 2-methyl-	645	Ethereal	cocoa	5.16±8.95	0.17±0.3	0±0	8.03±13.91	5.22±9.05	0±0	9.7±8.43	10.15±5.22	22.91±22.19	4.48±7.76	4.73±6.01	3.91±5.58
1-Butanol	663	Fermented	fusel oily sweet balsamic whiskey	0±0	0.5±0.86	1.06±0.94	14.44±16.09	37.8±65.47	3.33±0.36	2.3±3.98	48.19±4.02	3.83±5.05	7.58±6.64	2.19±0.86	2.02±1.84
1-Penten-3-ol	679	Green	ethereal horseradish green radish chrysanthemum vegetable tropical fruity	1.02±0.79	3.31±2.3	0.33±0.35	7.66±13.28	1.54±2.68	19.12±1.25	41.29±52.95	17.31±16.34	0±0	13.59±12.04	7.79±7.29	6.78±6.01
1-Butanol, 3-methyl-	720	Fruity	sweet fruity banana solvent	5.75±4.1	9.54±14.2	4.8±1.03	24.78±42.93	39.57±46.06	4.08±5.41	108.76±93.49	13.68±12.26	101.08±118.88	3.64±6.31	3.48±6.03	0±0
Isobutenylcarbinol	732	Fruity	sweet fruity	0±0	0.38±0.44	6.93±6.08	70.43±53.3	0±0	105.19±42.23	26.32±32	0.72±1.24	59.26±81.69	27.26±23.7	11.08±11.4	17.76±18.58
1-Butanol, 2-methyl- 1-Butanol, 3-methyl	739 767	Ethereal Fruity	ethereal fusel alcoholic fatty greasy winey sweet fruity banana solvent	5.54±9.6 0±0	0.6±1.05 4 1±4 6	0±0 8.27±7.16	17.77±6.63 72.33±19.85	7±12.12 0±0	16.11±2.37 58.92±4.31	1.62±2.81 11.88±20.58	1.93±0.67 14 18±1 26	6.13±8.68 40 53±24 54	4.43±5.58 36.96±21.53	2.6±1.05 23.88±15.79	3.36±3.03 26.3±21.02
2-Penten-1-ol, (Z)	767	Green	green phenolic ethereal cherry metallic	0±0	4.1±4.0 0.97±0.64	8.2/±/.16 0±0	10 23±3 57	0±0 4 2±5 1	58.92±4.51 9.71±3.79	11.88±20.58 3.49±3.39	2.68±0.45	40.53±24.54 3.2±4.52	56.96±21.55 7.04±4.23	4.68±3.12	26.3±21.02 4.46±4.08
Prenol	778	Fruity	fruity green lavender	0.36±0.63	0.23±0.2	0±0	1.68±2.92	5.24±7.81	0±0	0.84±1.45	3.47±0.44	0±0	0±0	0±0	0±0
2-Hexen-4-ol	785	Spicy	÷	0.55±0.95	0.04±0.06	0.42±0.73	0.81±1.4	2.49±2.43	3.68±0.63	1.97±3.41	0.22±0.39	0±0	1.28±2.23	0.49±0.86	0±0
2-Hexen-1-ol 3-Hexen-1-ol	836 855	Fruity Green	fresh green leafy fruity banana green leafy	66.62±59.3 0±0	3.69±4.3 3.02±1.47	4.66±1.56 0.46±0.45	10.03±3.44 3.89±3.56	8.76±9.05 51.82±72.41	11.44±7.38 0±0	29.46±36.73 0±0	3.24±2.83 0±0	13.11±14.68 0±0	3.9±3.68 0±0	1.17±1.08 0±0	0.52±0.91 0±0
2 Heptanol	862	Citrus	fresh lemongrass herbal sweet fruity green	31.59±54.72	44.04±21.34	46.07±25.23	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0
											104.87±24.7				
1-Hexanol 3-Heptanol	871 880	Herbal Herbal	ethereal fusel oily fruity alcoholic sweet green	0.34±0.45 0.05±0.09	0±0 035±035	0.48±0.83 1.63±1.04	144.83±33.5 3 29±1 52	132.96±97.21 3.05±3.43	148.95±35.97 2.65±0.55	178.43±66.62 3 34±2 13	2 0.4±0.32	77.02±100.46 3.83±1.32	191.07±41.97 20.31±26.51	195.55±92.04 34.71±19.79	145.96±100.75 31.87±23.83
4-Heptyn-2-ol	895	Herbar	herbal bitter pungent	2.26±3.11	2.36±0.14	0.78±1.04	10.9±2.38	8 32±9 19	2.63±0.33	11.88±7.26	4 36±0 89	7.37±10.43	20.31±20.31 5±4 94	6.27±3.67	5 65±4 79
2-Heptanol	904	Citrus	fresh lemongrass herbal sweet fruity green	18.5±29.58	162.28±23.74	219.03±118.44	98.32±14.73	56.46±58.45	123.29±8.08	23.27±12.37	10.04±1.61	12.51±9.37	104.83±57.64	155.8±29.69	113.84±86.65
2-Methyl-6-hepten-3-ol	919			0.25±0.44	0.59±0.68	1.17±0.88	6.59±2.61	6.48±8.55	6.49±1.58	9.08±6.11	3.95±1.68	8.5±0.97	4.96±5.26	4.4±3.81	1.64±2.84
2-Heptanol, 2-methyl- 1- Heptanol	933 973	- Green	- musty leafy violet herbal green sweet woody peony	0±0 0±0	0±0 0±0	0±0 18.35±31.79	0.64±0.19 0±0	0.63±0.87 25.89±44.85	0.84±0.03 0±0	0±0 184.31±175.7	0±0 136.4±92.61	0±0 22.24±31.46	0±0 40.18±37.64	0±0 56.75±31.02	0±0 66.46±43.83
1-Heptanoi 1-Octen-3-ol	984	Earthy	musty leary violet herbal green sweet woody peony mushroom earthy green oily fungal raw chicken	0±0 3.74±1.62	5.15±2.47	5.96±3.22	8.34±2.49	25.89±44.85 9.55±5.03	0±0 7.4±6.79	184.31±1/5.7 35.63±30.04	136.4±92.61 12.4±7.12	22.24±31.46 6.17±0.35	40.18±37.64 20.69±14.18	22.06±13.41	00.40±45.85 15.06±10.73
3-Ethyl-4-methylpentan-1-			······································												
ol	1027	-	-	0.35±0.47	0.27±0.15	0.65±0.4	2.29±0.18	1.57±1.38	2.92±0.12	2.54±1.31	1.1±0.05	1.13±1.51	0.37±0.29	0.58±0.18	0±0
2-Ethylhexanol 1-Octanol	1034 1073	Citrus Waxy	citrus fresh floral oily sweet waxy green rose mushroom	0.24±0.15 30.78±21.99	0.05±0.09 71.12±88.9	2.29±0.98 107.79±45.38	1.15±0.3 18.97±5.82	1.07±0.49 18.64±8.68	1.73±0.26 22.88±6.28	1.67±1.01 31.8±14.68	0.69±0.13 21.96±11.72	0.95±1.33 28.71±34.37	1.69±0.98 27.01±9.11	2.45±1.01 90.17±67.6	2.28±2.11 38.95±22.84
1-Octanoi	1075	waxy	waxy green rose musmooni	100.21±173.5	71.12=88.9	107.79245.58	10.97±0.02	10.04±0.00	275.54±131.1	51.6±14.08	311.77±147.	20.71±34.37	27.01±9.11	90.17±07.0	38.95+22.04
2-Phenylethanol	1128	Floral	fresh sweet almond gardenia hyacinth	8	419.49±441.91	531.62±251.78	233.02±54.72	110.33±123.36	6	250.72±144.09	97	404.59±422.49	179.83±131.75	524.65±314.08	343.84±66.5
1-Nonanol 1-Decanol	1176 1276	Floral	fresh clean fatty floral rose orange dusty wet oily fatty waxy floral orange sweet clean watery	2.96±1.39 6.22±5.57	7.7±8.19 18.28±26.72	9.07±4.09 25.09±12.76	4.72±1.63 1.3±0.71	5.15±2.02 2.99±2.13	6.03±1.38 1.74±0.83	9.1±3.98 2.34±0.94	5.42±2.11 5.04±4.47	5.66±6.77 9.72±7.29	2.8±1.15 0.06±0.12	9.32±6.35 0.38±0.66	4.7±0.97 0.81±0.7
1-Decanol	1480	Fatty Waxy	earthy soapy waxy fatty honey coconut	0.57±0.29	0.72±0.73	0.66±0.08	0±0	2.99±2.13 0±0	1.74±0.85 0±0	2.34±0.94 0±0	0±0	9.72±7.29 0±0	0.00±0.12 0±0	0.58±0.00 0±0	0.81±0.7 0±0
1-Hexadecanol	1887	Waxy	waxy clean greasy floral oily	0.55±0.16	0.56±0.28	0.57±0.1	1.91±0.98	0.67±0.59	1.03±0.1	0±0	0±0	0±0	0±0	0±0	0±0
Total Alcohols	31			284.85±379.9 4	762.19±647.61	1002±518.72	835.39±385.4 7	687.37±801.63	882.24±289.7 7	981.86±725.6	786.21±353. 81	838.55±908.43	709.07±425.35	1165.29±636.9	836.26±427.69
Aldehydes															
Butanal, 3-methyl- 2-Butenal, (E)-	643 654	Aldehydic	ethereal aldehydic chocolate peach fatty	0±0 0±0	0±0 2.19±3.79	0±0 3 77±3 43	6.78±11.74 4±3.51	3.78±6.55 27.85±45.7	1.65±2.87 2.66±2.32	4.89±8.48 17 58±15 98	3.99±6.92 0±0	0±0 7 03±9 94	0±0 7 25±7 7	0±0 5.12±1.21	0±0 3 39±3 5
2-Dutchan, (12)-	0.54		musty cocoa phenolic coffee nutty malty fermented fatty	010	2.19=3.19	3.7743.43	445.51	27.03243.7	2.00±2.52	17.36±13.96	0±0	730349.94	1.23=1.1	5.1241.21	0.0++0.0
Butanal, 3-methyl-	657	Cocoa	alcoholic	0.78±1.36	16.82±10.09	3.23±2.87	5.57±4.82	26.14±18.85	12.85±0.35	10.77±15.06	0±0	15.21±21.51	5.54±9.6	9.9±5.89	10.25±9.38
Butanal, 2-methyl-	670	Fermented	fermented bready fruity nutty berry	1.95±2.45	5.4±1.85	4.39±2.28	76.96±121.5	12.77±15.75	18.48 ± 2.84	27.26±24.28	11.28±11.5	14.85±21	4.3±7.45	6.6±2.54	5.91±5.23
Butanal, 2-methyl- Pentanal	698 701	Green	pungent green ethereal nutty anisic fruity	0.67±0.62 0.32±0.56	2.04±1.08 3.6±5.75	2.51±0.49 8.32±6.69	73.15±5.81 0±0	1.09±1.9 0±0	53.67±47.06 0±0	0±0 0±0	0±0 0±0	0±0 0±0	23.26±33.18 0±0	13.45±14.99 0±0	29.7±26.62 0±0
2-Pentenal, (E)-	731	Green	pungent green apple orange tomato	0±0	0±0	0±0	0±0	7.79±7.99	0±0	20.89±36.19	0±0	0±0	0±0	0±0	0±0
2-Butenal, 2-methyl, (E)	746	Fruity	sweet fruity pungent brown nutty almond cherry	0±0	0.22±0.38	0.51±0.44	0±0	0±0	0.36±0.63	4.04±6.16	0±0	0.5±0.71	0±0	0.54±0.1	0.88±1
2-Pentenal, (E)-	750	Green	fresh green fatty aldehydic grassy leafy sweaty	0±0	1.53±0.38	2.36±1.72	8.69±1.45 8.56±2.13	4.32±7.49	0.38±0.66	5.16±5.85	2.5±0.21 5.52±1.64	2.18±0.49	5.46±1.06	5.06±3.54	3.13±2.72
2-Butenal, 3-methyl	787	Bready	sweet woody almond bread baked caramellike phenolic	0.18±0.32	1.07±1.86	3.53±3.06	8.56±2.13 365.79±139.8	5.76±7.11	8.05±2.43	8.51±4.35	5.52±1.64 130.09±10.0	8.97±12.39	3.46±2.74	3±0.56	5.45±5.3
Hexanal	804	Green	sweet almond bitter fruity green leafy apple plum vegetable	8.57±11.67	42.12±42.72	86.46±78.04	8	203.27±134.94	325.77±69.81	272.2±128.86	2	203±279.71	231.34±74.78	198.27±100.04	177.12±132.96
Furfural	840	Green	fresh aldehydic fatty green herbal cognac ozone	0±0	10.45±9.82	1.96±0.83	21.33±2.23	16.24±21.98	21.15±5.27	0±0	0±0	0±0	7.37±6.44	0±0	0±0
2-Hexenal, €	850	Green	green fatty	0±0	0±0	0±0	0±0	0±0	0±0	10.96±7.02	4.76±0.8 321.56±120.	0±0	7.69±2.27	9.1±9.02	41±51.85
2-Hexenal	859	Fruity	sharp sweet bitter almond cherry	33.7±54.75	118.44±76.95	104.03±59.45	250.4±162.94	125.93±199.48	239.1±82.67	540.76±203.79	6	141.89±124.03	511.35±136.85	579.99±349.89	394.43±341.7
Heptanal	907	Aldehydic	aldehydic waxy citrus orange peel green herbal fresh fatty	0.26±0.29	1.37±0.09	1.64±0.69	3.14±0.72	1.75±1.57	3.4±0.14	3.8±1.98	1.48±0.04	1.38±1.36	2.19±0.27	2.59±1.25	1.75±1.52
2-Heptenal, (E)-	963	Green	green sweet floral hyacinth clover honey cocoa	3.09±1.89	0.91±0.52	0.92±0.54	1.39±0.9	0.46±0.8	1.31±0.61	5.21±5.99	0.82±0.24	0.49±0.37	2.9±2.06	2.11±0.66	1.13±0.76
Benzaldehyde	975	Fatty	fatty green herbal	0±0	58.8±101.85	114.3±104.24	288.12±114.1 4	144.87±234.44	336.8±54.12	0±0	0±0	0±0	19.03±32.96	173.29±0.48	131.17±87.57
Octanal	1008	Fruity	sweety fruity cherry almond bitter phenolic	5.94±5.72	5.16±3.21	5.74±2.38	9.54±2.23	8.15±3.05	9.06±1.14	16.68±9.59	4.55±1.45	1.85±1.03	10.38±3.65	16.9±8.16	13.51±8.21
Phenylacetaldehyde	1059	Fruity	fruity cherry phenolic	0±0	10.55±10.06	12.36±11.67	0±0	6.21±6.19	13.46±2.42	63.87±29.47	31.45±13.35	35.24±27.2	6.78±6.78	28.51±13.89	2.51±4.35
2-Octenal 3-Methylbenzaldehyde	1066 1090	Aldehydic Herbal	waxy aldehydic rose fresh orris orange peel fatty herbal green woody amber leafy	5.3±0.96 0.04±0.08	8.97±6.38 0.29±0.07	12.95±7.18 0.37±0.17	5.92±2.14 0±0	4.62±4.38 0±0	8.75±0.75 0±0	12.37±5.38 0±0	7.26±1.63 0.04±0.07	5.41±6.35 0±0	6.05±0.9 0±0	11.73±3.65 0±0	7.09±3.81 0±0
4-Methylbenzaldehyde	1100	Fatty	fatty green waxy cucumber melon	0.04±0.08 2.66±1.46	0.29±0.07 5±2.33	0.3/±0.1/ 7.2±2.67	0±0 11.75±4.2	12.32±3.61	0±0 14.99±2.4	13.34±4	0.04±0.07 8.81±4.54	10.8±6.66	0±0 2.76±4.79	0±0 11.6±3.59	10.4±3.52
Nonanal	1110	Aldehydic	sweety aldehydic waxy orange peel citrus floral	9.48±3.45	12.5±9.68	16.11±4.37	19.54±3.41	20.66±7.82	22.37±2.46	46.67±24.38	19.62±6.7	10.78±15.24	15.21±4.58	27.77±5.25	15.43±13.51
2-Nonenal	1170	Fatty	fatty orange rose aldehydic floral green	0.8±1.39	1.83±1.62	0±0	2.35±0.56	1.54±1.43	3.18±0.48	7.13±2.54	3.21±2.78	2.46±2.61	2.2±1.2	2.51±2.21	5.15±2.98
Decanal 2 Decanal	1212 1270	Citrus	sharp lemon sweet	3.5±0.72 5.84±1.87	2.91±2.56 7.54±5.74	3.25±3.1 7.64±3.01	4.11±3.49 5.74±2.16	4.52±1.33 5.01±1.5	4.01±0.53 5.8±1.2	8.15±3.48 9.56±6.16	4.89±2.26 5.45±1.88	2.68±3.17 2.7±2.51	11.97±9.52	45.2±10.09	17.15±5.95
2-Decenal Undecanal	12/0 1285	Aldehydic Waxy	soapy waxy aldehydic citrus green floral fresh waxy	5.84±1.87 0.9±0.29	7.54±5.74 2.26±2.11	2.87±1.08	5.74±2.16 1.37±0.21	5.01±1.5 0.69±0.24	5.8±1.2 0.97±0.54	9.56±6.16 0.96±1.66	5.45±1.88 0.98±0.89	2.7±2.51 1.02±1.44	4.69±3.17 0±0	41.01±54.18 0±0	3.42±0.68 0±0
Dodecanal	1420	Aldehydic	soapy waxy aldehydic citrus green floral	0.47±0.19	0.98±1	0.92±0.38	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0
							1174.31±590.		1108.34±283.	1110.86±550.7	568.35±187.			1194.36±591.2	
Total Aldehydes	28			84.55±90.13	323.06±302.01	407.46±300.93	28	645.85±734.21	82	4	62	468.53±537.8	891.27±352.06	7	880.08±713.23

4-tert-Butylphenyl acetate Foluene	1412 776	- Sweet	- benzene	2.74±2.46 0±0	5.38±5.63 4.49±3.7	2.55±4.42 7.65±4.23	13.57±6.51 7.8±0.7	9.23±4.69 3.37±3.22	10.76±2.37 9.13±1.71	21.46±15.45 10.2±5.43	4.57±1.11 3.71±0.77	3.88±4.99 5.09±7.2	20.61±8.91 7.94±4.89	15.26±5.69 8.4±1.02	2.84±3.32 9.72±8.1
lexyl acetate 3enzothiazole	1017	Fruity Herbal	fruity green apple banana	0.08±0.13 1.49±2.59	0.13±0.13 6 22±7 68	0.21±0.09 8 27±2 29	0±0 0±0	0±0 0±0	0±0 0±0	0±0 0 39±0 68	0±0 2.73±3.12	0±0 1 64±1 4	0±0 4.31±2.24	0.08±0.14 10.76±3.58	0.36±0.59 5.18±1.45
exadecane	1255	Herbai	-	1.49±2.59 87.16±65.54	6.22±7.68 86.17±77.09	8.27±2.29 103.41±40.57	0±0 0±0	28.78±26.76	38.04±33.17	0.39±0.68 0±0	2.73±3.12 0±0	1.64±1.4 0±0	4.31±2.24 0±0	10.76±5.58 0±0	5.18±1.45 0±0
eptadecane	1707	-	-	2.71±0.28	3.95±2.38	0.94±1.64	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0
otal Aromatic vdrocarbons	6			94.2±71.02	106.36±96.64	123.07±53.26	21.38±7.21	41.39±34.68	57.94±37.26	32.06±21.58	11.02±5.01	10.62±13.59	32.87±16.04	34.52±10.45	18.11±13.49
sters	0														
utanoic acid, methyl ester	707	Fruity	ethereal fruity tropical pineapple grape banana	0±0 0±0	0.03±0.06 0.95±1.65	0.04±0.07	4.26±1.42	23.88±20.73	2.97±0.9 0±0	0±0 0±0	2.93±1.44 0±0	0±0 0±0	0±0 0±0	0±0 0±0	0±0 0±0
ropanoic acid, ethyl ester Iethyl butyrate	714 724	Fruity Acidic	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity	0.03±0.05	0.37±0.51	4.06±3.53 1.33±1.03	0±0 5.65±2.69	0±0 4.65±5.62	0±0 7.95±3.17	2.95±5.12	0±0 0±0	0±0 17.58±24.87	0.86±1.5	0.65±0.26	1.27±1.36
lethyl 2-methylbutyrate	782	-	-	0.15±0.26	0.26±0.23	0.06±0.11	1.5±1.53	1.38±2.13	1.55±1.1	0±0	0±0	3.5±1.21	0±0	0±0	0±0
thyl (Z)-2-butenoate	847 855	Fruity	sweet fruity apricot banana tropical pineapple	12.76±4.57 0±0	7.26±11.48 0±0	22.51±20.95 0.47±0.55	7.76±6.64 1.49±1.39	3.98±6.89	5.87±3.05 4 84±3 09	4.63±4.88 1.31±1.68	2.17±1.38 0.78±0.17	16.28±18.09 9.83±1.9	5.58±5.85	7.67±10.2	2.67±3.54 2.2±1.91
thyl 2-methylbutyrate Iethyl hexanoate	855	Fruity Fatty	sweet fruity ethereal rummy sour fatty sweaty cheesy	0±0 1.16±1.24	0±0 4 8±3 4	0.4/±0.55 7.28±4.64	1.49±1.39 2.95±2.01	2.59±3.76 2.97±4	4.84±3.09 6.33±2.18	1.31±1.68 19.97±9.64	0./8±0.1/ 13.89±7.95	9.83±1.9 31.22±41.76	4.21±2.2 3.34±2.73	3.41±2.28 5.85±1.62	2.2±1.91 4.49±3.66
thyl hexanoate	1000	- '		18.44±16.63	33.82±41.18	63.74±43.16	44.37±34.89	18.88±17.58	48.3±23.62	15.76±9.82	16.85±10.88	48.49±68.58	11.04±7.35	33.47±40.85	13.34±11.24
opyl pivalate	1005	Fruity	sweet fruity ethereal rummy	0±0	0±0	0±0	0.91±1.58	3.87±4.84	5.5±4.76	6.61±2.19	0±0	0.13±0.19	11.09±5.5	4.86±4.35	0.9±1.57
thyl 3-hydroxyhexanoate thyl octanoate	1131 1199	Fruity Fruity	fruity citrus melon sweet fruity green orris waxy floral berry	0.39±0.68 59.81±60.09	0.76±0.98 78.39±135.79	1.28±0.55 154.34±135.14	1.34±1.7 1.45±2.51	0.65±0.68 1.57±1.24	1.28±1.17 3.92±1.37	1.14±1.77 0±0	0.52±0.9 0±0	1.06±1.5 0±0	0.36±0.4 0±0	1.23±1.15 0±0	0±0 0±0
fethyl decanoate	1327	Fruity	ethereal fruity tropical pineapple grape banana	0.17±0.29	0.74±0.98	0.59±0.45	0±0	0±0	0±0	0.28±0.24	0.2±0.35	1.73±0.84	0±0	0±0	0±0
thyl decanoate lexyl octanoate	1397	Fruity	fruity ethereal tropical green grape cherry banana apple cocoa	4.16±6.27 0.22±0.18	7.33±11.52 0.33±0.35	10.25±5.63 0.3±0.06	0.67±0.63 0±0	1.03±0.57 0±0	0.97±0.07 0±0	0.11±0.19 0±0	0.69±0.41 0±0	4.03±2.89 0±0	0±0 0±0	0±0 0±0	0±0 0±0
thyl dodecanoate	1595	Fruity Fruity	fruity ethereal tropical banana sweet fruity green orris waxy floral berry	2.1±3.16	3.73±4.5	4.74±1.92	0.12±0.11	0.18±0.16	0.1±0.18	0±0	0.24±0.21	1.1±0.74	0±0	0±0	0±0
otal Esters	15			99.43±93.47	138.84±212.68	271.06±217.85	72.51±57.16	65.69±68.26	89.62±44.7	52.79±35.56	38.3±23.73	135.01±162.62	36.52±25.56	57.16±60.75	24.9±23.31
urans		<i></i>													
uran, 2-ethyl- uran, 2-methyl-	706 716	Chemical Chocolate	beany ethereal cocoa bready malty ethereal cocoa acetone	1.27±2.09 0±0	0.23±0.4 0.07±0.12	0.5±0.43 0.16±0.14	1.25±0.14 0±0	0±0 0±0	0.93±0.87 1.22±1.32	1.54±2.01 0.63±0.55	0±0 0±0	0.75±1.07 0±0	2.47±2.16 0±0	1.19±1.17 0±0	0.4±0.7 0±0
-Ethylfuran	918	Chemical	ethereal cocoa bready coffee nutty	0.32±0.29	0.72±0.68	0.42±0.26	0.64±0.52	0.58±0.25	0.56±0.67	2.51±1.07	1.26±0.38	1.37±0.57	5.25±4.67	2.36±1.84	2.73±1.25
otal Furans	3			1.59±2.38	1.03±1.21	1.09±0.84	1.9±0.67	0.58±0.25	2.73±2.87	4.7±3.64	1.26±0.38	2.13±1.64	7.73±6.83	3.55±3.02	3.14±1.95
<i>(etones</i> -Penten-3-one	694	Citrus	citrus green musty lemongrass apple	2.02 12.57	10 67 21 15	4 2 6 92	0±0	0±0	0±0	0±0	0±0	0±0	4.60: 4.12	7.76±13.45	14.07114.01
-Penten-3-one dethyl Isobutyl Ketone	684 712	Citrus Fruity	citrus green musty lemongrass apple fresh sweet green weedy earthy herbal	2.03±2.57 0±0	19.67±31.15 0±0	4.3±6.83 0±0	0±0 36.44±37.52	0±0 0±0	0±0 44.26±15.89	0±0 9.56±8.52	0±0 0±0	0±0 14.92±21.1	4.69±4.12 7.08±7.49	7.76±13.45 2.63±4.57	14.27±14.82 2.1±3.64
-Hexanone	793	- '		0.1±0.05	4.15±7	3±4.82	2.29±1.07	1.64±1.92	1.72±0.75	1.22±1.76	0.2±0.36	1.18±1.31	0.3±0.52	0.25±0.31	0.36±0.41
-Heptanone -Methyl-2-heptanone	892 945	Citrus	fruity citrus floral orange	4.36±4.73 0±0	14.92±13.81 0+0	21.2±13.73 0±0	5.41±1.75 2.87±1.54	4.42±4.32 1.75±2.03	7.65±1.23 3.84±1.16	0.98±0.97 3.5±2.21	1±0.11 0.82±0.51	6.94±5.73 8.41±10.67	4.67±1.84 2.31±2.27	13.78±14.36 2.55±1.13	5.5±5.46 1.25±1.13
-Methylheptan-2-one	959	Floral	orange floral fatty peach	0.41±0.56	0.22±0.07	0.44±0.43	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0
-Methyl-5-hepten-2-one	989	Floral		1.29±0.83	0±0	0±0	2.21±1.93	2.9±2.33	2.85±2.47	0.68±1.18	0.71±1.24	0.71±1.01	4.92±2.87	0.35±0.61	1.49±2.58
-Methyl-6-hepten-2-one Acetophenone	996 1083	Floral Floral	- sweet nungent mimosa almond	0±0 1.47±0.98	2.39±2.27 1.31±0.93	3.46±3 0.69±0.15	0±0 0±0	0±0 0±0	0±0 0±0	0±0 0±0	0±0 0±0	0±0 0±0	0±0 0±0	0±0 0±0	0±0 0±0
fotal Ketones	9	110100	sweet pungent miniosa annona	9.68±9.74	42.67±55.25	33.11±28.98	49.23±43.82	10.72±10.62	60.34±21.53	15.95±14.64	2.76±2.23	32.18±39.83	24±19.15	27.36±34.45	24.99±28.08
actones				_											
amma-Decalactone otal Lactones	1488	Fruity	freshy oily waxy	27.82±19.55 27.82±19.55	38.67±42.4 38.67±42.4	45.23±12.98 45.23±12.98	0±0	1.32±2.29 1.32±2.29	0±0	5.36±4.65	4.3±7.45	9.25±0.62	0±0	0±0	0±0
otal Lactones fonoterpenes	1			2/.82±19.55	38.6/±42.4	45.23±12.98	0±0	1.32±2.29	0±0	5.30±4.05	4.3±/.45	9.25±0.62	0±0	0±0	0±0
lphaPinene	947	Terpenic	oily woody terpenic lemon lime tropical herbal	25.19±30.43	81.47±117.68	136.18±94.2	13.65±6.52	35.18±49.37	10.55±1.9	57.12±50.91	95.19±57.13	205.98±72.26	85.26±46.09	96.39±100.11	140.35±140
amphene	968	Herbal		1.18±0.63	3.05±4.48	5.59±3.94	0±0	0±0	0±0	7.14±6.19	2.94±1.27	5.34±4.3	0±0	0±0	0±0
etaPhellandren-8-ol eta-Mvrcene	986 998	Floral	herbal spicy chamomile green basil citrus floral sweet bois de rose green blueberry	0.74±1.29 25.61±10.15	2.61±2.64 56.74±62.22	4.2±2.46 90.29±49.31	0±0 46.67±14.39	0±0 49.07±30.85	0±0 81.02±4.29	0±0 97.83±41.48	0±0 60±24.42	0±0 60.9±54.9	0±0 109.51±69.46	0±0 159.3±29.69	0±0 192.55±138
	1020			0.0	14.3±9.56	17.91±10.94	0±0	0±0	0±0	0±0	0±0	0±0	41.26±20.41	47.01±19.73	10.87±5.41
ammaTerpinene	1020	-		0±0	14.3±9.56	17.91±10.94	0±0	010	0.40	0±0		0.00		47.01±19.75	10.07=0.41
		-	-								127.06±48.9				
rerbenol	1020 1022 1029	- Terpenic	- terpeneic camphoreous herbal woody	43.35±11.55 8.38±1.33	14.3±9.56 106.84±76.11 18.6±18.03	130.41±62.08 0±0	4.64±1.32 0±0	5.49±2.65 0±0	5.67±0.5 0±0	188.69±103.35 2.09±2.12		52.74±74.59 0.09±0.13	78.65±110.08 0±0	113.2±66.49 0±0	
'erbenol lpha-Terpinene I-Cymene	1022 1029 1039	- Terpenic Green	- - terpeneic camphoreous herbal woody green plastic	43.35±11.55 8.38±1.33 1.91±0.68	106.84±76.11 18.6±18.03 3.45±3.48	130.41±62.08 0±0 5.21±2.35	4.64±1.32 0±0 0.87±0.18	5.49±2.65 0±0 0.74±0.86	5.67±0.5 0±0 1.42±0.07	188.69±103.35 2.09±2.12 3.38±1.83	127.06±48.9 5 6.01±2.71 2.55±1.07	52.74±74.59 0.09±0.13 1.71±2.41	78.65±110.08 0±0 3.27±2.38	113.2±66.49 0±0 4.42±2.54	199.84±174 0±0 5.84±4.66
Verbenol Ipha-Terpinene I-Cymene	1022 1029 1039 1042	Green	green plastic	43.35±11.55 8.38±1.33 1.91±0.68 13.41±11.73	106.84±76.11 18.6±18.03 3.45±3.48 27.37±38.88	130.41±62.08 0±0 5.21±2.35 40.61±23.14	4.64±1.32 0±0 0.87±0.18 6.08±2.02	5.49±2.65 0±0 0.74±0.86 5.8±5.27	5.67±0.5 0±0 1.42±0.07 8.31±2.84	188.69±103.35 2.09±2.12 3.38±1.83 20.29±12.32	127.06±48.9 5 6.01±2.71 2.55±1.07 16.69±7.84	52.74±74.59 0.09±0.13 1.71±2.41 10.19±14.14	78.65±110.08 0±0 3.27±2.38 27.99±20	113.2±66.49 0±0 4.42±2.54 51.86±23.06	199.84±174 0±0 5.84±4.66 55.93±46.6
/erbenol lpha-Terpinene -Cymene -Limonene eta-Phellandrene E)-beta-ocimene	1022 1029 1039 1042 1046 1056		green plastic - sweet floral nut skin pepper herbal tropical -	43.35±11.55 8.38±1.33 1.91±0.68 13.41±11.73 0±0 1.59±0.44	106.84±76.11 18.6±18.03 3.45±3.48 27.37±38.88 2.89±2.63 2.79±3.26	130.41±62.08 0±0 5.21±2.35 40.61±23.14 3.89±3.39 3.69±1.04	4.64±1.32 0±0 0.87±0.18 6.08±2.02 0.29±0.28 1.53±0.67	5.49±2.65 0±0 0.74±0.86 5.8±5.27 0.17±0.15 1.95±1.1	5.67±0.5 0±0 1.42±0.07 8.31±2.84 1.57±2.34 2.03±0.78	188.69±103.35 2.09±2.12 3.38±1.83	127.06±48.9 5 6.01±2.71 2.55±1.07	52.74±74.59 0.09±0.13 1.71±2.41	78.65±110.08 0±0 3.27±2.38 27.99±20 0±0 4.41±4.53	113.2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.65±3.59	199.84±174 0±0 5.84±4.66 55.93±46.6 0±0 19.11±17.65
'erbenol lpha-Terpinene -Cymene -Limonene eta-Phellandrene E)-beta-ocimene ans-Linalool oxide	1022 1029 1039 1042 1046 1056 1085	Green - Floral - Terpenic	green plastic - sweet floral nut skin pepper herbal tropical - into terpenic lilac citrus woody floral	43.35±11.55 8.38±1.33 1.91±0.68 13.41±11.73 0±0 1.59±0.44 0±0	106.84±76.11 18.6±18.03 3.45±3.48 27.37±38.88 2.89±2.63 2.79±3.26 0±0	130.41±62.08 0±0 5.21±2.35 40.61±23.14 3.89±3.39 3.69±1.04 0±0	4.64±1.32 0±0 0.87±0.18 6.08±2.02 0.29±0.28 1.53±0.67 5.2±1.71	5.49±2.65 0±0 0.74±0.86 5.8±5.27 0.17±0.15 1.95±1.1 3.02±2.91	5.67±0.5 0±0 1.42±0.07 8.31±2.84 1.57±2.34 2.03±0.78 6.28±1.2	188.69±103.35 2.09±2.12 3.38±1.83 20.29±12.32 0±0 1.21±1.2 0±0	127.06±48.9 5 6.01±2.71 2.55±1.07 16.69±7.84 0±0 0.71±0.31 0±0	52.74±74.59 0.09±0.13 1.71±2.41 10.19±14.14 0±0 0.8±1.1 0±0	78.65±110.08 0±0 3.27±2.38 27.99±20 0±0	113.2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.65±3.59 9.7±5.86	199.84±174 0±0 5.84±4.66 55.93±46.6 0±0 19.11±17.65 7.37±3.5
'erbenol lpha-Terpinene I-Limonene eta-Phellandrene E)-beta-ocimene ans-Linalool oxide is-Verbenol	1022 1029 1039 1042 1046 1056 1085 1085	Green - Floral -	green plastic - sweet floral nut skin pepper herbal tropical -	43.35±11.55 8.38±1.33 1.91±0.68 13.41±11.73 0±0 1.59±0.44 0±0 0±0	106.84±76.11 18.6±18.03 3.45±3.48 27.37±38.88 2.89±2.63 2.79±3.26 0±0 0±0	130.41±62.08 0±0 5.21±2.35 40.61±23.14 3.89±3.39 3.69±1.04 0±0 0±0	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0 \end{array}$	5.49±2.65 0±0 0.74±0.86 5.8±5.27 0.17±0.15 1.95±1.1 3.02±2.91 0±0	5.67±0.5 0±0 1.42±0.07 8.31±2.84 1.57±2.34 2.03±0.78 6.28±1.2 0±0	188.69±103.35 2.09±2.12 3.38±1.83 20.29±12.32 0±0 1.21±1.2 0±0 8.29±3.84	127.06±48.9 5 6.01±2.71 2.55±1.07 16.69±7.84 0±0 0.71±0.31 0±0 2.8±0.85	52.74±74.59 0.09±0.13 1.71±2.41 10.19±14.14 0±0 0.8±1.1 0±0 3.79±0.04	78.65±110.08 0±0 3.27±2.38 27.99±20 0±0 4.41±4.53 6.37±3.37 0±0	113.2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.65±3.59 9.7±5.86 0±0	199.84±174. 0±0 5.84±4.66 55.93±46.6 0±0 19.11±17.65 7.37±3.5 0±0
erbenol lpha-Terpinene +Cymene +Limonene eta-Phellandrene e)-beta-ocimene ans-Linalool oxide is-Verbenol tat-Terpineol	1022 1029 1039 1042 1046 1056 1085	Green - Floral - Terpenic	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac citrus woody floral minty spearmint cooling green herbal caraway spicy sweet floral fuity rose waxy citrus	43.35±11.55 8.38±1.33 1.91±0.68 13.41±11.73 0±0 1.59±0.44 0±0	106.84±76.11 18.6±18.03 3.45±3.48 27.37±38.88 2.89±2.63 2.79±3.26 0±0	130.41±62.08 0±0 5.21±2.35 40.61±23.14 3.89±3.39 3.69±1.04 0±0	4.64±1.32 0±0 0.87±0.18 6.08±2.02 0.29±0.28 1.53±0.67 5.2±1.71 0±0 1.15±0.81 0±0	5.49±2.65 0±0 0.74±0.86 5.8±5.27 0.17±0.15 1.95±1.1 3.02±2.91 0±0 1.63±1.6 0±0	5.67±0.5 0±0 1.42±0.07 8.31±2.84 1.57±2.34 2.03±0.78 6.28±1.2 0±0 1.77±0.79 0±0	188.69±103.35 2.09±2.12 3.38±1.83 20.29±12.32 0±0 1.21±1.2 0±0	127.06±48.9 5 6.01±2.71 2.55±1.07 16.69±7.84 0±0 0.71±0.31 0±0	52.74±74.59 0.09±0.13 1.71±2.41 10.19±14.14 0±0 0.8±1.1 0±0	78.65±110.08 0±0 3.27±2.38 27.99±20 0±0 4.41±4.53	113.2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.65±3.59 9.7±5.86	199.84±174 0±0 5.84±4.66 55.93±46.6 0±0 19.11±17.65 7.37±3.5
erbenol pha-Terpinene -Cymene -Limonene ta-Phellandrene -Dheta-ocimene ans-Linalool oxide s-Verbenol ta-Terpineol ehydro-p-cymene inalool	1022 1029 1039 1042 1046 1056 1085 1088 1095 1105 1105	Green - Floral - Terpenic Minty	green plastic - sweet floral nut skin pepper herbal tropical - into terpenic lilac citrus woody floral	43.35±11.55 8.38±1.33 1.91±0.68 13.41±11.73 0±0 1.59±0.44 0±0 0±0 90.27±45.1 6.59±11.42	106.84±76.11 18.6±18.03 3.45±3.48 27.37±38.88 2.89±2.63 2.79±3.26 0±0 0±0 155.26±138.27 2.85±4.94	$\begin{array}{c} 130.41\pm62.08\\ 0\pm0\\ 5.21\pm2.35\\ 40.61\pm23.14\\ 3.89\pm3.39\\ 3.69\pm1.04\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 218.8\pm52.88\\ 0\pm0\end{array}$	4.64±1.32 0±0 0.87±0.18 6.08±2.02 0.29±0.28 1.53±0.67 5.2±1.71 0±0 1.15±0.81 0±0 35.46±19.52	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.17\pm0.15\\ 1.95\pm1.1\\ 3.02\pm2.91\\ 0\pm0\\ 1.63\pm1.6\\ 0\pm0\\ 51.02\pm28.1 \end{array}$	$\begin{array}{c} 5.67{\pm}0.5\\ 0{\pm}0\\ 1.42{\pm}0.07\\ 8.31{\pm}2.84\\ 1.57{\pm}2.34\\ 2.03{\pm}0.78\\ 6.28{\pm}1.2\\ 0{\pm}0\\ 1.77{\pm}0.79\\ 0{\pm}0\\ 40.71{\pm}8.34 \end{array}$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0{\pm}0\\ 1.21{\pm}1.2\\ 0{\pm}0\\ 8.29{\pm}3.84\\ 2.41{\pm}1.95\\ 53.19{\pm}15.08\\ 13.89{\pm}12.11 \end{array}$	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 6.01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 2.8{\pm}0.85\\ 0{\pm}0\\ 53.41{\pm}22.74\\ 0{\pm}0 \end{array}$	$\begin{array}{c} 52.74{\pm}74.59\\ 0.09{\pm}0.13\\ 1.71{\pm}2.41\\ 10.19{\pm}14.14\\ 0{\pm}0\\ 0.8{\pm}1.1\\ 0{\pm}0\\ 3.79{\pm}0.04\\ 0{\pm}0\\ 20.23{\pm}28.61\\ 0{\pm}0\\ \end{array}$	78.65±110.08 0±0 3.27±2.38 27.99±20 0±0 4.41±4.53 6.37±3.37 0±0 42.58±43.4 34.5±21.97 107.46±96.2	113.2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.65±3.59 9.7±5.86 0±0 3.58±2.57 129.78±157.75 201.89±175.61	199.84±174 0±0 5.84±4.66 55.93±46.6 0±0 19.11±17.65 7.37±3.5 0±0 4.36±3.16 122.54±94.1 281.57±209
erbenol pha-Terpinene Cymene -Limonene taa-Phellandrene)-beta-solimene ans-Linalool oxide s-Verbenol taa-Terpineol ekydro-p-cymene inalool amphenone, 6-	1022 1029 1039 1042 1046 1056 1085 1088 1095 1105 1108 1133	Green - Floral - Terpenic Minty Floral	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac citrus woody floral minty spearmint cooling green herbal caraway spicy sweet floral fuity rose waxy citrus	43.35±11.55 8.38±1.33 1.91±0.68 13.41±11.73 0±0 1.59±0.44 0±0 0±0 90.27±45.1 6.59±11.42 1.27±0.57	106.84±76.11 18.6±18.03 3.45±3.48 2.737±38.88 2.89±2.63 2.79±3.26 0±0 0±0 0±0 155.26±138.27 2.85±4.94 3.51±1.17	$\begin{array}{c} 130.41\pm62.08\\ 0\pm0\\ 5.21\pm2.35\\ 40.61\pm23.14\\ 3.89\pm3.39\\ 3.69\pm1.04\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 218.8\pm52.88\\ 0\pm0\\ 1.61\pm2.79 \end{array}$	4.64±1.32 0±0 0.87±0.18 6.08±2.02 0.29±0.28 1.53±0.67 5.2±1.71 0±0 1.15±0.81 0±0 35.46±19.52 0±0	$\begin{array}{c} 5.49{\pm}2.65\\ 0{\pm}0\\ 0.74{\pm}0.86\\ 5.8{\pm}5.27\\ 0.17{\pm}0.15\\ 1.95{\pm}1.1\\ 3.02{\pm}2.91\\ 0{\pm}0\\ 1.63{\pm}1.6\\ 0{\pm}0\\ 5.102{\pm}28.1\\ 0{\pm}0 \end{array}$	5.67±0.5 0±0 1.42±0.07 8.31±2.84 1.57±2.34 2.03±0.78 6.28±1.2 0±0 1.77±0.79 0±0 40.71±8.34 0±0	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0{\pm}0\\ 0\\ 1.21{\pm}1.2\\ 0{\pm}0\\ 8.29{\pm}3.84\\ 2.41{\pm}1.95\\ 53.19{\pm}15.08\\ 13.89{\pm}12.11\\ 5.14{\pm}4.3\\ \end{array}$	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 6.01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 2.8{\pm}0.85\\ 0{\pm}0\\ 53.41{\pm}22.74\\ 0{\pm}0\\ 3.3{\pm}0.68 \end{array}$	$\begin{array}{c} 52.74{\pm}74.59\\ 0.09{\pm}0.13\\ 1.71{\pm}2.41\\ 10.19{\pm}14.14\\ 0{\pm}0\\ 0.8{\pm}1.1\\ 0{\pm}0\\ 3.79{\pm}0.04\\ 0{\pm}0\\ 20.23{\pm}28.61\\ 0{\pm}0\\ 1.4{\pm}1.75 \end{array}$	$\begin{array}{c} 78.65 \pm 110.08 \\ 0 \pm 0 \\ 3.27 \pm 2.38 \\ 27.99 \pm 20 \\ 0 \pm 0 \\ 4.41 \pm 4.53 \\ 6.37 \pm 3.37 \\ 0 \pm 0 \\ 42.58 \pm 43.4 \\ 34.5 \pm 21.97 \\ 107.46 \pm 96.2 \\ 0 \pm 0 \end{array}$	113.2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.7±5.86 0±0 3.5±2.57 129.78±157.75 201.89±175.61 0±0	199.84±174 0±0 5.84±4.66 55.93±46.6 0±0 19.11±17.66 7.37±3.5 0±0 4.36±3.16 122.54±94.1 281.57±209 0±0
erbenol pla-T erpinene Cymene Limonene eta-Phellandrene)-beta-otimene ans-Linalool oxide ans-Linalool oxide s-Verbenol tas-T erpineol etyidro-p-cymene inalool amphenone, 6- llocimene Ilha-Campholenal	1022 1029 1039 1042 1046 1056 1085 1095 1105 1108 1133 1139 1144	Green - Floral - Minty Floral Waxy - - Woody	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac citrus woody floral minty spearmint cooling green herbal caraway spicy sweet floral fuity rose waxy citrus	$\begin{array}{c} 43.35{\pm}11.55\\ 8.38{\pm}1.33\\ 1.91{\pm}0.68\\ 13.41{\pm}11.73\\ 0{\pm}0\\ 1.59{\pm}0.44\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 90.27{\pm}45.1\\ 6.59{\pm}11.42\\ 1.27{\pm}0.57\\ 0.97{\pm}0.3\\ 1.08{\pm}0.35\\ \end{array}$	106.84±76.11 18.6±18.03 3.45±3.48 2.737±38.88 2.89±2.63 2.79±3.26 0±0 0±0 0±0 155.26±138.27 2.85±4.94 3.51±1.17 0.4±0.7 1.92±1.36	$\begin{array}{c} 130.41\pm62.08\\ 0\pm0\\ 5.21\pm2.35\\ 40.61\pm23.14\\ 3.89\pm3.39\\ 3.69\pm1.04\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 1.61\pm2.79\\ 2.69\pm2.65\\ 1.84\pm1.19\\ \end{array}$	4.64±1.32 0±0 0.87±0.18 6.08±2.02 0.29±0.28 1.53±0.67 5.2±1.71 0±0 1.15±0.81 0±0 35.46±19.52	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.17\pm0.15\\ 1.95\pm1.1\\ 3.02\pm2.91\\ 0\pm0\\ 1.63\pm1.6\\ 0\pm0\\ 51.02\pm28.1 \end{array}$	$\begin{array}{c} 5.67{\pm}0.5\\ 0{\pm}0\\ 1.42{\pm}0.07\\ 8.31{\pm}2.84\\ 1.57{\pm}2.34\\ 2.03{\pm}0.78\\ 6.28{\pm}1.2\\ 0{\pm}0\\ 1.77{\pm}0.79\\ 0{\pm}0\\ 40.71{\pm}8.34 \end{array}$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0{\pm}0\\ 1.21{\pm}1.2\\ 0{\pm}0\\ 8.29{\pm}3.84\\ 2.41{\pm}1.95\\ 53.19{\pm}15.08\\ 13.89{\pm}12.11 \end{array}$	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 6.01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 2.8{\pm}0.85\\ 0{\pm}0\\ 53.41{\pm}22.74\\ 0{\pm}0 \end{array}$	$\begin{array}{c} 52.74{\pm}74.59\\ 0.09{\pm}0.13\\ 1.71{\pm}2.41\\ 10.19{\pm}14.14\\ 0{\pm}0\\ 0.8{\pm}1.1\\ 0{\pm}0\\ 3.79{\pm}0.04\\ 0{\pm}0\\ 20.23{\pm}28.61\\ 0{\pm}0\\ 1.4{\pm}1.75\\ 0{\pm}0\\ 0.05{\pm}0.07\\ \end{array}$	78.65±110.08 0±0 3.27±2.38 27.99±20 0±0 4.41±4.53 6.37±3.37 0±0 42.58±43.4 34.5±21.97 107.46±96.2 0±0 5.0±3.82 7.96±6.46	$\begin{array}{c} 113.2\pm 66.49\\ 0\pm 0\\ 4.42\pm 2.54\\ 51.86\pm 2.306\\ 0\pm 0\\ 9.55\pm 3.59\\ 9.7\pm 5.86\\ 0\pm 0\\ 3.58\pm 2.57\\ 201.89\pm 157.75\\ 201.89\pm 175.61\\ 0\pm 0\\ 6.86\pm 3.23\\ 10.03\pm 5.62 \end{array}$	$\begin{array}{c} 199.84{\pm}174\\ 0{\pm}0\\ 5.84{\pm}4.66\\ 5.93{\pm}46.6\\ 0{\pm}0\\ 19.11{\pm}17.62\\ 0{\pm}0\\ 4.36{\pm}3.16\\ 122.54{\pm}94, 1\\ 281.57{\pm}209\\ 0{\pm}0\\ 8.94{\pm}4.37\\ 11.9{\pm}5.43\end{array}$
erbenol pha-Terpinene -Cymene -Limonene taz-Phellandrene -)-beta-ocimene ans-Linalool oxide s-Varbenol taz-Terpineol exbydro-p-cymene inalool amphenone, 6- llocimene pha-Campholenal eo allo-ocimene	1022 1029 1039 1042 1046 1085 1088 1095 1105 1108 1133 1139 1144 1151	Green - Floral - Terpenic Minty Floral Waxy - - - Woody Woody	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac citrus woody flora1 mint ysparminit cooling green herbal caraway spicy sweet floral futity rose waxy citrus way green flutity floral	$\begin{array}{c} 43.35{\pm}11.55\\ 8.38{\pm}1.33\\ 1.91{\pm}0.68\\ 13.41{\pm}11.73\\ 0{\pm}0\\ 1.59{\pm}0.44\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 00.27{\pm}45.1\\ 6.59{\pm}11.42\\ 1.27{\pm}0.57\\ 0.97{\pm}0.3\\ 1.08{\pm}0.35\\ 0.25{\pm}0.44 \end{array}$	106.84±76.11 18.6±18.03 3.45±3.48 2.73±38.88 2.79±3.26 0±0 0±0 155.26±138.27 2.85±4.94 3.51±1.17 0.4±0.7 1.92±1.36 1.88±2.02	$\begin{array}{c} 130.41\pm 62.08\\ 0\pm 0\\ 5.21\pm 2.35\\ 40.61\pm 2.3.14\\ 3.89\pm 3.39\\ 3.69\pm 1.04\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ 218.8\pm 52.88\\ 0\pm 0\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.84\pm 1.19\\ 2.52\pm 0.85\\ \end{array}$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 1.15{\pm}0.81\\ 0{\pm}0\\ 3.546{\pm}19.52\\ 0{\pm}0\\ 1.55{\pm}0.82\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ \end{array}$	$\begin{array}{c} 5.49{\pm}2.65\\ 0{\pm}0\\ 0.74{\pm}0.86\\ 5.8{\pm}5.27\\ 0.17{\pm}0.15\\ 1.95{\pm}1.1\\ 3.02{\pm}2.91\\ 0{\pm}0\\ 1.63{\pm}1.6\\ 0{\pm}0\\ 51.02{\pm}28.1\\ 0{\pm}0\\ 1.01{\pm}1.75\\ 0.55{\pm}0.5\\ 0{\pm}0\\ \end{array}$	$\begin{array}{c} 5.67{\pm}0.5\\ 0{\pm}0\\ 1.42{\pm}0.07\\ 8.31{\pm}2.04\\ 1.57{\pm}2.34\\ 2.03{\pm}0.78\\ 6.28{\pm}1.2\\ 0{\pm}0\\ 1.77{\pm}0.79\\ 0{\pm}0\\ 4.071{\pm}8.34\\ 0{\pm}0\\ 3.34{\pm}0.56\\ 3.39{\pm}1.69\\ 0{\pm}0\\ \end{array}$	$\begin{array}{c} 188.69 {\pm} 103.35\\ 2.09 {\pm} 2.12\\ 3.38 {\pm} 1.83\\ 20.29 {\pm} 12.32\\ 0 {\pm} 0\\ 1.21 {\pm} 1.2\\ 0 {\pm} 0\\ 8.29 {\pm} 3.84\\ 2.41 {\pm} 1.95\\ 53.19 {\pm} 15.08\\ 13.89 {\pm} 12.11\\ 5.14 {\pm} 4.3\\ 0 {\pm} 0\\ 2.23 {\pm} 3.36\\ 0 {\pm} 0\end{array}$	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 6.01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 2.8{\pm}0.85\\ 0{\pm}0\\ 2.8{\pm}0.85\\ 0{\pm}0\\ 3.3{\pm}2.74\\ 0{\pm}0\\ 3.3{\pm}0.68\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ \end{array}$	$\begin{array}{c} 52.74{\pm}74.59\\ 0.09{\pm}0.13\\ 1.71{\pm}2.41\\ 10.19{\pm}14.14\\ 0{\pm}0\\ 0.8{\pm}1.1\\ 0{\pm}0\\ 3.79{\pm}0.04\\ 0{\pm}0\\ 20.23{\pm}28.61\\ 0{\pm}0\\ 1.4{\pm}1.75\\ 0{\pm}0\\ 0.05{\pm}0.07\\ 0.6{\pm}0.85 \end{array}$	$\begin{array}{c} 78.65 \pm 110.08 \\ 0 \pm 0 \\ 3.27 \pm 2.38 \\ 27.99 \pm 20 \\ 0 \pm 0 \\ 4.41 \pm 4.53 \\ 6.37 \pm 3.37 \\ 0 \pm 0 \\ 42.58 \pm 43.4 \\ 34.5 \pm 21.97 \\ 107.46 \pm 96.2 \\ 0 \pm 0 \\ 5.04 \pm 3.82 \\ 7.96 \pm 6.46 \\ 4.23 \pm 3.74 \end{array}$	113.2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.65±3.59 9.7±5.86 0±0 3.58±2.57 129.78±157.75 201.89±157.61 0±0 6.86±3.23 10.03±5.62 5.54±1.77	199.84±174 0±0 5.84±4.66 5.5,93±46.6 0±0 19.11±17.62 7.37±3.5 4.36±3.16 122.54±94.1 281.57±209 0±0 8.94±4.437 11.9±5.43 10.94±4.75
erbenol pha-Terpinene -Cymene -Limonene tat-Phellandrene)-beta-osimene nas-Linatolo toxide s-Verbenol tat-Terpinelo tat-Terpinelo natophenone, 6- Ilocimene pha-Campholenal co-allo-ocimene erbenol	1022 1029 1039 1042 1046 1056 1085 1095 1105 1108 1133 1139 1144	Green - Floral - Minty Floral Waxy - - Woody	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac cirtus woody floral minty spearmint cooling green herbal caraway spicy sweet floral fruity rose waxy cirtus waxy green fruity floral woody cirtus herbal sweet	$\begin{array}{c} 43.35{\pm}11.55\\ 8.38{\pm}1.33\\ 1.91{\pm}0.68\\ 13.41{\pm}11.73\\ 0{\pm}0\\ 1.59{\pm}0.44\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 90.27{\pm}45.1\\ 6.59{\pm}11.42\\ 1.27{\pm}0.57\\ 0.97{\pm}0.3\\ 1.08{\pm}0.35\\ \end{array}$	106.84±76.11 18.6±18.03 3.45±3.48 2.737±38.88 2.89±2.63 2.79±3.26 0±0 0±0 0±0 155.26±138.27 2.85±4.94 3.51±1.17 0.4±0.7 1.92±1.36	$\begin{array}{c} 130.41\pm62.08\\ 0\pm0\\ 5.21\pm2.35\\ 40.61\pm23.14\\ 3.89\pm3.39\\ 3.69\pm1.04\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 1.61\pm2.79\\ 2.69\pm2.65\\ 1.84\pm1.19\\ \end{array}$	$\begin{array}{c} 4.64\pm 1.32\\ 0\pm 0\\ 0.87\pm 0.18\\ 6.08\pm 2.02\\ 0.29\pm 0.28\\ 1.53\pm 0.67\\ 5.2\pm 1.71\\ 0\pm 0\\ 3.5.46\pm 19.52\\ 0\pm 0\\ 1.55\pm 0.81\\ 0\pm 0\\ 1.55\pm 0.82\\ 1.03\pm 0.82\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ \end{array}$	5.49 ± 2.65 0.0 0.74 ± 0.86 5.8 ± 5.27 0.17 ± 0.15 1.95 ± 1.1 3.02 ± 2.91 0 ± 0 1.63 ± 1.6 0 ± 0 $5.1.02\pm2.8.1$ 0.40 1.01 ± 1.75 0.55 ± 0.5 0.55 ± 0.5 0.55 ± 0.5 0.50	$\begin{array}{c} 5.67{\pm}0.5\\ 0{\pm}0\\ 1.42{\pm}0.07\\ 8.3{\pm}2{\pm}0.07\\ 8.3{\pm}2.84\\ 1.57{\pm}2.34\\ 2.0{\pm}0.78\\ 6.28{\pm}1.2\\ 0{\pm}0\\ 1.77{\pm}0.79\\ 0{\pm}0\\ 40,71{\pm}8.34\\ 0{\pm}0\\ 3.34{\pm}0.56\\ 3.39{\pm}1.69 \end{array}$	$\begin{array}{c} 188.69 {\pm} 103.35\\ 2.09 {\pm} 2.12\\ 3.38 {\pm} 1.83\\ 20.29 {\pm} 12.32\\ 0 {\pm} 0\\ 1.21 {\pm} 1.2\\ 0 {\pm} 0\\ 8.29 {\pm} 3.84\\ 2.41 {\pm} 1.95\\ 5.3.19 {\pm} 1.5.08\\ 13.89 {\pm} 12.11\\ 5.14 {\pm} 4.3\\ 0 {\pm} 0\\ 2.23 {\pm} 3.36\\ 0 {\pm} 0\\ 3.34 {\pm} 2.5\\ \end{array}$	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 6.01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 2.8{\pm}0.85\\ 0{\pm}0\\ 53.41{\pm}22.74\\ 0{\pm}0\\ 3.3{\pm}0.68\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}1.48 \end{array}$	$\begin{array}{c} 52.74{\pm}74.59\\ 0.09{\pm}0.13\\ 1.71{\pm}2.41\\ 10.19{\pm}14.14\\ 0{\pm}0\\ 0.8{\pm}1.1\\ 0{\pm}0\\ 3.79{\pm}0.04\\ 0{\pm}0\\ 20.23{\pm}2.8.61\\ 0{\pm}0\\ 1.4{\pm}1.75\\ 0{\pm}0\\ 0.05{\pm}0.07\\ 0.6{\pm}0.85\\ 0.96{\pm}1.3.69\\ \end{array}$	78.65±110.08 0±0 3.27±2.38 27.99±20 0±0 4.41±4.53 6.37±3.37 0±0 5.04±3.42 5.8±43.4 3.45±21.97 107.46±96.2 0±0 5.04±3.82 7.96±6.46 4.23±3.74 0.82±1.42	113.2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.65±3.59 9.7±5.86 0±0 3.58±2.57 129.78±157.75 201.89±175.61 0±0 6.86±3.23 10.03±5.62 5.54±1.77 5.48±4.21	199.84±174 0±0 5.84±4.66 5.93±46.6 0±0 19.11±17.65 7.37±3.5 0±0 4.36±3.16 122.54±94.1 281.57±209 0±0 8.94±4.37 11.9±5.43 10.94±4.75
erbenol pha-Terpinene -Cymene -Limonene tat-Phellandrene)>beta-osimene ans-Linalool oxide s-Verbenol tata-Terpineol oxide s-Verbenol tata-Terpineol oxide amphenone, 6- llocimene foha-Campholenal co-allo-osimene erbenol amphenoni, 6- lenthol	1022 1029 1039 1042 1046 1056 1085 1088 1095 1108 1133 1139 1144 1151 1163 1185	Green - Floral - Terpenic Minty Floral Waxy - - - Woody Woody	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac citrus woody flora1 mint ysparminit cooling green herbal caraway spicy sweet floral futity rose waxy citrus way green flutity floral	$\begin{array}{c} 43.35{\pm}11.55\\ 8.38{\pm}1.33\\ 1.91{\pm}0.68\\ 13.41{\pm}11.73\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 90.27{\pm}45.1\\ 6.59{\pm}1.42\\ 0.27{\pm}0.57\\ 0.97{\pm}0.3\\ 1.27{\pm}0.57\\ 0.97{\pm}0.3\\ 1.08{\pm}0.35\\ 0.25{\pm}0.44\\ 2.6{\pm}0.98\\ 4.08{\pm}2.48\\ 4.63{\pm}4.55\\ \end{array}$	$\begin{array}{c} 106\ 844.76\ 11\\ 18\ 6418\ 03\\ 3.45\pm 3.48\\ 2.737.38\ 88\\ 2.89\pm 2.63\\ 2.794.3\ 2.6\\ 0.40\\ 0.40\\ 0.40\\ 0.55\ 2.6\pm 138\ 2.7\\ 2.85\pm 4.94\\ 3.51\pm 1.17\\ 0.4\pm 0.7\\ 1.92\pm 1.36\\ 1.88\pm 2.02\\ 5.75\pm 4.92\\ 1.62\pm 2.33\\ 1.62\pm 2.33\\ 1.6\pm 2.35\\ 1.6\pm 2.35\\ 1.6\pm 2.35\\ 1.6\pm 2.5\pm 2.35\\ 1.6\pm 2.5\pm 2.5$	$\begin{array}{c} 130 \; 41\pm 62 \; , 08 \\ 0\pm 0 \\ 521\pm 23 \; 5 \\ 40 \; 61\pm 23 \; 14 \\ 389\pm 3.39 \\ 369\pm 1.04 \\ 0\pm 0 \\ 0\pm 0 \\ 0\pm 0 \\ 0\pm 0 \\ 161\pm 2.79 \\ 2.69\pm 2.65 \\ 1.61\pm 2.79 \\ 2.69\pm 2.65 \\ 1.61\pm 2.79 \\ 2.52\pm 0.85 \\ 7.08\pm 1.61 \\ 2.25\pm 1.16 \\ 1.45\pm 1.44 \\ 2.5\pm 1.16 \\ 1.45\pm 1.44 \\ 2.5\pm 1.16 \\ 1.45\pm 1.44 \\ 2.15\pm 1.16 \\ 1.45\pm 1.16 \\ 1.45\pm 1.44 \\ 1.45$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 0.29{\pm}0.28\\ 0.29{\pm}0.28\\ 0.49\\ 1.53{\pm}0.67\\ 0{\pm}0\\ 1.53{\pm}0.81\\ 0{\pm}0\\ 3.54{\pm}0.81\\ 0{\pm}0\\ 1.55{\pm}0.82\\ 0{\pm}0\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\end{array}$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.17\pm0.15\\ 1.95\pm1.1\\ 3.02\pm2.91\\ 0\pm0\\ 1.65\pm1.6\\ 0\pm0\\ 5.102\pm2.8.1\\ 0\pm0\\ 1.01\pm1.75\\ 0.55\pm0.5\\ 0\pm0\\ 0.87\pm0.76\\ 1.63\pm0.59\end{array}$	$\begin{array}{c} 5.67{\pm}0.5\\ 0{\pm}0\\ 1.42{\pm}0.07\\ 8.31{\pm}2.84\\ 1.57{\pm}2.24\\ 1.57{\pm}2.24\\ 2.03{\pm}0.78\\ 0{\pm}0\\ 0.17{\pm}0.79\\ 0{\pm}0\\ 40.71{\pm}8.34\\ 0{\pm}0\\ 3.34{\pm}0.56\\ 3.39{\pm}1.69\\ 0{\pm}0\\ 1.99{\pm}1.25\\ 3.46{\pm}0.74\\ \end{array}$	$\begin{array}{c} 188.69\pm103.35\\ 2.09\pm2.12\\ 3.38\pm1.83\\ 20.29\pm12.32\\ 0.69\\ 1.21\pm1.2\\ 0.60\\ 8.29\pm3.84\\ 2.41\pm1.95\\ 5.19\pm15.08\\ 1.3.89\pm12.11\\ 5.14\pm43\\ 0.60\\ 0.223\pm3.36\\ 0.60\\ 0.$	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 6.01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 2.8{\pm}0.85\\ 0{\pm}0\\ 3.3{\pm}0.68\\ 0{\pm}0\\ 0{\pm}0$	$\begin{array}{c} 52,74\pm74,59\\ 0,09\pm0,13\\ 1,71\pm2,41\\ 10,19\pm14,14\\ 0,69\\ 0,8\pm1,1\\ 0,8\pm1,1\\ 0,8\pm1,1\\ 0,20\\ 3,79\pm0,04\\ 0,60\\ 1,20,23\pm28,61\\ 0,40\\ 1,4\pm1,75\\ 0,40\\ 0,05\pm0,07\\ 0,66,0,85\\ 9,68\pm1,369\\ 3,34\pm2,72\\ 0,40\\$	$\begin{array}{c} 78.65{\pm}110.08\\ 0{\pm}0\\ 3.27{\pm}2.38\\ 27.99{\pm}20\\ 0{\pm}0\\ 0{\pm}0\\ 4.41{\pm}4.53\\ 6.37{\pm}3.37\\ 0{\pm}0\\ 42.58{\pm}3.4\\ 34.5{\pm}2.197\\ 107.46{\pm}96.2\\ 0{\pm}0\\ 0{\pm}0\\ 10.5{\pm}1.42\\ 4.15{\pm}4.83\\ 0{\pm}0\\ 0{\pm$	113 2266.49 0±0 4.42±2.54 51 86±23.06 0±0 9.65±2.59 9.78±5.86 0±0 1.59±7.56 10.93±7.56 10.93±7.56 10.93±7.56 10.03±5.62 5.54±1.77 5.48±4.21 14.22±3.25 0±0	199.84±174 0±0 5.84±4.66 55.93±46.6 0±0 19.11±17.66 7.37±3.5 0±0 4.36±3.16 122.54±94.1 281.57±209 0±0 19.54±94.37 11.94±5.43 10.94±4.37 3.05±2.75 16.37±13.88 0±0
erbenol pha-Terpinene -Cymene -Limonene -Limonene tarbhellankere ame-Linaloel oxide -Sverbenol -tar-Terpineol evydre-p-cymene enaloelon -tar-Terpineol etydre-p-cymene fandool -fan-Campholenal amphenon, 6- locimene erbenol erbenol -Borancel Jebraneol	1022 1039 1042 1046 1056 1088 1095 1105 1108 1133 1139 1144 1151 1163 1185 1188 1188	Green - Floral - Terpenic Minty Floral Waxy - - - Woody Woody - Woody - Woody	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac citrus woody floral mith yspennimit cooling green herbal caraway spicy sweet floral fruity rose waxy citrus waxy green fruity floral - woody citrus herbal sweet woody citrus herbal sweet woody	$\begin{array}{c} 43.35{\pm}11.55\\ 8.38{\pm}1.33\\ 1.91{\pm}0.68\\ 13.41{\pm}11.73\\ 0{\pm}0\\ 1.59{\pm}0.44\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 090.27{\pm}45.1\\ 6.59{\pm}11.42\\ 1.27{\pm}0.57\\ 0.97{\pm}0.3\\ 1.08{\pm}0.35\\ 0.25{\pm}0.44\\ 2.6{\pm}4.85\\ 2.6{\pm}4.55\\ 1.95{\pm}0.58\\ \end{array}$	$\begin{array}{c} 106\ 844\ 76\ 11\\ 18\ 641\ 803\\ 3.45\pm3\ 48\\ 27\ 37+38\ 88\\ 2.89\pm2\ 63\\ 2.89\pm2\ 63\\ 2.99\pm2\ 63\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 2.85\pm4\ 94\\ 3.51\pm1.17\\ 0.4\pm0.7\\ 1.92\pm1.36\\ 1.88\pm2\ 02\\ 5.75\pm4.92\\ 1.62\pm2.33\\ 10\ 77.43\\ 3.42\pm2.14 \end{array}$	$\begin{array}{c} 130 \; 41\pm 62.08\\ 0+0\\ 5.21\pm 2.35\\ 40.61\pm 23.14\\ 3.89\pm 3.39\\ 3.69\pm 1.04\\ 0+0\\ 0+0\\ 0+0\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.8\pm 1.19\\ 2.69\pm 2.65\\ 1.8\pm 1.19\\ 2.52\pm 0.85\\ 7.08\pm 1.61\\ 2.35\pm 1.16\\ 1.45\pm 4.42\\ 3.35\pm 1.16\\ 1.45\pm 1.42\\ 1.45\pm 1.45\\ 1.45\pm 1.45$ 1.45\pm 1.45\\ 1.45\pm 1.45\pm 1.45 1.45\pm 1.45 1.45\pm 1.45\pm 1.45 1.45\pm 1.45\pm 1.45\pm 1.45 1.45\pm 1.45	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 1.15{\pm}0.81\\ 0{\pm}0\\ 35.46{\pm}19.52\\ 0{\pm}0\\ 0{\pm}0\\ 1.55{\pm}0.82\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ \end{array}$	5.49±2.65 0±0 0.74±0.86 5.8±5.27 0.17≠0.15 1.95±1.1 3.02±2.91 0±0 0±0 51.02±28.1 0±0 51.02±28.1 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±	$\begin{array}{c} 5.67{\pm}0.5\\ 0{\pm}0\\ 1.42{\pm}0.07\\ 8.31{\pm}2.84\\ 1.57{\pm}2.34\\ 2.03{\pm}0.78\\ 6.28{\pm}1.2\\ 0{\pm}0\\ 1.77{\pm}0.79\\ 0{\pm}0\\ 0{\pm}0\\ 3.34{\pm}0.56\\ 3.39{\pm}1.69\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.99{\pm}1.25\\ 3.46{\pm}0.74\\ 0{\pm}0\\ 0$	188.69±103.35 2.09±2.12 3.38±1.83 20.29+12.32 0±0 1.21±1.2 0±0 8.29±3.84 2.41±1.95 53.19±15.08 1.3.89±12.11 5.14±4.3 0±0 2.23±3.36 0±0 3.34±3.25 12.14±6.36 0±0 6.34±3.23	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 6&01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 2.8{\pm}0.85\\ 0{\pm}0\\ 53.41{\pm}2.74\\ 0{\pm}0\\ 0{\pm}1.48\\ 7.08{\pm}1.91\\ 0{\pm}0\\ 3.8{\pm}1.1\end{array}$	$\begin{array}{c} 52.74{\pm}74.59\\ 0.09{\pm}0.13\\ 1.71{\pm}2.41\\ 10.19{\pm}14.14\\ 0.40\\ 0.8{\pm}1.1\\ 0.40\\ 0.37{\pm}0.04\\ 0.40\\ 20.23{\pm}28.61\\ 0.40\\ 1.4{\pm}1.75\\ 0.40\\ 0.5{\pm}0.07\\ 0.640.85\\ 9.68{\pm}1.369\\ 3.34{\pm}2.72\\ 0.40\\ 4.6{\pm}4.33\\ \end{array}$	78.65±110.08 0+0 3.27±2.38 27.99±20 0+0 4.41±4.53 6.37±3.37 0+0 4.2.58±3.4 34.5±21.97 107.46±96.2 0+0 5.04±3.82 7.96±6.46 4.23±3.74 0.82±1.42 4.23±3.74 0.82±1.42 3.33±2.36	113 2466 4.9 040 4.42±2.54 51.86±23.06 0±0 9.65±3.59 9.7±5.86 0±0 3.58±2.57 129.78±157.75 10.89±17.75 10.89±7.75 10.03±5.62 5.54±1.77 5.48±4.21 14.22±3.25 0±0 5.54±1.77	$\begin{array}{c} 199.84 \pm 174 \\ 0 \pm 0 \\ 5.893 \pm 46.6 \\ 0 \pm 0 \\ 19.11 \pm 17.6 \\ 7.37 \pm 3.5 \\ 0 \pm 0 \\ 4.36 \pm 3.16 \\ 122.54 \pm 94.1 \\ 928.157 \pm 200 \\ 0 \pm 0 \\ 8.94 \pm 4.37 \\ 11.9 \pm 5.43 \\ 10.94 \pm 4.37 \\ 10.94 \pm 4.37 \\ 10.94 \pm 4.37 \\ 16.37 \pm 13.8 \\ 0 \pm 0 \\ 3.75 \pm 1.68 \end{array}$
erbenol pha-Terpinene -Cymene -Limonene tat-Phellandrene)> beta-osimene ans-Linalool oxide s-Verbenol tat-Terpineol oxide s-Verbenol tat-Terpineol oxide oxide-osimene erbenol pha-Campholenal co-allo-osimene erbenol Myrcenol	1022 1029 1039 1042 1046 1085 1088 1095 1105 1108 1133 1139 1144 1151 1163 1185 1188 1188 1188 1188	Green - Floral - Terpenic Minty Floral Waxy - - Woody Woody Woody Woody -	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac citrus woody floral mith yspennimit cooling green herbal caraway spicy sweet floral fruity rose waxy citrus waxy green fruity floral - woody citrus herbal sweet woody citrus herbal sweet woody	$\begin{array}{c} 43.35{\pm}11.55\\ 8.38{\pm}1.33\\ 1.91{\pm}0.68\\ 13.41{\pm}11.73\\ 0{\pm}0\\ 1.59{\pm}0.44\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 2.7{\pm}6.51\\ 1.42\\ 1.27{\pm}0.57\\ 0.97{\pm}0.3\\ 1.088{\pm}0.35\\ 0.255{\pm}0.44\\ 2.659{\pm}4.8\\ 2.633{\pm}5.78\\ 3.33{\pm}5.78\\ 8.8{\pm}11.05\\ \end{array}$	$\begin{array}{c} 10684\pm7611\\ 1864\pm7613\\ 3.45\pm348\\ 2737\pm3888\\ 2.89\pm2.63\\ 2.89\pm2.63\\ 2.99\pm3.26\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 15526\pm13827\\ 2.85\pm4.94\\ 3.51\pm1.17\\ 0.4\pm0.7\\ 1.92\pm1.36\\ 1.88\pm2.02\\ 5.75\pm4.92\\ 1.62\pm2.33\\ 10.7\pm7.43\\ 3.42\pm2.14\\ 20.47\pm2.37\\ 1.62\pm2.34\\ 10.7\pm7.43\\ 3.42\pm2.14\\ 20.47\pm2.57\\ 1.5\pm4.96\\ 1.62\pm4.33\\ 10.7\pm7.43\\ 3.42\pm2.14\\ 20.47\pm2.57\\ 1.5\pm4.96\\ 1.5\pm2.21\\ 1.5\pm2.33\\ 1.5\pm2.$	$\begin{array}{c} 130 \; 41\pm 62 \; .08 \\ 0\pm 0 \\ 521\pm 2.35 \\ 40 \; 61\pm 23.14 \\ 3.89\pm 3.39 \\ 3.69\pm 1.04 \\ 0\pm 0 \\ 0\pm 0 \\ 0\pm 0 \\ 1.61\pm 2.79 \\ 2.69\pm 2.65 \\ 1.84\pm 1.19 \\ 2.69\pm 2.65 \\ 1.84\pm 1.19 \\ 2.52\pm 0.85 \\ 7.08\pm 1.61 \\ 2.52\pm 0.85 \\ 7.08\pm 1.61 \\ 4.51\pm 4.42 \\ 3.1\pm 1.75 \\ 8.85 \\ 8$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 1.15{\pm}0.81\\ 0{\pm}0\\ 3.54{\pm}19.52\\ 0{\pm}0\\ 1.55{\pm}0.81\\ 0{\pm}0\\ 1.55{\pm}0.81\\ 0{\pm}0\\ 1.5{\pm}0.81\\ 0{\pm}0\\ 1.2{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ 1.02{\pm}0.51\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 0{\pm}0\\ 0{\pm}0$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.17a\pm0.15\\ 1.95\pm1.1\\ 3.02\pm2.91\\ 0\pm0\\ 1.63\pm1.6\\ 0\pm0\\ 5.102\pm2.8.1\\ 0\pm0\\ 0.5102\pm2.8.1\\ 0\pm0\\ 0.05\pm0.5\\ 0.$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.84\\ 2.03\pm0.78\\ 6.28\pm1.2\\ 0\pm0\\ 1.77\pm0.79\\ 0\pm0\\ 40.71\pm8.34\\ 0\pm0\\ 3.34\pm0.56\\ 3.39\pm1.69\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 1.99\pm1.25\\ 3.46\pm0.74\\ 0\pm0\\ 11.99\pm0.46\end{array}$	188.69±103.35 2.09±2.12 3.38±1.83 20.29+12.32 0±0 1.21±1.2 0±0 8.29±3.84 2.41±1.95 5.31,9+15.08 1.389+12.11 5.14±4.3 0±0 2.23±3.6 0±0 0.34±3.25 1.214±6.36 0±0 6.34±3.23 0±0 6.57±3.07	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 5\\ 6.01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 0.53.41{\pm}22.74\\ 0{\pm}0\\ 0\\ 53.41{\pm}22.74\\ 0{\pm}0\\ 0\\ 3.8{\pm}1.4\\ 0{\pm}0\\ 3.8{\pm}1.1\\ 0{\pm}0\\ 4.54{\pm}2.31\\ \end{array}$	$\begin{array}{c} 52.74 \pm 74.59\\ 0.09 \pm 0.13\\ 1.71 \pm 2.41\\ 10.19 \pm 14.14\\ 0.40\\ 0.84 \pm 1.1\\ 0.40\\ 0.379 \pm 0.04\\ 0.40\\ 20.23 \pm 28.61\\ 0.40\\ 0.40\\ 1.4 \pm 1.75\\ 0.40\\ 0.65 \pm 0.07\\ 0.640\\ 88.13.69\\ 3.34 \pm 2.72\\ 0.40\\ 4.644\\ 33\\ 0.40\\ 1.54 \pm 1.34\\ \end{array}$	$\begin{array}{c} 78.65{\pm}110.08\\ 0{\pm}0\\ 3.27{\pm}2.38\\ 27.99{\pm}20\\ 0{\pm}0\\ 0{\pm}0\\ 4.41{\pm}4.53\\ 6.37{\pm}3.37\\ 0{\pm}0\\ 42.58{\pm}3.4\\ 34.5{\pm}2.197\\ 107.46{\pm}96.2\\ 0{\pm}0\\ 34.5{\pm}2.2\\ 10.5{\pm}2.2\\ 10.5{\pm}2.2\\$	113 2266.49 0±0 4.42±2.54 51 86±23.06 0±0 9.65±2.59 9.78±5.86 0±0 1.59±7.56 10.93±7.56 10.93±7.56 10.93±7.56 10.03±5.62 5.54±1.77 5.48±4.21 14.22±3.25 0±0	$\begin{array}{c} 199.84 \pm 174 \\ 0 \pm 0 \\ 5.893 \pm 46.6 \\ 0 \pm 0 \\ 9.11 \pm 17.66 \\ 7.37 \pm 3.5 \\ 0 \pm 0 \\ 4.36 \pm 3.16 \\ 122.54 \pm 94.1 \\ 281.57 \pm 209 \\ 0 \pm 0 \\ 8.94 \pm 4.37 \\ 11.9 \pm 5.43 \\ 10.94 \pm 4.75 \\ 3.05 \pm 2.75 \\ 16.37 \pm 13.88 \\ 0 \pm 0 \end{array}$
erbenol pha-Terpinene -Cymene -Limonene ta-th-Nelandrene -D-beta-osimene ans-Linalool oxide s-Verbenol ta-ta-Terpineol ehydro-p-cymene andodon, 6- amphanoca, 6- ampholenal pha-Campholenal co-sillo-oximene erbenol -Borneol -Borneol -Cymen-8-ol yrtenol	1022 1029 1039 1042 1046 1056 1085 1085 1088 1095 1108 1108 1133 1139 1139 1139 1139 1139 1144 1151 1151 1151 1185 1188 1191 1191 1196 1202 1218	Green - Terpenic Minty Floral Waxy - Woody Woody Woody Woody - Woody Herbal -	green plastic sweet floral nut skin pepper herbal tropical pine terpenic illac citrus woody floral minty spearmint cooling green herbal caraway spicy sweet floral fluity rose waxy citrus waxy green fluity floral - woody citrus herbal sweet woody - herbal woody spicy - amber	$\begin{array}{c} 43.35{\pm}11.55\\ 8.38{\pm}1.33\\ 1.91{\pm}0.68\\ 13.41{\pm}11.73\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.90.27{\pm}45.1\\ 0.59{\pm}11.42\\ 1.27{\pm}0.57\\ 0.97{\pm}0.35\\ 0.97{\pm}0.35\\ 0.97{\pm}0.45\\ 2.640\\ 9.8\\ 2.63{\pm}4.55\\ 1.95{\pm}0.48\\ 5.33{\pm}5.78\\ 8.8{\pm}11.05\\ 8.39{\pm}2.16\\ \end{array}$	$\begin{array}{c} 106.84\pm76.11\\ 18.6\pm18.03\\ 3.45\pm3.48\\ 27.37\pm38.88\\ 2.89\pm2.63\\ 2.79\pm3.26\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 2.85\pm4.94\\ 3.51\pm1.17\\ 0.490.136\\ 1.88\pm2.02\\ 5.75\pm4.92\\ 1.62\pm2.33\\ 1.07\pm7.43\\ 3.42\pm2.14\\ 0.47\pm2.357\\ 7.6.13\pm49.67\\ 2.81\pm4.26.81\\ 0.7\pm7.43\\ 3.42\pm2.14\\ 0.47\pm2.357\\ 7.6.13\pm49.67\\ 1.81\pm40.67\\ 1.81$	$\begin{array}{c} 130, 41\pm62, 08\\ 0\pm0\\ 5, 21\pm2, 35\\ 40, 61\pm2, 1, 14\\ 3, 89\pm3, 39\\ 3, 69\pm1, 04\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 218, 8\pm2, 288\\ 0\pm0\\ 1, 61\pm2, 79\\ 2, 5210, 85\\ 7, 08\pm1, 61\\ 2, 35\pm1, 16\\ 1, 4, 51\pm4, 42\\ 4, 84\pm1, 87\\ 7, 08\pm1, 61\\ 2, 35\pm1, 16\\ 1, 4, 51\pm4, 42\\ 4, 84\pm1, 87\\ 1, 6, 72\pm1, 7.94\\ 4, 81\pm7, 88\\ 30, 05\pm15, 56\\ \end{array}$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 1.15{\pm}0.81\\ 0{\pm}0\\ 3.54{\pm}1.71\\ 0{\pm}0\\ 1.5{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ 1.03{\pm}3.349\\ 1.03{\pm}3.49\\ 1.03{\pm}3.49\\ 1.9{\pm}0.77\\ 0{\pm}0\\ 1.9{\pm}1.77\\ 0{\pm}0\\ 0{\pm}0\\$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.17\pm0.15\\ 1.95\pm1.1\\ 3.02\pm2.91\\ 0\pm0\\ 1.63\pm1.6\\ 0\pm0\\ 1.63\pm1.6\\ 0.175\\ 0.510.5\\ 0.510.5\\ 0.01.75\\ 0.510.5\\ 0.01.75\\ 0.510.5\\ 0.01.75\\ 0.510.5\\ 0.01.75$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 6.28\pm1.2\\ 0\pm0\\ 1.77\pm0.79\\ 0\pm0\\ 3.34\pm0.56\\ 3.39\pm1.69\\ 0.01\\ 0.199+1.25\\ 3.46\pm0.74\\ 0\pm0\\ 1.07\pm3.47\\ 1.19\pm0.46\\ 1.28\pm2.22\end{array}$	$\begin{array}{c} 188.69\pm 103.35\\ 2.09\pm 2.12\\ 3.38\pm 1.83\\ 20.29\pm 12.32\\ 0.40\\ 1.2\pm 1.2\\ 0.40\\ 8.29\pm 3.84\\ 2.41\pm 1.95\\ 8.5\\ 1.38\pm 12.5\\ 1.38\pm 12.5\\ 1.38\pm 12.5\\ 1.24\pm 3.36\\ 0.40\\ 0.33\pm 3.36\\ 0.40\\ 0.34\pm 3.23\\ 0.40\\ 0.57\pm 3.07\\ 0.58\\ 0.40\\ 0.57\pm 3.07\\ 0.58\\ 0.40\\ 0.57\pm 3.07\\ 0.58\\ 0.40\\ 0.57\pm 3.07\\ 0.58\\ 0.$	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 6.01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 2.8{\pm}0.85\\ 0{\pm}0\\ 53.41{\pm}22.74\\ 0{\pm}0\\ 0{$	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0.40\\ 0.84.11\\ 0.40\\ 0.84.1\\ 0.40\\ 0.20\\ 3.79\pm0.04\\ 0.40\\ 0.20\\ 3.32\pm28.61\\ 0.40\\ 0.015\pm0.07\\ 0.6-0.48\\ 9.68\pm1.369\\ 3.34\pm2.72\\ 0.40\\ 4.644.33\\ 0.40\\ 1.54\pm1.34\\ 8.82\pm1.2.47\end{array}$	78.65±110.08 0+0 3.27±2.38 27.99±20 0+0 4.41±4.53 6.37±3.37 0+0 4.25±4.3.4 3.45±21.97 107.46±96.2 0+0 0+25±3.74 0+0 0+25±3.74000000000000000000000000000000000000	$\begin{array}{c} 1132\pm664.9\\ 0\pm0\\ 4.42\pm2.54\\ 51.86\pm2.3.0\\ 0\pm0\\ 9.7\pm5.86\\ 0\pm0\\ 7.7\pm5.86\\ 0\pm0\\ 3.58\pm2.5\\ 01.89\pm175.61\\ 0.01\\ 0.54\pm175.61\\ 0.01\\ 0.03\pm5.62\\ 1.01\\ 0.03\pm5.62\\ 1.01\\ 0.03\pm5.62\\ 0.01\\ 0.03\pm5.62\\ 0.01\\ 0.03\pm5.62\\ 0.01\\ 0.01\\ 0.03\pm5.62\\ 0.01$	$\begin{array}{c} 199.84\pm174\\ 0\pm0\\ 5.593\pm46.6\\ 0\pm0\\ 19.11\pm17.6\\ 7.37\pm3.5\\ 0\pm0\\ 4.36\pm3.16\\ 1.25\pm524\\ 2.81.57\pm24.9\\ 0.40\\ 8.94\pm4.37\\ 1.0.94\pm4.37\\ 3.0.5\pm2.75\\ 1.6.37\pm13.8\\ 0\pm0\\ 3.7\pm1.6\\ 8.32\pm8.5\\ 5.0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\$
erbenol pha-Terpinene -Cymene -Limonene tu-th-Pielandrene)-beta-osimene ela servicia -Varbenol tas-Terpineol etydro-p-cymene inalool tas-Terpineol etydro-p-cymene inalool han-Campholenal co-allo-osimene ethenol amphenon, 6- amphenol, 6- amphenol, 6- Myrecaol -Cymens-8-ol Syrtenol	1022 1029 1039 1042 1046 1085 1088 1095 1108 1133 1139 1144 1151 1163 1185 1188 1185 1188 1185 1188 1191 1196 1202 1218	Green - Floral - Terpenic Minty Floral Waxy - - - Woody Woody - Woody - Woody	green plastic sweet floral nut skin pepper herbal tropical pine terpenic flae, cirtux woody floral minty spearmint cooling green herbal can way spicy sweet floral futity rose waxy cirtus waxy green flutity floral - woody cirtus herbal sweet woody - herbal woody spicy	$\begin{array}{c} 43.35{\pm}11.55\\ 8.38{\pm}1.33\\ 1.91{\pm}0.68\\ 1.34{\pm}11.73\\ 0.40\\ 0.1594.04\\ 0.40\\ 0.0\\ 90.27{\pm}45.1\\ 0.927{\pm}0.3\\ 1.27{\pm}0.57\\ 0.97{\pm}0.3\\ 1.27{\pm}0.57\\ 0.97{\pm}0.3\\ 1.28{\pm}0.48\\ 2.48{\pm}2.48\\ 2.48{\pm}0.58\\ 1.33{\pm}5.78\\ 8.38{\pm}1.105\\ 8.39{\pm}2.16\\ 0.40\\ $	$\begin{array}{c} 10684\pm7611\\ 1864\pm7613\\ 3.45\pm348\\ 2737\pm3888\\ 2.89\pm2.63\\ 2.89\pm2.63\\ 2.99\pm3.26\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 15526\pm13827\\ 2.85\pm4.94\\ 3.51\pm1.17\\ 0.4\pm0.7\\ 1.92\pm1.36\\ 1.88\pm2.02\\ 5.75\pm4.92\\ 1.62\pm2.33\\ 10.7\pm7.43\\ 3.42\pm2.14\\ 20.47\pm2.37\\ 1.62\pm2.34\\ 10.7\pm7.43\\ 3.42\pm2.14\\ 20.47\pm2.57\\ 1.5\pm4.96\\ 1.62\pm4.33\\ 10.7\pm7.43\\ 3.42\pm2.14\\ 20.47\pm2.57\\ 1.5\pm4.96\\ 1.5\pm2.21\\ 1.5\pm2.33\\ 1.5\pm2.$	$\begin{array}{c} 130 \; 41\pm 62 \; .08 \\ 0\pm 0 \\ 521\pm 2.35 \\ 40 \; 61\pm 23.14 \\ 3.89\pm 3.39 \\ 3.69\pm 1.04 \\ 0\pm 0 \\ 0\pm 0 \\ 0\pm 0 \\ 1.61\pm 2.79 \\ 2.69\pm 2.65 \\ 1.84\pm 1.19 \\ 2.69\pm 2.65 \\ 1.84\pm 1.19 \\ 2.52\pm 0.85 \\ 7.08\pm 1.61 \\ 2.52\pm 0.85 \\ 7.08\pm 1.61 \\ 4.51\pm 4.42 \\ 3.1\pm 1.75 \\ 8.85 \\ 8$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 1.15{\pm}0.81\\ 0{\pm}0\\ 35.46{\pm}19.52\\ 0{\pm}0\\ 1.55{\pm}0.81\\ 0.35{\pm}0.81\\ 0.35{\pm}0.82\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ 1.02{\pm}0.51\\ 1.98{\pm}3.49\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0.81{\pm}0.17\\ \end{array}$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.172\pm0.15\\ 1.95\pm1.1\\ 3.02\pm2.91\\ 0\pm0\\ 1.05\pm1.6\\ 0\pm0\\ 1.01\pm0.5\\ 0\pm0\\ 0.5\pm0.5\\ 0\pm0\\ 0.85\pm0.5\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 6.28\pm1.2\\ 0\pm0\\ 1.77\pm0.79\\ 0\pm0\\ 40.71\pm8.34\\ 0\pm0\\ 3.34\pm0.56\\ 3.39\pm1.69\\ 0\pm0\\ 0\pm0\\ 1.99\pm1.25\\ 3.46\pm0.74\\ 0\pm0\\ 1.07\pm3.47\\ 1.19\pm0.46\\ 1.28\pm2.22\\ 0.35\pm0.53\\ \end{array}$	$\begin{array}{c} 188.69\pm103.35\\ 2.09\pm2.12\\ 3.38\pm1.83\\ 20.29\pm12.32\\ 0.40\\ 1.21\pm1.2\\ 0.40\\ 2.41\pm1.95\\ 5.319\pm15.08\\ 1.389\pm12.11\\ 5.14\pm4.3\\ 0.40\\ 2.23\pm3.36\\ 0.40\\ 2.23\pm3.36\\ 0.40\\ 3.34\pm3.25\\ 1.214\pm6.56\\ 0.40\\ 6.57\pm3.07\\ 4.09\pm7.08\\ 0.40\\ 0.40\\ 0.40\\ 0.57\pm3.07\\ 1.23\pm0.7\\ $	$\begin{array}{c} 127.06{\pm}48.9\\ 5\\ 5\\ 6.01{\pm}2.71\\ 2.55{\pm}1.07\\ 16.69{\pm}7.84\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 0.71{\pm}0.31\\ 0{\pm}0\\ 0.53.41{\pm}22.74\\ 0{\pm}0\\ 0{\pm}0\\ 0\\ 0{\pm}0\\ $	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm1.414\\ 0.40\\ 0.83.1.1\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.05\pm0.07\\ 0.65\pm0.07\\ 0.65\pm0.07\\ 0.65\pm0.07\\ 0.65\pm0.07\\ 0.65\pm0.07\\ 0.45\pm1.569\\ 3.34\pm2.72\\ 0.40\\ 1.54\pm1.369\\ 3.33\\ 1.54\pm1.34\\ 8.82\pm12.47\\ 0.40\end{array}$	$\begin{array}{c} 78.65 \pm 110.08 \\ 040 \\ 3.27 \pm 2.38 \\ 27.99 \pm 20 \\ 040 \\ 4.41 \pm 4.53 \\ 6.57 \pm 3.37 \\ 0.58 \pm 4.53 \\ 3.45 \pm 21.97 \\ 107.46 \pm 6.2 \\ 040 \\ 5.04 \pm 3.82 \\ 7.96 \pm 6.46 \\ 4.23 \pm 3.74 \\ 0.32 \pm 1.42 \\ 0.43 \\ 2.35 \\ 3.73 \pm 2.36 \\ 0.40 \\ 0$	113.2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.745.58 9.745.58 1.29.78±157.75 201.89±175.61 0±0 6.86±3.23 10.03±5.62 5.54±1.77 5.48±41.77 5.48±41.77 5.48±42.31 14.22±3.25 0±3.20 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.48±4.21 0±3.50 5.54±4.21 0±3.50 5.54±4.21 0±3.50 5.54±4.21 0±3.50 5.54±4.21 0±3.50 5.54±4.21 0±3.50 5.54±4.21 0±3.50 5.54±4.20 5.54±5.20 5.54±4.20 5.54±5.20 5.54±4.20 5.54±5.20 5.54±4.20 5.54±5.20 5.54±5.20 5.54±5.20 5.54±5.20 5.54±5.20 5.54±5.20 5.54±5.20 5.54±5.20 5.54±5.20 5.54±5.20 5.55555.20 5.55555.20 5.5555.20 5.55555.20 5.55555.20 5.55555.	199 84±174 0±0 5 84±466 55 93±46.6 60±0 19.11±17.6 7.37±3.5 0±0 4.36±3.16 122.54±9.4 28.57±209 0±0 8.94±4.37 11.9±5.3 20.5±2.75 8.94±4.37 11.9±5.4 8.94±4.37 11.9±5.4 8.94±4.37 11.9±5.4 8.94±4.37 11.9±5.4 8.9±6.4 13.75±1.6 8.37±5.1 8.9±6.4 13.25±8.89 9.9±8.85 0±0 0±0
erbenol pha-Terpinene -Cymene -Limonene tat-Phellandrene 9)-beta-osimene mas. Landtod oriside tata-Terpineol chydro-po-ymene miadool stata-Terpineol chydro-po-ymene maphenone, 6- llocimene orehenol amphenon, 6- fenhol 9-Borneol Myrenol Myrenol Syrtenol Syrtenol Syrtenol Syrtenol	1022 1029 1042 1046 1046 1055 1085 1085 1005 1108 1139 1144 1163 1139 1144 1163 1185 1185 1185 1185 1185 1185 1185 118	Green - Terpenic Minty Floral Waxy - Woody Woody Woody Woody - Woody Herbal -	green plastic sweet floral nut skin pepper herbal tropical pine terpenic illac citrus woody floral minty spearmint cooling green herbal caraway spicy sweet floral fluity rose waxy citrus waxy green fluity floral - woody citrus herbal sweet woody - herbal woody spicy - amber	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 0.159 \pm 0.44\\ 0.40\\ 0.0\\ 90.27 \pm 45.1\\ 0.902 + 11.42\\ 0.902 \pm 1.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.28 \pm 0.57\\ 0.25 \pm 0.44\\ 2.63 \pm 0.55\\ 3.38 \pm 1.05\\ 8.39 \pm 2.16\\ 8.39 \pm 2.16\\ 0.\pm 0\\ 0.\pm 0\\ 3.4 \pm 1.68\\ \end{array}$	$\begin{array}{c} 10684\pm76.11\\ 1866\pm8.03\\ 3.45\pm3.48\\ 27.37\pm38.88\\ 2.89\pm2.63\\ 2.89\pm2.63\\ 2.99\pm2.63\\ 0.60\\ 0.60\\ 0.55\\ 2.6\pm1.38\\ 2.75\pm4.94\\ 3.51\pm1.17\\ 0.4\pm0.7\\ 1.92\pm1.36\\ 1.82\pm2.02\\ 5.75\pm4.92\\ 1.62\pm2.33\\ 0.7\pm7.24\\ 3.42\pm2.14\\ 0.7\pm7.24\\ 3.42\pm2.14\\ 3.42\pm2.14$ 3.42\pm2.14\\ 3.42\pm2.14 3.42\pm2.14\\ 3.42\pm2.14 3.42\pm2.14\\ 3.42\pm2.14 3.42\pm2.14\\ 3.42\pm2.14 3.42\pm2.14\pm2.14 3.42\pm2.14 3.42\pm2.14\pm2.14 3.42\pm2.14\pm2.14 3.42\pm2.14\pm2.14 3.42\pm2.14\pm2.14 3.42\pm2.14\pm2.14 3.42\pm2.14\pm2.14 3.42\pm2.14\pm2.14\pm2.14 3.42\pm2.14\pm2.14\pm2.14 3.42\pm2.14\pm2.14\pm2.14\pm2.14\pm2.14\pm2.14\pm2.14\pm2	$\begin{array}{c} 130, 41\pm62, 0.8\\ 0.60\\ 5.21\pm2.35\\ 40, 61\pm2.3, 14\\ 3.89\pm3.39\\ 3.69\pm1.04\\ 0.60\\ 0.60\\ 0.60\\ 0.60\\ 0.18\\ 8.8525, 288\\ 0.60\\ 0.60\\ 2.18\\ 8.8525, 288\\ 0.60\\ 1.61\pm2.79\\ 2.69\pm2.65\\ 1.61\pm2.79\\ 2.52\pm0.85\\ 7.08\pm1.61\\ 1.61\pm2.79\\ 1.61\pm2$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 35.46{\pm}1.92\\ 0{\pm}0\\ 35.46{\pm}1.92\\ 0{\pm}0\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ 1.03{\pm}3.49\\ 1.03{\pm}0.7\\ 1.98{\pm}1.77\\ 0.81{\pm}0.7\\ 1.87{\pm}0.73\\ 0{\pm}0\\ 0{\pm}0\\ 1.85{\pm}1.77\\ 0.81{\pm}0.17\\ 1.87{\pm}0.73\\ 0{\pm}0\\ 0{\pm$	5.49±2.65 0±0 0.74±0.86 5.8±5.27 0.17±0.15 1.95±1.1 3.02±2.91 0±0 0±0 1.01±1.75 0±0 0.55±0.5 0±0 0±0 0.55±0.5 0±0 0±0 0.87±0.76 1.63±0.59 0±0 0.82±3.07 0.82±3.07 0.99±0.93 1.2±1.32 0±0	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 6.28\pm1.2\\ 0\pm0\\ 0\pm0\\ 3.34\pm1.2\\ 0\pm0\\ 0\pm0\\ 3.34\pm1.69\\ 0\pm0\\ 0.0\pm0\\ 1.99\pm1.25\\ 3.34\pm0.74\\ 0\pm0\\ 1.0\pm2.47\\ 1.0\pm2.47\\ 0\pm0\\ 0.0\pm0\\ 1.0\pm2.47\\ 0.0\pm0\\ 0.35\pm0.53\\ 1.81\pm0.48\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0.0\pm0\\ 0.0\pm0$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 1.21{\pm}12\\ 0.40\\ 8.39{\pm}12.32\\ 0.40\\ 8.39{\pm}12.13\\ 5.319{\pm}15.08\\ 1.389{\pm}12.11\\ 5.14{\pm}4.3\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 6.34{\pm}2.25\\ 12.14{\pm}6.36\\ 0.40\\ 6.34{\pm}2.25\\ 0.40\\ 4.09{\pm}7.08\\ 0.40\\ 4.09{\pm}7.08\\ 0.40\\ 4.39{\pm}2.79\\ 0.43{\pm}2.79\\ 0.43{\pm}2.79\\$	$\begin{array}{c} 127.06 \pm 48.9\\ 5\\ 6.01\pm 2.71\\ 2.55\pm 1.07\\ 16.69\pm 7.84\\ 0\pm 0\\ 0.71\pm 0.31\\ 0\pm 0\\ 0.71\pm 0.31\\ 0\pm 0\\ 0.85\\ 53.41\pm 22.74\\ 0\pm 0\\ 0\pm$	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0.40\\ 0.84.11\\ 0.40\\ 0.84.1\\ 0.40\\ 0.20\\ 3.79\pm0.04\\ 0.40\\ 0.20\\ 3.32\pm28.61\\ 0.40\\ 0.015\pm0.07\\ 0.6-0.48\\ 9.68\pm1.369\\ 3.34\pm2.72\\ 0.40\\ 4.644.33\\ 0.40\\ 1.54\pm1.34\\ 8.82\pm1.2.47\end{array}$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.41 \pm 4.53\\ 0+3.37\\ 0+3.37\\ 0+3.337\\ 0+3.337\\ 0+3.45 \pm 21.97\\ 107.46 \pm 96.2\\ 0+0\\ 5.04 \pm 3.82\\ -7.96 \pm 6.46\\ 4.23 \pm 3.74\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 2.33 \pm 2.36\\ 0+0\\ 0+0\\ 2.33 \pm 2.38\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+$	113 2±66.49 0±0 4.42±2.54 51.86±23.06 0±0 9.75±3.85 0±9 9.75±3.86 0±9 129.78±157.75 201.89±175.61 0±0 6.86±3.23 10.03±5.62 5.54±1.77 5.48±4.21 14.22±3.25 0±0 6.32±0.37 14.22±3.25 0±0 6.42±3.24 0±0 6.42±3.24 0±0 6.42±3.24 0±0 6.42±3.24 0±0 6.42±3.24 0±0 11.35±12.32 0±0	$\begin{array}{c} 199.84{\pm}174\\ 0{\pm}0\\ 5.84{\pm}176\\ 0{\pm}0\\ 19,11{\pm}17.65\\ 7.37{\pm}35\\ 0{\pm}0\\ 4.36{\pm}31,6\\ 8.94{\pm}4.37\\ 11.9{\pm}5.43\\ 10.94{\pm}4.37\\ 10.94{\pm}4$
erbenol pha-Terpinene -Cymene -Limonene -Limonene aphellafterene am-Linalool oxide -Sverbenol -ta-Terpineol etydro-p-cymene inalool ta-Terpineol etydro-p-cymene inalool amphenon, 6- llooimene evillo-oximene erbenol -Cymen8-aol Myrcenol -Cym	1022 1029 1039 1046 1046 1085 1085 1105 1108 1133 1144 1151 1153 1188 1188 1188 1188 1188 1188	Green - Terpenic Minty Floral Waxy - Woody Woody Woody Herbal - Herbal -	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac citrus woody floral minty spearminit cooling green herbal caraway spicy sweet floral fluity rose waxy citrus way green fluity floral woody citrus herbal sweet woody herbal woody spicy amber thyme herbal woody dry	$\begin{array}{c} 43.35{\pm}11.55\\ 8.38{\pm}1.33\\ 1.91{\pm}0.68\\ 13.41{\pm}11.73\\ 0.46\\ 0.40\\ 0.4$	$\begin{array}{c} 10684476.11\\ 186e18.03\\ 3.45e348\\ 27.37+3888\\ 28.289426.31\\ 2.49926.31\\ 2.49926.31\\ 2.49926.31\\ 2.49926.32\\ 2.49943.26\\ 0.40\\ 0$	$\begin{array}{c} 130.41\pm 62.08\\ 0+0\\ 5.21\pm 2.35\\ 440.61\pm 23.14\\ 3.89\pm 3.39\\ 3.89\pm 3.39\\ 3.69\pm 3.39\\ 3.69\pm 3.39\\ 3.69\pm 3.39\\ 3.69\pm 3.39\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 2.18.8\pm 2.88\\ 0+0\\ 0.49\\ 0.49\\ 0.49\\ 2.65\pm 1.61\\ 2.55\pm 1.61\\ 4.5\pm 1.61\\ 4.5\pm 1.61\\ 4.5\pm 1.61\\ 4.5\pm 1.61\\ 4.5\pm 1.61\\ 3.6\pm 1.55\\ 3.00\pm 0.55\\ 3.00\pm 0.5$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.25{\pm}0.28\\ 0.25{\pm}0.28\\ 0.15{\pm}0.28\\ 0.15{\pm}0.28\\ 0.15\\ 0.1$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 3.8\pm5.27\\ 0.974\pm0.11\\ 1.972\pm0.11\\ 0.922\pm0.11\\ 0.922\pm0.11$	$\begin{array}{c} 5.67{\pm}0.5\\ 0{\pm}0\\ 1.42{\pm}0.07\\ 8.31{\pm}2.84\\ 1.57{\pm}2.78\\ 2.28{\pm}1.2\\ 0{\pm}0\\ 0{\pm}0\\ 1.77{\pm}0.79\\ 0{\pm}0\\ 40.71{\pm}8.34\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.99{\pm}1.25\\ 3.46{\pm}0.74\\ 0{\pm}0\\ 11.92{\pm}0.46\\ 2.11{\pm}0.46\\ 0{\pm}0\\ 1.51{\pm}0.59\\ \end{array}$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 11.2\\ 0.40\\ 0.41\\ 12.1\\ 0.40\\ 2.41{\pm}1.95\\ 5.31.9{\pm}15.08\\ 13.89{\pm}12.11\\ 5.31.8{\pm}15.08\\ 13.89{\pm}12.11\\ 5.31.4{\pm}4.3\\ 0.40\\ 3.34{\pm}3.25\\ 0.40\\ 0.40\\ 0.53{\pm}3.36\\ 0.40\\ 0.54{\pm}2.3\\ 0.40\\ 0.40\\ 0.54{\pm}2.3\\ 0.40\\ 0.40\\ 0.54{\pm}2.3\\ 0.40\\ 0.40\\ 0.54{\pm}2.3\\ 0.40\\ $	127.06+8.9 5 5 6 0142.71 2.55+107 040 040 07140.31 040 040 040 040 040 040 040 040 040 04	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0.46\\ 0.41\\ 0.40\\$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.573 \pm 3.37\\ 0+0\\ 4.533 \pm 3.37\\ 0+0\\ 4.534 \pm 3.3\\ 0+0\\ 4.558 \pm 3.4\\ 0+0\\ 3.54 \pm 3.2\\ 0+0\\ 0.534 \pm 4.8\\ 3.33 \pm 2.36\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 3.37 \pm 2.33\\ 0+0\\ 0.53 \pm 0.93 \end{array}$	$\begin{array}{c} 113.2\pm66.49\\ 0\pm0\\ 4.42\pm2.54\\ 51.86\pm2.3.60\\ 0\pm0\\ 9.7\pm5.86\\ 0\pm0\\ 3.8\pm2.57\\ 201.89\pm175.61\\ 0\pm0\\ 129.78\pm157.75\\ 201.89\pm175.61\\ 0\pm0\\ 5.54\pm1.77\\ 5.45\pm4.21\\ 1.42\pm3.25\\ 0\pm0\\ 5.54\pm1.77\\ 5.54\pm4.21\\ 1.42\pm3.25\\ 0\pm0\\ 1.52\pm2.6.80\\ 1.52\pm2.6.80\\ 0\pm0\\ 1.52\pm2.6.80\\ 1.55\pm1.2.24\\ 0\pm0\\ 0.55\pm1.2.24\\ 0.55\pm$	$\begin{array}{c} 199.84\pm174\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 19.11\pm17.6,\\ 7.37\pm3.5\\ 0\pm0\\ 0\pm0\\ 19.11\pm17.6,\\ 7.37\pm3.5\\ 0\pm0\\ 0\pm0\\ 8.94\pm4.37\\ 11.9\pm5.4\\ 12.2\pm8.9\\ 12.2\pm8.9$
erbenol pha-Terpinene -Cymene -Limonene tat-Phellandrene 9)-beta-osimene mas.Lanatool oxide sv Corputol evydro-pr-geneene inalool evydro-pr-geneene inalool holaCampholenal co-alla-ocimene erbenol maphenon, 6- llocimene fenhol 9-Borneo	1022 1029 1046 1046 1085 1088 1088 1088 1085 1105 1105 1105	Green Floral Terpenice Minty Floral Waxy - Woody Woody Woody Woody Herbal - Herbal - Spicy -	green plastic sweet floral nut skin pepper herbal tropical pine terpenic llae, cirtus woody floral minty spearmint cooling green herbal can way spicy sweet floral futily rose waxy cirtus waxy green futily floral woody cirtus herbal sweet woody cirtus herbal sweet woody herbal woody spicy - amber thyme herbal woody dry spicy fluity mango	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 1.59 \pm 0.44\\ 0.40\\ 0.40\\ 90.27 \pm 45.1\\ 6.59 \pm 11.42\\ 1.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.08 \pm 0.35\\ 0.25 \pm 0.44\\ 2.63 \pm 0.55\\ 3.33 \pm 2.64\\ 9.8\\ 3.35 \pm 2.68\\ 3.35 \pm 2.$	$\begin{array}{c} 10684\pm76.11\\ 186\pm1803\\ 3.45\pm3.48\\ 27.37\pm3888\\ 2.89\pm2.63\\ 2.79\pm2.66\\ 0.40\\ 0.40\\ 0.55\\ 2.6\pm1.38\\ 2.79\pm2.66\\ 0.55\\ 2.85\pm4.94\\ 3.51\pm1.17\\ 0.4\pm0.7\\ 1.92\pm1.36\\ 1.88\pm2.02\\ 5.75\pm4.92\\ 1.62\pm2.33\\ 1.07\pm7.74\\ 3.34\pm2.21\\ 1.07\pm7.74\\ 3.34\pm2.21\\ 1.07\pm7.74\\ 3.34\pm2.21\\ 1.07\pm7.74\\ 3.34\pm2.68\\ 0.46$	$\begin{array}{c} 130, 41\pm62, 0.8\\ 0.40\\ 5.21\pm2.35\\ 40, 61\pm2.3, 14\\ 3.89\pm3.39\\ 3.69\pm1.04\\ 0.40\\$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 35.46{\pm}1.92\\ 0{\pm}0\\ 35.46{\pm}1.92\\ 0{\pm}0\\ 1.03{\pm}0.81\\ 0{\pm}0\\ 0{\pm}0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ 1.03{\pm}3.49\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ 1.9{\pm}1.77\\ 0{\pm}0\\ 1.9{\pm}1.77\\ 0{\pm}0.51\\ 1.9{\pm}1.77\\ 0{\pm}0.51\\ 1.9{\pm}1.77\\ 0{\pm}0.51\\ 1.5{\pm}0.51\\ 1.5{\pm}0.55\\ 1.5{\pm}0.5{$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.17\pm0.15\\ 1.95\pm1.1\\ 3.02\pm2.91\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0.28\pm1.2\\ 0.40\\ 0.40\\ 0.40\\ 0.34\pm1.2\\ 0.40\\ 0.40\\ 0.3.39\pm1.69\\ 0.40\\ 0.4$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 1.21{\pm}12\\ 0.40\\ 3.29{\pm}1.35\\ 3.39{\pm}1.35\\ 3.31{\pm}1.50\\ 3.31{\pm}1.50\\ 3.31{\pm}1.50\\ 3.31{\pm}1.50\\ 3.31{\pm}1.50\\ 3.31{\pm}2.5\\ 1.21{\pm}4.6.36\\ 0.40\\ 3.34{\pm}2.5\\ 1.21{\pm}4.6.36\\ 0.40\\ 6.34{\pm}2.23\\ 0.40\\ 6.34{\pm}2.23\\ 0.40\\ 6.34{\pm}2.23\\ 0.40\\ 6.34{\pm}2.25\\ 0.40\\ 0.40{\pm}2.25{\pm}2.07\\ 4.09{\pm}7.08\\ 0.40\\ 3.58{\pm}2.97\\ 0.40\\ 2.75{\pm}14.4.38\\ 0.40\\ 0.58{\pm}2.79\\ 0.40\\ 0.75{\pm}14.4.38\\ 0.58{\pm}2.79\\ 0.40\\ 0.75{\pm}14.4.38\\ 0.58{\pm}2.79\\ 0.40\\ 0.75{\pm}14.4.38\\ 0.58{\pm}2.79\\ 0.40\\ 0.58{\pm}2.58\\ 0.58{\pm}2.79\\ 0.40\\ 0.58{\pm}2.58\\ 0.58{\pm}2.79\\ 0.40\\ 0.58{\pm}2.58\\ 0.58{\pm}2.79\\ 0.40\\ 0.58{\pm}2.58\\ 0.58{\pm}2.79\\ 0.40\\ 0.58{\pm}2.58{\pm}2.79\\ 0.40\\ 0.58{\pm}2.58{\pm}2.97\\ 0.40\\ 0.58{\pm}2.58{\pm}2.97\\ 0.40\\ 0.58{\pm}2.58{\pm}2.97\\ 0.40\\ 0.58{\pm}2.58{\pm}2.97\\ 0.40\\ 0.58{\pm}2.58{\pm}2.97\\ 0.40\\ 0.58{\pm}2.58{\pm}$	127.06+8.9 5 6.012-7.1 2.55=1.07 0.66-97.78-4 0-60 0.71-0.31 0-60 0.71-0.31 0-60 0-71-0.33 3.34.068 0-60 0-60 0-60 0-85=1.48 7.085-1.91 0-60 0-85=1.48 6.04-2.22 0-60 0-572-2.22 0-60 0-572-2.24 0-60 0-572-2.24 0-60 0-572-2.24 0-60 0-572-2.24 0-60 0-572-2.24 0-60 0-572-2.44 0-60 0-72-2.54 0-72-2.44 0-72-2.44 0-72-2.54 0-7	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm1.414\\ 0.40\\ 0.8\pm1.1\\ 0.40\\ 0.3.79\pm0.04\\ 0.022226.61\\ 0.40\\ 0.022226.61\\ 0.40\\ 0.05\pm0.07\\ 0.65\pm0.07\\ 0.05\pm0.07\\ 0.05\pm$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.41 \pm 4.53\\ 0+3, 337 \pm 2.38\\ 0+4, 4.53\\ 0+3, 337\\ 0+3, 35$	113 2466.49 040 4.42±2.54 51.86±23.06 040 9.65±2.59 9.755.26 040 9.755.26 040 9.755.26 040 9.755.26 040 1.035.562 5.48±4.21 14.22±3.25 040 6.86±3.23 10.033.562 5.48±4.21 14.22±3.25 040 15.52±0.26 040 15.52±0.26 040 040 15.52±0.26 040 040 15.52±0.26 040 040 15.52±0.26 040 040 040 15.52±0.26 040 040 040 040 040 040 040 04	$\begin{array}{c} 199.84{\pm}173\\ 0{\pm}0\\ 55.9{\pm}44{\pm}76\\ 0{\pm}0\\ 19,11{\pm}17.6\\ 7.37{\pm}35\\ 0{\pm}0\\ 122.54{\pm}94, \\ 34.54{\pm}316\\ 0{\pm}44{\pm}37\\ 10.9{\pm}4{\pm}36\\ 10.9{\pm}4{\pm}4{\pm}37\\ 10.9{\pm}4{\pm}36\\ 10.9{\pm}4{\pm}4{\pm}37\\ 10.9{\pm}4{\pm}36\\ 10.9{\pm}4{\pm}36\\ 10.9{\pm}4{\pm}36\\ 0{\pm}0\\ 7.0{\pm}4{\pm}36\\ 0{\pm}0\\ 0{\pm}0\\ 7.0{\pm}4{\pm}6\\ 0{\pm}0\\ 0{\pm}0\\ 7.0{\pm}6{\pm}0\\ 0{\pm}0\\ 7.0{\pm}0\\ 0{\pm}0\\ 0{\pm$
erbenol pha-Terpinene Cymene -Limonene mark-Inaloso oxide swythene was-Linaloso oxide swythene ta-Terpineol etydre-p-eymene nalool ta-Terpineol etydre-p-eymene filosimene maphenon, 6- liosimene erbenol maphenol, 6- maphenol, 6- maphenol, 6- Borneol -Cymens-aol yritenol erbenol erbenol erbenol erbenol Myrcenol -Cymens-aol yritenol erbenol Myrcenol Myrcenol Myrcenol Myrcenol Myrtenol Menth-1-en-9-al arveol	1022 1029 1046 1046 1046 1085 1085 1085 1085 1105 1105 1105 1105	Green - Terpenic Minty Floral Waxy - Woody Woody Woody Herbal - Herbal -	green plastic sweet floral nut skin pepper herbal tropical pine terpenic lilac citrus woody floral minty spearminit cooling green herbal caraway spicy sweet floral fluity rose waxy citrus way green fluity floral woody citrus herbal sweet woody herbal woody spicy amber thyme herbal woody dry	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 0.40\\ 0.40\\ 9.027 \pm 5.1\\ 9.027 \pm 5.1\\ 0.97 \pm 0.57\\ 0.$	$\begin{array}{c} 106\ 844\ 76\ 11\\ 18\ 641\ 803\\ 345\pm3\ 48\\ 27.37\pm3\ 88\\ 2.89\pm2\ 6.3\\ 2.85\pm2\ 6.3$ 2.85\pm2\ 6.3\\ 2.85\pm2\ 6.3\\ 2.85\pm2\ 6.3 2.85\pm2\ 6.3 2.85\pm2\	$\begin{array}{c} 130 \ 41\pm 62, 08\\ 0+0\\ 5, 21\pm 2, 35\\ 40, 61\pm 2, 14\\ 3, 89\pm 3, 39\\ 3, 69\pm 1, 04\\ 0+0\\ 0+0\\ 0+0\\ 218\\ 8, 85\pm 28, 88\\ 0+0\\ 0+0\\ 2, 16\pm 2, 79\\ 2, 69\pm 2, 65\\ 1, 84\pm 1, 19\\ 2, 52\pm 0, 85\\ 7, 08\pm 1, 61\\ 2, 25\pm 1, 84\\ 4, 84\pm 1, 87\\ 1, 84\pm 1, 87\\ 1, 87\pm 1, 75\\ 30, 05\pm 15, 56\\ 0+0\\ 0+0\\ 13, 48\pm 7, 01\\ 15, 94\pm 7, 95\\ 33, 35\pm 12, 59\\ 0+0\\ 13, 48\pm 7, 01\\ 15, 94\pm 7, 95\\ 33, 35\pm 12, 59\\ 0+0\\ 0+0\\ 33, 35\pm 12, 59\\ 0+0\\ 0+0\\ 33, 35\pm 12, 59\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 0\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 0\\ 1.03{\pm}0.81\\ 0\\ 0{\pm}0\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ 1.03{\pm}3.49\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0.87{\pm}0.73\\ 0{\pm}0\\ 1.98{\pm}1.77\\ 0.87{\pm}0.73\\ 0{\pm}0\\ 1.158{\pm}0.82\\ 0{\pm}0\\ 1.58{\pm}0.88\\ 0{\pm}0\\ 1.82{\pm}0.89\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.82{\pm}0.89\\ 0{\pm}0\\ 0{\pm}0\\$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 3.8\pm5.27\\ 0.974\pm0.11\\ 1.972\pm0.11\\ 0.922\pm0.11\\ 0.922\pm0.11$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 6.28\pm1.2\\ 0\pm0\\ 0\pm0\\ 3.39\pm1.09\\ 0\pm0\\ 3.39\pm1.09\\ 0\pm0\\ 1.99\pm1.25\\ 3.34\pm0.56\\ 3.39\pm1.69\\ 0\pm0\\ 1.99\pm1.25\\ 3.46\pm0.74\\ 0\pm0\\ 1.19\pm0.46\\ 1.128\pm0.46\\ 1.128\pm0.48\\ 0\pm0\\ 1.51\pm0.59\\ 1.40\pm0.23\\ 0\pm0\\ 1.51\pm0.59\\ 0\pm0\\ 0\pm0\\ 1.51\pm0.59\\ 0\pm0\\ 0\pm0\\ 1.51\pm0.59\\ 0\pm0\\ 0\pm0\\ 1.51\pm0.59\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 188.69\pm103.35\\ 2.09\pm2.12\\ 3.38\pm1.83\\ 20.29\pm12.32\\ 0.40\\ 1.21\pm1.2\\ 0.40\\ 3.29\pm1.95\\ 3.39\pm12.11\\ 5.14\pm4.3\\ 0.40\\ 2.23\pm3.36\\ 0.40\\ 2.23\pm3.36\\ 0.40\\ 6.54\pm2.25\\ 1.2.14\pm6.36\\ 0.40\\ 6.54\pm2.25\\ 0.40\\ 6.54\pm2.25\\ 0.40\\ 0.65\pm2.07\\ 4.33\pm2.57\\ 0.40\\ 0.54\pm2.27\\ 0.40\\ 0.55\pm2.07\\ 0.40\\ 0.55\pm2.07\\ 0.41\\ 0.45\pm2.07\\ 0$	127.06+8.9 5 5 6 0142.71 2.55+107 040 040 07140.31 040 040 040 040 040 040 040 040 040 04	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0.46\\ 0.41\\ 0.40\\$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.573 \pm 3.37\\ 0+0\\ 4.533 \pm 3.37\\ 0+0\\ 4.534 \pm 3.3\\ 0+0\\ 4.558 \pm 3.4\\ 0+0\\ 3.54 \pm 3.2\\ 0+0\\ 0.534 \pm 4.8\\ 3.33 \pm 2.36\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 3.37 \pm 2.33\\ 0+0\\ 0.53 \pm 0.93 \end{array}$	$\begin{array}{c} 113.2\pm66.49\\ 0\pm0\\ 4.42\pm2.54\\ 51.86\pm2.3.60\\ 0\pm0\\ 9.7\pm5.86\\ 0\pm0\\ 3.8\pm2.57\\ 201.89\pm175.61\\ 0\pm0\\ 129.78\pm157.75\\ 201.89\pm175.61\\ 0\pm0\\ 5.54\pm1.77\\ 5.45\pm4.21\\ 1.42\pm3.25\\ 0\pm0\\ 5.54\pm1.77\\ 5.54\pm4.21\\ 1.42\pm3.25\\ 0\pm0\\ 1.52\pm2.6.80\\ 1.52\pm2.6.80\\ 0\pm0\\ 1.52\pm2.6.80\\ 1.55\pm1.2.24\\ 0\pm0\\ 0.55\pm1.2.24\\ 0.55\pm$	$\begin{array}{c} 199.84\pm174\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 19.11\pm17.6,\\ 7.37\pm3.5\\ 0\pm0\\ 0\pm0\\ 19.11\pm17.6,\\ 7.37\pm3.5\\ 0\pm0\\ 0\pm0\\ 8.94\pm4.37\\ 11.9\pm5.4\\ 11.9\pm5.4$ 11.9\pm5.4 11.9\pm5.4 11.9\pm5.4 11.9\pm5.4 11.9\pm5.
rchenol pha-Terpinene Cymene Limonene ar Phellandrene hel annoto toxide Verdbenol ta-Terpineol dydro-p-cymene nalool ta-Terpineol dydro-p-cymene nalool ta-Terpineol dydro-p-cymene nalool ta-Terpineol dydro-p-cymene helocimene trobal of the ta-the bio-allo-o-cimene trobal ta-callo-o-cimene trobal dydro-p-cymene Borneol Grando dydro ytrenol trenol trenol trenol trenol trenol trenol trenol trenol trenol ta-cyclocitral Carene	1022 1029 1039 1046 1086 1088 1088 1088 1085 1105 1105 1105 1105	Green - Floral - Terpenic Minty Floral Waody Woody Woody Woody Herbal - Spicy - Woody - Woody - - Woody - - - - - - - - - - - - -	green plastic weet floral nut skin pepper herbal tropical init speamint cooling green herbal araway spicy sweet floral fluity rose waxy citrus waxy green fluity floral woody citrus herbal sweet woody citrus herbal sweet woody citrus herbal sweet woody herbal woody spicy amber thyme herbal woody dry spicy fluity mango 	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 0.50\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.25 \pm 0.44\\ 2.633 \pm 0.58\\ 3.33 \pm 5.78\\ 8.38 \pm 11.05\\ 8.39 \pm 2.16\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.72 \pm 0.78\\ 0.77 \pm 0.78\\ 0.75 \pm 0.48\\ 0.41\\ 0.4$	$\begin{array}{c} 10684476.11\\ 18641803\\ 3.4543.48\\ 27.3743.88\\ 2.5842.63\\ 2.7943.26\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.55264.13827\\ 2.8544.94\\ 3.5141.17\\ 0.440.7\\ 1.9241.36\\ 2.5754.493\\ 3.5141.17\\ 0.440.7\\ 1.9241.36\\ 2.5754.493\\ 3.5142.16\\ 2.5754.493\\ 3.4242.16\\ 2.5754.493\\ 3.4242.14\\ 2.047423.57\\ 1.047423.57\\ 1.047423.57\\ 1.0449.67\\ 2.5814.96\\ 0.40\\ 0$	$\begin{array}{c} 130 \ 41\pm62 \ 0.86 \\ 0\pm0 \\ 5.21\pm2.35 \\ 40 \ 61\pm2.314 \\ 3.89\pm3.39 \\ 3.69\pm1.04 \\ 0\pm0 \\ 0\pm0 \\ 0\pm0 \\ 0\pm0 \\ 1.61\pm2.79 \\ 2.69\pm2.65 \\ 1.61\pm2.79 \\ 2.69\pm2.65 \\ 1.61\pm2.79 \\ 2.69\pm2.65 \\ 1.61\pm2.79 \\ 2.69\pm2.65 \\ 1.61\pm1.61 \\ 2.45\pm1.61 \\ 1.51\pm4.42 \\ 4.54\pm1.87 \\ 1.6.72\pm1.7.94 \\ 3.81\pm7.588 \\ 3.0.05\pm1.56 \\ 0\pm0 \\ 0\pm0 \\ 0\pm0 \\ 1.5\pm2.59 \\ 0\pm0 \\ 1.5\pm2.55 \\ 0\pm0$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 0.29{\pm}0.28\\ 0.29{\pm}0.28\\ 0.29{\pm}0.28\\ 0.29{\pm}0.71\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.55{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}0.77\\ 0{\pm}0\\ 0{$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.17\pm0.15\\ 1.95\pm1.1\\ 0.40\\ 0$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 1.21{\pm}1.2\\ 0.40\\ 8.29{\pm}2.32\\ 5.19{\pm}1.50\\ 8.29{\pm}2.84\\ 2.41{\pm}1.95\\ 5.19{\pm}12.11\\ 5.14{\pm}4.3\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 0.57{\pm}3.07\\ 4.09{\pm}7.08\\ 0.43{\pm}2.27\\ 0.44{\pm}1.38\\ 0.44{\pm}1.78\\ 2.89{\pm}1.74\\ 1.75{\pm}8.854 \end{array}$	$\begin{array}{c} 127.06+8.9\\ 5\\ 5\\ 6.01\pm 2.71\\ 2.55\pm 1.07\\ 16.69+7.84\\ 0\pm 0\\ 0.71\\ 3.5\pm 0.85\\ 0\pm 0\\ 0.73\\ 3.5\pm 0.85\\ 0\pm 0\\ 0$	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0\pm0\\ 0.38\pm1.1\\ 0.379\pm0.04\\ 0.40\\ 0.53,79\pm0.04\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.54\pm0.7\\ 0.64\pm0.7\\ 0.$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.37 \pm 5.33\\ 0+0\\ 4.53 \pm 5.3\\ 0+0\\ 4.53 \pm 5.3\\ 0+0\\ 4.53 \pm 5.3\\ 0+0\\ 0-0\\ 4.58 \pm 3.7\\ 0-0\\ 0-0\\ 5.44 \pm 3.8\\ 2.35 \pm 7.4\\ 0-0\\ 0.52 \pm 1.4\\ 3.33 \pm 2.38\\ 0+0\\ 0.52 \pm 1.4\\ 3.33 \pm 2.38\\ 0+0\\ 0.53 \pm 2.38\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+$	113.2466.49 040 4.4242.54 51.86423.06 040 9.653.59 040 3.5842.57 201.89±175.61 040 6.8643.23 10.0345.62 5.5441.77 5.4844.22 11.023.25 3.3240.37 15.5242.89 45.46473.44 040 11.35412.32 040 11.35412.32 040 043 8.33412.47 040 040 040 040 040 040 040 0	$\begin{array}{c} 199.84{\pm}174\\ 0{\pm}0\\ 0{\pm}0\\ 5.84{\pm}16\\ 0{\pm}0\\ 19.11{\pm}17.6\\ 7.37{\pm}35\\ 0{\pm}0\\ 28.57{\pm}20\\ 0{\pm}0\\ 0{\pm}0\\ 10.94{\pm}4.3\\ 10.94{\pm}4.3\\ 7.19{\pm}5.43\\ 10.94{\pm}4.3\\ 7.19{\pm}5.43\\ 10.94{\pm}4.3\\ 7.19{\pm}5.43\\ 10.94{\pm}4.3\\ 7.19{\pm}5.43\\ 10.94{\pm}4.3\\ 7.19{\pm}4.8\\ 0{\pm}0\\ 0$
rbenol pha-Terpinene Cymene Limonene ta-Phellandrene)-beta-osimene ms-Lanalool oxide & Verbenol ta-Terpineol oxide & Verbenol malool pha-Campholenal commene pha-Campholenal co-allo-osimene erbenol mphenon, 6- enthol B-Borneol Myrcenol Cymen-8-ol yrtenol yrtenol troneollol Menth-1-en-9-al arveol trocholol	1022 1029 1039 1042 1046 1085 1085 1085 1195 1195 1195 1195 1195 1195 1133 1133	Green Floral Terpenice Minty Floral Waxy - Woody Woody Woody Woody Herbal - Herbal - Spicy -	green plastic weet floral nut skin pepper herbal tropical pine terrpenic illac cirtus woody floral minty spearmint cooling green herbal can way spicy sweet floral fluity rlora waxy green fluity floral woody cirtus herbal sweet woody cirtus herbal sweet woody herbal woody spicy merbal woody spicy green woody rgeen woody woody woody woody woody woody	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 0.4$	$\begin{array}{c} 106\ 844\ 76\ 11\\ 18\ 641\ 803\\ 345\pm3\ 48\\ 27.37\pm3\ 88\\ 2.89\pm2\ 6.3\\ 2.85\pm2\ 6.3$ 2.85\pm2\ 6.3\\ 2.85\pm2\ 6.3\\ 2.85\pm2\ 6.3 2.85\pm2\ 6.3 2.85\pm2\	$\begin{array}{c} 130 \ 41\pm 62, 08\\ 040\\ 5.21\pm 2.35\\ 40, 61\pm 2.31\\ 3.89\pm 3.39\\ 3.69\pm 1.04\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ 2.16\\ 8.852, 88\\ 52, 085\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 2.79\\ 2.52\pm 0.85\\ 7.08\pm 1.61\\ 2.23\pm 1.61\\ 1.54\pm 1.61\\ 2.35\pm 1.61\\ 1.54\pm 1.55\\ 0\pm 0\\ 0\pm 0\\ 1.5\pm 2.52\\ 0\pm 0\\ 1.5\pm 3\\ 0.5\pm 1.55\\ 0\pm 0\\ 0\pm 0\\ 0\pm 1.5\pm 3\\ 0\pm 1.5\pm 3\\$	$\begin{array}{c} 4.64{\pm}1.32\\ 0\pm0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.55{\pm}0.67\\ 5.2{\pm}1.71\\ 0{\pm}0\\ 0.52\\ 0{\pm}0\\ 1.15{\pm}0.81\\ 0.04{\pm}0\\ 1.03{\pm}0.81\\ 0.04{\pm}0\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 1.22{\pm}1.57\\ 2.72{\pm}0.7\\ 0{\pm}0\\ 1.98{\pm}1.77\\ 0.81{\pm}0.17\\ 1.98{\pm}1.77\\ 0.81{\pm}0.17\\ 1.98{\pm}1.77\\ 0.81{\pm}0.17\\ 1.98{\pm}1.77\\ 0.81{\pm}0.17\\ 1.98{\pm}1.77\\ 0.81{\pm}0.73\\ 0.91{\pm}0.23\\ 0{\pm}0.23\\ 0{\pm}0.23\\$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.17\pm0.15\\ 1.95\pm1.1\\ 3.02\pm2.91\\ 0\pm0\\ 1.65\pm1.6\\ 0.10\pm0.15\\ 1.02\pm8.1.\\ 0\pm0\\ 1.01\pm1.75\\ 0.05\pm0.5\\ 0\pm0\\ 0.05\pm0.5\\ 0.05\\ 0.$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 6.28\pm1.2\\ 0.40\\ 0.57\pm0.79\\ 0.071\pm8.33\\ 0.40\\ 0.50\\ 3.39\pm1.69\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 1.99\pm1.25\\ 3.34\pm0.56\\ 3.39\pm1.69\\ 0.40\\ 0.40\\ 0.40\\ 1.99\pm1.25\\ 3.46\pm0.74\\ 0.40\\ 0.40\\ 0.40\\ 1.98\pm2.22\\ 0.35\pm0.53\\ 1.81\pm0.48\\ 0.51\pm0.59\\ 1.40\pm2.59\\ 0.40\\ 0.$	$\begin{array}{c} 188.69\pm103.35\\ 2.09\pm2.12\\ 3.38\pm1.83\\ 20.29\pm12.32\\ 0.40\\ 1.21\pm1.2\\ 0.40\\ 2.41\pm1.95\\ 5.139\pm12.11\\ 5.14\pm4.3\\ 0.40\\ 2.23\pm3.36\\ 0.40\\ 2.23\pm3.36\\ 0.40\\ 6.57\pm3.07\\ 0.40\\ 6.57\pm3.07\\ 4.09\pm7.08\\ 0.40\\ 0.40\\ 2.75\pm1.47\\ 0.41\\ 3.55\pm2.79\\ 0.40\\ 0.40\\ 0.40\\ 1.55\pm2.79\\ 0.40\\ 0.40\\ 0.40\\ 1.55\pm2.79\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 1.55\pm2.79\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 1.55\pm2.79\\ 0.40\\ $	127.06+8.9 5 6.01:2.71 2.5.5:1.07 0:60:7.84 0:00 0.71:0.31 0:60 0:01 0:02 0:03 0:04 0:05 0:04 0:04 0:04 0:05 0:04 0:04 0:05 0:04 0:04 0:04 0:04 0:05 0:04 0:05 0:04 0:05 0:04 0:05 0:04 0:05 0:05 0:04 0:05	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0.40\\ 0.84.1\\ 0.40\\ 2.0328.61\\ 0.40\\ 2.0328.61\\ 0.40\\ 2.0328.61\\ 0.05\pm0.07\\ 0.640.85\\ 9.68\pm13.69\\ 3.34\pm2.72\\ 0.40\\ 0.05\pm0.07\\ 0.640\\ 4.64.33\\ 0.40\\ 1.54\pm1.34\\ 8.82\pm12.47\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 1.54\pm1.34\\ 2.40\\ 0.40\\ 0.40\\ 0.41\pm0.63\\ 0.41\pm0.$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.41 \pm 4.53\\ 6.57 \pm 3.37\\ 0+0\\ 0+1\\ 3.41 \pm 4.53\\ 3.32 \pm 3.67\\ 0+0\\ 0.82 \pm 1.42\\ 4.15 \pm 4.83\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+$	$\begin{array}{c} 11324664.9\\ 0.60\\ 4.42\pm2.54\\ 51.86\pm2.3.6\\ 0.40\\ 9.65\pm3.59\\ 9.7\pm5.86\\ 0.40\\ 9.7\pm5.86\\ 0.40\\ 0.97\pm5.86\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.53\pm4.177\\ 5.48\pm4.21\\ 1.42\pm3.25\\ 0.40\\ 5.34\pm4.21\\ 1.42\pm3.25\\ 0.40\\ 0.53\pm4.32\\ 0.40\\ 0.$	$\begin{array}{c} 199.84\pm174\\ 0\pm0\\ 55.93\pm46.6\\ 0\pm0\\ 19.11\pm17.6\\ 7.37\pm35\\ 0\pm0\\ 11.95.41\\ 11.95.43\\$
rchenol hpa-Terpinene Cymene Limonene ta-Phellandrene blota-scinnene verschenol ta-Terpineol etydro-p-cymene nalool ta-Terpineol etydro-p-cymene nalool ha-Campholenal scoallo-ocimene ethenol ha-Campholenal Boha-Campholenal Boha-Campholenal Boha-Campholenal Boha-Campholenal Boha-Campholenal Boha-Campholenal Boha-Campholenal Hornol Hornol Systemol Systemol Systemol Systemol Hornol Hornol Carrone Carrone Carrone Carrone	1022 1029 1039 1046 1086 1088 1088 1088 1085 1105 1105 1105 1105	Green - Floral - Terpenic Minty Floral Waxy - Woody Woody - Woody Herbal - Spicy - Woody - Woody - - Woody - - Woody - - - - - - - - - - - - -	green plastic weet floral nut skin pepper herbal tropical init speamint cooling green herbal araway spicy sweet floral fauity rose waxy citrus waxy green fraity floral woody citrus herbal sweet woody citrus herbal sweet woody citrus herbal sweet woody herbal woody spicy mber thyme herbal woody dry spicy fruity mango - green woody woody woody	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 0.50\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.25 \pm 0.44\\ 2.633 \pm 0.58\\ 3.33 \pm 5.78\\ 8.38 \pm 11.05\\ 8.39 \pm 2.16\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.72 \pm 0.78\\ 0.77 \pm 0.78\\ 0.75 \pm 0.48\\ 0.41\\ 0.4$	$\begin{array}{c} 10684476.11\\ 18641803\\ 3.4543.48\\ 27.3743.88\\ 2.5842.63\\ 2.7943.26\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.55264.13827\\ 2.8544.94\\ 3.5141.17\\ 0.440.7\\ 1.9241.36\\ 2.5754.493\\ 3.5141.17\\ 0.440.7\\ 1.9241.36\\ 2.5754.493\\ 3.5142.16\\ 2.5754.493\\ 3.4242.16\\ 2.5754.493\\ 3.4242.14\\ 2.047423.57\\ 1.047423.57\\ 1.047423.57\\ 1.0449.67\\ 2.5814.96\\ 0.40\\ 0$	$\begin{array}{c} 130 \ 41\pm62.\ 0.8\\ 0\pm0\\ 5.21\pm2.\ 35\\ 40\ (61\pm2.14\\ 3.89\pm3.\ 99\\ 3.69\pm1.\ 04\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 1.61\pm2.\ 92\\ 2.69\pm2.\ 65\\ 1.61\pm2.\ 79\\ 2.69\pm2.\ 65\\ 1.61\pm2.\ 79\\ 2.69\pm2.\ 65\\ 1.61\pm2.\ 79\\ 2.48\pm1.\ 16\\ 1.61\pm2.\ 79\\ 2.48\pm1.\ 16\\ 1.61\pm1.\ 42\\ 4.84\pm1.\ 87\\ 1.67\pm1.\ 75\\ 8.8\\ 3.0.5\pm1.\ 56\\ 0\pm0\\ 0\pm0\\ 1.3\pm8.\ 72\\ 1.5\pm2.\ 56\\ 0\pm0\\ 0\pm0\\ 1.5\pm2.\ 56\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 1.5\pm2.\ 56\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 4.64{\pm}1.32\\ 0{\pm}0\\ 0.87{\pm}0.18\\ 6.08{\pm}2.02\\ 0.29{\pm}0.28\\ 1.53{\pm}0.67\\ 0.29{\pm}0.28\\ 0.29{\pm}0.28\\ 0.29{\pm}0.28\\ 0.29{\pm}0.71\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.55{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.03{\pm}0.82\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}1.77\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 1.07{\pm}0.51\\ 1.98{\pm}0.77\\ 0{\pm}0\\ 0{$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.17\pm0.15\\ 1.95\pm1.1\\ 0.40\\ 0$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 1.21{\pm}1.2\\ 0.40\\ 8.29{\pm}3.24\\ 2.41{\pm}1.95\\ 5.319{\pm}15.08\\ 1.3.89{\pm}12.11\\ 5.14{\pm}4.3\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 0.57{\pm}3.07\\ 4.09{\pm}7.08\\ 0.43{\pm}2.27\\ 0.44{\pm}4.38\\ 0.44{\pm}4.38\\ 0.45{\pm}1.78\\ 1.05{\pm}1.78\\ 1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05{\pm}1.05$	$\begin{array}{c} 127.06+8.9\\ 5\\ 5\\ 6.01\pm 2.71\\ 2.55\pm 1.07\\ 16.69+7.84\\ 0\pm 0\\ 0.71\\ 3.5\pm 0.85\\ 0\pm 0\\ 0.73\\ 3.5\pm 0.85\\ 0\pm 0\\ 0$	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0\pm0\\ 0.38\pm1.1\\ 0.379\pm0.04\\ 0.40\\ 0.53,79\pm0.04\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.54\pm0.7\\ 0.64\pm0.7\\ 0.$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.37 \pm 5.33\\ 0+0\\ 4.53 \pm 5.3\\ 0+0\\ 4.53 \pm 5.3\\ 0+0\\ 4.53 \pm 5.3\\ 0+0\\ 0-0\\ 4.58 \pm 3.7\\ 0-0\\ 0-0\\ 5.44 \pm 3.8\\ 2.35 \pm 7.4\\ 0-0\\ 0.52 \pm 1.4\\ 3.33 \pm 2.38\\ 0+0\\ 0.52 \pm 1.4\\ 3.33 \pm 2.38\\ 0+0\\ 0.53 \pm 2.38\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+$	113.2466.49 040 4.4242.54 51.86423.06 040 9.653.59 040 3.5842.57 201.89±175.61 040 6.8643.23 10.0345.62 5.5441.77 5.4844.22 11.023.25 3.3240.37 15.5242.89 45.46473.44 040 11.35412.32 040 11.35412.32 040 043 8.33412.47 040 040 040 040 040 040 040 0	$\begin{array}{c} 199.84{\pm}174\\ 0{\pm}0\\ 0{\pm}0\\ 5.84{\pm}16\\ 0{\pm}0\\ 19.11{\pm}17.6\\ 7.37{\pm}35\\ 0{\pm}0\\ 28.57{\pm}20\\ 0{\pm}0\\ 0{\pm}0\\ 10.94{\pm}4.3\\ 10.94{\pm}4.3\\ 7.19{\pm}5.43\\ 10.94{\pm}4.3\\ 7.19{\pm}5.43\\ 10.94{\pm}4.3\\ 7.19{\pm}5.43\\ 10.94{\pm}4.3\\ 7.19{\pm}5.43\\ 10.94{\pm}4.3\\ 7.19{\pm}4.8\\ 0{\pm}0\\ 0$
erbenol pha-Terpinene -Cymene -Limonene ta-th-Pielandrene -J-beta-osimene distribution - State Phelandrene - State Phelandrene - State Phelandrene ta-Terpineol - State Phelandrene - Stat	1022 1029 1042 1059 1042 1056 1088 1088 1088 1088 1088 1088 1088 108	Green Floral Terpenice Minty Floral Waxy - Woody Woody Woody Herbal - Herbal - Spicy - Woody - Woody - Woody - Woody - Woody - Woody - Woody -	green plastic weet floral nut skin pepper herbal tropical pine terrpenic illac cirtus woody floral minty spearmint cooling green herbal can way spicy sweet floral fluity rlora waxy green fluity floral woody cirtus herbal sweet woody cirtus herbal sweet woody herbal woody spicy merbal woody spicy green woody rgeen woody woody woody woody woody	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 0.15940.44\\ 0.40\\ 0.09\\ 0.27 \pm 0.57\\ 0.927 \pm 0.57\\ 0.97 \pm 0.3\\ 1.08 \pm 0.57\\ 0.97 \pm 0.3\\ 1.08 \pm 0.35\\ 0.25 \pm 0.44\\ 2.68 \pm 0.57\\ 0.335 \pm 0.58\\ 1.333 \pm 5.78\\ 8.38 \pm 1.105\\ 8.39 \pm 2.16\\ 0.40\\ 0$	$\begin{array}{c} 106844.76.11\\ 186418.03\\ 3.454.3.48\\ 27.374.3888\\ 27.374.3888\\ 27.374.3882\\ 2.594.26.3\\ 2.794.326\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.55\\ 2.641.382.7\\ 2.854.94\\ 3.51\pm1.17\\ 0.440.7\\ 1.92\pm1.36\\ 1.882.02\\ 5.754.492\\ 1.622.23\\ 3.51\pm1.17\\ 0.472.35\\ 1.622.23\\ 3.51\pm1.17\\ 0.472.35\\ 1.622.23\\ 3.51\pm1.06\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.50\\ 0.511.48\\ 2.738.419.59\\ 2.7744.81\\ 1.526.0\\ 0.467\\ 7.58.38\\ 2.47\pm3.99\\ 0.474.39\\ 0.475\\ 0.50\\ 0.467\\ 0.467\\ 0.467\\ 0.460\\ 0.460\\ 0.460\\ 0.56\\ 0.467\\ 0.58\\ 0.1225\\ 0.467\\ 0.46\\ 0.46\\ 0.46\\ 0.46\\ 0.56\\ 0.56\\ 0.56\\ 0.46\\ 0.46\\ 0.46\\ 0.46\\ 0.46\\ 0.56\\ 0.56\\ 0.56\\ 0.46\\ 0.46\\ 0.46\\ 0.56\\ 0.56\\ 0.56\\ 0.56\\ 0.46\\ 0$	$\begin{array}{c} 130 \; 41\pm62.\; 0.8 \\ 0.60 \\ 5.21\pm2.\; 35 \\ 40 \; 61\pm2.\; 3.14 \\ 3.89\pm3.\; 39 \\ 3.69\pm1.\; 0.4 \\ 0.60 \\ 0.80 \\ 0.60 \\ 0.80 \\ 0.80 \\ 0.60 \\ 0.80$	$\begin{array}{c} 4.64\pm 1.32\\ 0\pm 0\\ 0.87\pm 0.18\\ 6.08\pm 2.02\\ 0.29\pm 0.28\\ 1.53\pm 0.67\\ 5.2\pm 1.71\\ 0.15\pm 0.81\\ 0\pm 0\\ 3.5\pm 0.81\\ 0\pm 0\\ 1.55\pm 0.82\\ 0\pm 0\\ 1.03\pm 0.82\\ 0\pm 0\\ 0\pm 0\\ 1.23\pm 1.57\\ 2.77\pm 0.7\\ 0.0\\ 3.5\pm 3.49\\ 1.07\pm 0.51\\ 1.87\pm 0.73\\ 0\pm 0\\ 1.85\pm 0.35\\ 0\pm 0\\ 1.82\pm 0.25\\ 0\pm 0\\ 1.82\pm 0.25\\ 0\pm 0\\ 1.03\pm 0.25\\ 0\pm 0\\ 1.03\pm 0.25\\ 0\pm 0\\ 1.03\pm 0.25\\ 0\pm 0\\ 0\pm 0\\ 1.03\pm 0.25\\ 0\pm 0\\ 0\pm 0\\ 0.55\pm 0.96\\ 0.05\\ 0\pm 0\\ 0.55\pm 0.96\\ 0.05\\ 0\pm 0\\ 0\pm 0$	5.49 ± 2.65 0 ± 0 0.74 ± 0.86 5.8 ± 5.27 0.17 ± 0.15 1.95 ± 1.1 3.02 ± 2.91 0 ± 0 1.02 ± 0.15 1.02 ± 2.81 0 ± 0 1.01 ± 1.75 0 ± 0 0.81 ± 0.76 1.63 ± 0.59 0.63 ± 0.59 0.63 ± 0.59 0.63 ± 0.59 0.63 ± 0.61 2.12 ± 3.67 0.99 ± 0.93 1.2 ± 1.32 0 ± 0 0.99 ± 0.93 1.2 ± 1.32 0 ± 0 0.99 ± 0.93 1.2 ± 1.32 0 ± 0 0.99 ± 0.93 1.2 ± 1.32 0 ± 0 0.99 ± 0.93 1.2 ± 1.32 0 ± 0 0.99 ± 0.93 1.2 ± 1.32 0 ± 0 0.99 ± 0.93 1.2 ± 1.32 0 ± 0 0.99 ± 0.76 $1.1.81\pm3.79$ 0 ± 0.09 2.12 ± 3.64 1.35 ± 6.33 0 ± 0 0.58 ± 1 0.58 ± 1	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 6.28\pm1.2\\ 0.17\pm0.79\\ 0\pm0\\ 0.05$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 1.21{\pm}1.2\\ 0.40\\ 2.41{\pm}1.95\\ 5.319{\pm}15.08\\ 1.389{\pm}12.11\\ 5.14{\pm}4.3\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 3.34{\pm}3.25\\ 12.14{\pm}6.56\\ 0.43\\ 4.32{\pm}2.3\\ 0.40\\ 4.33{\pm}2.5\\ 0.43\\ 0.43\\ 1.35{\pm}2.79\\ 0.40\\ 0.55{\pm}2.17\\ 0.43{\pm}2.5\\ 0.45{\pm}2.5\\ 0.45{\pm}2.5\\$	127.06+8.9 5 6.012.7.1 2.55+1.07 16.69+7.84 0+0 0.71+03.11 0-0 0.71+03.11 0-0 0.71+03.11 0-0 0.71+03.11 0-0 0-0 0-0 0-0 0-0 0-0 0-0 0	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm1.414\\ 0.40\\ 0.8\pm1.1\\ 0.40\\ 0.43\\ 0.40\\ 0.43\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.05\pm0.07\\ 0.65\pm0.07\\ 0.05\pm0.07\\ 0.05\pm0.0$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27\pm 2.38\\ 27.99\pm 20\\ 0+0\\ 4.41\pm 4.53\\ 6.57\pm 3.37\\ 0\\ 4.58\pm 3.37\\ 0\\ 4.58\pm 3.37\\ 0\\ 3.45\pm 21.97\\ 107.46\pm 6.2\\ 0+0\\ 5.04\pm 3.82\\ 7.96\pm 6.46\\ 4.23\pm 3.74\\ 0.33\pm 2.36\\ 0.33\pm 2.36\\ 0.33\pm 2.36\\ 0.33\pm 2.36\\ 0.40\\ 0.33\pm 2.36\\ 0.40\\ 0.33\pm 2.36\\ 0.40\\ 0.53\pm 0.93\\ 0.57\pm 7.94\\ 1.44\pm 0.77\\ 0.40\\ 0.57\pm 0.95\\ 0.99\pm 3.55\\ 0.77\pm 1.44\\ 2.09\pm 0.99\\ 0.40\\ 0.59\pm 0.99\\ 0.40\\ 0.59\\ 0.99\\ 0.40\\ 0.59\\ 0.99\\ 0.40\\ 0.59\\ 0.99\\ 0.40\\ 0.58\\ 0.99\\ 0.40\\ 0.58\\ 0.99\\ 0.40\\ 0.58\\ 0.99\\ 0.40\\ 0.58\\ 0.99\\ 0.40\\ 0.58\\ 0.99\\ 0.40\\ 0.58\\ 0.99\\ 0.40\\ 0.58\\ 0.99\\ 0.40\\ 0.58\\ 0.99\\ 0.00\\ 0.58\\ 0.99\\ 0.99\\ 0.00\\ 0.58\\ 0.99\\ 0.99\\ 0.00\\ 0.58\\ 0.99\\ 0.99\\ 0.00\\ 0.58\\ 0.99\\ 0.99\\ 0.99\\ 0.00\\ 0.58\\ 0.99\\ $	$\begin{array}{c} 113.2\pm66.49\\ 0\pm0\\ 4.42\pm2.54\\ 51.86\pm23.06\\ 0\pm0\\ 9.65\pm3.59\\ 9.745.58\\ 129.78\pm157.75\\ 201.89\pm175.61\\ 0\pm0\\ 6.86\pm2.37\\ 10.93\pm562\\ 5.54\pm1.77\\ 5.42\pm4.27\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 5.54\pm4.77\\ 5.52\pm26.89\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 19984\pm174\\ 0.60\\ 5.534\pm466\\ 5.534\pm466\\ 0.40\\ 10111\pm17,66\\ 7.37\pm35\\ 4.364\pm1,16\\ 2.35\pm20,122\\ 3.45\pm1,122\\ 5.45\pm0,122\\ 3.45\pm1,122\\ 5.45\pm0,122\\ 3.45\pm1,122\\ 5.45\pm0,122\\ 3.45\pm1,122\\ 5.45\pm0,122\\ 0.45\pm1,122\\ 0.45\pm1,1$
erhenol hpha-Terpinene «Cymene «Limonene att abhaltannere ams-Linatool oxide iss Verbenol eta-Terpineol ebydro-p-cymene inalool amphenon, 6- ilocimene amphenon, 6- ilocimene samphenon, 6- ilocimene samphenon, 6- ilocimene samphenol, 6- fenthol -Soullo-oximene erhenol samphenol, 6- fenthol -Soullo-oximene erhenol -Cymen-8-ol Myreenol -Cymen-8-o	1022 1029 1039 1046 1088 1095 1105 1108 1105 1108 1133 1133 1133 1133 1133 1133 1133	Green - Floral - Terpenic Minty Floral Waxy - Woody Woody - Woody Herbal - Spicy - Woody - Woody - - Woody - - Woody - - - - - - - - - - - - -	green plastic weet floral nut skin pepper herbal tropical init speamint cooling green herbal araway spicy sweet floral fauity rose waxy citrus waxy green fraity floral woody citrus herbal sweet woody citrus herbal sweet woody citrus herbal sweet woody herbal woody spicy herbal woody dry spicy fruity mango - green woody woody woody	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 13.41 \pm 11.73\\ 0.40\\ 0.4$	$\begin{array}{c} 106844.76.11\\ 186e1803\\ 3458.348\\ 27.374.3888\\ 22.894.263\\ 24.994.26$	$\begin{array}{c} 130.41\pm62.08\\ 0+0\\ 5.21\pm2.35\\ 440.61\pm2.314\\ 3.89\pm3.39\\ 3.89\pm3.39\\ 3.69\pm3.39\\ 3.69\pm3.39\\ 3.69\pm3.39\\ 3.69\pm3.39\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 2.18.8\pm52.88\\ 0+0\\ 0.69\\ 2.69\pm2.63\\ 0.69\\ 2.69\pm2.63\\ 0.69\pm2.63\\ 1.61\pm2.79\\ 2.69\pm2.63\\ 1.61\pm2.79\\ 2.69\pm1.61\\ 2.55\pm1.16\\ 1.55\pm1.64\\ 4.25\pm1.16\\ 1.55\pm1.64\\ 4.25\pm1.16\\ 1.55\pm1.65\\ 3.35\pm1.25\\ 0.69\\ 0.69\\ 0.69\\ 3.15\pm3.08\\ 9.89\pm5.11\\ 0\\ 9.38\pm3.76\\ 3.37\pm1.67\\ 3.25\pm1.19\\ \end{array}$	$\begin{array}{c} 4.64\pm 1.32\\ 0\pm 0\\ 0.87\pm 0.18\\ 6.08\pm 2.02\\ 0.29\pm 0.28\\ 1.15\pm 0.81\\ 0\pm 0\\ 0\pm 0\\ 1.55\pm 0.81\\ 0\pm 0\\ 1.55\pm 0.81\\ 0\pm 0\\ 1.55\pm 0.81\\ 0\pm 0\\ 1.22\pm 1.57\\ 2.72\pm 0.7\\ 0\pm 0\\ 1.03\pm 0.82\\ 0\pm 0\\ 1.22\pm 1.57\\ 2.72\pm 0.7\\ 0\pm 0\\ 1.03\pm 0.82\\ 0\pm 0\\ 1.22\pm 1.57\\ 2.72\pm 0.7\\ 0\pm 0\\ 1.22\pm 0.57\\ 0\pm 0\\ 0\pm 0\\$	5.49 ± 2.65 0 ± 0 0.74 ± 0.86 5.8 ± 5.27 0.174 ± 0.11 1.02 ± 2.91 0 ± 0 1.63 ± 1.6 0 ± 0 1.01 ± 1.75 0.40 0.01 ± 0.75 0.450-5 0.58 ± 1 0.58 ± 1 0.484 ± 1 0.450-5	5.67 ± 0.5 0 ± 0 1.42 ± 0.07 8.31 ± 2.84 1.57 ± 2.34 2.28 ± 1.2 0 ± 0 1.77 ± 0.79 0 ± 0 40.71 ± 8.34 0.54 ± 0.56 3.39 ± 1.69 0.40 0.40 1.99 ± 1.25 3.46 ± 0.74 1.92 ± 0.46 1.92 ± 0.46 1.92 ± 0.46 1.92 ± 0.46 1.92 ± 0.46 1.51 ± 0.59 1.64 ± 0.24 1.51 ± 0.59 1.64 ± 0.24 1.51 ± 0.59 1.64 ± 0.24 1.51 ± 0.59 1.64 ± 0.24 1.51 ± 0.59 1.64 ± 0.24 1.51 ± 0.59 1.64 ± 0.24 1.51 ± 0.59 1.64 ± 0.24 1.51 ± 0.59 1.64 ± 0.24 1.52 ± 0.52 1.52 ± 0	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 11.2\\ 0.40\\ 0.41\\ 0$	127.06+8.9 5 5 6.012.71 2.55+10.77 16.66+7.784 04:00 04:00 04:00 04:00 04:00 04:00 04:00 04:00 04:00 05:51.48 7.084-19 04:00 05:51.48 7.084-19 04:00 05:51.48 7.084-19 04:50 04:00 05:51.48 7.084-19 04:50 04:	$\begin{array}{c} 52.74\pm74.59\\ 0.0960.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0.46\\ 0.11\\ 0.46\\ 0.11\\ 0.46\\ 0.11\\ 0.46\\$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.57 \pm 3.37\\ 0+0\\ 4.57 \pm 3.37\\ 0+0\\ 4.53 \pm 3.37\\ 0+0\\ 4.55 \pm 3.45\\ 0+0\\ 3.54 \pm 3.2\\ 0+0\\ 4.25 \pm 3.4\\ 0+0\\ 3.54 \pm 3.2\\ 0+0\\ 0.53 \pm 4.52\\ 3.57 \pm 2.33\\ 0+0\\ 0.53 \pm 0.93\\ 20.57 \pm 7.94\\ 1.54 \pm 3.2\\ 0+0\\ 0.53 \pm 0.93\\ 20.57 \pm 7.94\\ 1.54 \pm 3.2\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+$	$\begin{array}{c} 113.2 \pm 66.49\\ 0.40\\ 4.42 \pm 2.54\\ 51.86 \pm 23.60\\ 0.40\\ -15.9\\ 9.7 \pm 5.86\\ 0.40\\ -15.9\\ 9.7 \pm 5.86\\ 0.40\\ -3.88 \pm 2.57\\ 201.89 \pm 175.61\\ 0.40\\ -5.88 \pm 157.75\\ 201.89 \pm 175.61\\ 0.40\\ -5.54 \pm 1.77\\ 5.54 \pm 1.77\\ 5.55 \pm 1.77$	$\begin{array}{c} 19984{\pm}174\\ 0{\pm}0\\ 084{\pm}174\\ 0{\pm}0\\ 0101102538{\pm}46.6\\ 0101102538{\pm}46.6\\ 010110254{\pm}1025252525252525252525252525$
amma. Terpinene 'arthenol Japa. Terpinene A:Symene A:Symene A:Symene A:Jamontonication C:Japa. A:Japa.	1022 1029 1039 1046 1066 1066 1085 1085 1085 1085 1085 1085 1105 1105	Green Floral Terpenice Minty Floral Waxy - Woody Woody Woody Herbal - Herbal - Spicy - Woody - Woody - Woody - Woody - Woody - Woody - Woody -	green plastic weet floral nut skin pepper herbal tropical init speamint cooling green herbal araway spicy sweet floral fauity rose waxy citrus waxy green fraity floral woody citrus herbal sweet woody citrus herbal sweet woody citrus herbal sweet woody herbal woody spicy herbal woody dry spicy fruity mango - green woody woody woody	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 13.41 \pm 11.73\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.90\\ 2.7545.1\\ 1.27 \pm 0.57\\ 0.97 \pm 0.37\\ 0.97 \pm 0.57\\ 0.98 \pm 0.58\\ 3.35 \pm 5.78\\ 8.39 \pm 2.16\\ 0.40\\ 0.41\\ 1.95 \pm 0.58\\ 8.39 \pm 2.16\\ 0.441\\ 6.83 \pm 0.58\\ 8.39 \pm 2.16\\ 0.441\\ 6.841\\ 6.841\\ 6.83 \pm 0.58\\ 8.39 \pm 2.16\\ 0.441\\ 0.64\\ 0.461\\ 0.58\\ 8.39 \pm 2.16\\ 0.41\\ 0.72 \pm 0.78\\ 0.97 \pm 0.57\\ 0.57$	$\begin{array}{c} 10684476.11\\ 186418.03\\ 3.4543.48\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.3844.94\\ 27.854.94\\ 27.3544.94\\ 27.3544.92\\ 27.474.88\\ 27.38419.68\\ 27.38429.88\\ 27.38429\\ 27.384298\\ 27.384298\\ 27.384298\\ 27.384298\\ 27.38$	$\begin{array}{c} 130.41\pm62.08\\ 0+0\\ 5.21\pm2.35\\ 40.61\pm2.314\\ 3.89\pm3.39\\ 3.69\pm3.39\\ 3.69\pm3.39\\ 3.69\pm3.39\\ 3.69\pm3.39\\ 3.69\pm0.49\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+$	$\begin{array}{c} 4.64\pm1.32\\ 0\pm0\\ 0.87\pm0.18\\ 6.08\pm2.02\\ 0.29\pm0.28\\ 7.1\\ 0.29\pm0.28\\ 0.1\\ 0.1\\ 0.1\\ 0.20\\ 0.1\\ 0.1\\ 0.1\\ 0.1\\ 0.1\\ 0.1\\ 0.1\\ 0.$	5.49 ± 2.65 0 ± 0 0.74 ± 0.86 5.8 ± 5.27 0.17 ± 0.151 1.02 ± 2.91 0 ± 0 1.63 ± 1.6 0 ± 0 1.01 ± 1.75 0.0 ± 0 1.01 ± 1.75 0.05 ± 0.5 0.040 0.87 ± 0.76 1.63 ± 0.5 0.65 ± 0.6 0.65 ± 0.61 2.12 ± 3.67 0.99 ± 0.03 1.18 ± 3.79 0.90 ± 0.76 1.8 ± 3.79 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.0	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.028\pm1.2\\ 0\pm0\\ 1.57\pm2.34\\ 2.028\pm1.2\\ 0\pm0\\ 1.77\pm0.79\\ 0\pm0\\ 4.0,71\pm0.79\\ 0\pm0\\ 4.0,71\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.51\pm0.59\\ 14.04\pm2.59\\ 0\pm0\\ 1.51\pm0.59\\ 14.04\pm2.59\\ 0\pm0\\ 1.51\pm0.59\\ 14.04\pm2.58\\ 16.28\pm4.54\\ 0\pm0\\ 1.51\pm0.59\\ 16.05\pm0\\ 1.51\pm0.59\\ 16.05\pm0\\ 1.51\pm0.74\\ 0.05\\ 0\pm0\\ 1.51\pm0.74\\ 0.05\\ 0.05\\ 0\pm0\\ 1.51\pm0.74\\ 0.05\\ 0.$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 11\\ 11\\ 12\\ 0.42\\ 0.41\\ 12\\ 0.4$	$\begin{array}{c} 127.06+8.9\\ 5\\ 5\\ 6.01\pm2.71\\ 2.55\pm1.07\\ 16.69+7.84\\ 0400\\ 0400\\ 053341\pm22.74\\ 040\\ 053341\pm22.74\\ 040\\ 0450\\ 040\\ 0450\\ 040\\ 0450\\ 040\\ 04$	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0\pm0\\ 0.04\\ 1.91\\ 0.04\\ 0.04\\ 1.92\\ 0.05\pm0.04\\ 0.05\pm0.07\\ 0.05\pm0.07$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 0+1\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+3\\ 4.37 \pm 3.37\\ 0+0\\ 4.37 \pm 3.37\\ 0+0\\ 4.35 \pm 3.27\\ 0+0\\ 4.35 \pm 1.97\\ 107.46 \pm 96.2\\ 0+0\\ 3.45 \pm 21.97\\ 107.46 \pm 96.2\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 0.53 \pm 0.93\\ 2.05 \pm 2.33\\ 0+0\\ 0+0\\ 0.53 \pm 0.93\\ 2.05 \pm 2.33\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0$	$\begin{array}{c} 113.2466.49\\ 0.40\\ 4.4242.54\\ 51.86423.06\\ 0.40\\ 9.755.86\\ 0.40\\ 3.5842.57\\ 201.89\pm175.61\\ 0.40\\ 1.03842.57\\ 1.03842.57\\ 1.03845.75\\ 201.89\pm175.61\\ 1.03845.75\\ 201.89\pm175.61\\ 1.040\\ 5.4841.75\\ 1.03845.75\\ 3.240\\ 0.40\\ 5.3240.37\\ 1.528220.89\\ 0.40\\ 5.3240.37\\ 1.528220.89\\ 0.40\\ 0.4$	$\begin{array}{c} 19984{\pm}174\\ 0{\pm}0\\ 8584{\pm}466\\ 5593{\pm}46.6\\ 0{\pm}0\\ 1113{\pm}1525\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 281,57{\pm}209\\ 0{\pm}0\\ 0{\pm}0\\ 281,57{\pm}209\\ 0{\pm}0\\ 11925,43\\ 11925,43\\ 11925,43\\ 11925,43\\ 11925,43\\ 11925,43\\ 11925,43\\ 11925,43\\ 11925,43\\ 11925,43\\ 1222,54{\pm}0,43\\ 1322,54{\pm}0,43\\ 1423,52{\pm}0$
erbenol hpha-Terpinene (-Cymene +Limonene eta-Phellandrene)> beta-osimene ans-Limatool oxide tata-Terpineol (-Cymene) tata-Terpineol (-Cymene) (-	1022 1029 1039 1042 1085 1085 1085 1085 1085 1085 1085 1105 110	Green Floral Terpenice Minity Floral Waxy - Woody Woody Woody Herbal - Spicy - Woody - Woody Herbal - - Woody Herbal - - - Woody - - -	green plastic weet floral nut skin pepper herbal tropical pine terpenic likac cirtus woody floral minty spacemint ecoling green herbal can way spicy way green flurity flora way cirtus way green flurity flora woody cirtus herbal sweet woody herbal woody spicy merbal woody spicy - green woody woody - woody - green woody - woody - woody - - - - - - - - - - - - -	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 1.59 \pm 0.44\\ 0.40\\ 0.40\\ 90.27 \pm 0.58\\ 1.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.08 \pm 0.35\\ 0.25 \pm 0.44\\ 2.63 \pm 0.58\\ 1.95 \pm 0.58\\ 2.63 \pm 0.58\\ 3.35 \pm 1.75\\ 0.46\\ 0.98\\ 3.35 \pm 1.75\\ 0.46\\ 0.11\\ 1.217 \pm 7.01\\ 0.72 \pm 0.78\\ 0.46\\ 1.217 \pm 7.11\\ 1.27 \pm 0.78\\ 0.46\\ 1.217 \pm 7.11\\ 1.217 \pm 7.11\\ 1.217 \pm 7.11\\ 1.218 \pm 0.82\\ 1.218 \pm 0.218 $	$\begin{array}{c} 106\ 844-76\ .11\\ 18\ (6+18\ .03\\ 3\ .45\pm 3\ .48\\ 27\ .37\pm 38\ .88\\ 27\ .37\pm 38\ .48\\ 28\ .37\pm 1.17\\ 0\ .49\ .78\\ 28\ .58\pm 4.94\\ 3.51\pm 1.17\\ 0\ .49\ .78\\ 3.51\pm 1.17\\ 0\ .49\ .18\\ 3.12\pm 5.61\\ 0\ .49\ .12\\ 3.12\pm 5.61\\ 0\ .49\ .12\\ 5.12\pm 5.61\\ 0\ .49\ .12\\ 0\ .49\ .12\\ 0\ .49\ .12\\ 0\ .49\ .12\\ 0\ .49\ .12\\ 0\ .49\ .12\\ 0\ .49\ .12\\ 0\ .49\ .12\\ 0\ .49\ .12\\ 0\ .49\ .12\\ 0\ .49\ .49\ .49\ .49\ .49\ .49\ .49\ .49$	$\begin{array}{c} 130 \; 41\pm 62.\; 0.8 \\ 0.40 \\ 5.21\pm 2.35 \\ 40.\; 61\pm 23.\; 14 \\ 3.89\pm 3.39 \\ 3.69\pm 1.04 \\ 0.40 \\ $	$\begin{array}{c} 4.64\pm 1.32\\ 0\pm 0\\ 0.87\pm 0.18\\ 6.08\pm 2.02\\ 0.29\pm 0.28\\ 1.53\pm 0.67\\ 5.2\pm 1.71\\ 0\pm 0\\ 3.5\pm 0.61\\ 0\pm 0\\ 3.5\pm 0.61\\ 1.03\pm 0.81\\ 0\pm 0\\ 1.55\pm 0.82\\ 1.03\pm 0.82\\ 0\pm 0\\ 1.22\pm 1.57\\ 2.72\pm 0.7\\ 0\pm 0\\ 1.03\pm 0.82\\ 0\pm 0\\ 1.22\pm 1.57\\ 2.72\pm 0.7\\ 0\pm 0\\ 1.03\pm 3.49\\ 1.03\pm 0.82\\ 0\pm 0\\ 1.18\pm 1.77\\ 0.81\pm 0.71\\ 1.87\pm 0.73\\ 0\pm 0\\ 1.18\pm 0.89\\ 9.42\pm 4.21\\ 2.28\pm 4.21\\ 0\pm 0\\ 0\pm 0\\ 1.22\pm 4.21\\ 1.22\pm 4.21$ 1.22\pm 4.21\\ 1.22\pm 4.21 1.22\pm 4.21 1.22\pm 4.21 \\ 1.22\pm 4.21 1.2	5.49 ± 2.65 0 ± 0 0.74 ± 0.86 5.8 ± 5.27 0.17 ± 0.15 1.95 ± 1.1 3.02 ± 2.91 0 ± 0 0 ± 0 1.01 ± 0.5 0 ± 0 0 ± 0.16 $0\pm0.05\pm0.5$ 0 ± 0 0.55 ± 0.5 0 ± 0 0.55 ± 0.5 0 ± 0 0.2 ± 3.67 $0\pm0.099\pm0.05$ 1.2 ± 3.67 0.99 ± 0.037 1.2 ± 3.67 0.79 ± 0.87 8.2 ± 3.64 0.52 ± 0.045 0.52 ± 0.45 0.52 ± 0.45 0.52 ± 0.45 0.52 ± 0.45 0.52 ± 0.54 0.52 ± 0.54 0.52 ± 0.45 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55 0.52 ± 0.55	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 6.28\pm1.2\\ 0\pm0\\ 0\pm0\\ 40.71\pm0.79\\ 0\pm0\\ 0\pm0\\ 3.34\pm1.69\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 1.99\pm1.25\\ 3.34\pm0.56\\ 3.34\pm1.69\\ 0\pm0\\ 0\pm0\\ 1.10\pm3.47\\ 0\pm0\\ 1.10\pm3.47\\ 0\pm0\\ 1.25\pm2.22\\ 0.35\pm0.53\\ 1.81\pm0.48\\ 0\pm0\\ 1.51\pm0.59\\ 1.36\pm0.24\\ 8.42\pm3.28\\ 1.62\pm4.54\\ 0\pm0\\ 1.36\pm0.24\\ 8.42\pm3.28\\ 1.62\pm4.54\\ 0\pm0\\ 0\pm0\\ 0.51\pm0.57\\ 1.36\pm0.24\\ 8.42\pm3.28\\ 1.36\pm0.24\\ 8.42\pm3.28\\ 1.36\pm0.24\\ 8.42\pm3.28\\ 1.36\pm0.24\\ 1.36\pm0.24\\ 1.36\pm0.24\\ 1.36\pm0.24\\ 1.35\pm0.24\\ 1.$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 1.21{\pm}12\\ 0.40\\ 8.29{\pm}1.35\\ 3.39{\pm}1.35\\ 3.31{\pm}1.50\\ 3.31{\pm}1.50\\ 3.31{\pm}1.50\\ 3.31{\pm}1.50\\ 3.31{\pm}1.50\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 6.34{\pm}2.25\\ 1.21{\pm}4.66.36\\ 0.40\\ 6.34{\pm}2.25\\ 0.40\\ 4.33{\pm}2.79\\ 0.40\\ 7.5{\pm}1.74\\ 4.33{\pm}2.79\\ 0.40\\ 2.75{\pm}1.74\\ 4.33{\pm}2.79\\ 0.40\\ 2.75{\pm}1.74\\ 1.75{\pm}8.54\\ 1.05{\pm}1.74\\ 1.75{\pm}8.54\\ 1.05{\pm}1.74\\ 1.75{\pm}8.54\\ 1.05{\pm}1.74\\ 1.75{\pm}8.54\\ 1.05{\pm}1.74\\ 1.75{\pm}8.54\\ 1.54\\ 2.56{\pm}1.54\\ 2.75{\pm}1.54\\ 2.56{\pm}1.54\\ 2.75{\pm}1.54\\ 2.56{\pm}1.54\\ 2.75{\pm}1.54\\ 2.56{\pm}1.54\\ 2.75{\pm}1.54\\ 2.56{\pm}1.54\\ 2.75{\pm}5.55\\ 3.61{\pm}1.54\\ 2.17{\pm}3.77\\ 0.35{\pm}0.58\\ 2.58{\pm}2.56\\ 0.58{\pm}2.56\\ 0.58{\pm}2.5$	127.06+8.9 5 6.012.71 2.55+1.07 16.69+7.84 0+0 0.7140.31 0+0 2.0 3.54.1422.74 0+0 0+0 0.53.41+22.74 0+0 0+0 0+0 0-140.85 3.34.16 0+0 0+0 0-14 0,7140.31 0+0 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0+0 0,7140.31 0,7140.32 0,7140.31 0,7140.31 0,7140.31 0,7140.31 0,7140.31 0,7140.31 0,7140.31 0,71	$\begin{array}{c} 52.74\pm74.59\\ 0.09:00.13\\ 1.71\pm2.41\\ 10.19\pm1.41.40\\ 0.40\\ 0.83.1.1\\ 0.40\\ 0.000\\ 0.43\\ 0.100\\ 0.40\\ 0.000\\ 0$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.41 \pm 4.53\\ 0.57 \pm 3.37\\ 0.98 \pm 43.4\\ 3.45 \pm 21.97\\ 107.46 \pm 66.2\\ 0+0\\ 5.04 \pm 3.82\\ 7.96 \pm 6.46\\ 4.23 \pm 3.74\\ 0.52 \pm 1.42\\ 4.15 \pm 4.83\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 2.33 \pm 2.36\\ 0+0\\ 0.53 \pm 0.93\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+$	113 2266.49 040 4.42±2.54 51.86±23.06 040 9.65±2.59 9.755.36 040 9.755.36 040 129.78±157.75 201.89±175.61 040 6.86±3.23 10.03±5.62 5.48±4.21 14.22±3.25 040 15.32±0.37 15.32±0.37 15.32±0.37 15.32±0.37 0±0 0±0 11.35±12.32 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±	$\begin{array}{c} 199,84\pm174\\ 0.60\\ 55,384\pm4.66\\ 55,33\pm46.6\\ 0.40\\ 19,11\pm17.66\\ 7.37\pm25\\ 0.40\\ 12,37\pm25\\ 0.40\\ 12,37\pm20\\ 0.40\\ 0.40\\ 8,94\pm4.37\\ 11,9\pm5.43\\ 10,94\pm4.37\\ 11,9\pm5.43\\ 0.49\\ 0.40\\ 13,22\pm8.89\\ 0.40\\ 13,22\pm8.89\\ 0.40\\ 0$
erbenol pha-Terpinene -Cymene -Limonene at a Phellandrene -Limonene -Limonene -Limonene -Limonene -State Phellandrene -Limonene -State Phellandrene -State Phellandren	1022 1029 1039 1046 1066 1066 1085 1085 1085 1085 1085 1105 1105 1105	Green Floral Terpenice Minty Floral Waxy - Woody Woody Woody Herbal - Herbal - Spicy - Woody - Woody - Woody - Woody - Woody - Woody - Woody -	green plastic weet floral nut skin pepper herbal tropical init systeminit cooling green herbal araway spicy weet floral futity rose waxy citrus waxy green flutity floral woddy citrus herbal sweet woddy citrus herbal sweet woddy citrus herbal sweet woddy herbal woody spicy amber thyme herbal woody dry spicy flutity mango green woody woddy woody woody woody woody citrus herbal spicy futity mango green woody woody woody woody citrus herbal spicy herbal woody spicy woody woody woody woody spicy woody woody citrus herbal woody spicy woody woody woody citrus herbal woody spicy herbal spicy honey	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 13.41 \pm 11.73\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.90\\ 2.7545.1\\ 1.27 \pm 0.57\\ 0.97 \pm 0.37\\ 0.97 \pm 0.57\\ 0.98 \pm 0.58\\ 3.35 \pm 5.78\\ 8.39 \pm 2.16\\ 0.40\\ 0.41\\ 1.95 \pm 0.58\\ 8.39 \pm 2.16\\ 0.441\\ 6.83 \pm 0.58\\ 8.39 \pm 2.16\\ 0.441\\ 6.841\\ 6.841\\ 6.83 \pm 0.58\\ 8.39 \pm 2.16\\ 0.441\\ 6.41\\ 6.83 \pm 0.58\\ 8.39 \pm 2.16\\ 0.40\\ 0.41\\ 0.72 \pm 0.78\\ 0.41\\ 0.72 \pm 0.78\\ 0.97 \pm 0.57\\ 0.178 \pm 0.58\\ 0.375 \pm 0.5$	$\begin{array}{c} 10684476.11\\ 186418.03\\ 3.4543.48\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.37438.88\\ 27.3844.94\\ 27.854.94\\ 27.3544.94\\ 27.3544.92\\ 27.474.88\\ 27.38419.68\\ 27.38429.88\\ 27.38429\\ 27.384298\\ 27.384298\\ 27.384298\\ 27.384298\\ 27.38$	$\begin{array}{c} 130.41\pm62.08\\ 0+0\\ 5.21\pm2.35\\ 40.61\pm2.314\\ 3.89\pm3.39\\ 3.69\pm3.39\\ 3.69\pm3.39\\ 3.69\pm3.39\\ 3.69\pm3.39\\ 3.69\pm0.49\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+$	$\begin{array}{c} 4.64\pm1.32\\ 0\pm0\\ 0.87\pm0.18\\ 6.08\pm2.02\\ 0.29\pm0.28\\ 7.1\\ 0.29\pm0.28\\ 0.1\\ 0.1\\ 0.1\\ 0.20\\ 0.1\\ 0.1\\ 0.1\\ 0.1\\ 0.1\\ 0.1\\ 0.1\\ 0.$	5.49 ± 2.65 0 ± 0 0.74 ± 0.86 5.8 ± 5.27 0.17 ± 0.151 1.02 ± 2.91 0 ± 0 1.63 ± 1.6 0 ± 0 1.01 ± 1.75 0.0 ± 0 1.01 ± 1.75 0.05 ± 0.5 0.040 0.87 ± 0.76 1.63 ± 0.5 0.65 ± 0.6 0.65 ± 0.61 2.12 ± 3.67 0.99 ± 0.03 1.18 ± 3.79 0.90 ± 0.76 1.8 ± 3.79 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 1.23 ± 0.67 0.99 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.03 0.95 ± 0.0	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.028\pm1.2\\ 0\pm0\\ 1.57\pm2.34\\ 2.028\pm1.2\\ 0\pm0\\ 1.77\pm0.79\\ 0\pm0\\ 4.0,71\pm0.79\\ 0\pm0\\ 4.0,71\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.0,7\pm0.79\\ 0\pm0\\ 1.51\pm0.59\\ 14.04\pm2.59\\ 0\pm0\\ 1.51\pm0.59\\ 14.04\pm2.59\\ 0\pm0\\ 1.51\pm0.59\\ 14.04\pm2.58\\ 16.28\pm4.54\\ 0\pm0\\ 1.51\pm0.59\\ 16.05\pm0\\ 1.51\pm0.59\\ 16.05\pm0\\ 1.51\pm0.74\\ 0.05\\ 0\pm0\\ 1.51\pm0.74\\ 0.05\\ 0.05\\ 0\pm0\\ 1.51\pm0.74\\ 0.05\\ 0.$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 11\\ 11\\ 11\\ 12\\ 0.42\\ 2.41{\pm}1.95\\ 5.31.9{\pm}15.08\\ 13.89{\pm}12.11\\ 5.14{\pm}4.3\\ 0.40\\ 0.44\\ 2.23{\pm}3.36\\ 0.40\\ 0.44\\ 2.23{\pm}3.36\\ 0.40\\ 0.53{\pm}2.37\\ 0.40\\ 0.53{\pm}2.37\\ 0.40\\ 0.54{\pm}2.5\\ 0.40\\ 0.40\\ 0.54{\pm}2.5\\ 0.40\\ 0.40\\ 0.54{\pm}2.5\\ 0.40\\ 0.4$	$\begin{array}{c} 127.06+8.9\\ 5\\ 5\\ 6.01\pm2.71\\ 2.55\pm1.07\\ 16.69+7.84\\ 0400\\ 0400\\ 053341\pm22.74\\ 040\\ 053341\pm22.74\\ 040\\ 0450\\ 040\\ 0450\\ 040\\ 0450\\ 040\\ 04$	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0\pm0\\ 0.04\\ 1.91\\ 0.04\\ 0.04\\ 1.92\\ 0.05\pm0.04\\ 0.05\pm0.07\\ 0.05\pm0.07$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 0+1\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+3\\ 4.37 \pm 3.37\\ 0+0\\ 4.37 \pm 3.37\\ 0+0\\ 4.35 \pm 3.27\\ 0+0\\ 4.35 \pm 1.97\\ 107.46 \pm 96.2\\ 0+0\\ 3.45 \pm 21.97\\ 107.46 \pm 96.2\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 3.33 \pm 2.36\\ 0+0\\ 0.53 \pm 0.93\\ 2.05 \pm 2.33\\ 0+0\\ 0+0\\ 0.53 \pm 0.93\\ 2.05 \pm 2.33\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0$	$\begin{array}{c} 113.2466.49\\ 0.40\\ 4.4242.54\\ 51.86423.06\\ 0.40\\ 9.755.86\\ 0.40\\ 3.5842.57\\ 201.89\pm175.61\\ 0.40\\ 1.03842.57\\ 1.03842.57\\ 1.03845.75\\ 201.89\pm175.61\\ 1.03845.75\\ 201.89\pm175.61\\ 1.040\\ 5.4841.75\\ 1.03845.75\\ 3.240\\ 0.40\\ 5.3240.37\\ 1.528220.89\\ 0.40\\ 5.3240.37\\ 1.528220.89\\ 0.40\\ 0.4$	$\begin{array}{c} 199.84{\pm}174\\ 040\\ 55.84{\pm}166\\ 040\\ 11.37{\pm}13.56\\ 040\\ 12.54{\pm}04\\ 23.54{\pm}0.68\\ 040\\ 3.94{\pm}0.57{\pm}206\\ 040\\ 3.94{\pm}0.37\\ 11.95{\pm}0.57{\pm}206\\ 040\\ 11.95{\pm}0.57{\pm}206\\ 040\\ 11.95{\pm}0.57{\pm}206\\ 040\\ 11.95{\pm}0.57{\pm}206\\ 040\\ 11.95{\pm}0.57{\pm}206\\ 040\\ 040\\ 040\\ 040\\ 040\\ 040\\ 040\\ 0$
erbenol pha-Terpinene -Cymene -Limonene -Limonene -Limonene -Limonene -Limonene -Limonene -Limonene -Limonene -Servene -	1022 1029 1039 1046 1066 1088 1088 1088 1085 1105 1108 1133 1139 1133 1139 1144 1151 1135 1138 1188 1188 1188 1188 1188	Green Floral - Terpenic Minity Floral Waxy - Woody Woody Woody Herbal - Woody - Woody - Woody - - Woody - - - - - - - - - - - - -	green plastic weet floral nut skin pepper herbal tropical pine terpenic likac cirtus woody floral minty spacemint ecoling green herbal can way spicy way green flurity flora way cirtus way green flurity flora woody cirtus herbal sweet woody herbal woody spicy merbal woody spicy - green woody woody - woody - green woody - woody - woody - - - - - - - - - - - - -	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.90\\ 2.72 \pm 0.57\\ 0.97 \pm 0.3\\ 1.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.27 \pm 0.57\\ 0.97 \pm 0.3\\ 1.25 \pm 0.57\\ 0.93 \pm 0.58\\ 3.33 \pm 5.78\\ 8.39 \pm 1.65\\ 8.39 \pm 2.16\\ 0.40\\ 0.40\\ 0.40\\ 0.41\\ 1.95 \pm 0.58\\ 3.33 \pm 5.78\\ 8.38 \pm 1.105\\ 8.39 \pm 2.16\\ 0.40\\ 0.40\\ 0.40\\ 0.41\\ 1.95 \pm 0.58\\ 3.39 \pm 2.16\\ 0.40\\ 0.40\\ 0.42\\$	$\begin{array}{c} 106844.76.11\\ 18641803\\ 3.45\pm3.48\\ 27.37\pm3888\\ 27.37\pm3888\\ 27.37\pm3888\\ 27.37\pm3882\\ 27.37\pm3882\\ 27.37\pm3882\\ 27.37\pm32,85\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 1.552.6413827\\ 2.572.522.33\\ 1.02.572.522.14\\ 2.0472.352.14\\ 2.0472.352.14\\ 2.0472.352.14\\ 2.0472.352.14\\ 2.0472.352.14\\ 2.0472.352.252.252.252.252.252.252.25$	$\begin{array}{c} 130.41\pm 62.08\\ 0\pm 0\\ 5.21\pm 2.35\\ 40.61\pm 23.14\\ 3.89\pm 3.39\\ 3.69\pm 1.04\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 1.95\\ 7.38\pm 1.61\\ 1.61\pm 1.95\\ 7.38\pm 1.61\\ 1.61\pm 1.85\\ $	$\begin{array}{c} 4.64\pm1.32\\ 0\pm0\\ 0.87\pm0.18\\ 6.08\pm2.02\\ 0.29\pm0.28\\ 1.5\pm0.67\\ 0\pm0\\ 1.5\pm0.81\\ 0\pm0\\ 1.5\pm0.81\\ 0\pm0\\ 1.5\pm0.81\\ 0\pm0\\ 1.5\pm0.81\\ 0\pm0\\ 1.5\pm0.82\\ 0\pm0\\ 1.03\pm0.82\\ 0\pm0\\ 0\pm0\\ 1.03\pm0.82\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.174\pm0.151\\ 1.95\pm2.91\\ 0.40\\ 0.174\pm0.15\\ 0.174\pm0.15\\ 0.174\pm0.15\\ 0.174\pm0.15\\ 0.101\\$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0\pm0\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0\pm0\\ 1.2\\ 0\pm0\\ 1.2\\ 0\pm0\\ 1.2\\ 0\pm0\\ 1.2\\ 0\pm0\\ 1.33\pm1.69\\ 0\pm0\\ 1.07\pm0.79\\ 0\pm0\\ 1.07\pm0.79\\ 0\pm0\\ 1.07\pm0.79\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 0\pm0\\ 1.05\pm0.78\\ 0\pm0\\ 0\pm0\\ 1.05\pm0.78\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 1.1612\\ 2.040\\ 1.1612\\ 2.040\\ 3.38{\pm}1.83\\ 2.040\\ 2.41{\pm}1.95\\ 5.319{\pm}15.08\\ 1.3.89{\pm}12.11\\ 5.14{\pm}4.3\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 0.53{\pm}2.5\\ 0.23{\pm}2.5\\ 0.23{\pm}2.5\\ 0.24{\pm}2.5\\ 0$	127.06+8.9 5 6.012-7.1 2.55+1.07 16.69+7.84 0+0 0.10-03.1 0-01-03.1 0	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0\pm0\\ 0.38\pm1.1\\ 0.57\pm0.04\\ 0.48\pm1.1\\ 0.55\pm0.04\\ 0.49\pm0.04\\ 0.49\pm0.04\\ 0.49\pm0.05\pm0.07\\ 0.05\pm0.07\\ 0.0$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.51\\ 31.$	$\begin{array}{c} 113.2466.49\\ 0.40\\ 4.4242.54\\ 51.86423.06\\ 0.40\\ 9.755.86\\ 0.40\\ 9.755.86\\ 0.40\\ 3.5842.57\\ 201.89\pm175.61\\ 0.40\\ 6.8642.23\\ 10.0345.62\\ 5.5441.77\\ 1.4223.25\\ 0.423.223\\ 0.423.223\\ 0.423.223\\ 0.423.223\\ 0.423.223\\ 0.44\\ 0.40\\ 1.35542.23\\ 0.40\\ 0.40\\ 4.8811.473\\ 0.40\\ 0.40\\ 6.8442.74\\ 7.3949.11\\ 1.523.45.23\\ 0.40\\ 0.4$	$\begin{array}{c} 199,84\pm174\\ 0\pm0\\ 553,44\pm6\\ 655,33,446,6\\ 0\pm0\\ 19,11\pm17,6\\ 7,37\pm25\\ 0\pm0\\ 22,5444,4\\ 22,5444,4\\ 22,5444,4\\ 22,5444,4\\ 22,5444,4\\ 22,5444,4\\ 23,37\pm10\\ 0\pm0\\ 3,75\pm1,8\\ 0,90,44,75\\ 10,95,42,7\\ 3,05\pm2,75\\ 0,37,5\pm1,8\\ 0,90,44,75\\ 0,40\\$
rchenol hpla-Terpinene Cymene L-imonene ta-thellandrene)-beta-osimene ms-Inatiool oside ta-Terpineol evydro-p-symene natool hpla-Campholenal e-sello-osimene ethenol mphenone, 6- llocimene othenol h-Bormeol	1022 1029 1039 1046 1066 1088 1088 1085 1005 1108 1105 1105 1105	Green Floral - Terpenic Minity Floral Waxy - Woody Woody Woody Herbal - Woody - Woody - Woody - - Woody - - - - - - - - - - - - -	green plastic weet floral nut skin pepper herbal tropical init systeminit cooling green herbal araway spicy weet floral futity rose waxy citrus waxy green flutity floral woddy citrus herbal sweet woddy citrus herbal sweet woddy citrus herbal sweet woddy herbal woody spicy amber thyme herbal woody dry spicy flutity mango green woody woddy woody woody woody woody citrus herbal spicy futity mango green woody woody woody woody citrus herbal spicy herbal woody spicy woody woody woody woody spicy woody woody citrus herbal woody spicy woody woody woody citrus herbal woody spicy herbal spicy honey	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 1.59 \pm 0.44\\ 0.40\\ 0.40\\ 0.027 \pm 45.1\\ 0.9027 \pm 45.1\\ 0.9027 \pm 0.57\\ 0.97 \pm 0.3\\ 1.08 \pm 0.35\\ 0.25 \pm 0.44\\ 2.63 \pm 0.55\\ 1.95 \pm 0.58\\ 3.35 \pm 2.68\\ 3.35 \pm 2.68$	$\begin{array}{c} 10684476.11\\ 186418.03\\ 3.45\pm3.48\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.26\\ 0.010\\$	$\begin{array}{c} 130 \; 41\pm 62.\; 0.8 \\ 0.40 \\ 0.51\pm 2.35 \\ 40.\; 61\pm 2.3.\; 14 \\ 3.89\pm 3.39 \\ 3.69\pm 1.04 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.41\pm 1.40 \\ 0.41\pm 1.40 \\ 0.42 \\ 0.42 \\ 0.45\pm 1.41 \\ 0.41\pm 1.41 \\ 0.42 \\ 0.45\pm 1.41 \\ 0.41\pm 1.41 \\ 0.42 \\ 0.45\pm 1.41 \\ 0.45\pm 1.4$	$\begin{array}{c} 4.64\pm 1.32\\ 0\pm 0\\ 0.87\pm 0.18\\ 6.08\pm 2.02\\ 0.29\pm 0.28\\ 1.5\pm 0.67\\ 0\pm 0\\ 1.5\pm 0.81\\ 0\pm 0\\ 1.03\pm 0.82\\ 0\pm 0\\ $	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.172\pm0.151\\ 1.15\pm1.0\\ 0\pm0\\ 0\pm0\\ 1.0\pm2.31\\ 0\pm0\\ 0\pm0\\ 0.12\pm1.5\\ 0\pm0\\ 0.0\pm0\\ 0.11\pm1.75\\ 0.05\pm0.5\\ 0.05\pm0$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0\pm0\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0\pm0\\ 1.77\pm0.79\\ 0\pm0\\ 40.71\pm0.79\\ 0\pm0\\ 40.71\pm0.79\\ 0\pm0\\ 1.34\pm0.56\\ 3.34\pm1.69\\ 0\pm0\\ 1.99\pm1.25\\ 3.34\pm0.56\\ 3$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 1.149\\ 2.040\\ 1.149\\ 2.041\\ 3.38{\pm}1.83\\ 2.040\\ 2.41{\pm}1.95\\ 5.319{\pm}15.08\\ 1.3.89{\pm}12.11\\ 5.14{\pm}4.3\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 6.53{\pm}3.23\\ 0.40\\ 6.53{\pm}3.23\\ 0.40\\ 6.54{\pm}3.23\\ 0.40\\ 6.54{\pm}3.23\\ 0.40\\ 6.54{\pm}3.23\\ 0.40\\ 6.54{\pm}3.23\\ 0.40\\ 6.54{\pm}3.23\\ 0.40\\ 6.54{\pm}3.23\\ 0.40\\ 1.38{\pm}2.79\\ 0.34{\pm}1.38\\ 1.38{\pm}1.74\\ 1.38{\pm}1.78\\ 2.89{\pm}1.74\\ 1.59{\pm}1.74\\ 2.56{\pm}1.54\\ 1.59{\pm}1.45\\ 2.56{\pm}5.4\\ 1.59{\pm}1.54\\ 2.36{\pm}5.77\\ 0.33{\pm}0.58\\ 2.17{\pm}5.77\\ 0.33{\pm}0.58\\ 0.58{\pm}0.58\\ 0.58{\pm}$	127.06+8.9 5 6.012-7.1 2.55+1.07 16.69+7.84 0+0 0.7140.31 0+0 2.58.85 0+0 0-140 3.34.04 0+0 0+0 0+0 0-15 3.34.06 0+0 0+0 0-15	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0\pm0\\ 0.38\pm1.1\\ 0.379\pm0.04\\ 0.40\\ 0.51\\ 0.22\pm2.86\\ 1.4\pm1.75\\ 0\pm0\\ 0.05\pm0.07\\ 0$	$\begin{array}{c} 78.65\pm 110.08\\ 0+0\\ 0+0\\ 3.27\pm 2.38\\ 27.99\pm 20\\ 0+0\\ 4.53\\ 131\pm 37\\ 0+0\\ 4.53\\ 131\pm 37\\ 0+0\\ 0+0\\ 42.58\pm 43.4\\ 34.5\pm 21.97\\ 107.46\pm 96.2\\ 0+0\\ 5.04\pm 3.82\\ 7.79\pm 6.46\\ 4.23\pm 3.74\\ 0.42\pm 3.23\\ 0+0\\ 0.33\pm 2.38\\ 0+0\\ 2.33\pm 2.38\\ 0+0\\ 0.23\pm 2.38\\ 0+0\\ 0-0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0$	$\begin{array}{c} 11324664.9\\ 0.40\\ 4.42\pm2.54\\ 51.86\pm2.36\\ 0.40\\ 9.65\pm2.59\\ 9.755.26\\ 12978\pm15775\\ 20189\pm175.61\\ 0.40\\ 6.86\pm2.37\\ 10.93\pm562\\ 5.48\pm4.21\\ 1422\pm3.25\\ 0.40\\ 1552\pm2.32\\ 0.40\\ 1552\pm2.32\\ 0.40\\ 1152\pm2.5\\ 0.40\\$	$\begin{array}{c} 19984\pm174\\ 0+0\\ 0&0\\ 5,84\pm4,66\\ 5,933+46,6\\ 0+0\\ 113\\ 113\\ 125,54\pm20\\ 0+0\\ 0&0\\ 0&0\\ 0&0\\ 0&0\\ 0&0\\ 0&0\\ 0&$
rchenol pha-Terpinene Cymene -Limonene arbellanderen met Inniool oxide s-Varbenol ta-Terpineol evydro-p-cymene malool ta-Terpineol evydro-p-cymene malool ta-Terpineol evydro-p-cymene malool pha-Camphotenal co-allio-ocimene evalue-ocimene samphenol, 6- lioeimene samphenol, 6- pha-Camphotenal Myrenol Cymen-8-ol yritenol Horneol Cymen-8-ol yritenol ta-Cyclocitral Carene eraniol Carene eraniol Carene eraniol carene eranjalachyde malaschole massecnone langsene eranjalachyde massecnone langsene eranjulachyde massecnone langsene langsene langsene lang	1022 1029 1039 1046 1066 1088 1088 1088 1085 1105 1108 1133 1139 1133 1139 1144 1151 1135 1138 1188 1188 1188 1188 1188	Green - Floral - Terpenic Minity Floral Woody Woody Woody Herbal - Herbal - Spicy - Woody - Woody Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - - - - - - - - - - - - -	green plastic weet floral nut skin pepper herbal tropical init systemitic tooling green herbal eranway spicy weet floral futity rose waxy citrus waxy green fluity floral woody citrus herbal sweet woody citrus herbal sweet woody citrus herbal sweet woody herbal woody spicy amber thyme herbal woody dry spicy fluity mango green woody woody woody sweet flesh dry woody spicy - - - - - - - - - - - - -	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 1.59 \pm 0.44\\ 0.40\\ 0.40\\ 0.027 \pm 45.1\\ 0.9027 \pm 45.1\\ 0.9027 \pm 0.57\\ 0.97 \pm 0.3\\ 1.08 \pm 0.35\\ 0.25 \pm 0.44\\ 2.63 \pm 0.55\\ 1.95 \pm 0.58\\ 3.35 \pm 2.68\\ 3.35 \pm 2.68$	$\begin{array}{c} 106844.76.11\\ 18641803\\ 3.45\pm3.48\\ 27.37\pm3888\\ 27.37\pm3888\\ 27.37\pm3888\\ 27.37\pm3882\\ 27.37\pm3882\\ 27.37\pm3882\\ 27.37\pm32,85\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 0.0\pm0\\ 1.552.6413827\\ 2.572.522.33\\ 1.02.572.522.14\\ 2.0472.352.14\\ 2.0472.352.14\\ 2.0472.352.14\\ 2.0472.352.14\\ 2.0472.352.14\\ 2.0472.352.252.252.252.252.252.252.25$	$\begin{array}{c} 130 \; 41\pm 62.\; 0.8 \\ 0.40 \\ 0.51\pm 2.35 \\ 40.\; 61\pm 2.3.\; 14 \\ 3.89\pm 3.39 \\ 3.69\pm 1.04 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.41\pm 1.40 \\ 0.41\pm 1.40 \\ 0.42 \\ 0.42 \\ 0.45\pm 1.41 \\ 0.41\pm 1.41 \\ 0.42 \\ 0.45\pm 1.41 \\ 0.41\pm 1.41 \\ 0.42 \\ 0.45\pm 1.41 \\ 0.45\pm 1.4$	$\begin{array}{c} 4.64\pm1.32\\ 0\pm0\\ 0.87\pm0.18\\ 6.08\pm2.02\\ 0.29\pm0.28\\ 1.5\pm0.67\\ 0\pm0\\ 1.5\pm0.81\\ 0\pm0\\ 1.5\pm0.81\\ 0\pm0\\ 1.5\pm0.81\\ 0\pm0\\ 1.5\pm0.81\\ 0\pm0\\ 1.5\pm0.82\\ 0\pm0\\ 1.03\pm0.82\\ 0\pm0\\ 0\pm0\\ 1.03\pm0.82\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 5.49\pm2.65\\ 0\pm0\\ 0.74\pm0.86\\ 5.8\pm5.27\\ 0.174\pm0.151\\ 1.95\pm2.91\\ 0\pm0\\ 1.05\pm2.91\\ 0\pm0\\ 1.05\pm2.91\\ 0\pm0\\ 0.05\pm0.5\\ 0\pm0\\ 0.55\pm0.5\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0\pm0\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0\pm0\\ 1.2\\ 0\pm0\\ 1.2\\ 0\pm0\\ 1.2\\ 0\pm0\\ 1.2\\ 0\pm0\\ 1.33\pm1.69\\ 0\pm0\\ 1.07\pm0.79\\ 0\pm0\\ 1.07\pm0.79\\ 0\pm0\\ 1.07\pm0.79\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 1.07\pm0.78\\ 0\pm0\\ 0\pm0\\ 1.05\pm0.78\\ 0\pm0\\ 0\pm0\\ 1.05\pm0.78\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 188.69{\pm}103.35\\ 2.09{\pm}2.12\\ 3.38{\pm}1.83\\ 20.29{\pm}12.32\\ 0.40\\ 1.1612\\ 2.040\\ 1.1612\\ 2.040\\ 3.38{\pm}1.83\\ 2.040\\ 2.41{\pm}1.95\\ 5.319{\pm}15.08\\ 1.3.89{\pm}12.11\\ 5.14{\pm}4.3\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 2.23{\pm}3.36\\ 0.40\\ 0.53{\pm}2.5\\ 0.23{\pm}2.5\\ 0.23{\pm}2.5\\ 0.24{\pm}2.5\\ 0$	$\begin{array}{c} 127.06+8.9\\ 5\\ 5\\ 6.01\pm2.71\\ 2.5\pm1.07\\ 16.69+7.84\\ 0400\\ 0400\\ 053341\pm22.74\\ 040\\ 053341\pm22.74\\ 040\\ 053341\pm22.74\\ 040\\ 0400\\ 05341\pm27.74\\ 040\\ 040\\ 040\\ 13.494433\\ 13.840.65\\ 02.035\\ 040\\ 040\\ 02.23\pm123\\ 2.3\pm1.12\\ 040\\ 040\\ 13.840.65\\ 0.24035\\ 0.2524\\ 0.35441, 022\\ 0.25244\\ 0.35441, 022\\ 0.25244\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.25441\\ 0.35441, 022\\ 0.35441\\ 0.35441\\ 0.35441\\ 0.35441\\ 0.35441\\ 0.35441\\ 0.35441\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.354424\\ 0.35442\\ 0.35442\\ 0.3544\\ 0.354$	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0\pm0\\ 0.38\pm1.1\\ 0.57\pm0.04\\ 0.48\pm1.1\\ 0.55\pm0.04\\ 0.49\pm0.04\\ 0.49\pm0.04\\ 0.49\pm0.05\pm0.07\\ 0.05\pm0.07\\ 0.0$	$\begin{array}{c} 78.65 \pm 110.08\\ 0+0\\ 0+0\\ 3.27 \pm 2.38\\ 27.99 \pm 20\\ 0+0\\ 4.51\\ 31.$	$\begin{array}{c} 11324664.9\\ 0.40\\ 4.42\pm2.54\\ 51.86\pm2.36\\ 0.40\\ 9.65\pm2.59\\ 9.755.26\\ 12978\pm15775\\ 20189\pm175.61\\ 0.40\\ 6.86\pm2.37\\ 10.93\pm562\\ 5.48\pm4.21\\ 1422\pm3.25\\ 0.40\\ 1552\pm2.32\\ 0.40\\ 1552\pm2.32\\ 0.40\\ 1152\pm2.5\\ 0.40\\$	199 84:174 0-0 5.84:44.66 5.933-46.6 0-0 11 11 22.54:49.4 281.57±209 0-0 0-0 4.36:3.16 122.54:49.1 22.54:49.4 10.94:4.75 8.04:0 11.95:5.47:13 0-0 0-0 10.95:47:52:0 0-0 0-0 0-0 0-0 0-0 0-0 0-0 0-0 0-0 0
erbenol hpha-Terpinene -Cymene -Limonene tat-Phellandrene -Johen-onimene data Phellandrene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-onimene -Johen-oni- -Johen-oniJohen-onimene -Johen-oni -Johen-oniJohen-onimene -Johen-oni	1022 1029 1039 1046 1056 1046 1058 1005 1105 1105 1105 1105 1105 1105	Green Floral - Terpenic Minity Floral Waxy - Woody Woody Woody Herbal - Herbal - Woody - Woody - - Woody Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - - - - - - - - - - - - -	green plastic weet floral nut skin pepper herbal tropical pict terpenic lilac citrus woody floral mint systematic cooling green herbal canavas spicy weet floral futity rose waxy citrus waxy green flutity floral woody citrus herbal sweet woody herbal woody spicy - methal woody spicy - spicy flutity mango - green woody woody woody woody - - - - - - - - - - - - -	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 0.159 \pm 0.44\\ 0.40\\ 0.40\\ 0.40\\ 0.90\\ 2.73 \pm 0.57\\ 0.97 \pm 0.3\\ 1.08 \pm 0.35\\ 0.25 \pm 0.44\\ 2.640\\ 9.8\\ 3.75 \pm 0.57\\ 0.97 \pm 0.3\\ 3.33 \pm 5.78\\ 8.38 \pm 1.05\\ 8.39 \pm 2.16\\ 0.40\\ $	$\begin{array}{c} 106.844.76.11\\ 18.6418.03\\ 3.4543.48\\ 27.3743.88\\ 27.3743.88\\ 27.3743.88\\ 27.3743.88\\ 27.3743.88\\ 27.3743.88\\ 27.3743.88\\ 27.3743.88\\ 27.3743.26\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 1.55.264.138.27\\ 2.854.94\\ 3.5141.17\\ 0.440.7\\ 1.924.136\\ 1.924.136\\ 2.754.493\\ 3.425.214\\ 20.477.43\\ 3.425.214\\ 20.472.35\\ 1.077.43\\ 3.425.214\\ 20.472.35\\ 1.077.43\\ 3.425.214\\ 20.472.35\\ 1.077.43\\ 3.425.214\\ 2.474.39\\ 2.734.48\\ 1.572.6\\ 1.575.48\\ 3.894.27\\ 3.552.277\\ 9.55.42481.48\\ 3.894.27\\ 3.552.277\\ 9.55.42481.48\\ 3.894.25\\ 5.2246.68\\ 1.57\\ 5.2246.68\\ 1.57\\ 1.592.6\\ 1.57\\ 1.592.6\\ 1.57\\ 1.592.6\\ 1.57\\ 1.592.6\\ 1.57\\ 1.592.6\\ 1.592$	$\begin{array}{c} 130.41\pm 62.08\\ 0\pm 0\\ 5.21\pm 2.35\\ 40.61\pm 23.14\\ 3.89\pm 3.9\\ 3.69\pm 1.04\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 1.9\\ 2.52\pm 0.85\\ 7.08\pm 1.61\\ 2.45\pm 1.61\\ 2.$	$\begin{array}{c} 4.64\pm 1.32\\ 0\pm 0\\ 0.87\pm 0.18\\ 6.08\pm 2.02\\ 0.29\pm 0.28\\ 1.53\pm 0.67\\ 0\pm 0\\ 0\pm 0\\ 1.55\pm 0.81\\ 0\pm 0\\ 1.55\pm 0.82\\ 0\pm 0\\ 1.55\pm 0.82\\ 0\pm 0\\ 0\pm 0\\ 1.55\pm 0.82\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ 1.03\pm 0.82\\ 0\pm 0\\ 0\pm 0\\ 1.03\pm 0.82\\ 0\pm 0\\ 0\pm 0\\ 0\pm 0\\ 1.03\pm 0.82\\ 0\pm 0\\ 0\pm 0\\$	5.49±2.65 0±0 0.74±0.86 5.8±5.27 0.17±0.15 1.95±1.1 0±0 1.0±0 1.0±0 1.0±0.2±2.81 0±0 0.55±0.5 0±0 0.55±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.55±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0 0.45±0.5 0±0	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 1.77\pm0.79\\ 0\pm0\\ 0\pm0\\ 1.77\pm0.79\\ 0\pm0\\ 0\pm0\\ 1.33\pm1.69\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 1.34\pm0.56\\ 3.33\pm1.69\\ 0\pm0\\ 0\pm0\\ 1.34\pm0.56\\ 3.34\pm1.69\\ 0\pm0\\ 1.07\pm3.47\\ 1.19\pm0.46\\ 1.28\pm2.22\\ 0\pm0\\ 1.07\pm3.47\\ 1.19\pm0.46\\ 1.28\pm2.22\\ 0\pm0\\ 0\pm0\\ 1.35\pm0.53\\ 1.81\pm0.48\\ 0\pm0\\ 1.35\pm0.53\\ 1.81\pm0.48\\ 0\pm0\\ 0.83\pm0.77\\ 0\pm0\\ 0.83\pm0.71\\ 0.81\pm0.74\\ 0.46\\ 0.83\pm0.74\\ 0.46\\ 0.85\pm0.74\\ 0.46\\ 0.4$	188.69±103.35 2.09±2.12 3.38±1.83 20.29±12.32 0±0 1.21±1.2 0±0 2.29±12.32 0±0 2.49±12.32 0±0 2.49±12.32 0±0 2.23±3.44 2.41±1.95 5.319±15.08 13.89±12.11 5.14±4.3 0±0 0±0 2.23±3.36 0±0 0±0 4.09±1.25 3.14±4.3 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 6.34±3.23 0±0 0±0 0±0 6.34±3.23 0±0 0±0 0±0 6.34±3.23 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±	127.06+8.9 5 6.012-7.1 2.55+1.07 16.69+7.84 0+0 0.103.31 0+0 0.103.31 0+0 0.103.31 0+0 0+0 0+0 0+0 0+0 0+0 0+0 0+	$\begin{array}{c} 52.74\pm74.59\\ 0.09\pm0.13\\ 1.71\pm2.41\\ 10.19\pm14.14\\ 0\pm0\\ 0.38\pm1.1\\ 0.379\pm0.04\\ 0.46\\ 0.38\pm1.1\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.54\pm0.7\\ 0.05\pm0.07\\ 0.05\pm0.0$	78.65±110.08 0+0 0+0 14.37±2.38 27.99±20 0+0 4.37±2.38 27.99±20 0+0 4.37±2.38 27.99±20 0+0 4.37±2.38 27.99±20 0+0 4.35±21.97 107.46±96.2 0+0 5.44±3.82 7.96±6.46 4.23±3.74 0+0 0.32±1.43 4.44±8.32 0+0 0.32±1.43 4.44±8.32 0+0 0.32±2.38 0+0 0+2.33±2.38 0+0 0+2.33±2.38 0+0 0+2.33±2.38 0+0 0+0 0.537±7.94 1.44±0.77 0+0 0+0 0+0 0+0 0+0 0+0 0,54±2.38 0+0 0,54±2.38 0+0 0+0 0,54±2.38 0+0 0,54±2.38 0+0 0+0 0,54±2.38 0+0 0+0 0,54±2.38 0+0 0+0 0,54±2.38 0+0 0+0 0+0 0+0 0+0 0+0 0+0 0+0 0+0 0+	113.2466.49 040 4.4242.54 51.86423.06 040 3.5842.57 040 3.5842.57 201.89±175.61 040 6.8643.23 10.0345.62 5.5441.77 5.45843.25 10.0345.62 5.5441.77 5.45843.23 10.0345.62 5.3441.77 5.3240.37 15.5242.68 040 41.1355412.32 040 41.1355412.32 040 11.355412.33 040 040 6.863.31 040 6.863.31 040 6.863.31 040 040 6.863.31 040 040 6.2242.74 7.3949.11 15.2345.23 040 0.040 10.0446.15 3.242.53 040 0.040 10.0446.15 3.242.59 115.2345.23 040 0.0400000000	199 84±174 0±0 5.84±4.66 5.5 34±4.60 5.5 34±4.60 10 31±1.56 0±0 4.36±3.16 122,54±94 0±0 4.36±3.16 122,54±94 0±0 4.36±2.75±209 0±0 4.305±2.75 0±0 7.09±4.75 3.75±1.08 9.98±3.55 0±0 0±0 4.09 9.98±3.55 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0
erbenol pha-Terpinene -Cymene -Limonene ta-th-Nelandrene -J-beta-oimene mas-Landtool oriside -ta-th-Nelandrene -J-beta-oimene -ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta- ta-ta-ta-ta- ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta-ta-ta-ta- ta-ta-ta-ta-ta-ta-ta-ta-ta-ta-ta-ta-ta-t	1022 1029 1039 1042 1085 1085 1085 1085 1085 1085 1085 1085	Green - Floral - Terpenic Minity Floral Woody Woody Woody Herbal - Herbal - Spicy - Woody - Woody Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - Herbal - - - - - - - - - - - - -	green plastic weet floral nut skin pepper herbal tropical init systemitic tooling green herbal eranway spicy weet floral futity rose waxy citrus waxy green fluity floral woody citrus herbal sweet woody citrus herbal sweet woody citrus herbal sweet woody herbal woody spicy amber thyme herbal woody dry spicy fluity mango green woody woody woody sweet flesh dry woody spicy - - - - - - - - - - - - -	$\begin{array}{c} 43.35 \pm 11.55\\ 8.38 \pm 1.33\\ 1.91 \pm 0.68\\ 1.341 \pm 11.73\\ 0.40\\ 1.59 \pm 0.44\\ 0.40\\ 0.0\\ 0.027 \pm 0.51\\ 0.027 \pm 0.51\\ 0.027 \pm 0.51\\ 0.027 \pm 0.57\\ 0.027 \pm 0.027 \pm 0.57\\ 0.027 \pm 0.57\\ 0.027 \pm 0.57\\ 0.027 \pm 0.57\\ 0.027 \pm 0.57\\$	$\begin{array}{r} 106.84\pm76.11\\ 18.6\pm18.03\\ 3.45\pm3.48\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.37\pm38.88\\ 27.38\pm39.88\\ 27.38\pm4.94\\ 3.51\pm1.17\\ 0.4\pm0.7\\ 1.92\pm1.36\\ 1.82\pm2.33\\ 1.62\pm2.33\\ 1.62\pm2.33\\ 1.62\pm2.33\\ 20.47\pm2.33\\ 20.47\pm2.32$	$\begin{array}{c} 130.41\pm 62.08\\ 0+0\\ 5.21\pm 2.35\\ 40.61\pm 23.14\\ 3.89\pm 3.39\\ 3.69\pm 1.04\\ 0+0\\ 0\\ 0+0\\ 0\\ 218.8\pm 52.88\\ 0+0\\ 2.18.8\pm 52.88\\ 0+0\\ 2.18.8\pm 2.52.88\\ 0+0\\ 2.18.8\pm 2.52.88\\ 0+0\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 2.79\\ 2.69\pm 2.65\\ 1.61\pm 2.79\\ 2.52\pm 0.85\\ 7.08\pm 1.61\\ 2.23\pm 1.61\\ 1.54\pm 1.87\\ 4.8\pm 1.87\\ 1.61\pm 2.25\\ 0+0\\ 0+0\\ 0+0\\ 1.5\pm 0.85\\ 5.6\\ 0+0\\ 0+0\\ 0.5\pm 0.55\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0$	4.64±1.32 0±0 0.87≠0.18 6.08≥2.02 0.29±0.28 1.53±0.67 5.2±1.71 0±0 3.546±19.52 0±0 1.55±0.82 1.03±0.82 0±0 1.22±1.57 2.72±0.7 0±0 0±0 1.22±1.57 2.72±0.7 0±0 1.03±0.45 1.03±0.45 1.03±0.55 0±0 1.55±0.82 1.22±4.21 0±0 1.55±0.85 1.22±4.21 0±0 1.52±0.85 9.9 2.22±4.21 0±0 0±0 1.52±0.85 0±0 1.52±0.85 0±0 1.52±0.85 0±0 1.52±0.85 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±	5.49±2.65 0±0 0.74±0.86 5.8±5.27 0.17±0.15 1.95±1.1 3.02±2.91 0±0 1.01±1.75 0±0 0±0 0.55±0.5 0±0 0.87±0.76 1.63±0.59 0±0 0.99±0.93 1.2±1.32 0±0 0.99±0.93 1.2±1.32 0±0 0.99±0.93 1.2±1.32 0±0 0.79±0.87 8.2±1.32 0±0 0.79±0.87 8.2±1.32 0±0 0.79±0.87 8.2±1.32 0±0 0.99±0.37 8.2±1.32 0±0 0.99±0.37 8.2±1.32 0±0 0.79±0.87 8.2±1.32 0±0 0.55±0.50 0±0 0.99±0.37 8.2±1.32 0±0 0.79±0.87 8.2±1.32 0±0 0.52±0.51 0.05±0.52 0±0 0.99±0.37 8.2±1.32 0±0 0.52±0.53 0±0 0.52±0.53 0±0 0.52±0.53 0±0 0.52±0.53 0±0 0.55±0.50 0±0 0.99±0.05 0.55±0.50 0±0 0.99±0.05 0.75±0.53 0±0 0.55±0.50 0±0 0.99±0.05 0.55±0.50 0±0 0.99±0.05 0.55±0.50 0±0 0.99±0.05 0.55±0.50 0±0 0.99±0.05 0.55±0.50 0±0 0.99±0.05 0.55±0.50 0±0 0.99±0.05 0.55±0.50 0±0.05 0.99±0.05 0.99±0.05 0.05±0.05 0±0.05 0.99±0.05 0.05±0.05 0.05 0.05 0.05 0.05 0.05	$\begin{array}{c} 5.67\pm0.5\\ 0\pm0\\ 1.42\pm0.07\\ 8.31\pm2.84\\ 1.57\pm2.34\\ 2.03\pm0.78\\ 6.28\pm1.2\\ 0\pm0\\ 40.71\pm0.79\\ 0\pm0\\ 40.71\pm0.34\\ 0\pm0\\ 3.34\pm1.2\\ 0\pm0\\ 0\pm0\\ 1.99\pm1.25\\ 3.34\pm0.56\\ 3.34\pm1.69\\ 0\pm0\\ 0\pm0\\ 1.0\pm3.46\pm0.74\\ 0\pm0\\ 1.0\pm3.47\\ 0\pm0\\ 1.0\pm3.47\\ 0\pm0\\ 1.1\pm0.59\\ 1.36\pm0.24\\ 8.42\pm3.28\\ 1.36\pm0.24\\ 8.42\pm3.28\\ 1.36\pm0.24\\ 8.42\pm3.28\\ 1.36\pm0.24\\ 8.42\pm3.28\\ 1.36\pm0.24\\ 1.35\pm0.57\\ 0\pm0\\ 0.57\\ 1.35\pm0.59\\ 0\pm0\\ 0.57\\ 1.35\pm0.59\\ 0\pm0\\ 0.57\\$	188.69±103.35 2.09±2.12 3.38±1.83 20.29±12.32 040 1.21±1.2 040 8.29±1.35 3.19±1.508 13.89±12.11 5.14±4.3 040 6.34±3.25 12.14±6.36 040 6.34±3.23 040 6.34±3.23 040 6.34±3.23 040 6.34±3.23 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.09±7.08 040 7.54±14.38 1.05±7.58 2.89±1.74 1.155±8.54 2.175±7.14 7.357±4.55 3.61±1.54 2.17±5.14	127.06+8.9 5 6.012-7.1 2.55+1.07 16.69+7.84 0+0 0.71-0.31 0+0 2.2 3.54.142 0+0 0-1 3.54.142 0+0 0+0 0-1 0-0 0-0 0-0 0-0 0-0 0-0 0-	52.74±74.59 0.09±0.13 1.71±2.41 10.19±1.41.40 040 0.8±1.1 040 0.3794.004 0.02 0.232±26.61 040 0.05±0.07 0.6±0.85 9.68±13.69 3.34±2.72 040 4.6±4.33 045 0.4±0.33 9.68±13.69 3.34±2.72 040 4.6±4.33 045 0.4±0.450.4±0.45 0.4±0.450.4±0.45 0.4±0.450.4±0.45 0.4±0.450.4±0.450.4±0.45 0.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4±0.450.4	78.65±110.08 0+0 0+0 4.41±4.53 6.37±3.27 0+0 4.41±4.53 6.37±3.37 0+0 5.84±3.43 4.45±21.97 107.46±96.2 0+0 5.94±3.82 7.96±6.46 4.23±3.74 0+0 0.33±2.36 0+0 0-33±2.33 0+0 0-2.33±2.38 0+0 0-2.33±2.38 0+0 0-2.33±2.38 0+0 0-2.33±2.38 0+0 0-2.33±2.38 0+0 0-2.33±2.38 0+0 0-2.33±2.38 0+0 0-0 0-0 0-0 0-0 0-0 0-0 0-0 0-0 0-0	113 2:466.49 0:40 4.42±2.54 51.86±23.06 0:40 9.65±2.59 9.7±5.58 0:40 9.7±5.58 0:40 10.93±5.62 5.45±4.27 10.93±5.62 5.45±4.21 14.22±3.25 0:40 0:5.45±4.21 14.22±3.25 0:40 0:5.45±4.21 14.22±3.25 0:40 0:40 0:40 0:40 0:40 0:40 0:40 0:40 0:40 0:40 11.32±2.3 0:40	199,84±174 0±0 5,84±16 0±0 19,11±17.65 7,37±35 0±0 19,11±17.65 7,37±30 0±0 8,94±4,37 11,9±5,43 10,94±4,37 11,9±5,43 10,94±4,37 11,9±5,43 10,94±4,37 11,9±5,43 10,94±4,37 11,9±5,43 10,94±4,37 11,9±5,43 10,94±4,37 11,9±5,43 10,94±4,37 11,9±5,43 10,94±4,3710,94±4,37 10,94±4,3710,94±4,37 10,94±4,3710,94±4,37 10,94±4,3710,94±4,37 10,94±4,3710,94±4,37 10,94±4,37 10,94±4,3710,94±4,37 10,94±4,3710,94±4,37 10,94±4,3710,94±4,37 10,94±4,3710,94±4,37 10,94±4,3710,94±4,37 10,94±4,3710,94±4,37 10,94±4,37

Total Sesquiterpenes	18			4	107.09±99.82	109.03±68.01	6.63±5.62	33.63±18.75	23.89±14.66	5.85±4.52	3.15±4.49	5.93±6.56	28.76±20.94	65.43±39.17	45.27±62.58
				123.32±143.4											
Cadalene	1719	Herbal	herbal woody	21.74±17.49	23.7±11.78	16.99±3.61	0±0	19.67±3.63	13.26±11.72	0±0	0±0	0±0	4.9±8.5	33.53±6.6	5.74±9.94
T-Muurolol	1688	Herbal	herbal spicy honey	33.03±39.95	22.08±19.28	23.65±15.69	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0
.alphaCalacorene	1582		-	28.68±30.94	24.67±26.05	26.97±14.13	0±0	4.64±8.04	0±0	0±0	0±0	0±0	0±0	0±0	0±0
Cadina-1,4-diene	1572	-	-	11.21±19.42	15.13±17.28	13.95±12.07	0±0	0±0	0±0	0±0	0±0	0±0	11.68±4.29	9.85±17.07	14.18±17.78
trans-Calamenene	1565	-	-	1.47±1.43	1.51±1.59	1.6±0.86	0.75±0.11	0.87±0.53	0.78±0.26	0.32±0.56	0.6±0.6	1.51±0.61	1.36±0.63	2±0.92	1.83±2.1
(+)-delta-Cadinene	1555	Herbal	-	2.7±4.09	2.36±2.8	2.66±2.03	0.16±0.28	0.76±0.57	0.61±0.19	0±0	0.18±0.31	0.39±0.56	0.42±0.45	2.06±2.89	1.87±2.67
(-)-cis-beta-Elemene	1548	- 1	-	0.34±0.37	0.29±0.28	0.2±0.29	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0
.betaLongipinene	1525	Woody	sweet fresh dry woody spicy	1.14±1.43	0.97±1.19	0.94±0.58	0.36±0.1	0.22±0.19	0.2±0.17	0.62±0.66	0.14±0.17	0.06±0.09	0±0	0±0	0±0
beta-Ionone	1515	-	woody	0.56±0.5	0.8±0.86	1.05±0.82	0.2±0.18	0.56±0.19	0.66±0.13	0.16±0.14	0±0	0±0	0.27±0.34	0.86±0.35	0.94±1.33
Dihydrobetaionol	1473	Woody	woody dry	0.23±0.13	0.24±0.23	0.31±0.1	0±0	0.16±0.14	0.17±0.17	0±0	0±0	0±0	0±0	0±0	0±0
beta-Farnesene	1469	-	-	0.19±0.34	0.15±0.27	0.35±0.17	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0	0±0
beta-Caryophyllene	1461	- 1	woody	0.42±0.49	0.36±0.3	0.41±0.3	0±0	0±0	0.21±0.37	0±0	0.03±0.06	0±0	0±0	0±0	0±0
alpha-Elemene	1458	Woody	green woody	0±0	0±0	0±0	0±0	0±0	0±0	0.31±0.29	0±0	0±0	0.08±0.14	0.2±0.18	0.43±0.75

²Relative peak area percent compounds were identified by comparison of mass spectra with NIST14 (National Institute of Standards and Technology, Gaithersburg, MD, USA), Flavors and Fragrances of Natural and Synthetic Compounds (FFNSC3, John Wiley & Sons, Inc., Hoboken, NJ, USA), and Adams Essential Oils (Adams 2007) mass spectral libraries and comparison of calculated Kovats retention indices (Kováts 1958) with previously reported values

Table 4. Volatile aroma compounds ^z identified in fresh-market b	olackberries grown at	the University of Arkansas	System Division of
Agriculture Fruit Research Station and harvested on three dates (early, middle, and late	e), Clarksville, AR (2021).	
	Natchez	Prime Ark® Traveler	Sweet-Ark® Ponca

Compound Acids	Retention index	Aroma category	Aroma description	Early	Middle	Late	Early	Middle	Late	Early	Middle	Late
			•									
4cids				2391.68±52 4.92	2965.99±90 9.89	3336.69±97 4.61	2636.25±92 3.16	3665.85±12 22.6	2300.84±66 5.73	1687.32±47 0.93	2556.32±88 1.43	1369.27±3 8.29
					,,,,,		0110		0110	0.20		0.27
Butanoic Acid Pentanoic acid, 4-	774	Cheesy	sharp acetic cheesy buttery fruity	1.79±0.87	12.2±6.84	0±0	0±0	1.02±0.7	2.81±1.58	2.24±0.83	0.28±0.17	0.33±0.2
nethyl-	931	Cheesy	pungent cheesy	3.99±0.12	2.44±0.55	3.77±0.93	5.31±1.57	8.7±0.84	4.73±0.69	2.16±0.45	1.44 ± 0.87	1.24±0.37
Hexanoic acid	964	Fatty	sour fatty sweaty cheesy	0±0	0±19.71	28.46±0	0±0	0±0	0±30.6	36.07±0	0±27.52	39.72±0
Octanoic acid	1155	Fatty	fatty waxy rancid oily vegetable	16.17±11.2	0±3 138.61±41.	25.78±0.92 126.11±9.9	10.78±4.71 57.66±81.1	1.62±0.52 226.95±9.3	0±0 100.45±12.	2.2±1.52	0±0 73.77±16.1	2.54±2.1
Decanoic acid	1351	Fatty	rancid sour fatty citrus	59.16±0.88	92 26.48±14.8	3	8	9 9	97	28.3±9.54	3	40.99±4.
Dodecanoic acid	1556	Fatty	fatty coconut bay	5.13±0.83	20.46±14.6	11.8±5.38	12.71±1.03	6.32±0.84	6.73±0.37	5.49±1.02	15.8±4.97	3.1±1.3
		· ·	· · ·	90.23±15.2	180.25±88.	198.23±17.		265.78±18.	123.52±50.	80.07±14.4	94.35±50.7	
Total Acids	6			7	32	3	92.6±90.05	82	12	8	2	88.95±8.6
Alcohols								000 15.10		00.00.00.0		
2-Butanol	610	Fruity	sweet apricot	312.31±103 .18	305.22±17.	759.72±353 .72	77.96±81.1 4	308.15±48. 78	370.8±94.0 6	98.58±22.1 4	90.36±12.5 5	66.77±9.0
1-Butanol	666	Fermented	fusel oily sweet balsamic whiskey	3.99±1.37	0.52±1.48	2.31±0.14	4 6.14±1.56	21.17±6.53	8.8±3.91	4 3.61±1.12	3.06±1.06	1.03±0.1
Dutation	000	rennented	ethereal horseradish green radish chrysanthemum	5.77±1.57	0.02-1.40	2.01±0.14	0.14±1.50	21.17=0.55	36.42±17.7	5.01±1.12	5.00±1.00	1.05±0.1
1-Penten-3-ol	683	Green	vegetable tropical fruity	4.62±2.53	0±0.3	4.8±3.69	18.38±7.57 69.93±15.5	12.44±3.66 40.75±15.3	2	13.89±0.53 68.93±24.9	14.68±4.43	6.4±0.81
3-Buten-1-ol, 3-methyl-	731	Fruity	sweet fruity	5.39±2.05	3.81±0.79	11.73±7.42	3	3	15.41±0.29	3	15.26±7.03	22.38±7.0
1-Butanol, 3-methyl-	738	Fruity	sweety fruity banana solvent fusel ethereal alcoholic fatty greasy winey whiskey	4.25±0.83	2.67±0.91	2.71±1.12	4.69±1.52	4.93±1.3	1.94±0.29	2.95±25.13	39.63±0.71	2.32±0.5
l-Butanol, 2-methyl	743	Ethereal	leathery cocoa	4.03±1.12	3.82±0.6	1.6±0.43	1.89±0.24	4.01±3.39	14.07±2.26	1.32±8.97	14.99±1.48	3.73±0.3
1-Pentanol	763	Fermented	fusel oily sweet balsamic	3.18±1.11	0.53±2.29	5.25±0.65	9.45±1.85	3.94±0.91	5.05±0.4	5.26±1.48	4.01±1.35	3.08±0.3
2-Penten-1-ol	767	Green	-	0.66±0.32	0.45±3.09	8.31±2.3	9.89±2.79	11.35±1.46	9.48±0.81	5.38±0.88	2.17±0.1	4.08±0.7
3-Hexen-1-ol	779 900	Green	green leafy	40.58±1.9	15.2±10.07 0.04±0.03	3.54±2.26	6.63±5.14	16.75±5.32	10.75±0.95 0.53±0.2	4±0.59	4.03±2.79 0.92±0.24	1.9±0.96
5-Methyl-1-heptanol		-	-	0±0	0.04±0.03 39.38±14.5	0±0	1.49±0.09	1.03±0.22	107.56±16.	1.01±0.23		0.8±0.02 51.28±13 9
1-Heptanol	966	Green	musty leafy violet herbal green sweet woody peony	48.9±2.09		35.87±4.01	104.04±3.8	99.34±19.8 45.58±12.9	41 53.97±20.0	63.87±5.67	62.84±8.17 18.34±11.1	-
1-Octen-3-ol 1-Hexanol, 2-ethyl-	977 1026	Earthy Citrus	mushroom earthy green oily fungal raw chicken citrus fresh floral oily sweet	1.53±0.8 7.46±3.6	2.28±0.42 6.64±4.34	1.59±0.79 5.81±0	32.83±4.71 2.97±0.09	1 8.64±3.95	9 0±0.55	3.46±0.75 1.62±1.21	3 4.75±0.45	2.54±0.6 1.6±0.67
I-Octanol	1020	Waxy	waxy green orange aldehydic rose mushroom	1.63±0.27	0.84±0.06	1.4±0.15	0.51±0.12	1.72±0.93	0.33±0.51	1.58±2.36	6.91±1.07	2.43±0.2
Sabinol	1075	-	-	2.68±0.26	3.66±2.3	0.56±0.07	2.55±0.53 54.53±13.6	5.61±3.05	2.17±0.25	0.87±0.18	0.68±0.15	0.75±0.0
Phenylethyl alcohol	1127	Floral	floral rose dried rose	24.39±1.15	24.49±8.38	13.86±8.59	7	74.75±6.82	45.51±3.93	15.84±8.48	66.63±34.4	15.48±7.
I-Nonanol	1167	Floral	fresh clean fatty floral rose orange	20.39±12.7	3.47±0.36	3.92±0.23	2.14±0.99	4.01±0.69	3.51±0.33	2.19±0.29	3.28±0.11	2.57±0.1
Verbenol	1177	Balsamic	fresh pine ozone herbal	7.56±1.92	1.57±0.88	9.87±1.94	2.76±0.18	3.84±0.51	2.4±0.22	1.67±0.17	2.33±0.12	2.13±0.1
I-Decanol	1268	Fatty	fatty waxy floral orange sweet clean watery	7.82±0.67	28.84±9.16	18.48±1.35	2.33±1.54	5.99±0.24	3.09±0.51	1.05±0.2	3.36±1.2	1.74±0.5
2-Decen-1-ol	1278	Fatty	waxy fresh ozone citrus rose	0.49±0.04	0.51±0.04	0.45±0.02	0.7±0.07	0.83±0.06	0.5±0.06	0.3±0.03	0.26±0.09	0.24±0.0
l-Nonanol, 4,8- limethyl-	1289			0.46±0.01	0.71±0.06	0.56±0.3	0.16±0.11	0±0.06	0.19±0.08	0.16±0.02	0±0.01	0.09±0.0
Perilla alcohol	1300	Green	green cumin spicy aromatic woody	0.40±0.01 0.3±0	0.39±0.05	1.92±0.35	0.10 ± 0.11 0.44±0.04	0.51±0.05	0.34±0.06	0.26±0.01	0.38±0.09	0.09±0.0
Perilla alcohol	1311	Green	green cumin spicy aromatic woody	1.8±0.1	1.49±0.44	1.71±0.9	1.4±0.45	1.63±0.23	1.95±0.13	1.73±0.02	2.6±0.39	1.85±0.2
Di-epi-1,10-cubenol	1664	-	-	0.88±0.45	7.24±3.8	3.44±1.82	1.03±0.62	1.52±0.19	2.69±0.78	0.69±0.34	2.53±0.76	0.71±0.0
				501.31±137	453.25±80.	897.1±392.	408.7±142.	657.32±129	688.66±160	296.61±104	360.94±88.	195.04±4
Fotal Alcohols	24			.1	18	11	79	.86	.89	.61	82	6
Aldehydes												
Butanal, 3-methyl-	597	Aldehydic	ethereal aldehydic chocolate peach fatty	132.62±51. 69	127.86±60. 76	60.18±17.6	185.84±38. 72	95.87±3.68	17.73±53.2 9	86.96±3.11	73.89±27.1 2	101.73±0 64
Butanal, 3-methyl-	660	-	-	4.62±0.26	7.86±2.49	31.49±24.6 8	29.19±6.76	4.24±1.88	7.07±0.85	17.23±3.73	10.75±5.81	15.06±0
	669	Cocoa	musty cocoa phenolic coffee nutty malty fermented fatty alcoholic	3.35±0.98	0±1.01	2.04±0.49	18.57±3.04	2.94±4.13	17.59±4.6	5.88±2.04	11.36±5.68	7.25±4.8
Butanal, 2-methyl	009	cocou	latty aconolic									
Butanal, 2-methyl Pentanal	698	Fermented	fermented bready fruity nutty berry	23.52±9.34	4.27±0.53	14.55±7.44	64.11±18.6	19.67±3.96	5.08±0.03	30.91±10.2 8	14.65±7.06	19.47±4

111	790			40 10 2 4	22.812.07	26 47 6 25	55 59 0 66	116.27±69. 06	81+0.04	0.7.0.00	0.72+0.12	2.47±1.74
Hexanal	789	-	-	40.19±2.4	22.8±3.97	36.47±6.35	55.58±0.66	06 28.86±12.8	81±0.04	0.7±0.09	0.73±0.12	2.4/±1./4
2-Hexenal,	845	Green	pungent green apple orange tomato	2.48±0.07	1.25±0.74	0.51±0.02	0.99±3.16	1	0.48±0.19	0.58±1.64	3.84±6.96	11.04±0.29
Heptanal	906	Fruity	sweet fruity pungent brown nutty almond cherry	0.09±0	0.1±0.05	0.02±0	1.09±0.18	0.49±0.08	0.21±0.58	1.28±0.2	1.12±0.35	0.68±0.22
2,4-Hexadienal	911	Green	fresh green fatty aldehydic grassy leafy sweaty	0.13±0.02	0.08±0.03	0.06 ± 0.02	0.34±0.02	0.34±0.08	0.52±0	0.23±0.02	0.21±0.01	0.23±0.03
			sweet woody almond bread baked caramellike									
2-Heptenal	957	Bready	phenolic	2.12±2.11	6.7±0.99	2.75±0.46	9.22±0.73	7.21±0.66	4.25±1.61	3.75±9.04	17.23±1.14	2.67±0.02
		_	sweet almond bitter fruity green leafy apple plum					31.22±11.6			18.22±10.9	
Benzaldehyde Octanal	968 1002	Green Green	vegetable	73.63±5.97 2.06±0.27	75.3±32.41 3.08±0.38	54.67±0.84 4.32±0	59.08±2.53 5.21±1.45	6 12.13±3.05	45.38±4.52 3.17±0.54	18.06±3.62 2.93±0.63	7 5.2±1.25	42.78±8.71 2.34±0.28
Phenylacetaldehyde	1002	Green	fresh aldehydic fatty green herbal cognac ozone green fatty	4.3±0.82	3.08±0.38 3.31±1.67	4.32±0 7.08±0.07	3.21 ± 1.43 13.82±4.21	12.15±5.05 25.6±7.87	7±0.58	2.93±0.03 5.98±0.71	4.61±2.59	2.34±0.28 4.95±0.79
2-Octenal,	1051	Fruity	sharp sweet bitter almond cherry	2.6±0.57	6.98±1.24	4.49±0.6	2.03±0.78	3.97±1.14	0.89±1.32	2.85±1.58	4.61±0.13	2.55±1.2
Benzaldehyde, 4-	1000	Truity	aldehydic waxy citrus orange peel green herbal fresh	2.0-0.07	0.90-1.21	1.19=0.0	2.05-0.70	5.97=1.11	0.0)=1.02	2.00-1.00		2.00-1.2
methyl-	1093	Aldehydic	fatty	9.29±0.23	25.2±5.12	18±3.13	0±0	0.26±0.18	0±0	0±0	0±0.29	0.42±0
Nonanal	1103	Green	green sweet floral hyacinth clover honey cocoa	1.47±0.5	0.64±0	1.29±0.22	11.02±4.27	14.6±2.07	6.9±1.14	6.23±0.83	3.71±2.03	9.03±0.67
2,4-Octadienal, (E,E)-	1111	Fatty	fatty green herbal	1.29±0.37	0.03±0.15	0.5±0.23	1.25±0.29	0.88±0.21	1.09 ± 0.05	0.87±0.09	0.45±0.15	0.98±0.11
2-Nonenal,	1161	Fruity	sweety fruity cherry almond bitter phenolic	7.74±8.86	39.14±9.07	0 ± 0	7.6±5.84	21.23±4.93	25.45±3.97	9.75±3.17	17.9±1.84	12.57±5.5
Decanal	1205	Fruity	fruity cherry phenolic	4.86±0.72	2.76±0.37	1.71±0.88	1±2.85	5.59±0.59	1.55±0.05	1.04±0.41	3.93±0.6	2.49±0.02
2-Decenal, Geranial	1263 1273	Aldehydic	waxy aldehydic rose fresh orris orange peel fatty	0±0 9.32±0.38	0±0 14.6±1.63	0±0 11.52±0.92	1.93±2.22 3.97±0.63	4.95±0.64 6.79±0.6	1.79±1.04 3.41±0.64	2.74±0.19 2.78±0.48	1.68±0.7 13.97±6.54	2.32±0.04 3.96±0.07
Dodecanal	1275	Herbal Fatty	herbal green woody amber leafy fatty green waxy cucumber melon	9.32±0.38 0.66±0.13	0.19±0.05	0.17±0.09	3.97±0.63 1.17±0.3	0.79±0.6 0.69±0.05	5.41±0.64 0.26±0.04	2.78±0.48 0.18±0.06	13.9/±0.54 1.03±0.31	0.28±0
Pentadecanal	1721	Aldehydic	sweety aldehydic waxy orange peel citrus floral	2.86±0.24	9.15±3.77	3.22±0.26	5.96±0.35	6.15±0.38	3.72±0.02	3.19±0.36	13.77±4.46	3.49±0.17
1 childecului	1/21	. Indeniyare	sweety aldenyate waxy orange peer enras noral	329.58±86.	352.92±126	256.49±64.	485.9±98.9	412.75±130	240.82±76.	205.81±42.	226.16±87.	251.34±92.
Total Aldehydes	23			13	.91	46	1	.79	42	89	17	03
Aromatic hydrocarbons												
Toluene	771	Sweet	benzene	1.2±0.65	1±0.69	1.45±1.23	5.85±1.5	2.98±1.22	1.04±0.23	0.53±0.16	2.46±0.76	1.07±0.04
Styrene	896	Balsamic	sweet balsamaic floral plastic	60.19±3.78	43.2±5.77	36.7±16.22	2.16±0.12	2.1±0.37	2.02±6.55	19.71±4.61	16.31±5.37	11.46±2.75
Benzofuran, 4,7-	1240			10010 00	5.43±0.7	4.78±0.25	2 10 0 02	(22) 0 ((2.54.0.15	1.07.0.26	7.5612.2	0.0010.00
dimethyl- Eugenol	1240 1372	Spicy	-	4.86±0.29 7.51±0.7	5.43±0.7 7.02±0.74	4.78±0.25 6.68±0.42	3.18±0.92 3.37±1.12	6.22±0.66 6.55±0.72	3.54±0.15 4.86±0.09	1.87±0.36 2.27±0.31	7.56±3.2 5.55±1.17	2.38±0.66 1.9±0.2
Copaene	1399	Woody	sweet spicy clove woody woody spicy honey	0.35±0.24	7.67±4.79	1.9±1.2	0.59±0.34	0.92±0.03	0.19±0.03	0.13±0.07	0.74±0.22	0.2±0.06
Total Aromatic		noody	noody spicy noney		64.32±12.6	51.51±19.3		0.02=0.00			32.62±10.7	0.2-0.00
hydrocarbons	5			74.11±5.66	9	2	15.15±4	18.77±3	11.65±7.05	24.51±5.51	2	17.01±3.71
Esters												
				236.64±87.	71.02±38.8		454.84±172	201.92±137	477.42±55.	161.92±49.	156.71±44.	102.03±53.
Ethyl Acetate	619	Fruity	ethereal fruity tropical pineapple grape banana	236.64±87. 28	71.02±38.8 7	3.58±3.04	454.84±172 .83	201.92±137 .28	477.42±55. 26	161.92±49. 96	156.71±44. 55	102.03±53. 81
		,	ethereal pineapple fruity apricot strawberry banana	28	7	13.12±10.9	.83	.28	26	96	55	81
Methyl butanoate	621	Fruity	ethereal pineapple fruity apricot strawberry banana bacon	28 0±0	7 1.51±0.55	13.12±10.9 9	.83 2.49±1.37	.28 6.54±4.53	26 2.46±1.01	96 0.63±0.06	55 0.6±0.4	81 4.52±0.21
Methyl butanoate Ethyl propionate	621 711	,	ethereal pineapple fruity apricot strawberry banana	28 0±0 1.29±0.19	7 1.51±0.55 0.72±0.07	13.12±10.9 9 0.94±0.29	.83 2.49±1.37 3.97±2.18	.28 6.54±4.53 9.28±2.47	26 2.46±1.01 5.61±0.95	96 0.63±0.06 1.19±0.21	55 0.6±0.4 2.09±0.29	81 4.52±0.21 1.21±0.32
Methyl butanoate	621	Fruity	ethereal pineapple fruity apricot strawberry banana bacon	28 0±0	7 1.51±0.55	13.12±10.9 9	.83 2.49±1.37 3.97±2.18 13.55±5.56	.28 6.54±4.53	26 2.46±1.01	96 0.63±0.06 1.19±0.21 3.46±0.28	55 0.6±0.4 2.09±0.29 1.63±0.36	81 4.52±0.21
Methyl butanoate Ethyl propionate	621 711	Fruity	ethereal pineapple fruity apricot strawberry banana bacon	28 0±0 1.29±0.19	7 1.51±0.55 0.72±0.07	13.12±10.9 9 0.94±0.29	.83 2.49±1.37 3.97±2.18	.28 6.54±4.53 9.28±2.47	26 2.46±1.01 5.61±0.95	96 0.63±0.06 1.19±0.21	55 0.6±0.4 2.09±0.29	81 4.52±0.21 1.21±0.32
Methyl butanoate Ethyl propionate Methyl butanoate	621 711 721	Fruity Acidic	ethereal pincapple fruity apricot strawberry banana bacon acidic dairy fruity -	28 0±0 1.29±0.19 4.63±2.5	7 1.51±0.55 0.72±0.07 2.55±0.25 0.22±0.15 0.38±0.06	13.12±10.9 9 0.94±0.29 0.47±0.06 0±0 0.9±0.34	.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11	.28 6.54±4.53 9.28±2.47 10.87±7.66 69.61±0.02 0.13±0.05	26 2.46±1.01 5.61±0.95 34.76±6.48 0±27.8 0.17±0.05	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23	55 0.6±0.4 2.09±0.29 1.63±0.36 48.42±16.8 5 0.41±0.07	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06
Methyl butanoate Ethyl propionate Methyl butanoate Ethyl butanoate	621 711 721 799	Fruity Acidic - Fruity	ethereal pincapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pincapple	28 0±0 1.29±0.19 4.63±2.5 0.24±0	7 1.51±0.55 0.72±0.07 2.55±0.25 0.22±0.15	13.12±10.9 9 0.94±0.29 0.47±0.06 0±0	.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5	.28 6.54±4.53 9.28±2.47 10.87±7.66 69.61±0.02 0.13±0.05 9.55±2.04	26 2.46±1.01 5.61±0.95 34.76±6.48 0±27.8 0.17±0.05 1.11±0.13	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9	55 0.6±0.4 2.09±0.29 1.63±0.36 48.42±16.8 5	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65
Methyl butanoate Ethyl propionate Methyl butanoate Ethyl butanoate Butyl acetate Ethyl (2E)-2-butenoate	621 711 721 799 805 841	Fruity Acidic - Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy	28 0±0 1.29±0.19 4.63±2.5 0.24±0 0.51±0.03 4.21±0.19	7 1.51±0.55 0.72±0.07 2.55±0.25 0.22±0.15 0.38±0.06 6.73±2.42	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \end{array}\\ \begin{array}{c} 0{\pm}0\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82 \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6	.28 6.54±4.53 9.28±2.47 10.87±7.66 69.61±0.02 0.13±0.05 9.55±2.04 16.01±12.0	26 2.46±1.01 5.61±0.95 34.76±6.48 0±27.8 0.17±0.05 1.11±0.13 39.58±11.7	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26	55 0.6±0.4 2.09±0.29 1.63±0.36 48.42±16.8 5 0.41±0.07 1.3±0.53	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48
Methyl butanoate Ethyl propionate Methyl butanoate Ethyl butanoate Butyl acetate	621 711 721 799 805	Fruity Acidic - Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy	28 0±0 1.29±0.19 4.63±2.5 0.24±0 0.51±0.03 4.21±0.19 9.52±1.14	7 1.51±0.55 0.72±0.07 2.55±0.25 0.22±0.15 0.38±0.06 6.73±2.42 4.28±30.38	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \end{array}\\ \begin{array}{c} 0\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86	.28 6.54 \pm 4.53 9.28 \pm 2.47 10.87 \pm 7.66 69.61 \pm 0.02 0.13 \pm 0.05 9.55 \pm 2.04 16.01 \pm 12.0 3	26 2.46±1.01 5.61±0.95 34.76±6.48 0±27.8 0.17±0.05 1.11±0.13 39.58±11.7 5	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13	55 0.6±0.4 2.09±0.29 1.63±0.36 48.42±16.8 5 0.41±0.07 1.3±0.53 1.08±0.5	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate	621 711 721 799 805 841 850	Fruity Acidic - Fruity Fruity Fatty	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy	28 0±0 1.29±0.19 4.63±2.5 0.24±0 0.51±0.03 4.21±0.19 9.52±1.14 105.5±39.9	7 1.51±0.55 0.72±0.07 2.55±0.25 0.22±0.15 0.38±0.06 6.73±2.42 4.28±30.38 52.07±20.1	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \end{array}\\ \begin{array}{c} 0\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \end{array}\\ \begin{array}{c} 51.65{\pm}5.92\\ 28.85{\pm}24.4 \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58.	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4 \end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6	55 0.6±0.4 2.09±0.29 1.63±0.36 48.42±16.8 5 0.41±0.07 1.3±0.53 1.08±0.5 123.15±31.	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6
Methyl butanoate Ethyl propionate Methyl butanoate Ethyl butanoate Butyl acetate Ethyl (2E)-2-butenoate	621 711 721 799 805 841	Fruity Acidic - Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy	28 0±0 1.29±0.19 4.63±2.5 0.24±0 0.51±0.03 4.21±0.19 9.52±1.14	7 1.51±0.55 0.72±0.07 2.55±0.25 0.22±0.15 0.38±0.06 6.73±2.42 4.28±30.38 52.07±20.1 5	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58.9	$\begin{array}{c} .28\\ 6.54{\pm}4.53\\ 9.28{\pm}2.47\\ 10.87{\pm}7.66\\ 69.61{\pm}0.02\\ 0.13{\pm}0.05\\ 9.55{\pm}2.04\\ 16.01{\pm}12.0\\ 3\\ 84.98{\pm}31.2\\ 6\end{array}$	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6 7	55 0.6±0.4 2.09±0.29 1.63±0.36 48.42±16.8 5 0.41±0.07 1.3±0.53 1.08±0.5	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)-	621 711 721 799 805 841 850 853	Fruity Acidic - Fruity Fruity Fatty - Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy	28 0±0 1.29±0.19 4.63±2.5 0.24±0 0.51±0.03 4.21±0.19 9.52±1.14 105.5±39.9 6	7 1.51±0.55 0.72±0.07 2.55±0.25 0.22±0.15 0.38±0.06 6.73±2.42 4.28±30.38 52.07±20.1	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102 \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28.	$\begin{array}{c} .28 \\ 6.54 {\pm} 4.53 \\ 9.28 {\pm} 2.47 \\ 10.87 {\pm} 7.66 \\ 69.61 {\pm} 0.02 \\ 0.13 {\pm} 0.05 \\ 9.55 {\pm} 2.04 \\ 16.01 {\pm} 12.0 \\ 3 \\ 84.98 {\pm} 31.2 \\ 6 \\ 104.33 {\pm} 44. \end{array}$	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85. \end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6 7 256.9±49.0	$\begin{array}{c} 55\\ 0.6{\pm}0.4\\ 2.0{\pm}0.29\\ 1.63{\pm}0.36\\ 48.42{\pm}16.8\\ 5\\ 0.41{\pm}0.07\\ 1.3{\pm}0.53\\ 1.08{\pm}0.5\\ 123.15{\pm}31.\\ 7\end{array}$	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6 4
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E)	621 711 721 799 805 841 850	Fruity Acidic - Fruity Fruity Fatty - Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon	28 0±0 1.29±0.19 4.63±2.5 0.24±0 0.51±0.03 4.21±0.19 9.52±1.14 105.5±39.9	$\begin{array}{c} 7\\ 1.51\pm 0.55\\ 0.72\pm 0.07\\ 2.55\pm 0.25\\ 0.22\pm 0.15\\ 0.38\pm 0.06\\ 6.73\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 2.1\\ 5\\ 23.52\pm 12.9\\ 9\end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58.9	$\begin{array}{c} .28\\ 6.54{\pm}4.53\\ 9.28{\pm}2.47\\ 10.87{\pm}7.66\\ 69.61{\pm}0.02\\ 0.13{\pm}0.05\\ 9.55{\pm}2.04\\ 16.01{\pm}12.0\\ 3\\ 84.98{\pm}31.2\\ 6\end{array}$	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6 7 25.9±49.0 7	55 0.6±0.4 2.09±0.29 1.63±0.36 48.42±16.8 5 0.41±0.07 1.3±0.53 1.08±0.5 123.15±31.	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)-	621 711 721 799 805 841 850 853 865	Fruity Acidic - Fruity Fruity Fatty - Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy	$\begin{array}{c} 28\\ 0\pm0\\ 1.29\pm0.19\\ 4.63\pm2.5\\ 0.24\pm0\\ 0.51\pm0.03\\ 4.21\pm0.19\\ 9.52\pm1.14\\ 105.5\pm39.9\\ 6\\ 13.12\pm1.8 \end{array}$	7 1.51 ± 0.55 0.72 ± 0.07 2.55 ± 0.25 0.22 ± 0.15 0.38 ± 0.06 6.73 ± 2.42 4.28 ± 30.38 52.07 ± 20.15 5 23.52 ± 12.9	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ 0{\pm}0\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06 \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63	.28 6.54±4.53 9.28±2.47 10.87±7.66 69.61±0.02 0.13±0.05 9.55±2.04 16.01±12.0 3 84.98±31.2 6 104.33±44. 71	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83 \end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6 7 256.9±49.0	55 0.6±0.4 2.0±0.29 1.63±0.36 48.42±16.8 5 0.41±0.07 1.3±0.53 1.08±0.5 123.15±31.7 179.26±59	$\begin{array}{c} 81\\ 4.52{\pm}0.21\\ 1.21{\pm}0.32\\ 1.55{\pm}0.18\\ 39.31{\pm}6.65\\ 1.04{\pm}0.66\\ 1.04{\pm}0.48\\ 5.02{\pm}4.26\\ 4.5.69{\pm}15.6\\ 4\\ 50.16{\pm}5.16\end{array}$
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E) Methyl hexanoate Ethyl Butyrate	621 711 721 799 805 841 850 853 865 922 940	Fruity Acidic - Fruity Fruity Fatty - Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity tropical pineapple grape banana fruity ethereal tropical green grape cherry banana	$\begin{array}{c} 28\\ 0\pm0\\ 1.29\pm0.19\\ 4.63\pm2.5\\ 0.24\pm0\\ 0.51\pm0.03\\ 4.21\pm0.19\\ 9.52\pm1.14\\ 105.5\pm39.9\\ 6\\ 13.12\pm1.8\\ 0.92\pm0.1\\ 0.45\pm0.12\\ \end{array}$	$\begin{array}{c} 7\\ 1.51\pm 0.55\\ 0.72\pm 0.07\\ 2.55\pm 0.25\\ 0.22\pm 0.15\\ 0.38\pm 0.06\\ 6.73\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 2.42\\ 1.5\\ 23.52\pm 12.9\\ 9\\ 1.16\pm 0.46\\ 2.57\pm 1.56\\ \end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ 0{\pm}0\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35 \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64	$\begin{array}{c} .28\\ 6.54{\pm}4.53\\ 9.28{\pm}2.47\\ 10.87{\pm}7.66\\ 69.61{\pm}0.02\\ 0.13{\pm}0.05\\ 9.55{\pm}2.04\\ 16.01{\pm}12.0\\ 3\\ 84.98{\pm}31.2\\ 6\\ 104.33{\pm}44.\\ 71\\ 9.19{\pm}0.93\\ 7{\pm}0.9 \end{array}$	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ \end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6 7 256.9±49.0 7 1.16±0.1 1.04±0.28	$\begin{array}{c} 55\\ 0.6\pm0.4\\ 2.0\pm0.29\\ 1.63\pm0.36\\ 48.42\pm16.8\\ 5\\ 0.41\pm0.07\\ 1.3\pm0.53\\ 1.08\pm0.5\\ 123.15\pm31.\\ 7\\ 179.26\pm59\\ 1.34\pm0.24\\ 1.53\pm0.8\\ \end{array}$	$\begin{array}{c} 81\\ 4.52{\pm}0.21\\ 1.21{\pm}0.32\\ 1.55{\pm}0.18\\ 39.31{\pm}6.65\\ 0.19{\pm}0.06\\ 1.04{\pm}0.48\\ 5.02{\pm}4.26\\ 4.5.69{\pm}15.6\\ 4\\ 50.16{\pm}5.16\\ 1.19{\pm}0.01\\ 1.32{\pm}0.1\\ \end{array}$
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E) Methyl hexanoate Ethyl Butyrate	621 711 721 799 805 841 850 853 865 922	Fruity Acidic - Fruity Fruity Fatty - Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity tropical pineapple grape banana	28 0±0 1.29±0.19 4.63±2.5 0.24±0 0.51±0.03 4.21±0.19 9.52±1.14 105.5±39.9 6 13.12±1.8 0.92±0.1	7 1.51±0.55 0.72±0.07 2.55±0.25 0.22±0.15 0.38±0.06 6.73±2.42 4.28±30.38 5.207±20.1 5 23.52±12.9 9 1.16±0.46	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \hline\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \hline\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02 \end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6 7 256.9±49.0 7 1.16±0.1	55 0.6±0.4 2.09±0.29 1.63±0.36 48.42±16.8 5 0.41±0.07 1.3±0.53 1.08±0.5 123.15±31. 7 179.26±59 1.34±0.24	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6 4 50.16±5.16 1.19±0.01
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E) Methyl hexanoate Ethyl Butyrate Ethyl Butyrate	621 711 721 799 805 841 850 853 865 922 940 995	Fruity Fruity Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity topical pineapple grape banana fruity ethereal tropical green grape cherry banana apple cocoa	28 0±0 1.29±0.19 4.63±2.5 0.24±0 0.51±0.03 4.21±0.19 9.52±1.14 105.5±39.9 6 13.12±1.8 0.92±0.1 0.45±0.12 1.13±0.74	7 1.51 ± 0.55 0.72 ± 0.07 2.55 ± 0.25 0.22 ± 0.15 0.38 ± 0.06 6.73 ± 2.42 4.28 ± 30.38 52.07 ± 20.15 5 23.52 ± 12.9 9 1.16 ± 0.46 2.57 ± 1.56 0.13 ± 0	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \end{array}\\\\ \begin{array}{c} 0.0\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \end{array}\\\\ \begin{array}{c} 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ \end{array}\\\\ \begin{array}{c} 0\\ 0\\ 0\\ \end{array}$	$\begin{array}{c} .83\\ 2.49{\pm}1.37\\ 3.97{\pm}2.18\\ 13.55{\pm}5.56\\ 84.54{\pm}19.3\\ 5\\ 0.18{\pm}0.11\\ 1.68{\pm}3.6\\ 22.8{\pm}13.86\\ 135.95{\pm}58.9\\ 9\\ 270.21{\pm}28.\\ 63\\ 2.52{\pm}2.32\\ 0.64{\pm}2.64\\ 4.15{\pm}6.11\\ \end{array}$.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0 \end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6 7 256.9±49.0 7 1.16±0.1 1.04±0.28 1.16±0.26	$\begin{array}{c} 55\\ 0.6{\pm}0.4\\ 2.09{\pm}0.29\\ 1.63{\pm}0.36\\ 48.42{\pm}16.8\\ 5\\ 0.41{\pm}0.07\\ 1.3{\pm}0.53\\ 1.08{\pm}0.5\\ 123.15{\pm}31.\\ 7\\ 179.26{\pm}59\\ 1.34{\pm}0.24\\ 1.53{\pm}0.8\\ 2.98{\pm}1.11\\ \end{array}$	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6 4 5.01±5.16 1.19±0.01 1.32±0.1
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E) Methyl hexanoate Ethyl Butyrate	621 711 721 799 805 841 850 853 865 922 940	Fruity Acidic - Fruity Fruity Fatty - Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity tropical pineapple grape banana fruity ethereal tropical green grape cherry banana	$\begin{array}{c} 28\\ 0\pm0\\ 1.29\pm0.19\\ 4.63\pm2.5\\ 0.24\pm0\\ 0.51\pm0.03\\ 4.21\pm0.19\\ 9.52\pm1.14\\ 105.5\pm39.9\\ 6\\ 13.12\pm1.8\\ 0.92\pm0.1\\ 0.45\pm0.12\\ 1.13\pm0.74\\ 0.24\pm0.03\\ \end{array}$	$\begin{array}{c} 7\\ 1.51\pm 0.55\\ 0.72\pm 0.07\\ 2.55\pm 0.25\\ 0.22\pm 0.15\\ 0.38\pm 0.06\\ 6.73\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 2.0.1\\ 5\\ 23.52\pm 12.9\\ 9\\ 1.16\pm 0.46\\ 2.57\pm 1.56\\ 0.13\pm 0\\ 0.2\pm 0.31\\ \end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ 0\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ 0{\pm}0\\ 0.8{\pm}0.02\\ \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64 4.15±6.11 0.79±0.08	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96 0.44 ± 0.17	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0\\ 0.63{\pm}0.01\\ \end{array}$	$\begin{array}{c} 96\\ \hline\\ 0.63\pm 0.06\\ 1.19\pm 0.21\\ 3.46\pm 0.28\\ 76.26\pm 16.6\\ 9\\ 0\pm 0.23\\ 0.93\pm 0.26\\ 23.26\pm 0.13\\ 72.23\pm 24.6\\ 7\\ 256.9\pm 49.0\\ 7\\ 1.16\pm 0.1\\ 1.04\pm 0.28\\ 1.16\pm 0.26\\ 0.41\pm 0.1\end{array}$	$\begin{array}{c} 55\\ 0.6\pm0.4\\ 2.0\pm0.29\\ 1.63\pm0.36\\ 48.42\pm16.8\\ 5\\ 0.41\pm0.07\\ 1.3\pm0.53\\ 1.08\pm0.5\\ 123.15\pm31.\\ 7\\ 179.26\pm59\\ 1.34\pm0.24\\ 1.53\pm0.8 \end{array}$	$\begin{array}{c} 81\\ 4.52{\pm}0.21\\ 1.21{\pm}0.32\\ 1.55{\pm}0.18\\ 39.31{\pm}6.65\\ 0.19{\pm}0.06\\ 1.04{\pm}0.48\\ 5.02{\pm}4.26\\ 4.5.69{\pm}15.6\\ 4\\ 50.16{\pm}5.16\\ 1.19{\pm}0.01\\ 1.32{\pm}0.1\\ \end{array}$
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E)- Methyl hexanoate Ethyl Butyrate Ethyl hexanoate Hexyl acetate \$\$ Hexyl ethanoate	621 711 721 799 805 841 850 853 865 922 940 995 1008	Fruity Acidie - Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity tropical pineapple grape banana fruity ethereal tropical green grape cherry banana apple cocoa fruity ethereal tropical banana	28 0±0 1.29±0.19 4.63±2.5 0.24±0 0.51±0.03 4.21±0.19 9.52±1.14 105.5±39.9 6 13.12±1.8 0.92±0.1 0.45±0.12 1.13±0.74	$\begin{array}{c} 7\\ 1.51\pm0.55\\ 0.72\pm0.07\\ 2.55\pm0.25\\ 0.22\pm0.15\\ 0.38\pm0.06\\ 6.73\pm2.42\\ 4.28\pm30.38\\ 52.07\pm20.1\\ 5\\ 23.52\pm12.9\\ 9\\ 1.16\pm0.46\\ 2.57\pm1.56\\ 0.13\pm0\\ 0.2\pm0.31\\ 190.14\pm34. \end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \hline\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \hline\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ \hline\\ 0{\pm}0\\ 0.8{\pm}0.02\\ 156.95{\pm}5.1\\ \hline\end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64 4.15±6.11 0.79±0.08 103.65±42.	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96 0.44 ± 0.17 $195.43\pm 41.$	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0\\ 0.63{\pm}0.01\\ 150.25{\pm}11. \end{array}$	$\begin{array}{c} 96\\ \hline\\ 0.63\pm 0.06\\ 1.19\pm 0.21\\ 3.46\pm 0.28\\ 76.26\pm 16.6\\ 9\\ 0\pm 0.23\\ 0.93\pm 0.26\\ \hline\\ 23.26\pm 0.13\\ 72.23\pm 24.6\\ 7\\ 256.9\pm 49.0\\ 7\\ 1.16\pm 0.1\\ 1.04\pm 0.28\\ \hline\\ 1.16\pm 0.28\\ \hline\\ 1.16\pm 0.26\\ \hline\\ 0.41\pm 0.1\\ 91.67\pm 19.0\\ \end{array}$	$\begin{array}{c} 55\\ 0.6\pm0.4\\ 2.09\pm0.29\\ 1.63\pm0.36\\ 48.42\pm16.8\\ 5\\ 0.41\pm0.07\\ 1.3\pm0.53\\ 1.08\pm0.5\\ 123.15\pm31.\\ 7\\ 179.26\pm59\\ 1.34\pm0.24\\ 1.53\pm0.8\\ 2.98\pm1.11\\ 0.26\pm0.09\\ \end{array}$	$\begin{array}{c} 81\\ 4.52\pm 0.21\\ 1.21\pm 0.32\\ 1.55\pm 0.18\\ 39.31\pm 6.65\\ 0.19\pm 0.06\\ 1.04\pm 0.48\\ 5.02\pm 4.26\\ 45.69\pm 15.6\\ 4\\ 5.016\pm 5.16\\ 1.19\pm 0.01\\ 1.32\pm 0.1\\ 1.7\pm 0.44\\ 0.27\pm 0.06\\ \end{array}$
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E) Methyl hexanoate Ethyl Butyrate Ethyl butyrate Ethyl hexanoate Hexyl acetate \$\$ Hexyl ethanoate	621 711 721 799 805 841 850 853 865 922 940 995	Fruity Fruity Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity topical pineapple grape banana fruity ethereal tropical green grape cherry banana apple cocoa	$\begin{array}{c} 28\\ 0\pm0\\ 1.29\pm0.19\\ 4.63\pm2.5\\ 0.24\pm0\\ 0.51\pm0.03\\ 4.21\pm0.19\\ 9.52\pm1.14\\ 105.5\pm39.9\\ 6\\ 13.12\pm1.8\\ 0.92\pm0.1\\ 0.45\pm0.12\\ 1.13\pm0.74\\ 0.24\pm0.03\\ \end{array}$	$\begin{array}{c} 7\\ 1.51\pm 0.55\\ 0.72\pm 0.07\\ 2.55\pm 0.25\\ 0.22\pm 0.15\\ 0.38\pm 0.06\\ 6.73\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 20.1\\ 5\\ 23.52\pm 12.9\\ 9\\ 1.16\pm 0.46\\ 2.57\pm 1.56\\ 0.13\pm 0\\ 0.2\pm 0.31\\ 190.14\pm 34.\\ 23\\ \end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \hline\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \hline\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ \hline\\ 0{\pm}0\\ 0\\ 0.8{\pm}0.02\\ 156.95{\pm}5.1\\ 7\\ \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64 4.15±6.11 0.79±0.08	$\begin{array}{c} .28\\ 6.54 \pm 4.53\\ 9.28 \pm 2.47\\ 10.87 \pm 7.66\\ 69.61 \pm 0.02\\ 0.13 \pm 0.05\\ 9.55 \pm 2.04\\ 16.01 \pm 12.0\\ 3\\ 84.98 \pm 31.2\\ 6\\ 104.33 \pm 44.\\ 71\\ 9.19 \pm 0.93\\ 7 \pm 0.9\\ 18.13 \pm 4.96\\ 0.44 \pm 0.17\\ 195.43 \pm 41.\\ 94\end{array}$	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0\\ 0.63{\pm}0.01\\ \end{array}$	$\begin{array}{c} 96\\ \hline\\ 0.63\pm 0.06\\ 1.19\pm 0.21\\ 3.46\pm 0.28\\ 76.26\pm 16.6\\ 9\\ 0\pm 0.23\\ 0.93\pm 0.26\\ 23.26\pm 0.13\\ 72.23\pm 24.6\\ 7\\ 256.9\pm 49.0\\ 7\\ 1.16\pm 0.1\\ 1.04\pm 0.28\\ 1.16\pm 0.26\\ 0.41\pm 0.1\end{array}$	$\begin{array}{c} 55\\ 0.6{\pm}0.4\\ 2.09{\pm}0.29\\ 1.63{\pm}0.36\\ 48.42{\pm}16.8\\ 5\\ 0.41{\pm}0.07\\ 1.3{\pm}0.53\\ 1.08{\pm}0.5\\ 123.15{\pm}31.\\ 7\\ 179.26{\pm}59\\ 1.34{\pm}0.24\\ 1.53{\pm}0.8\\ 2.98{\pm}1.11\\ \end{array}$	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6 4 5.01±5.16 1.19±0.01 1.32±0.1
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E) Methyl hexanoate Ethyl Butyrate Ethyl butyrate Ethyl hexanoate Hexyl acetate \$\$ Hexyl ethanoate	621 711 721 799 805 841 850 853 865 922 940 995 1008	Fruity Acidic - Fruity Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity topical pineapple grape banana fruity ethereal tropical green grape cherry banana apple cocoa fruity ethereal tropical banana sweet fruity green orris waxy floral berry	$\begin{array}{c} 28\\ 0\pm0\\ 1.29\pm0.19\\ 4.63\pm2.5\\ 0.24\pm0\\ 0.51\pm0.03\\ 4.21\pm0.19\\ 9.52\pm1.14\\ 105.5\pm39.9\\ 6\\ 13.12\pm1.8\\ 0.92\pm0.1\\ 0.45\pm0.12\\ 1.13\pm0.74\\ 0.24\pm0.03\\ \end{array}$	$\begin{array}{c} 7\\ 1.51\pm0.55\\ 0.72\pm0.07\\ 2.55\pm0.25\\ 0.22\pm0.15\\ 0.38\pm0.06\\ 6.73\pm2.42\\ 4.28\pm30.38\\ 52.07\pm20.1\\ 5\\ 23.52\pm12.9\\ 9\\ 1.16\pm0.46\\ 2.57\pm1.56\\ 0.13\pm0\\ 0.2\pm0.31\\ 190.14\pm34. \end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \hline\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \hline\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ \hline\\ 0{\pm}0\\ 0.8{\pm}0.02\\ 156.95{\pm}5.1\\ \hline\end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64 4.15±6.11 0.79±0.08 103.65±42.	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96 0.44 ± 0.17 $195.43\pm 41.$	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0\\ 0.63{\pm}0.01\\ 150.25{\pm}11. \end{array}$	$\begin{array}{c} 96\\ \hline\\ 0.63\pm 0.06\\ 1.19\pm 0.21\\ 3.46\pm 0.28\\ 76.26\pm 16.6\\ 9\\ 0\pm 0.23\\ 0.93\pm 0.26\\ \hline\\ 23.26\pm 0.13\\ 72.23\pm 24.6\\ 7\\ 256.9\pm 49.0\\ 7\\ 1.16\pm 0.1\\ 1.04\pm 0.28\\ \hline\\ 1.16\pm 0.28\\ \hline\\ 1.16\pm 0.26\\ \hline\\ 0.41\pm 0.1\\ 91.67\pm 19.0\\ \end{array}$	$\begin{array}{c} 55\\ 0.6\pm0.4\\ 2.09\pm0.29\\ 1.63\pm0.36\\ 48.42\pm16.8\\ 5\\ 0.41\pm0.07\\ 1.3\pm0.53\\ 1.08\pm0.5\\ 123.15\pm31.\\ 7\\ 179.26\pm59\\ 1.34\pm0.24\\ 1.53\pm0.8\\ 2.98\pm1.11\\ 0.26\pm0.09\\ \end{array}$	$\begin{array}{c} 81\\ 4.52\pm 0.21\\ 1.21\pm 0.32\\ 1.55\pm 0.18\\ 39.31\pm 6.65\\ 0.19\pm 0.06\\ 1.04\pm 0.48\\ 5.02\pm 4.26\\ 45.69\pm 15.6\\ 4\\ 5.016\pm 5.16\\ 1.19\pm 0.01\\ 1.32\pm 0.1\\ 1.7\pm 0.44\\ 0.27\pm 0.06\\ \end{array}$
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E)- Methyl hexanoate Ethyl Butyrate Ethyl hexanoate Hexyl acetate \$\$ Hexyl ethanoate Ethyl hydroxy-3- hexanoate	621 711 721 799 805 841 850 853 865 922 940 995 1008 1121 1130	Fruity Acidic - Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity tropical pineapple grape banana fruity ethereal tropical green grape cherry banana apple cocoa fruity ethereal tropical banana sweet fruity green orris waxy floral berry green fruity apple blueberry pineapple	$\begin{array}{c} 28\\ 0\pm0\\ 1.29\pm0.19\\ 4.63\pm2.5\\ 0.24\pm0\\ 0.51\pm0.03\\ 4.21\pm0.19\\ 9.52\pm1.14\\ 105.5\pm39.9\\ 6\\ 13.12\pm1.8\\ 0.92\pm0.1\\ 0.45\pm0.12\\ 1.13\pm0.74\\ 0.24\pm0.03\\ 110.89\pm4.3\\ 1\\ 69.9\pm3.99 \end{array}$	$\begin{array}{c} 7\\ 1.51\pm0.55\\ 0.72\pm0.07\\ 2.55\pm0.25\\ 0.22\pm0.15\\ 0.38\pm0.06\\ 6.73\pm2.42\\ 4.28\pm30.38\\ 52.07\pm20.1\\ 5\\ 23.52\pm12.9\\ 9\\ 1.16\pm0.46\\ 2.57\pm1.56\\ 0.13\pm0\\ 0.2\pm0.31\\ 190.14\pm34.\\ 23\\ 92.03\pm16.8\\ 6\end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \hline\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \hline\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ \hline\\ 0{\pm}0\\ 0\\ 0.8{\pm}0.02\\ 156.95{\pm}5.1\\ 7\\ 55.55{\pm}14.5\\ 7\\ \end{array}$	$\begin{array}{c} .83\\ \hline 2.49 \pm 1.37\\ 3.97 \pm 2.18\\ 13.55 \pm 5.56\\ 84.54 \pm 19.3\\ 5\\ 0.18 \pm 0.11\\ 1.68 \pm 3.6\\ 22.8 \pm 13.86\\ 135.95 \pm 58.\\ 9\\ 270.21 \pm 28.\\ 63\\ 2.52 \pm 2.32\\ 0.64 \pm 2.64\\ \hline 4.15 \pm 6.11\\ 0.79 \pm 0.08\\ 103.65 \pm 42.\\ 49\\ 55.78 \pm 4.41\\ \end{array}$.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96 0.44 ± 0.17 195.43 ± 41.94 94 55.55 ± 11.7 8	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0\\ 0.63{\pm}0.01\\ 150.25{\pm}11.\\ 09\\ 32.58{\pm}3.45\\ \end{array}$	$\begin{array}{c} 96\\ \hline\\ 0.63\pm 0.06\\ 1.19\pm 0.21\\ 3.46\pm 0.28\\ 76.26\pm 16.6\\ 9\\ 0\pm 0.23\\ 0.93\pm 0.26\\ 23.26\pm 0.13\\ 72.23\pm 24.6\\ 7\\ 25.9\pm 49.0\\ 7\\ 1.16\pm 0.1\\ 1.04\pm 0.28\\ 1.16\pm 0.28\\ 1.16\pm 0.28\\ 1.16\pm 0.26\\ 0.41\pm 0.1\\ 91.67\pm 19.0\\ 1\\ 35.3\pm 6.28\\ \end{array}$	$\begin{array}{c} 55\\ 0.6\pm0.4\\ 2.09\pm0.29\\ 1.63\pm0.36\\ 48.42\pm16.8\\ 5\\ 0.41\pm0.07\\ 1.3\pm0.53\\ 1.08\pm0.5\\ 123.15\pm31.\\ 7\\ 179.26\pm59\\ 1.34\pm0.24\\ 1.53\pm0.8\\ 2.98\pm1.11\\ 0.26\pm0.09\\ 48.97\pm5.69\\ 46.86\pm4.88\\ \end{array}$	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6 4 50.16±5.16 1.19±0.01 1.32±0.1 1.7±0.44 0.27±0.06 90.51±2.23 48.42±4.39
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E) Methyl hexanoate Ethyl Butyrate Ethyl butyrate Ethyl hexanoate Hexyl acetate \$\$ Hexyl ethanoate	621 711 721 799 805 841 850 853 865 922 940 995 1008 1121	Fruity Acidic - Fruity Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity topical pineapple grape banana fruity ethereal tropical green grape cherry banana apple cocoa fruity ethereal tropical banana sweet fruity green orris waxy floral berry	$\begin{array}{c} 28\\ 0\pm0\\ 1.29\pm0.19\\ 4.63\pm2.5\\ 0.24\pm0\\ 0.51\pm0.03\\ 4.21\pm0.19\\ 9.52\pm1.14\\ 105.5\pm39.9\\ 6\\ 13.12\pm1.8\\ 0.92\pm0.1\\ 0.45\pm0.12\\ 1.13\pm0.74\\ 0.24\pm0.03\\ 110.89\pm4.3\\ 1\end{array}$	$\begin{array}{c} 7\\ 1.51\pm 0.55\\ 0.72\pm 0.07\\ 2.55\pm 0.25\\ 0.22\pm 0.15\\ 0.38\pm 0.06\\ 6.73\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 20.1\\ 5\\ 23.52\pm 12.9\\ 9\\ 1.16\pm 0.46\\ 2.57\pm 1.56\\ 0.13\pm 0\\ 0.2\pm 0.31\\ 190.14\pm 34.\\ 23\\ 92.03\pm 16.8\\ \end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \hline\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \hline\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ \hline\\ 0{\pm}0\\ 0\\ 0.8{\pm}0.02\\ 156.95{\pm}5.1\\ 7\\ \end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64 4.15±6.11 0.79±0.08 103.65±42. 49	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96 0.44 ± 0.17 195.43 ± 41.94 94 55.55 ± 11.7	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0\\ 0.63{\pm}0.01\\ 150.25{\pm}11.\\ 09 \end{array}$	$\begin{array}{c} 96\\ \hline\\ 0.63\pm0.06\\ 1.19\pm0.21\\ 3.46\pm0.28\\ 76.26\pm16.6\\ 9\\ 0\pm0.23\\ 0.93\pm0.26\\ 23.26\pm0.13\\ 72.23\pm24.6\\ 7\\ 256.9\pm49.0\\ 7\\ 1.16\pm0.1\\ 1.04\pm0.28\\ 1.16\pm0.26\\ 0.41\pm0.1\\ 91.67\pm19.0\\ 1\end{array}$	$\begin{array}{c} 55\\ 0.6{\pm}0.4\\ 2.09{\pm}0.29\\ 1.63{\pm}0.36\\ 48.42{\pm}16.8\\ 5\\ 0.41{\pm}0.07\\ 1.3{\pm}0.53\\ 1.08{\pm}0.5\\ 123.15{\pm}31.\\ 7\\ 179.26{\pm}59\\ 1.34{\pm}0.24\\ 1.53{\pm}0.8\\ 2.98{\pm}1.11\\ 0.26{\pm}0.09\\ 48.97{\pm}5.69\\ \end{array}$	$\begin{array}{c} 81\\ 4.52\pm 0.21\\ 1.21\pm 0.32\\ 1.55\pm 0.18\\ 39.31\pm 6.65\\ 0.19\pm 0.06\\ 1.04\pm 0.48\\ 5.02\pm 4.26\\ 45.69\pm 15.6\\ 4\\ 5.016\pm 5.16\\ 1.19\pm 0.01\\ 1.32\pm 0.1\\ 1.7\pm 0.44\\ 0.27\pm 0.06\\ 90.51\pm 2.23\\ \end{array}$
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E)- Methyl hexanoate Ethyl Butyrate Ethyl hexanoate Hexyl acetate \$\$ Hexyl ethanoate Ethyl hydroxy-3- hexanoate Hexyl butanoate Hexyl butanoate Hexyl 2-methylbutanoate	621 711 721 799 805 841 850 853 865 922 940 995 1008 1121 1130 1189 1244	Fruity Acidic - Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity tropical pineapple grape banana fruity ethereal tropical pineapple grape banana fruity ethereal tropical pineapple grape banana fruity ethereal tropical banana sweet fruity green orris waxy floral berry green fruity apple blueberry pineapple fruity green apricot pear banana	$\begin{array}{c} 28\\ 0\pm0\\ 1.29\pm0.19\\ 4.63\pm2.5\\ 0.24\pm0\\ 0.51\pm0.03\\ 4.21\pm0.19\\ 9.52\pm1.14\\ 105.5\pm39.9\\ 6\\ 13.12\pm1.8\\ 0.92\pm0.1\\ 0.45\pm0.12\\ 1.13\pm0.74\\ 0.24\pm0.03\\ 110.89\pm4.3\\ 1\\ 69.9\pm3.99\\ 5.25\pm1.11\\ 0.11\pm0\\ \end{array}$	$\begin{array}{c} 7\\ 1.51\pm0.55\\ 0.72\pm0.07\\ 2.55\pm0.25\\ 0.22\pm0.15\\ 0.38\pm0.06\\ 6.73\pm2.42\\ 4.28\pm30.38\\ 52.07\pm20.1\\ 5\\ 23.52\pm12.9\\ 9\\ 1.16\pm0.46\\ 2.57\pm1.56\\ 0.13\pm0\\ 0.2\pm0.31\\ 190.14\pm34.\\ 23\\ 92.03\pm16.8\\ 6\\ 1.73\pm0.78\\ 0.09\pm0\\ \end{array}$	$\begin{array}{c} 13.12\pm10.9\\ 9\\ 0.94\pm0.29\\ 0.47\pm0.06\\ \hline\\ 0.9\pm0.34\\ 0.97\pm0.82\\ \hline\\ 51.65\pm5.92\\ 28.85\pm24.4\\ 8\\ 274.08\pm102\\ .06\\ 1.25\pm0.2\\ 3.1\pm2.35\\ \hline\\ 0\pm0\\ 0.8\pm0.02\\ 156.95\pm5.1\\ 7\\ 55.55\pm14.5\\ 7\\ 8.95\pm1.38\\ 0.11\pm0.03\\ \hline\end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64 4.15±6.11 0.79±0.08 103.65±42. 49 55.78±4.41 1.08±0.33 0.05±0.01	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96 0.44 ± 0.17 195.43 ± 41.94 94 55.55 ± 11.7 8 0 ± 0.26 0.04 ± 0	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0\\ 0.63{\pm}0.01\\ 150.25{\pm}1.1\\ 09\\ 32.58{\pm}3.45\\ 0.95{\pm}1.35\\ 0.05{\pm}0\\ \end{array}$	$\begin{array}{c} 96\\ \hline 0.63\pm 0.06\\ 1.19\pm 0.21\\ 3.46\pm 0.28\\ 76.26\pm 16.6\\ 9\\ 0\pm 0.23\\ 0.93\pm 0.26\\ 23.26\pm 0.13\\ 72.23\pm 24.6\\ 7\\ 25.9\pm 49.0\\ 7\\ 1.16\pm 0.1\\ 1.04\pm 0.28\\ 1.16\pm 0.28\\ 1.16\pm 0.26\\ 0.41\pm 0.1\\ 91.67\pm 19.0\\ 1\\ 35.3\pm 6.28\\ 2.11\pm 0.29\\ 0.04\pm 0\\ \end{array}$	$\begin{array}{c} 55\\ 0.6\pm0.4\\ 2.09\pm0.29\\ 1.63\pm0.36\\ 48.42\pm16.8\\ 5\\ 0.41\pm0.07\\ 1.3\pm0.53\\ 1.08\pm0.5\\ 123.15\pm31.\\ 7\\ 179.26\pm59\\ 1.34\pm0.24\\ 1.53\pm0.8\\ 2.98\pm1.11\\ 0.26\pm0.09\\ 48.97\pm5.69\\ 46.86\pm4.88\\ 1.72\pm0.3\\ 0.06\pm0\\ \end{array}$	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6 4 50.16±5.16 1.19±0.01 1.32±0.1 1.7±0.44 0.27±0.06 90.51±2.23 48.42±4.39 0.55±0.1 0.03±0
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E)- Methyl hexanoate Ethyl Butyrate Ethyl Butyrate Ethyl butyrate Ethyl octanoate Ethyl octanoate Ethyl hydroxy-3- hexanoate Hexyl acetate SS Hexyl ethanoate Hexyl butanoate Hexyl 2- methylbutanoate Hexyl 2- methylbutanoate	621 711 721 799 805 841 850 853 865 922 940 995 1008 1121 1130 1189 1244 1382	Fruity Acidic - Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity tropical pineapple grape banana fruity ethereal tropical green grape cherry banana apple cocoa fruity ethereal tropical banana sweet fruity green orris waxy floral berry green fruity apple blueberry pineapple	$\begin{array}{c} 28\\ 0\pm 0\\ 1.29\pm 0.19\\ 4.63\pm 2.5\\ 0.24\pm 0\\ 0.51\pm 0.03\\ 4.21\pm 0.19\\ 9.52\pm 1.14\\ 105.5\pm 39.9\\ 6\\ 13.12\pm 1.8\\ 0.92\pm 0.1\\ 0.45\pm 0.12\\ 1.13\pm 0.74\\ 0.24\pm 0.03\\ 110.89\pm 4.3\\ 1\\ 69.9\pm 3.99\\ 5.25\pm 1.11\\ 0.11\pm 0\\ 0.94\pm 0.18\\ \end{array}$	$\begin{array}{c} 7\\ 1.51\pm 0.55\\ 0.72\pm 0.07\\ 2.55\pm 0.25\\ 0.22\pm 0.15\\ 0.38\pm 0.06\\ 6.73\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 20.1\\ 5\\ 23.52\pm 12.9\\ 9\\ 1.16\pm 0.46\\ 2.57\pm 1.56\\ 0.13\pm 0\\ 0.2\pm 0.31\\ 190.14\pm 34.\\ 23\\ 92.03\pm 16.8\\ 6\\ 1.73\pm 0.78\\ 0.09\pm 0\\ 0.31\pm 0.15\\ \end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \hline\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \hline\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ 0{\pm}0\\ \hline\\ 0.8{\pm}0.02\\ 156.95{\pm}5.1\\ 7\\ 55.55{\pm}14.5\\ 7\\ 8.95{\pm}1.38\\ 0.11{\pm}0.03\\ 1.15{\pm}0.13\\ \hline\end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64 4.15±6.11 0.79±0.08 103.65±42. 49 55.78±4.41 1.08±0.33 0.05±0.01 0±0	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96 0.44 ± 0.17 195.43 ± 41.94 94 55.55 ± 11.7 8 0 ± 0.26 0.04 ± 0 0 ± 0	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0\\ 0.63{\pm}0.01\\ 150.25{\pm}11.\\ 09\\ 32.58{\pm}3.45\\ 0.95{\pm}1.35\\ 0.05{\pm}0\\ 0{\pm}0\\ \end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6 7 256.9±49.0 7 1.16±0.1 1.04±0.28 1.16±0.26 0.41±0.1 91.67±19.0 1 35.3±6.28 2.11±0.29 0.04±0 0±0	$\begin{array}{c} 55\\ 0.6\pm0.4\\ 2.09\pm0.29\\ 1.63\pm0.36\\ 48.42\pm16.8\\ 5\\ 0.41\pm0.07\\ 1.3\pm0.53\\ 1.08\pm0.5\\ 123.15\pm31.\\ 7\\ 179.26\pm59\\ 1.34\pm0.24\\ 1.53\pm0.8\\ 2.98\pm1.11\\ 0.26\pm0.09\\ 48.97\pm5.69\\ 46.86\pm4.88\\ 1.72\pm0.3\\ 0.06\pm0\\ 0.5\pm0.21\\ \end{array}$	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6 4 50.16±5.16 1.19±0.01 1.32±0.1 1.7±0.44 0.27±0.06 90.51±2.23 48.42±4.39 0.55±0.1 0.03±0 0.16±0.1
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E) Methyl hexanoate Ethyl Butyrate Ethyl Butyrate Ethyl bexanoate Hexyl acetate \$\$ Hexyl ethanoate Methyl octanoate Ethyl hydroxy-3- hexanoate Hexyl butanoate Hexyl ybutanoate Hexyl 2- methylbutanoate Hexyl 2- methylbutanoate Hexyl 2-	621 711 721 799 805 841 850 853 865 922 940 995 1008 1121 1130 1189 1244 1382 1385	Fruity Acidic - Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana bacon acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity topical pineapple grape banana fruity ethereal tropical green grape cherry banana apple cocoa fruity ethereal tropical banana sweet fruity green orris waxy floral berry green fruity apple blueberry pineapple fruity green apricot pear banana - rancid sour cheesy sweaty	$\begin{array}{c} 28\\ 0\pm 0\\ 1,29\pm 0,19\\ 4,63\pm 2,5\\ 0,24\pm 0\\ 0,51\pm 0,03\\ 4,21\pm 0,19\\ 9,52\pm 1,14\\ 105,5\pm 39,9\\ 6\\ 13,12\pm 1,8\\ 0,92\pm 0,1\\ 0,45\pm 0,12\\ 1,13\pm 0,74\\ 0,24\pm 0,03\\ 110,89\pm 4,3\\ 1\\ 69,9\pm 3,99\\ 5,25\pm 1,11\\ 0,11\pm 0\\ 0,94\pm 0,18\\ 0\pm 0\\ \end{array}$	$\begin{array}{c} 7\\ 1.51\pm 0.55\\ 0.72\pm 0.07\\ 2.55\pm 0.25\\ 0.22\pm 0.15\\ 0.38\pm 0.06\\ 6.73\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 2.42\\ 1.55\\ 23.52\pm 12.9\\ 9\\ 1.16\pm 0.46\\ 2.57\pm 1.56\\ 0.13\pm 0\\ 0.2\pm 0.31\\ 190.14\pm 34.\\ 23\\ 92.03\pm 16.8\\ 6\\ 1.73\pm 0.78\\ 0.99\pm 0\\ 0.31\pm 0.15\\ 0\pm 0\\ \end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \hline\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \hline\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ \hline\\ 0{\pm}0\\ 0.8{\pm}0.02\\ 156.95{\pm}5.1\\ 7\\ 55.55{\pm}1.45\\ 7\\ 8.95{\pm}1.38\\ \hline\\ 0.11{\pm}0.03\\ 1.15{\pm}0.13\\ 0{\pm}0\\ \hline\end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64 4.15±6.11 0.79±0.08 103.65±42. 49 55.78±4.41 1.08±0.33 0.05±0.01 0±0 1.6±0.57	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96 0.44 ± 0.17 195.43 ± 41.94 94 55.55 ± 11.7 8 0 ± 0.26 0.31 ± 0.13	$\begin{array}{c} 26\\ 2.46\pm 1.01\\ 5.61\pm 0.95\\ 34.76\pm 6.48\\ 0\pm 27.8\\ 0.17\pm 0.05\\ 1.11\pm 0.13\\ 39.58\pm 11.7\\ 5\\ 41.48\pm 23.4\\ 6\\ 126.46\pm 85.\\ 83\\ 3.52\pm 0.02\\ 1.01\pm 0.25\\ 2.17\pm 0\\ 0.63\pm 0.01\\ 150.25\pm 11.\\ 09\\ 32.58\pm 3.45\\ 0.95\pm 1.35\\ 0.95\pm 1.35\\ 0.95\pm 0.24\\ \end{array}$	$\begin{array}{c} 96\\ \hline\\ 0.63\pm0.06\\ 1.19\pm0.21\\ 3.46\pm0.28\\ 76.26\pm16.6\\ 9\\ 0\pm0.23\\ 0.93\pm0.26\\ 23.26\pm0.13\\ 72.23\pm24.6\\ 7\\ 256.9\pm49.0\\ 7\\ 1.16\pm0.1\\ 1.04\pm0.28\\ 1.16\pm0.26\\ 0.41\pm0.1\\ 91.67\pm19.0\\ 1\\ 35.3\pm6.28\\ 2.11\pm0.29\\ 0.04\pm0\\ 0\pm0\\ 0.61\pm0.02\\ \end{array}$	$\begin{array}{c} 55\\ 0.6\pm0.4\\ 2.09\pm0.29\\ 1.63\pm0.36\\ 48.42\pm16.8\\ 5\\ 0.41\pm0.07\\ 1.3\pm0.53\\ 1.08\pm0.5\\ 123.15\pm31.\\ 7\\ 179.26\pm59\\ 1.34\pm0.24\\ 1.53\pm0.8\\ 2.98\pm1.11\\ 0.26\pm0.09\\ 48.97\pm5.69\\ 46.86\pm4.88\\ 1.72\pm0.3\\ 0.06\pm0\\ 0.5\pm0.21\\ 1.05\pm0.3\\ \end{array}$	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6 4 50.16±5.16 1.19±0.01 1.32±0.1 1.7±0.44 0.27±0.06 90.51±2.23 48.42±4.39 0.55±0.1 0.34±0.1 0.29±0.24
Methyl butanoate Ethyl propionate Methyl butanoate Butyl acetate Ethyl (2E)-2-butenoate Ethyl 2-methylbutanoate 3-Hexen-1-ol, (E)- 2-Hexen-1-ol, (E)- Methyl hexanoate Ethyl Butyrate Ethyl Butyrate Ethyl butyrate Ethyl octanoate Ethyl octanoate Ethyl hydroxy-3- hexanoate Hexyl acetate SS Hexyl ethanoate Hexyl butanoate Hexyl 2- methylbutanoate Hexyl 2- methylbutanoate	621 711 721 799 805 841 850 853 865 922 940 995 1008 1121 1130 1189 1244 1382	Fruity Acidic - Fruity Fatty - Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity Fruity	ethereal pineapple fruity apricot strawberry banana acidic dairy fruity - sweet fruity apricot banana tropical pineapple sweet fruity ethereal rummy sour fatty sweaty cheesy - sweet fruity ethereal rummy fruity citrus melon sweet fruity green orris waxy floral berry ethereal fruity tropical pineapple grape banana fruity ethereal tropical pineapple grape banana fruity ethereal tropical pineapple grape banana fruity ethereal tropical banana sweet fruity green orris waxy floral berry green fruity apple blueberry pineapple fruity green apricot pear banana	$\begin{array}{c} 28\\ 0\pm 0\\ 1.29\pm 0.19\\ 4.63\pm 2.5\\ 0.24\pm 0\\ 0.51\pm 0.03\\ 4.21\pm 0.19\\ 9.52\pm 1.14\\ 105.5\pm 39.9\\ 6\\ 13.12\pm 1.8\\ 0.92\pm 0.1\\ 0.45\pm 0.12\\ 1.13\pm 0.74\\ 0.24\pm 0.03\\ 110.89\pm 4.3\\ 1\\ 69.9\pm 3.99\\ 5.25\pm 1.11\\ 0.11\pm 0\\ 0.94\pm 0.18\\ \end{array}$	$\begin{array}{c} 7\\ 1.51\pm 0.55\\ 0.72\pm 0.07\\ 2.55\pm 0.25\\ 0.22\pm 0.15\\ 0.38\pm 0.06\\ 6.73\pm 2.42\\ 4.28\pm 30.38\\ 52.07\pm 20.1\\ 5\\ 23.52\pm 12.9\\ 9\\ 1.16\pm 0.46\\ 2.57\pm 1.56\\ 0.13\pm 0\\ 0.2\pm 0.31\\ 190.14\pm 34.\\ 23\\ 92.03\pm 16.8\\ 6\\ 1.73\pm 0.78\\ 0.09\pm 0\\ 0.31\pm 0.15\\ \end{array}$	$\begin{array}{c} 13.12{\pm}10.9\\ 9\\ 0.94{\pm}0.29\\ 0.47{\pm}0.06\\ \hline\\ 0.9{\pm}0.34\\ 0.97{\pm}0.82\\ \hline\\ 51.65{\pm}5.92\\ 28.85{\pm}24.4\\ 8\\ 274.08{\pm}102\\ .06\\ 1.25{\pm}0.2\\ 3.1{\pm}2.35\\ 0{\pm}0\\ \hline\\ 0.8{\pm}0.02\\ 156.95{\pm}5.1\\ 7\\ 55.55{\pm}14.5\\ 7\\ 8.95{\pm}1.38\\ 0.11{\pm}0.03\\ 1.15{\pm}0.13\\ \hline\end{array}$.83 2.49±1.37 3.97±2.18 13.55±5.56 84.54±19.3 5 0.18±0.11 1.68±3.6 22.8±13.86 135.95±58. 9 270.21±28. 63 2.52±2.32 0.64±2.64 4.15±6.11 0.79±0.08 103.65±42. 49 55.78±4.41 1.08±0.33 0.05±0.01 0±0	.28 6.54 ± 4.53 9.28 ± 2.47 10.87 ± 7.66 69.61 ± 0.02 0.13 ± 0.05 9.55 ± 2.04 16.01 ± 12.0 3 84.98 ± 31.2 6 $104.33\pm 44.$ 71 9.19 ± 0.93 7 ± 0.9 18.13 ± 4.96 0.44 ± 0.17 195.43 ± 41.94 94 55.55 ± 11.7 8 0 ± 0.26 0.04 ± 0 0 ± 0	$\begin{array}{c} 26\\ 2.46{\pm}1.01\\ 5.61{\pm}0.95\\ 34.76{\pm}6.48\\ 0{\pm}27.8\\ 0.17{\pm}0.05\\ 1.11{\pm}0.13\\ 39.58{\pm}11.7\\ 5\\ 41.48{\pm}23.4\\ 6\\ 126.46{\pm}85.\\ 83\\ 3.52{\pm}0.02\\ 1.01{\pm}0.25\\ 2.17{\pm}0\\ 0.63{\pm}0.01\\ 150.25{\pm}11.\\ 09\\ 32.58{\pm}3.45\\ 0.95{\pm}1.35\\ 0.05{\pm}0\\ 0{\pm}0\\ \end{array}$	96 0.63±0.06 1.19±0.21 3.46±0.28 76.26±16.6 9 0±0.23 0.93±0.26 23.26±0.13 72.23±24.6 7 256.9±49.0 7 1.16±0.1 1.04±0.28 1.16±0.26 0.41±0.1 91.67±19.0 1 35.3±6.28 2.11±0.29 0.04±0 0±0	$\begin{array}{c} 55\\ 0.6{\pm}0.4\\ 2.09{\pm}0.29\\ 1.63{\pm}0.36\\ 48.42{\pm}16.8\\ 5\\ 0.41{\pm}0.07\\ 1.3{\pm}0.53\\ 1.08{\pm}0.5\\ 123.15{\pm}31.\\ 7\\ 7\\ 179.26{\pm}59\\ 1.34{\pm}0.24\\ 1.53{\pm}0.8\\ 2.98{\pm}1.11\\ 0.26{\pm}0.09\\ 48.97{\pm}5.69\\ 46.86{\pm}4.88\\ 1.72{\pm}0.3\\ 0.06{\pm}0\\ 0.5{\pm}0.21\\ \end{array}$	81 4.52±0.21 1.21±0.32 1.55±0.18 39.31±6.65 0.19±0.06 1.04±0.48 5.02±4.26 45.69±15.6 4 50.16±5.16 1.19±0.01 1.32±0.1 1.7±0.44 0.27±0.06 90.51±2.23 48.42±4.39 0.55±0.1 0.03±0 0.16±0.1

hexyl hexanoate	1517 1526	Fruity Waxy	- waxy buttery oily creamy dairy green lactonic plum skin	2.08±0.51 0.07±0.01	0.84±0.39 0.04±0	1.57±0.69 0±0	0.79±0.43 0±0	1.17±0.03 0±0	0.29±0.51 0±0	2.17±0.35 0±0	3.44±0.78 0±0	0.25±0.04 0±0
Methyl dodecanoate	1320	waxy	SKIII	567.94±144	453.34±160	604.99±172	1161.47±36	801.51±303	921.21±229	733.21±168	624.77±168	0±0
Total Esters	23			.2	.83	.64	6.18	.2	.99	.57	.35	395.6±94.5
Ketones												
3-Buten-2-one, 3-												
methyl-	677	Citrus	citrus green musty lemongrass apple	4.99±2.46	5.5±2.08	0.45±0	10.22±4.76	13.53±9.19	23.3±1.3	3.16±0.28	3.99±1.78	10.97±4.69
2-Heptanone	889	Fruity	fresh sweet green weedy earthy herbal	70.76±2.86	10.92±1.5	9.97±1.45	1.7±0.33	2.81±0.91	0.5±1.08	3.05±0.49	8.33±4.29	15.34±2.33
5-Hepten-2-one, 6-												
methyl-	985	-	-	1.95±0.08	3.97±1.57	3.94±0	4.65±0.48	1.74±0.68	2.29±0.16	0.91±0.52	2.56±0.61	1.23±0.13
2-Undecanone	1291	Citrus	fruity citrus floral orange	0±0	0.49±0.07	0.63±0.02	0.3±0.07	0.61±0.08	0.17±0.02	0.04±0.06	0.46±0.13	0.11±0.01
2-undecanone	1302	-	-	2.69±0.09	3.97±0.38	2.89±0.53	1.51±0.5	1±0.08	0.66±0.01	0.44±0.07	0.85±0.19	0.35±0.03
2-Undecanone, 6,10-												
dimethyl-	1402	Floral	orange floral fatty peach	0.42±0.08	0.43±0.1	0.22±0.12	0.56±0.04	0.65±0.08	0.47±0.01	0.23±0.01	2.37±1.32	0.33±0.07
Beta Ionone	1505	Floral	floral woody sweet fruity tropical	0.38±0.03	1.02±0.45	0.59±0.32	0.98±0.2	0.66±0.08	0.54±0.04	0.26±0.07	0.93±0.3	0.27±0.03
Total Ketones	7			81.19±5.6	26.3±6.15	18.69±2.44	19.92±6.38	21±11.1	27.93±2.62	8.09±1.5	19.49±8.62	28.6±7.29
Lactones												
gamma-Hexalactone	1055	Tonka	herbal coconut sweet coumarinic	1.6±1.32	7.98±2.31	9.78±0.68	8.62±1.95	13.03±5.22	4.79±0.18	4.88±1.5	10.91±3.06	3.76±0.97
Geranylacetone	1455	Floral	fresh green fruity waxy rose	0.33±0.02	0.28±0.1	0.66±0.09	3.67±0.51	2.12±0.02	1.17±0.15	0.27±0.05	1.04±0.39	0.29±0.01
gamma decalactone	1481	Fruity	fresh oily waxy peach coconut buttery	0.05±0.03	2.4±1.42	0.69±0.4	3.36±0.75	2.17±0.29	2.06±0.05	1.23±0.04	3.32±1.01	2.83±1.26
Total Lactones	3			1.98±1.37	10.66±3.83	11.13±1.17	15.65±3.21	17.32±5.53	8.02±0.38	6.38±1.59	15.27±4.46	6.88±2.24
Monoterpenes					22.00.11.2		24.20.50.7	152.05 . 40		01 (7) 11 1		
1.1 771 :	022			15.05.1.10	23.88±11.2	14 70 - 2 02	24.29±50.7	152.05±40.	16.00+0.65	21.67±11.1	01.0610.60	10.10.0.02
.alphaThujene	933	-	-	15.95±1.42	5	14.78±2.93 27.97±11.8	7	44	16.99±0.65	7	21.96±9.68	19.19±8.63
alphaPinene	943	Herbal	howhol warms	2.37±1.01	0.44±7.88	27.97±11.8	11.42±3.68	0±1.43	6.33±0.31	3.72±3.93	11.57±1.95	2.99±0.52
Camphene	943 962	Herbal	herbal waxy	2.37 ± 1.01 3.22 ± 0.07	0.38±0.1	5 0.37±0.31	0±0.91	0±1.43 1.32±0	0.33±0.31 0±0	3.72±3.93 0±0	0±0	2.99±0.52 0±0
Camphene	902	-	-	5.22±0.07	39.51±11.2	0.37±0.31	0±0.91	1.32±0	010	010	010	0±0
betaMyrcene	991	_	_	13.1±2.38	2	32.56±7.29	0±6.01	18.84±4.17	0±0	4.65±1.26	15.3±1.99	15.03±0.11
betawryreene	<i>))</i> 1			173.89±6.2	171.6±32.5	129.24±26.	0±0.01	10.04±4.17	0±0	4.05±1.20	15.5±1.77	15.05±0.11
alphaPhellandrene	1012	Woody	woody spicy honey	5	9	74	0±18.44	30.25±2.52	0±0	0±1.03	1.49±7.88	11.37±0
delta 3-Carene	1018	Herbal	herbal waxy fresh	0.2±0	0.07±0.11	0.61±0.05	2.67±0.78	3.71±2.09	2.93±1.42	5.22±1.68	6.13±2.01	2.15±0.08
.alphaTerpinene	1024	Woody	sweet woody rose medicinal fir needle	3.69±0.68	3.07±0.73	4.55±0.05	6.88±1.42	5.22±1.84	2.76±0.33	1±0.76	2.38±0.11	1.75±0.26
Cymene	1032	Woody	sweet woody rose medicinal fir needle	0.56±0.28	3.07±0.31	2.4±0.33	0.41±0.25	0.83±0.18	0.29±0.03	0.21±0.05	0.38±0.04	0.34±0.01
D-Limonene	1037	Spicy	sweet woody spicy clove dry	2.54±0.5	12.73±7.63	14.15±5.14	3.78±5.21	12.9±2.44	2.36±0.22	1.89±0.3	4.02±1.47	1.83±0.17
(Z)-beta-Ocimene	1039	Spicy	sweet woody spicy clove dry	1.2±0.05	0.65±0	0.7±0.6	0±0	0±0.33	0.73±0	0.21±0.14	0±0	0.3±0.25
betaPhellandrene	1044	-	-	0.16±0.03	0±0	0±0	0.38±0.1	0.51±0.21	0.22±0.02	0.16±0.3	0.48±0.27	0.45±0.05
transbetaOcimene	1048	Spicy	sweet woody spicy clove dry	0.52±0.27	1.99±0.26	1.48±0.03	0.31±0.22	0.64±0.08	0.29±0.18	0.47±0.07	2.28±0.91	0.68±0.14
Cymene	1063	-	-	7.08±1.1	1.13±0	0±0	3.79±1.33	1.43±0.86	6.43±1.71	1.41±0.19	3.92±1.04	4.79±1.56
gammaTerpinene	1066	Woody	woody citrus herbal sweet	8.03±1.6	29.09±4.12	53.4±15.4	4.96±2.88	8.35±1.09	3.89±1.51	5.71±1.14	4.13±1.43	4.43±0.56
						52.49±30.6						
Linalool oxide	1097	Woody	woody citrus herbal sweet	10.09±0.3	3.75±1.39	2	3.18±3.91	14.51±1.72	3.82±0.8	4.11±25.2	48±4.05	3.78±0.4
										53.99±10.1	170.16±45.	
Linalool	1100	Woody	woody	12.77±0.8	10.91±3.51	9.09±0.52	6.16±0.57	3.26±1.13	2.11±24.31	9	39	76.26±8.89
4,6-Allocimene	1145	-	-	0.95±0.29	0.95±0.28	0.8±0.08	0.16±0.14	0.6±0.06	0.41±0.02	0.15±0.08	0.65±0.11	0.47±0.01
Carveol	1149	Woody	hanhal waa du aniau	57.09±39.7	179.8±22.3	194.93±26. 69	73.02±22.8 4	850.41±495 .68	0±23.28	56.26±25.7 8	484.76±257 .55	49.89±7.5
endo-Borneol	1149	woody	herbal woody spicy	2.68±1.3	6.6±0.95	2.59±0.08	4 2.87±0.11	.08 6.02±2.01	0±25.28 1.91±0.1	8 1.08±0.13	.55 1.72±0.09	49.89±7.5 1.44±0.18
endo-Borneor	1165			2.08±1.5	0.0±0.95	2.39±0.08	13.55±13.5	0.02±2.01	1.91±0.1	1.08±0.15	1.72±0.09	1.44±0.18
Terpinen-4-ol	1190	Herbal	_	53.24±9.43	31.13±6.24	86.93±6.32	1	49.63±6.24	9.16±6.68	12.99±0.75	12.75±2.91	4.47±0.43
reipinen 4 or	1150	Herour		156.1±27.3	306.69±89.	269.79±57.		47.05±0.24	9.10±0.00	12.77=0.75	12.75-2.71	4.47±0.45
p-Cymene-8-ol	1193	-	amber	8	79	54	2.73±13.19	36.51±7.77	7.09±1.9	8.71±5.12	46.21±9.09	14.99±2.58
LalphaTerpineol	1201	-	-	27.86±1.12	45.87±1.44	85.4±29.28	19.05±1.29	10.26±1.33	4.87±5.34	14.19±1.94	48.8±7.97	32.28±0.23
Myrtenol	1213	Herbal	thyme herbal woody dry	0±0	0±0	0±0	1.06±0	0±0	0±1.72	3.59±1.07	3.64±1.26	0±0
Myrtenal	1220	-	-	5.65±0.3	7.54±0.69	6.5±0.68	1.98±0.52	3.73±0.33	1.89±0.28	1.74±0.17	1.76±0.32	1.4±0.2
Verbenone	1226	Spicy	spicy fruity mango	3.33±0.46	8.68±1.25	6.87±0	1.96±0.32	2.74±0.29	1.62 ± 0.02	1.15±0.11	13.36±8.26	1.47±0.3
Citronellol	1231			4.09±0.12	5.63±0.2	6.92±1.23	1.56±0.14	2.12±0.16	1.1±0.38	1.6±0.26	4.75±0.8	2.38±0.07
						24.48±12.8						
Benzothiazole	1247	-	-	0 ± 0	5.76±0.72	4	3.54±1.98	5.46±0.51	1.34±0	0.99±0.39	4.82±1.37	2.92±0.15
methyl carvacrol	1249	Woody	green woody	0±0	0±0	0±0	0.15±0	0±0	0±0	0±0	0±0	0±0
						107.47±21.			43.08±28.4	76.39±15.5	66.85±23.8	23.21±19.6
Geraniol	1254	-	woody	80.48±3.82	88.11±6.81	04	13.38±0	0±19.89	7	1	8	9
0	1057			22.22.77.77	20.20.01	12.06±10.2	21.07.2.5	62.09±15.1	37.25±21.0	0.11.10	33.51±12.8	39.97±17.2
Carvone	1257 1395	- Weedr	- waadu deu	33.23±7.72	28.28±6.46	3	31.97±2.54	1	7	0±11.19	6	9
Ylangene	1395	Woody	woody dry	0.19±0.06	2.43±1.48	0.5±0.26	0.25±0.11	0.38±0.01	0.14±0.02	0.1±0.03	0.45±0.12	0.13±0.01

Total Monoterpenes	31			680.26±108 .45	1019.74±21 9.71	1149.03±26 8.13	235.46±153 .17	1283.77±60 9.92	159.01±120 .77	283.36±119 .94	1016.23±40 4.81	320.36±70. 27
Sesquiterpenes		Woody	sweet fresh dry woody spicy									
alphaCubebene	1368	- '		17.57±1.55	28±8.72	21.81±6.46	15.25±7.16	19.11±1.14	12.1±2.98	5.41±1.37	14.69±2.14	5.81±1.29
Beta Caryophyllene	1425	Herbal	-	0.02±0.01	0.17±0.08	0.01±0.01	0.19±0.02	0.13±0.02	0.1±0	0.04±0.04	0.14±0.02	0±0
.betaPanasinsene	1430	-		0.15±0.23	6.76±4.22	1.56±1.04	0.42±0.4	0.85±0.02	0.16±0.04	0.1±0	0.84±0.43	0.12±0.05
gammaElemene	1517	-		1.19±0.29	0.48±0.22	0.9±0.39	0.45±0.24	0.67±0.02	0.18±0.28	1.24±0.2	1.96±0.44	0.14±0.02
.betaLongipinene	1521	Woody	green woody	0.11±0.02	1.16±0.67	0.33±0.1	0.83±0.1	0.49±0	0.28±0.01	0.1±0.03	0.39±0.1	0.11±0.01
deltaCadinene	1523	-	woody	0±0	1.2±0.76	0.04±0	0±0	0±0	0 ± 0	0±0	0±0	0±0
alphaMuurolene	1525	-	- '	0.29±0.02	0.09±0	0 ± 0	0±0	0±0	0±0.01	0.01±0.01	0.02±0	0±0
*					37.09±22.3							
.betaGuaiene	1528	Woody	woody dry	0±0	4	15.07±3.49	56.9±6.71	29.25±2.37	25.31±0.68	14.55±1.24	26.17±7.22	11.29±1.46
					253.97±136	75.61±13.5	41.57±26.2				52.27±14.7	
deltaCadinene,	1551	-	woody	23.21±14	.31	2	4	94.63±3.63	51.67±8.43	13.25±5.2	1	28.71±0.49
trans-Calamenene	1556	Woody	sweet fresh dry woody spicy	4.73±2.56	11.06±6.48	5.24±1.77	24.84±6.73	17.49±0.77	13.05±2.27	6.99±1.46	7.84±0.31	5.25±0.12
					41.12±23.1							
alphaCalacorene	1574	-		5.05±0.92	1	15.26±6.15	42.75±7.83	14.52±0.91	10.87±1.74	2.2±0.94	15.17±7.37	4.51±0.92
Ethyl dodecanoate	1593	Herbal		8.03±0.8	13.43±3.7	7.87±1.89	5.97±0.43	5.98±0.61	4.18±0.33	4.45±1.14	41.4±22.75	6.67±0.14
.tauMuurolol	1676	-	-	1.01±0.24	7.22±3.89	3.21±1.46	3.43±0.83	2.12±0.13	0.58±0.09	0.59±0.07	2.2±0.81	0.78±0.18
alphaCadinol	1676	-		1.4±0.09	1.04±0.32	0.1±0.08	4.46±0.59	0.77±0.53	0.17±0.09	0±0	0.44±0.3	0.2±0.17
Muurolol	1680	-	-	1.25±0.31	1.02±0.19	1.51±0.59	3.34±1.05	0.51±0.12	0.77±0.43	0±0	0.17±0.18	0.31±0
Cadalene	1711	Herbal	herbal spicy honey	0.16±0.04	0.69±0.19	0.4±0.08	0.42 ± 0.01	0.37±0.06	0.13±0	0.12±0.01	0.35±0.07	0.16±0
Epicubenol	1747	Herbal	herbal woody	0.91±0.06	0.71±0.07	0.6±0.01	0.58±0.13	0.74±0.05	0.47±0.11	0.23±0.13	2.44±0.91	1.43±0.17
				65.08±21.1	405.21±211	149.52±37.	201.4±58.4	187.63±10.	120.02±17.	49.28±11.8	166.49±57.	
Total Sesquiterpenes	17			4	.27	04	7	38	49	4	76	65.49±5.02

² Relative peak area percent compounds were identified by comparison of mass spectra with NIST14 (National Institute of Standards and Technology, Gaithersburg, MD, USA), Flavors and Fragrances of Natural and Synthetic Compounds (FFNSC3, John Wiley & Sons, Inc., Hoboken, NJ, USA), and Adams Essential Oils (Adams 2007) mass spectral libraries and comparison of calculated Kovats retention indices (Kováts 1958) with previously reported values

		Compo	ound	
	2-Methylbutanoic	5-Hexenal,	Hexanal	2-phenylethanol
	Acid	4-methylene		
		Compour	d class	
	Ester	Aldehyde	Aldehyde	Alcohol
		Aroma ca	itegory	
	Fruity	Fruity/Cocoa	Green/Fat	Floral
		Aroma des	criptors	
Cultivar ^z	Fruity, pineapple,	Cocoa, honey,	Green, herbal	Floral, rose,
	anise	coffee	tea, spearmint	honey
Natchez				
Early	3.64 ± 2.81	14.20 ± 24.60	3.64 ± 2.81	12.39 ± 14.76
Middle	30.56 ± 32.53	235.02±205.86	17.88 ± 14.10	55.76 ± 17.77
Late	51.82 ± 21.41	65.21±110.90	21.95 ± 9.17	77.38 ± 12.78
Prime-Ark [®]				
Horizon				
Early	15.52 ± 10.51	17.14 ± 27.09	52.72 ± 33.79	20.05 ± 1.07
Middle	20.84 ± 17.95	36.47 ± 39.83	0.03 ± 0.06	16.51 ± 7.24
Late	32.36 ± 15.50	4.47 ± 1.75	51.38 ± 27.05	21.37 ± 10.68
Prime-Ark [®]				
Traveler				
Early	38.81 ± 29.92	3.74 ± 4.44	56.84 ± 46.61	36.72 ± 5.36
Middle	19.57 ± 4.71	$.90 \pm 1.62$	9.11 ± 0.23	29.06 ± 6.07
Late	46.38 ± 2.62	2.80 ± 0.21	83.11 ± 1.06	57.17 ± 23.48
Sweet-Ark [®]				
Ponca				
Early	77.60 ± 25.41	0.53 ± 0.91	47.80 ± 41.26	24.11 ± 7.01
Middle	139.07 ± 74.90	49.76 ± 52.71	48.17 ± 6.55	51.03 ± 32.13
Late	167.24 ± 85.10	110.78 ± 6.07	51.39 ± 10.33	40.97 ± 17.44

Table 5. Four volatile aroma compounds (μ g/kg) with the highest levels in fresh-market blackberry cultivars harvested on three dates from the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020)

	Compound							
	2-Butanol	Ethyl acetate	2-Hexen-1-ol	Methyl octanoate				
		Compour	nd class					
	Alcohol	Ester	Alcohol	Ester				
		Aroma ca	ategory					
	Fruity	Ethereal	Fruity	Waxy				
		Aroma des	scriptors					
Cultivar ^z	Sweet apricot	Ethereal, fruity, sweet, grape and rum-like	Sharp, green, leafy, fruity, unripe banana	Waxy, green, orange, vegetable, herbal				
Natchez								
Early	312.31±103.18	236.64±87.28	13.12±1.80	110.89±4.31				
Middle	305.22±17.30	71.02±38.87	23.52±12.99	190.14±34.23				
Late	759.72±353.72	3.58±3.04	274.08 ± 102.06	156.95±5.17				
Prime-Ark [®]								
Traveler								
Early	77.96±81.14	454.84±172.83	270.21±28.63	103.65±42.49				
Middle	308.15 ± 48.78	201.92±137.28	104.33 ± 44.71	195.43±41.94				
Late	370.8±94.06	477.42±55.26	126.46±85.83	150.25±11.09				
Sweet-Ark [®]								
Ponca								
Early	98.58±22.14	161.92±49.96	256.9±49.07	91.67±19.01				
Middle	90.36±12.55	156.71±44.55	179.26 ± 59.01	48.97±5.69				
Late	66.77±9.07	102.03 ± 53.81	50.16±5.16	90.51±2.23				

Table 6. Four volatile aroma compounds (μ g/kg) with the highest levels in fresh-market blackberry cultivars harvested on three dates from the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2021)

Table 7. Principal components (PC) analysis of volatile aroma compounds in fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2020).

Percent of variation in data explained by each component.

Compound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified compounds within each compound class (Table 3)

		Principal Component 1 (42.94%)	Principal Component 2 (21.00%)
	~ 1	Aldehydes \rightarrow Lactones	Alcohols \rightarrow Sesquiterpenes
Positive	Compound classifications	Ketones Acids Esters Sesquiterpenes Aromatic hydrocarbons Lactones	Furans Aromatic hydrocarbons Lactones Esters Aldehydes Monoterpenes Acids Ketones Alcohols
loadings	Cultivar /		
	Harvest Date	Prime-Ark [®] Traveler Late Natchez Early Natchez Middle Natchez Late	Sweet-Ark [®] Ponca Late Prime-Ark [®] Horizon Early Prime-Ark [®] Traveler Early Natchez Middle Prime-Ark [®] Horizon Late Prime-Ark [®] Traveler Late Natchez Late Sweet-Ark [®] Ponca Middle
Negative loadings	Compound classifications	Monoterpenes Alcohols Furans Aldehydes	Sesquiterpenes
	Cultivar / Harvest Date	Sweet-Ark [®] Ponca Early Prime-Ark [®] Traveler Early Prime-Ark [®] Horizon Early Sweet-Ark [®] Ponca Middle Sweet-Ark [®] Ponca Late Prime-Ark [®] Traveler Middle Prime-Ark [®] Horizon Late Prime-Ark [®] Horizon Middle	Sweet-Ark [®] Ponca Early Prime-Ark [®] Traveler Middle Prime-Ark [®] Horizon Middle Natchez Early

Table 8. Principal components (PC) analysis of volatile aroma compounds in fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2021).

Percent of variation in data explained by each component.

Compound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified compounds within each compound class (Table 3)

		Principal Component 1 (35.56%)	Principal Component 2 (27.68%)
		Acids \rightarrow Ketones	Aromatic hydrocarbons → Esters
	Compound		
	classifications	Aromatic hydrocarbons	Sesquiterpenes
		Esters	Acids
		Aldehydes	Alcohols
		Alcohols	Monoterpenes
		Sesquiterpenes	Ketones
		Monoterpenes	Aromatic hydrocarbons
Positive		Lactones	
loadings		Acids	
		Sweet-Ark [®] Ponca Middle	Natchez Late
	Cultivar /		
	Harvest Date	Prime-Ark [®] Traveler Early	Natchez Middle
		Natchez Late	Natchez Early
		Natchez Middle	
		Prime-Ark [®] Traveler Middle	
	Compound		
	classifications	Ketones	Aldehydes
			Lactones
			Esters
Nagativa		Prime-Ark [®] Traveler Late	Sweet-Ark [®] Ponca Middle
Negative	Cultivar /		
loadings	Harvest Date	Natchez Early	Sweet-Ark [®] Ponca Late
		Sweet-Ark [®] Ponca Early	Prime-Ark [®] Traveler Middle
		Sweet-Ark [®] Ponca Late	Sweet-Ark [®] Ponca Early
		Sweet-AIK I Ulica Late	Prime-Ark [®] Traveler Late
			Prime-Ark [®] Traveler Early

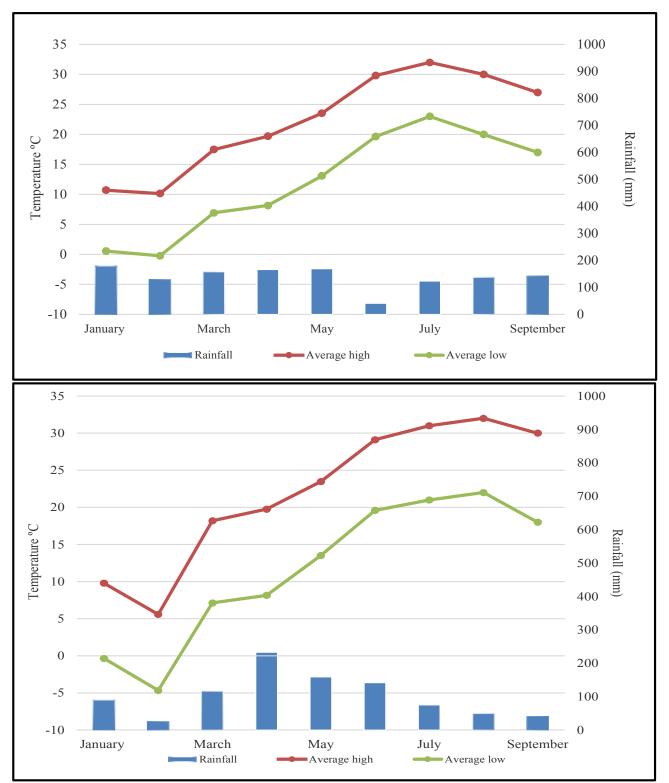


Fig. 1. Temperature and rain conditions from January to September at the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020 top and 2021 bottom)

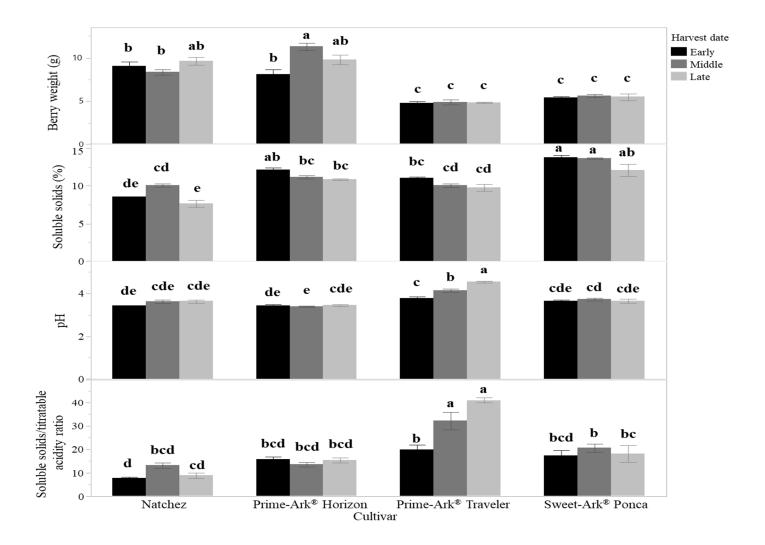


Fig. 2. Interaction of cultivar x harvest date on berry size, soluble solids, pH, and soluble solids/titratable acidity ratio of fresh-market blackberries harvested from the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2020)

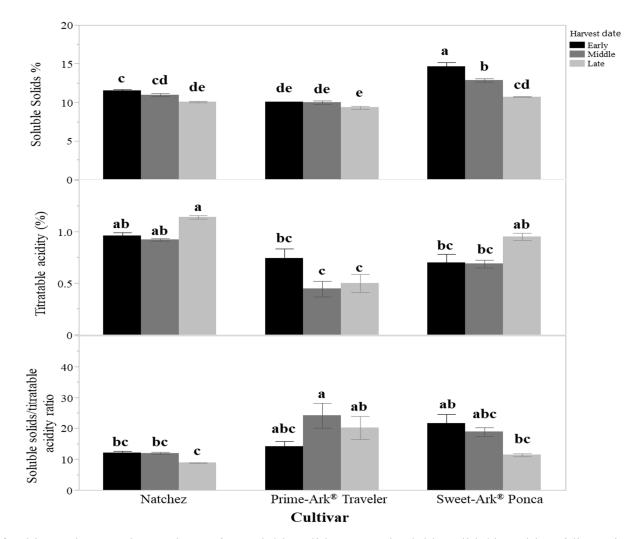


Fig. 3. Interaction of cultivar x harvest date on berry size, soluble solids, pH, and soluble solids/titratable acidity ratio of fresh-market blackberries harvested from the University of Arkansas System Division of Agriculture Fruit Research Station, Clarksville, AR (2021)

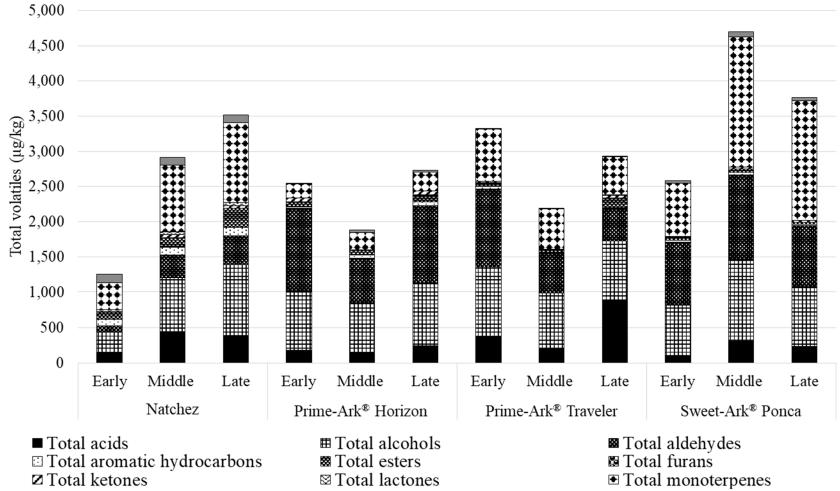


Fig. 4. Total concentrations of volatile aroma compounds identified in fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2020).

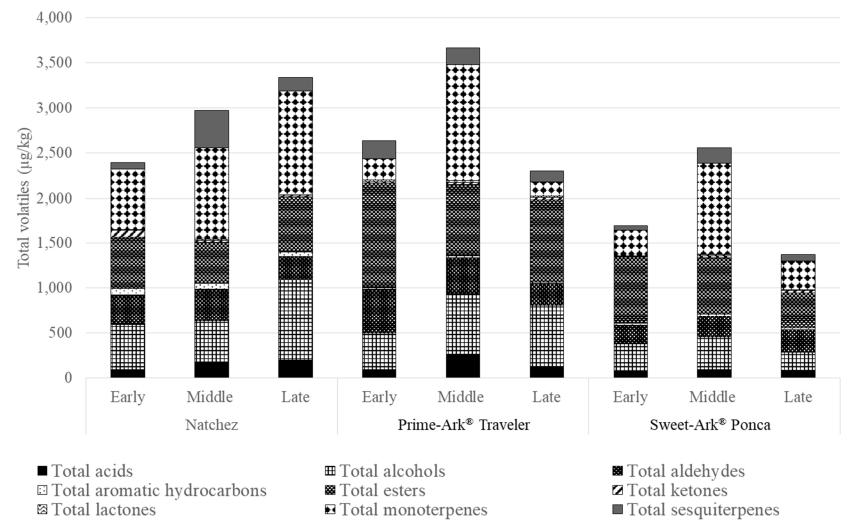


Fig. 5. Total concentrations of volatile aroma compounds identified in fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2021).

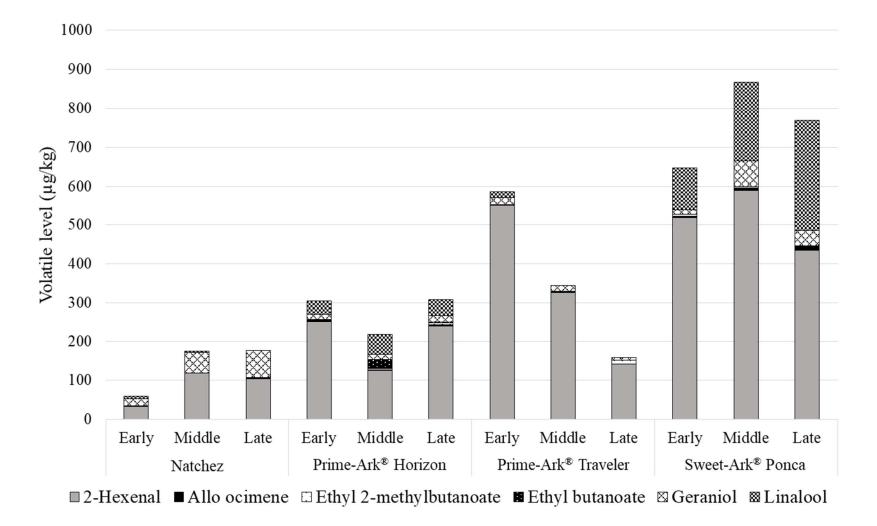


Fig. 6. Total concentrations of impactful volatile aroma compounds identified ($\mu g/kg$) in fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2020).

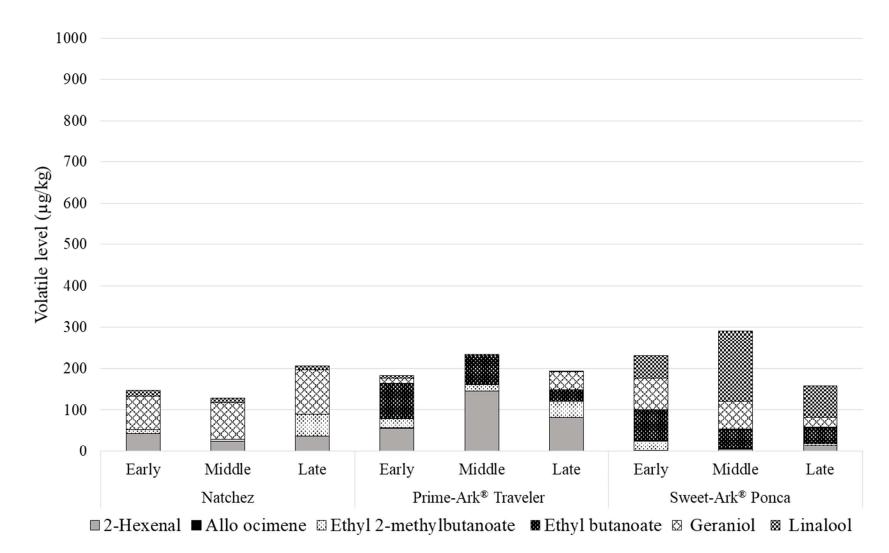
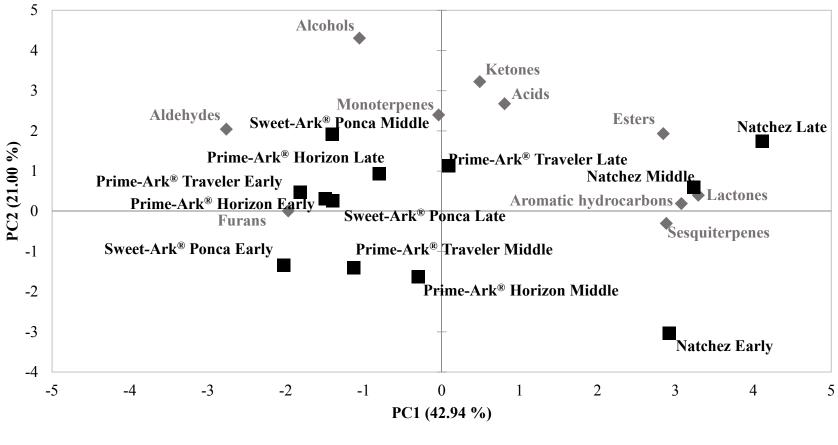


Fig. 7. Total concentrations of impactful volatile aroma compounds identified ($\mu g/kg$) in fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2021).



◆ Compound categories ■ Cultivar/harvest date

Fig. 8. Principal components (PC) analysis of volatile aroma compounds in fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2020). *Percent of variation in data explained by each component.*

Compound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified compounds within each compound class (Table 3)

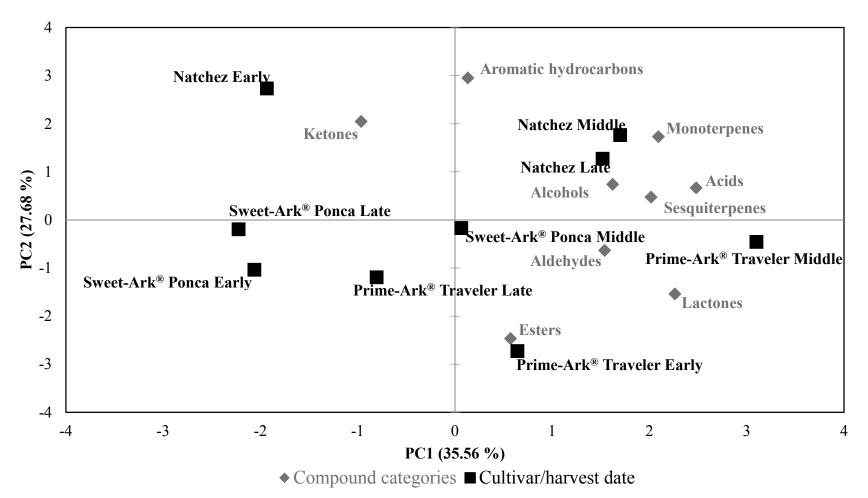


Fig. 9. Principal components (PC) analysis on volatile aroma compounds in fresh-market blackberry cultivars grown at the University of Arkansas System Division of Agriculture Fruit Research Station and harvested on three dates, Clarksville, AR (2021). *Percent of variation in data explained by each component.*

Compound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified compounds within each compound class (Table 4).

Chapter III

Identification of Flavor and Aroma Attributes of Fresh-market and Processing Muscadine Grapes

Abstract

Muscadine grapes (*Vitis rotundifolia* Michx.), a disease-resistant specialty crop native to the southeastern United States has had major advances in U.S. muscadine breeding efforts resulting in unique traits, including new seedless cultivars to expand commercial, fresh-market potential. Retaining the unique flavors and aromas of muscadines are a focus in creating new cultivars for the commercial fresh markets. In 2021, muscadine genotypes (cultivars and advanced breeding selections) were evaluated at the University of Arkansas (UA) System Division of Agriculture. The genotypes were harvested from the UA System Fruit Research Station in Clarksville, AR and a private grower in Kings Mountain, NC. Six seeded and ten seeded and seedless genotypes were harvested in Arkansas and North Carolina, respectively. Fruit was harvested from both locations, and fruit was from North Carolina was shipped in clamshells to Arkansas for evaluation. Physical, compositional, and volatile attributes of the muscadines were evaluated at the UA System Food Science Department, and each of these attributes were significantly impacted by genotype. Regardless of location, the berry weight (1-14 g), soluble solids (14-19%), pH (3-4), titratability acidity (0.3-1.1%), and soluble solids/titratable acidity ratio (16-70) were impacted by genotype. In the 16 genotypes harvested in both locations, volatile compounds ranged from 2,151-5,746 µg/kg with 201 volatile aroma compounds identified across nine compound classes including 52 esters, 38 monoterpenes, 31 sesquiterpenes, 29 alcohols, 27 aldehydes, 16 ketones, four lactones, two aromatic hydrocarbons, and two epoxides. The three muscadine genotypes with the highest concentrations of volatiles

were AM-154 (5,746 μ g/kg), 'Lane' (5,285 μ g/kg), and 'Hall' (5,108 μ g/kg), while the three muscadine genotypes with the lowest concentration of volatiles were AM-77 (2,151 μ g/kg), JB 06-30-2-20 (2,367 μ g/kg) and AM-148 (2,468 μ g/kg). Seven compounds with a high aromatic impact were also identified of which geraniol (monoterpene with floral and fruity aromas) had the highest level in most genotypes (3-638 μ g/kg). Principal component analysis of the volatile aroma compound classes and genotype indicated that in addition to genotype, growing location and seedlessness may have an impact on volatile attribute profiles. Data generated from this project provided information on physical, composition, and volatile attributes of muscadine grapes that can be used to support future muscadine breeding efforts.

Introduction

Muscadine grapes (Vitis rotundifolia Michx.) are a disease-resistant specialty crop native to the southeastern United States. The black, bronze, and red grapes are traditionally used for the production of juice, wine, jelly, or jams, but have potential for increased fresh-market expansion. Advances in U.S. muscadine breeding have resulted in unique traits emerging with commercial, fresh-market potential providing opportunity to strengthen the market presence for muscadines as a southern region crop. Due to the high humidity and incidence of disease in the southern region of the United States, grapes grown for commercial production need an increased disease tolerance, such as muscadines and other native grapevine species. In the South, muscadines are better adapted than V. vinifera, which makes cultivation easier for muscadines (Morris and Brady, 2004). Muscadines are resistant to many diseases and pests such as Pierce's disease (Xylella fastidiosa), grape fan leaf virus (Nepovirus spp.), and anthracnose (Elsinoë ampelina Shear) as compared to V. vinifera grapevines (Bouquet, 1981; Hopkins, 1974; Ren and Lu, 2002). Muscadines differ markedly from V. vinifera 'bunch' grapes in terms of genetics, morphology, production, and consumer experience. Muscadines have smaller clusters, unbranched tendrils, berries that abscise (shatter) at maturity, and distinctive fruity/floral aromas and thick skins. Muscadines are grown from Delaware to central Florida and from the Atlantic coast to eastern Texas and can be a profitable enterprise for commercial growers (Lane, 1997; Noguera et al., 2005). The top commercial muscadine-producing states are North Carolina (1,052) ha), Georgia (688 ha), and Florida (486 ha or 1,200 acres) (USDA NASS, 2012).

There are public and private muscadine breeding programs across the southern United States in Arkansas, Florida, Georgia, and North Carolina. Previous advances in muscadine breeding include the development of perfect-flowered and self-fruitful cultivars, increased berry

size and sugar content, presence of dry picking scars, and the introduction of a seedless muscadine grape (Conner, 2010). Other traits undergoing development include more cultivars with perfect flowers and large fruit, improved textures, thinner skins, a broader range of ripening dates and an expansion of the germplasm base used in muscadine breeding. Retaining the unique flavors and aromas of muscadines are a focus in creating new cultivars for the commercial fresh markets. The University of Arkansas (UA) System Division of Agriculture Fruit Breeding Program began breeding muscadines in 2007 with a focus on large fruit size, crisp texture, edible skin, self-fruitful flowers, seedlessness, and improved postharvest storability (Barchenger et al., 2015a). The UA System is working on developing *Vitis* × *Muscadinia* hybrids to combine the disease resistance of muscadine grapes with the fruit quality of *V. vinifera*. Muscadine genotypes (cultivars and breeding selections) are evaluated for potential as a commercial crop.

Over the past few decades, the muscadine industry has developed into a multimilliondollar industry with over 100 cultivars released. The most commonly-grown muscadine cultivars for processing are 'Noble', a black cultivar, and 'Carlos', a bronze cultivar. Fresh-market cultivars have different quality requirements than processing cultivars, such as flavor, texture, color, and postharvest storability. Seedless muscadine cultivars are also of great commercial interest for commercial markets. New cultivars have been developed by crossing muscadines with *V. vinifera* cultivars. Jeff Bloodworth (Bloodworth, 2017), a private fruit breeder in North Carolina collaborated with Gardens Alive! (Lawrenceburg, IN), developing seedless muscadines, including the first seedless muscadine cultivars, 'Oh My![®], and 'RazzMatazz[®]. 'RazzMatazz[®], (Gardens Alive, 2022b) was the first of the new cultivars, which is a continuously-fruiting vine producing small, red seedless berries. Another cultivar developed in 2019 was 'Oh My![®], (Gardens Alive, 2022a), that produces a bronze mid-size to large berry. Since these cultivars are

new, neither 'RazzMatazz[®]' nor 'OhMy! [®]' have been extensively evaluated for market potential (Hoffman et al., 2020).

Muscadines grapes and products fit well in consumer-driven niche markets and local food systems trends (Brown et. al., 2016). Muscadines are a unique regional crop that can be marketed as a sustainable, locally produced table grape. Many consumers consider muscadine a nostalgic food, while newer consumers are interested in the nutraceutical potential of muscadines (Perkins-Veazie et al., 2012; Striegler et al., 2005). A 10-berry serving of muscadines has 16% of the recommended daily fiber intake and 13 to 14% of vitamin C (USDA, 2011). In addition, muscadine grapes contain many different health bioactives, including resveratrol, ellagic acid, anthocyanins, and proanthocyanidin phenolic compounds (Ector et al., 1996; Lee et al., 2005; Pastrana-Bonilla et al., 2017; Striegler et al., 2005). Barchenger et al. (2015a) found that the nutraceutical in muscadine grapes differed by grape segment and during storage.

Muscadine grapes typically have three sections: the flesh (pulp), skins, and seeds. The flesh contains primary metabolites of the grape, such as water, sugar, acids, and pectin, whereas skins and seeds contain more secondary metabolites, such as phenolic and aroma compounds (Yu and Ahmedna, 2013). Mature grapes contain water, sugar, organic acids, and pectin. Sugars (glucose and fructose) make up a majority of grape carbohydrate content with muscadine grapes having 15-23% soluble solids at harvest. In grapes, the acidity attributes measured are pH and titratable acidity (% tartaric acid). Mature muscadine grapes grown in Arkansas typically have 0.50-0.70% titratable acidity and 3.0-3.3 pH (Barchenger et al., 2015b; Felts et al., 2020).

Muscadine volatiles are primarily composed of esters, alcohols, terpenes, and carbonyl compounds, which can be identified using gas chromatography-mass spectroscopy (GC-MS) (Lee et al., 2016). The volatiles of muscadines vary by genotype, ripening stage, and different

stress factors during growth, both biotic and abiotic. Analysis of volatile compounds can be used to establish and predict consumer preferences, especially when correlated with consumer sensory evaluations. Lamikanra (1987) determined that higher alcohols and fatty acid ethyl esters were numerically the largest classes of volatile aroma compounds in 'Noble' muscadine wine. Lamikanra et al. (1996) reported that 2-phenylethanol (rose and honey aroma) was predominantly synthesized during fermentation of muscadine wines but was also present in fresh muscadine grape skins. In an evaluation of 'Noble' wine, Mayfield (2020) reported that fruity esters were the largest class of volatile aroma compounds, followed by higher alcohols, notably 2-phenylethanol (rose and honey aroma). Baek et al. (1997) analyzed volatile aroma compounds in juice from 'Carlos' grapes and showed that furaneol and o-aminoacetophenone were likely responsible for characteristic candy and foxy-like aroma notes of muscadine grape juice. Baek et. al. (1997) examined aroma compounds in muscadine juice and found 33 aroma active compounds of which 21 were positively identified and comprised of six esters, four alcohols, four aldehydes, four ketones, two acids, and one phenol. With volatiles compounds, large qualities do not necessarily mean more flavor or aroma, rather the odor activity value (OAV) estimates odor potency as a ratio of the volatile concentration to its odor detection threshold (Patton, 1957)

Sensory research has been done on muscadine grapes and products from grapes. Felts et al. (2018) developed a sensory lexicon for fresh-market muscadine grapes grown at the UA System Fruit Research Station and showed that panelists detected differences between genotypes in grape/overall, grape/muscadine, and fruity. Threlfall et al. (2007) identified that muscadine juices from Arkansas had cooked muscadine, apple, pear, cooked grape, green/unripe, and slightly musty aromas and flavors. In a consumer study by Brown et al. (2016), thinner skins and

greater juice pH were associated with greater overall liking of muscadine grapes. Consumer acceptability of muscadines can be quantified with soluble solids analysis, texture analysis, and sensory analysis (Brown et al., 2016). An important attribute of muscadine grapes is the balance of sugars to acids in the berries at harvest. Flora et al. (1979) found the optimal titratable acidity to soluble solids ratio to be 30, including an acceptable range of 25-35, regardless of whether or not the juice is from a bronze or black cultivar. Meullenet et al. (2008) reported positive correlations between general muscadine flavor and musty flavor, general grape flavor and metallic flavor, green/unripe flavor and sourness/astringency, and sweetness and floral, apple, and pear flavors for Arkansas muscadine juice. Sensory evaluations of muscadine grapes have shown wide variation in consumer rating of flavor among muscadine genotypes (Meullenet et al., 2008), indicating that there is likely significant variation in the profiles of flavor and aroma compounds.

The unique color, flavor, and aroma attributes of muscadine grapes are important, especially for breeding considerations. Since there is limited information about volatiles of freshmarket genotypes the berry weight, composition, and volatiles of muscadine grapes grown in Arkansas and North Carolina were evaluated.

Materials and Methods

Plants and culture

The muscadine genotypes for this study included both seedless and seeded muscadine grapes grown in Arkansas and North Carolina in 2021 (Table 1).

Arkansas. Muscadine were harvested from vines grown at the UA System Fruit ResearchStation, Clarksville AR [west-central Arkansas, 35.533798404565445, -93.40583345945807;U.S. Dept of Agriculture (USDA) hardiness zone 7a; soil type Linker fine sandy loam (Typic

Hapludult)]. Vines are spaced 6.1 m apart and rows are spaced 3.0 m apart. The vines are trained to a bi-lateral, high-cordon/curtain training system and pruned to three- to four-bud spurs annually. Weeds are controlled by applications of preemergence and postemergence herbicides applied annually. Vines are fertilized annually in March or April with nitrogen or complete fertilizers. Fungicides are applied similar to a commercial requirement to control macrophoma rot (*Botryosphaeria dothidea*), bitter rot (*Greeneria uvicola*), and ripe rot (*Colletotrichum spp.*). The last application of any fungicide is usually done near the end of June to early July. On average, five fungicide sprays and two insecticide sprays are applied to the grapes.

North Carolina. Muscadines were harvested from a commercial vineyard in King Mountain North Carolina. The commercial vineyard was formally Lineberger's Killdeer Farms, now owned by Gardens Alive! [West-central North Carolina, 35.288541278322555, -

81.37195264596885; U.S. Dept of Agriculture (USDA) hardiness zone 7a; Madison-Bethlehem complex soil type sandy clay loam)]. Pest and weed management of muscadines were followed using the Muscadine Grape Production Guide for the Southeast (Hofmann et al., 2020).

Harvest

Fruit was harvested from both the UA System Fruit Research Station, Clarksville, AR and a private commercial grower in Kings Mountain, NC in 2021. The muscadines were hand harvested September-October at optimal ripeness and free of major visible blemishes, flaws, or damage. Approximately 1.8 kg of berries were harvested into 846 g (1-quart) vented clamshells for each genotype at each site. In Arkansas, the clamshells of grapes were placed in an ice chest chilled with ice packs and transported to the UA System Department of Food Science in Fayetteville, AR. The clamshells of grapes from North Carolina were placed in a walk-in cooler (4 °C) after harvest for 24 hrs prior to shipping to Arkansas. After harvest (and upon arrival of

the North Carolina fruit), the grapes were sorted into 470 g (1-pint) vented clamshells in triplicate for each genotype and storage date. For muscadines that shipped from North Carolina, fruit without any shipping damage was used for this study. The genotypes from each location were evaluated in triplicate.

Arkansas. Six seeded genotypes (AM-26, AM-70, AM-77, AM-135, AM-148, and AM-154) were harvested. There were two bronze (AM-26 and AM-135), three dark/black (AM-70, AM-77, and AM-148), and one pink/red (AM-154) genotype.

North Carolina. Ten genotypes ('Hall', JB-06-30-2-20, JB 08-38-1-10, JB-09-15-3-09, 'Lane', 'Oh My![®]', 'Paulk', 'RazzMatazz[®]', 'Summit', and 'Supreme') were harvested. There were five seedless (JB-06-30-2-20, JB 08-38-1-10, JB-09-15-3-09, 'Oh My![®]', and 'RazzMatazz[®]') and five seeded ('Hall', 'Lane', 'Paulk', 'Summit' and 'Supreme') genotypes. There were four bronze ('Hall', JB-06-30-2-20, 'Oh My!®', and 'Summit'), four dark/black (JB 08-38-1-10, 'Lane', 'Paulk', and 'Supreme'), and two pink/red (JB-09-15-3-09 and 'RazzMatazz[®]') genotypes. The clamshells of muscadine from North Carolina were shipped overnight to UA System Food Science Department, Fayetteville, AR. A shipping container with appropriate packaging was used to minimize muscadine fruit bruising and keep temperatures below 10 °C. There were 2-4 clamshells for small-sized genotypes and 4-6 clamshells for large-sized genotypes. The clamshells of muscadines were packed in cardboard/Styrofoam shipping containers with ice packs. Each clamshell was secured with a rubber band and placed in cardboard trays. A moisture resistant foam or bubble wrap was used inside the container to protect the fruit during shipping. The temperature of the container was monitored with DeltaTrak FlashLink® In-Transit BLE Temperature and Humidity Logger (Model 40910, Pleasanton, CA). The maximum temperature during shipping did not exceed 12.8 °C in 2021.

Berry weight

The berry weight of five berries per genotype and replication were evaluated at the UA System Food Science Department at harvest (day 0 or upon arrival after shipping). After berry weights were measured, the samples for composition and volatile attributes were placed in zip-type bags and stored at -10 °C until analysis.

Composition attribute analysis

Five to twenty-five berries (depending on the size of the berries) per genotype and replication were evaluated for composition attributes. Berries were thawed placed in cheesecloth, and the berries were squeezed to extract the juice from the berries. The juice from the berry samples was used to determine composition attributes. The composition (soluble solids, pH, and titratable acidity) attributes of each of the fresh-market muscadines grown in Arkansas and North Carolina were evaluated at harvest (day 0 or upon arrival after shipping). Soluble solids. Soluble solids (expressed as percent) of the juice were measured using an Abbe Mark II refractometer (Bausch and Lomb, Scientific Instrument, Keene, NH). pH. The pH of juice was measured using a PH700 pH meter (Apera Instruments, Columbus, Ohio). The pH was measured after the probe has been in the sample for 2 min. Titratable acidity. The titratable acidity of the juice was measured using a Metrohm 862 Compact Titrosampler (Metrohm AG, Herisau, Switzerland) fitted with a pH meter. Titratable acidity was determined using 6 mL of juice diluted with 50 mL of deionized, degassed water by titration with 0.1 N sodium hydroxide (NaOH) to an endpoint of pH 8.2; results was expressed as g/L tartaric acid.

<u>Soluble solids/titratable acidity ratio.</u> The soluble solids/titratable acidity ratio was calculated as the soluble solids divided by the titratable acidity.

Volatile analysis

Five berries per genotype and replication were used for volatile aroma attribute analysis. The seeds were removed from the seeded-muscadine berries before analysis. Gas chromatography analysis was performed using a Shimadzu GC-2010 Plus Gas Chromatograph equipped with a Flame Ionization Detector (GC-FID) and a GCMS-QP2010 SE Mass Spectrometer (GC-MS). The analysis includes identification and quantitation of odor-active compounds. For the analysis of muscadine volatiles, frozen berries (5 g), deionized water (10 mL), and NaCl (3 g) were mixed using a ratio of 1:1:0.3 (w/v/w). Two samples (one for GC-MS and one for FID) of 4 mL berry/deionized water/NaCl solution were placed in 20 ml headspace vials. The vials were incubated for 20 minutes with agitation and heat at 65 °C, and then the volatiles were absorbed using an 85 μm DVB/CAR/PDMS Solid Phase Microextraction (SPME) fiber was placed in the headspace above the sample for an additional 30 minutes. The SPME fiber was removed from the vial and placed into GC injection ports.

Samples were analyzed on both GC-FID and GC-MS and separation was performed on each using a HP-5 (30 m × 0.25 mm inner diameter, 5% phenyl-methylpolysiloxane, 1.0 μ m film thickness) capillary column. For both GC-MS and GC-FID analysis, the injector temperature was 250 °C. Helium was used as the carrier gas and column flow rate was 1.92 mL/min for GC-FID and 1.20 mL/min for GC-MS. The oven temperature was programmed for a 4 min hold at 30 °C, then 30 °C to 180 °C at 6 °C/min, then from 180 °C to 280 °C at 8 °C/min, and with a 3 min hold at 280 °C. The GC-FID detector temperature was 280 °C, and the interface temperature for the GC-MS had an ion source temperature of 230 °C and an interface temperature of 250 °C. GC-MS was performed in full scan mode, with a scan range of 20-300 *m/z*. The volatiles were identified by comparison of their mass spectra with the spectral library, literature data, and retention indices, standards, and expressed as $\mu g/kg$.

Statistical design and analysis

For berry weight and composition attributes, all genotypes were evaluated in triplicate. The data was analyzed by analysis of variance (ANOVA) using JMP® (version 16.1.0; SAS Institute Inc., Cary, NC). Tukey's Honestly Significant Difference was used for mean separations ($p \le 0.05$). Data for volatiles was presented as means and standard deviations of the three replicates. Associations among all dependent variables were determined using multivariate pairwise correlation coefficients of the mean values using JMP. Principal component analysis (PCA) was done using XLStat (Addinsoft Inc., New York, NY).

Results and Discussion

Berry weight

Genotype significantly impacted berry weight in both Arkansas and North Carolinagrown muscadines. In general, Arkansas-grown muscadines were larger than North Carolina grown muscadines (10.9 g and 7.0 g, respectively) (Table 2). Regardless of location, Supreme (14.41 g) from North Carolina had the largest berry weight, and 'RazzMatazz[®], (1.12 g) from North Carolina had the smallest. The range of berry sizes was smaller in Arkansas-grown muscadines (5.67-13.88 g) than in North Carolina-grown muscadines (1.12-14.41 g). **Arkansas.** AM-77 (5.67 g) had a significantly lower berry weight than the other Arkansasgrown genotypes. AM-135 (13.88 g) had the highest berry weight and was larger than AM-26 (11.08 g), AM-77 (5.67 g), AM-148 (11.86 g), or AM-154 (9.61 g) but not AM-70 (13.50 g). While many of the examined muscadine genotypes do not have established composition values, the berry sizes were similar to previous studies of Arkansas-grown muscadines (Barchenger et al., 2015; Felts et al., 2018; Threlfall et al., 2007). Xu et al. (2017) found that muscadines range from 3-23 g, however, consumers prefer a muscadine that is slightly larger than other grapes. All of the Arkansas-grown berries (5.67-13.88 g) examined in this study were within established commercial ranges in Arkansas (9-14 g) (Brown et al., 2016; Felts et al., 2018). As more cultivars are developed, fruit breeders can use berry weight to make breeding decisions regarding parentage and crossing.

North Carolina. 'Supreme' (14.41 g) had a higher berry weight than the other North Carolinagrown muscadines, with 'RazzMatazz[®]' (1.12 g) having the lowest berry weight (Table 2). Seedless muscadines (JB-06-30-2-20, JB 08-38-1-10, JB-09-15-3-09, 'Oh My![®]', and 'RazzMatazz[®]') (3.55 g, 2.72 g, 4.29 g, 5.87 g, and 1.12 g, respectively) weighed significantly less than the seeded muscadines ('Hall', 'Lane', 'Paulk', 'Summit' and 'Supreme') (10.07 g, 9.35 g, 8.96 g, 9.85 g, and 14.41, g respectively).

Composition attributes

Genotype significantly impacted all of the composition attributes in both Arkansas and North Carolina-grown muscadines. In Arkansas-grown muscadines soluble solids ranged from 14.00 to 19.47%, pH ranged from 3.04 to 3.89, titratable acidity ranged from 0.25 to 0.88%, soluble solids/titratable acidity ratio ranged from 16.06 to 70.34. Muscadines from North Carolina had a range of soluble solids from 14.40 to 18.60%, a pH range of 2.95 to 3.55, a range of titratable acidity from 0.47 to 1.14, and soluble solids/titratable acidity ratio ranged from 16.16 to 37.16. Walker et al. (2001), Threlfall et al. (2007), and Felts et al. (2018) indicated a preferred soluble solids/titratable acidity ratio of muscadine grapes and juice of 20-35. While the majority of the muscadines examined in this study were within this range, both AM-77 and 'RazzMatazz[®]' had values below this range (16.06 and 16.16, respectively), while AM-135 (70.31), AM-70 (66.06), and AM-154 (68.92) were above this range.

Arkansas. In the muscadines from Arkansas, AM-135 had the highest soluble solids (19.47%) and soluble solids/titratable acidity ratio (70.31). AM-70 had the highest pH (3.89). AM-77 had the highest titratable acidity (0.88%) and the lowest pH (3.04), soluble solids (14.00%), and soluble solids/titratable acidity ratio (16.06).

North Carolina. For the muscadines from North Carolina, 'Summit' had the highest soluble solids (18.60%) and soluble solids/titratable acidity ratio (37.66). JB-08-38-1-10 had the lowest soluble solids (14.40%). 'Lane' had the highest pH (3.55) and lowest titratable acidity (0.47%). RazzMatazz[®] had the highest titratable acidity (1.14%) and lowest soluble solids/titratable acidity ratio (16.16).

Volatile attributes

In the 16 genotypes harvested in both locations, there were 181-198 volatile aroma compounds were identified across nine compound classes including esters, monoterpenes, sesquiterpenes, alcohols, aldehydes, ketones, lactones, aromatic hydrocarbons, and epoxides (Fig. 2 and Tables 3 and 4). The three muscadine genotypes with the highest volatiles were AM-154 (5,746 μ g/kg), 'Lane' (5,285 μ g/kg), and 'Hall' (5,108 μ g/kg), while the three muscadine genotypes with the lowest volatiles were AM-77 (2,151 μ g/kg), JB 06-30-2-20 (2,367 μ g/kg), and AM-148 (2,468 μ g/kg). We found that this chemical classification agreed with the major constituents for grape volatiles that have been previously reported (Deng, 2021; Golombek et al., 2021; Ju et al., 2021; Lee et al., 2016; Lin et al., 2019; Mencarelli and Bellincontro, 2018; Wu et al., 2020)

Looking at the total volatile concentration alone does not give the most accurate representation of a sample's aroma profile. Compounds have different organoleptic response threshold than each other, meaning that some compounds have a larger overall effect on the perceived aroma than others. Compounds that are particularly impactful are said to have a high odor active value (OAV), and closely examining these compounds can give a better representation of how consumers will perceive muscadines. Baek et. al. (1997) examined aroma compounds in muscadine juice and found 33 aroma active compounds of which 21 were positively identified. These 21 compounds comprised of six esters (ethyl acetate, ethyl butanoate, ethyl 2-methylbutanoate, ethyl hexanoate, ethyl 3-hydroxybutanoate, and phenethyl acetate), four alcohols (3-methyl-1-butanol, (E,Z)-2,6-Nonadien-ol, (E)-Geraniol, and 2-phenylethanol), four aldehydes (hexanal, 3-(methylthio)propanal, (E,Z)-2,6-nonadienal, and phenylacetaldehyde), four ketones (2,3-butanedione, 1-octen-3-one, 2,5-dimethyl-4-hydroxy-3 (2H)-furanone, o-Aminoacetophenone), two acids (acetic acid and 3-methyl butanoic acid), and one phenol (p-vinylguaiacol). In the Arkansas and North Carolina muscadines, seven of these impactful compounds were identified (ethyl butanoate (fruity ester), ethyl 2-methylbutanoate (ester with fruity, green apple notes), hexanal (aldehyde with grassy and fruity aromas), ethyl hexanoate (ester with tropical fruit notes), phenylacetaldehyde (aldehyde with green and floral aromas), geraniol (alcohol with fruity and floral aromas), and 2-phenylethanol (alcohol with rosy aromas) (Fig 3.). AM-154 had the highest levels of impactful volatiles, followed by 'Lane' 'Hall' and 'Summit'. AM-148 had the lowest levels of impactful volatiles, followed by AM-77, JB 06-30-2-20, and 'Oh My![®]'. Geraniol (floral monoterpene) had the highest level of these impactful volatiles found in most muscadine genotypes, followed by ethyl 2-methylbutanoate (fruity ester) and ethyl butanoate (fruity ester). El Hadi et al. (2013) also indicated that some compounds are

more impactful in certain cultivars of grapes due to synergistic effects between different volatile compounds. This could explain why certain genotypes reported low levels of impactful volatile compared to other genotypes. Further research is necessary to determine specific aroma profiles of muscadine grapes.

Arkansas. In the six genotypes harvested in Arkansas 181 volatile aroma compounds were identified across nine compound classes including 47 esters, 37 monoterpenes, 27 alcohols, 24 sesquiterpenes, 24 aldehydes, 15 ketones, four lactones, two aromatic hydrocarbons, and one epoxide (Table 3). In Arkansas, AM-154 (5,746 μ g/kg) had the highest volatile concentration, followed by AM-70 (4,361 μ g/kg), AM-135 (4,217 μ g/kg), AM-26 (3,732 μ g/kg), and AM-148 (2,438 μ g/kg) with AM-77 (2,151 μ g/kg) containing the lowest. AM-154 had the highest levels of geraniol (floral monoterpene) (1,276 μ g/kg) and was the only genotype grown in Arkansas to contain 2-phenylethanol (floral alcohol) (312 μ g/kg) and phenylacetaldehyde (green/floral aldehyde) (89 μ g/kg).

North Carolina. In the 10 genotypes harvested in North Carolina 198 volatile aroma compounds were identified across nine compound classes including 52 esters, 38 monoterpenes, 31 sesquiterpenes, 28 alcohols, 26 aldehydes, 16 ketones, three lactones, two aromatic hydrocarbons, and two epoxides (Table 4). In North Carolina 'Lane' (5,235 μg/kg) had the highest level of volatiles, followed by 'Hall' (5,108 μg/kg), 'Paulk' (5,091 μg/kg), 'Supreme' (4,182 μg/kg), 'Summit' (4,061 μg/kg), 'Oh My![®]' (3,804 μg/kg), JB 09-15-3-09 (3,741 μg/kg), 'RazzMatazz[®]' (3,368 μg/kg), and JB 08-38-1-10 (2,541 μg/kg) with JB 06-30-2-20 (2,356 μg/kg) containing the lowest. The five seeded muscadines ('Hall', 'Lane', 'Paulk', 'Supreme', and 'Summit') had higher volatile levels than the seedless muscadine. 'Lane' also had the highest levels of impactful volatiles, followed by 'Hall', 'Summit' and JB 08-38-1-10. 'Lane'

had the highest levels of geraniol (floral monoterpene) and 2-phenylethanol (floral alcohol), while 'Supreme' had the highest levels of hexanal (green aldehyde).

Principal component analysis

Principal component analysis was used to separate compound categories and genotypes into different groups for muscadines grown at each location. In Arkansas-grown muscadines, two components explained 79.93% (Table 5) of the data, however for North Carolina-grown muscadines three components explained 66.39% of the data (Table 6). Because an additional component was required to explain a lower amount of the variation, it can be inferred that North Carolina-grown muscadines have a greater variability between genotypes than do Arkansasgrown muscadines. (Xu et al., 2017). Wu et al. (2016) examined table grapes in China and found that 'Kyoho' (*V. vinifera* and *V. labrusca* hybrid) had high levels of esters, while muscat grapes had higher levels of monoterpenes. Wu et al. (2016) also postulated that grouping aroma compounds into similar descriptors is useful for determining organoleptic profiles.

Arkansas. When PCA was conducted on Arkansas-grown muscadines, two components explained 79.93% of the variation in the data (Table 5). PC1 (52.56%) had positive loadings for the following compound classifications: lactones, alcohols, monoterpenes, aldehydes, ketones, sesquiterpenes, and epoxides, and also for genotypes AM-135, AM-26, AM-154, and AM-70. PC1 had negative loadings for esters and aromatic hydrocarbons, as well as AM-148 and AM-77 genotypes. PC2 (27.37%) had positive loadings for alcohols, ketones, and lactones, as well as genotypes AM-148 AM-26, AM-77, AM-135, and AM-70. Sesquiterpenes, epoxides, esters, monoterpenes, aldehydes and the AM-154 genotype were negatively associated with PC2. Clustering indicated that AM-135, AM-26, and AM-70 were positively correlated with ketones, lactones, and alcohols, but negatively correlated with esters and aromatic hydrocarbons, while

AM-154 was positively correlated with monoterpenes, sesquiterpenes, epoxides, and aldehydes. AM-148 and AM-77 were not positively correlated with any compound classifications, however, they were both negatively correlated with aldehydes, monoterpenes, sesquiterpenes and epoxides.

North Carolina. When PCA was conducted on North Carolina-grown muscadines, three components explained 66.39% of the variation (Table 6). The positive loadings in PC1 (28.42%) were compound classifications aldehydes, epoxides, esters, lactones, and sesquiterpenes and genotypes 'Paulk' 'Supreme', JB 08-38-1-10, JB-06-30-2-20, JB-09-15-3-09, and 'Oh My![®]'. The negative loadings were alcohols, aromatic hydrocarbons, ketones, monoterpenes, 'Summit', 'Lane', 'Hall' and 'RazzMatazz[®]'. The positive loadings in PC2 (21.24%) were alcohols, aromatic hydrocarbons, esters, and lactones, as well as genotypes 'Summit', 'Hall' 'Supreme' JB-09-15-3-09, and 'RazzMatazz[®]'. The negative loadings for PC2 were aldehydes, epoxides, ketones, monoterpenes, sesquiterpenes, 'Paulk' 'Lane', JB 08-38-1-10, JB-06-30-2-20, and 'Oh My![®]'. The positive loadings for PC3 (16.73%) were aromatic hydrocarbons, monoterpenes, epoxides, lactones, 'Paulk', 'Lane', 'Hall', 'Supreme', JB-09-15-3-09, and 'Oh My![®]'. The positive loadings were sesquiterpenes, 'Summit', 'Bo 09-15-3-09, and 'Oh My![®]'. The positive loadings for PC3 (16.73%) were aromatic hydrocarbons, monoterpenes, epoxides, ketones, esters, alcohols, aldehydes, lactones, 'Paulk', 'Lane', 'Hall', 'Supreme', JB-09-15-3-09, and 'Oh My![®]'. Mhile negative loadings were sesquiterpenes, 'Summit', 'Bo 08-38-1-10, JB-06-30-2-20, and 'Oh My![®]'.

Conclusion

Physical, compositional, and volatile attributes of muscadines grown in Arkansas and North Carolina were significantly impacted by genotype. Regardless of location, the berry weight (1-21 g), soluble solids (14-19%), pH (3-4), titratability acidity (0.3-1.2%), and soluble solids/titratable acidity ratio (16-70) were significantly impacted by genotype. Genotype

impacted total volatiles (2,140-5,739 µg/kg) and impactful volatile (100-1,000 µg/kg) levels. The PCA indicated that more factors affect the volatile concentrations in North Carolina berries than Arkansas berries, but additional inferences about what those factors may be could not be ascertained without further testing. There was much greater variation between genotypes in impactful volatiles than in total volatiles. As new muscadine breeding selections like AM-148 and JB 06-30-2-20 had lower total volatiles and AM-154 had higher total volatiles, it is important to identify these unique aspects and apply to breeding decisions. Because these genotypes have such unique profiles, additional research to better establish what the impactful volatiles are in some of these novel genotypes would be greatly beneficial for future breeding efforts. Data generated from this project provided information on physical, composition, and volatile attributes of muscadine grapes grown in Arkansas and North Carolina that can be used to support breeding efforts.

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Location	Genotype	Skin color	Seeds
Arkansas	AM-26	Bronze	Seeded
	AM-70	Dark/black	Seeded
	AM-77	Dark/black	Seeded
	AM-135	Bronze	Seeded
	AM-148	Dark/black	Seeded
	AM-154	Pink/Red	Seeded
North Carolina	Hall	Bronze	Seeded
	JB-06-30-2-20	Bronze	Seedless
	JB 08-38-1-10	Dark/black	Seedless
	JB-09-15-3-09	Pink/red	Seedless
	Lane	Dark/Black	Seeded
	Oh My!®	Bronze	Seedless
	Paulk	Dark/black	Seeded
	RazzMatazz®	Pink/red	Seedless
	Summit	Bronze	Seeded
	Supreme	Dark/black	Seeded

Table 1. Muscadine grapes grown in Arkansas (Clarksville, AR) and North Carolina (Kings Mountain, NC) and evaluated at the University of Arkansas System Division of Agriculture (2021).

Location and genotype ^z	Berry weight (g)	Soluble solids (%)	рН	Titratable acidity (%) ^y	Soluble solids/titratable acidity ratio
Arkansas					
AM-26	11.08 b	16.23 b	3.62 b	0.50 b	32.65 b
AM-70	13.50 a	18.90 a	<mark>3.89 a</mark>	0.29 c	66.06 a
AM-77	<u>5.67 d</u>	<u>14.00 c</u>	<u>3.04 c</u>	<mark>0.88 a</mark>	<u>16.06 c</u>
AM-135	<mark>13.88 a</mark>	<mark>19.47 a</mark>	<mark>3.89 a</mark>	0.28 c	<mark>70.31 a</mark>
AM-148	11.86 b	16.30 b	3.67 b	0.54 b	30.53 b
AM-154	9.61 c	16.93 b	3.58 b	<u>0.25 c</u>	68.92 a
<i>P-value</i>	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
North Carolina					
Hall	10.07 b	15.23 c	3.40 ab	0.48 bc	31.67 ab
JB-06-30-2-20	3.55 cd	17.63 a	<u>2.95 d</u>	0.56 bc	31.50 ab
JB 08-38-1-10	2.72 d	<u>14.40 c</u>	3.01 d	0.56 bc	25.76 bc
JB-09-15-3-09	4.29 cd	17.30 ab	3.24 bc	0.61 bc	28.53 b
Lane	9.35 b	14.87 c	<mark>3.55 a</mark>	<u>0.47 c</u>	32.12 ab
Oh My!®	5.87 c	15.00 bc	3.09 cd	0.78 b	20.18 cd
Paulk	8.96 b	15.47 c	3.32 b	0.58 bc	25.94 bc
RazzMatazz®	<u>1.12 e</u>	17.40 ab	2.98 d	<mark>1.14 a</mark>	<u>16.16 d</u>
Summit	9.85 b	<mark>18.60 a</mark>	3.29 b	0.50 bc	<mark>37.66 a</mark>
Supreme	<mark>14.41 a</mark>	15.77 c	3.27 b	0.56 bc	27.77 bc
P-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Table 2. Berry weight and composition attributes at harvest of muscadine grapes grown in Arkansas (Clarksville, AR) and North Carolina (Kings Mountain, NC) and evaluated at the University of Arkansas System Division of Agriculture (2021).

² Genotypes were evaluated in triplicate. Means highlighted are highest value and means underlined are lowest in each location. Means with different letters for each attribute by location are significantly different (p<0.05) within each location using Tukey's Honestly Significant Difference test.

^y Titratable acidity expressed as % tartaric acid.

Table 3. Volatile aroma compounds ^z identified in muscadine genotypes grown at the University of Arkansas System Division of
Agriculture Fruit Research Station, Clarksville, AR (2021)

Compound Name	Retention Index	Aroma Category	Aroma Descriptor	AM-26	AM-70	AM-77	AM-135	AM-148	AM-154
Fotals	181			3732.14±309.46	4360.6±634.62	2150.66±1899.88	4217.32±1922.96	2468.38±407.58	5745.62±317.
Alcohols									
2-Butanol	610	Fruity	sweet apricot	3.46±2.36	2.52±3.34	18.1±23.82	18.68±13.2	8.98±9.94	27.5±23.12
1-Butanol	644	Fermented	fusel oily sweet balsamic whiskey	5.16±6.68	7.52±6.52	0.68±1.2	12.88±8.8	7.2±6.8	3.08±2.68
			ethereal horseradish green radish chrysanthemum						
1-Penten-3-ol	683	Green	vegetable tropical fruity	27±37.32	19.12±26.28	29.72±42.6	10.28±8.2	12.2±10.56	44.64±64.72
			fusel ethereal alcoholic fatty greasy winey						
2-Methyl-1-butanol	735	Ethereal	whiskey leathery cocoa	0±0	0 ± 0	0±0	0±0	8.04±7	11.64±8.36
3-Methyl-3-buten-1-ol	739	Fruity	sweet fruity	0±0	20.56±27.36	27.28±40.64	28.08±45.48	40.68±34.36	13.32±23.08
s menyr s oaren i or	157	1 fully	pungent fermented bready yeasty fusel winey	0_0	20.00-27.00	27.20-10.01	20.00-10.10	10.00-01.00	10.02-20.00
1-Pentanol	763	Fermented	solvent	26.44±23.60	71.00±104.00	8.56±8.4	125.28±189.88	4.04±3.56	10.96±9.72
1-Feittanoi	705	Fermenteu	fusel alcoholic pungent ethereal cognac fruity	20.44±23.00	/1.00±104.00	0.00±0.4	123.26-169.66	4.04±3.30	10.90±9.72
2 Mathul 1 hutanal	767	Formontod		010	010	0±0	12 22 21 22	12 64 10 04	50.72±7.44
3-Methyl-1-butanol		Fermented	banana molasses	0±0 0±0	0±0 0±0		12.32±21.32	12.64±10.04	
2-Penten-1-ol	769	Green	green			0±0	1.8±3.16	0±0	2.2±3.8
3-Hexen-1-ol	781	Green	leafy	0±0	15.08±14.96	37.08±32.8	49.44±51.28	0±0	0±0
2-Hexen-1-ol	836	Fruity	fruity green leafy	635.2±418.04	515.52±571.6	6±5.2	326.12±290.12	162.64±162.28	5.4±1.2
2 Heptanol	861	Citrus	fresh lemongrass herbal sweet floral fruity green	42.68±72.36	116.08±200.36	348.48±305.72	232.52±401.84	72.08±67.72	294.4±29.64
1-Hexanol	871	Herbal	ethereal fusel oily fruity alcoholic sweet green	130.52±223.8	2.08±3.6	1.72±1.52	0.48±0.4	0±0	3.96±6.4
5-Methyl-1-heptanol	894	-	-	1.2±1.04	7.76±5.08	2±1.8	2.88±2.04	8.12±3.96	2.48±2.72
2-Methyl-1-heptanol	900	-	-	9.6±4.32	15.24±11.48	26±22.84	8.84±13.84	12.64±11.8	18.76±0.12
2-Methyl-6-hepten-3-ol	919	-	-	0±0	0±0	0.92±1.64	0.84±1.2	1±0.16	1.88±0.32
2-methyl-2-heptanol	933	-	-	0.44±0.4	1.08±1.4	27.24±26.88	0.52±0.48	2.8±1.2	1.24±0
1-Octen-3-ol	960	Earthy	mushroom earthy green oily fungal raw chicken	1.52±2.2	1.36±2.36	1.92±1.68	5.44±9.44	46.56±15.44	0±0
			musty leafy violet herbal green sweet woody						-
1- Heptanol	973	Green	peony	4.16±3.8	11.4±19.8	0±0	0±0	7.8±13.52	0±0
2-Ethylhexanol	1034	Citrus	citrus fresh floral oily sweet	5.96±1.44	11.72±4.88	16.76±25.76	16.68±6.6	5.64±2.12	0±0
1-Octanol	1074	Waxy	waxy green orange aldehydic rose mushroom	0±0	0±0	0±0	2.68±1.08	2.52±1.24	2.64±0.16
1-Phenylethanol	1127	Floral	fresh sweet almond gardenia hyacinth	170.44±80.72	958.72±300.12	127.48±134.32	1207.84±690.8	610.4±408.6	624.48±16.7
1-Nonanol	1127	Floral		2.2±1.12	3.92±1.2	6.16±9.52	2.16±0.76	2.24±1.64	4±0.96
			fresh clean fatty floral rose orange dusty wet oily		5.68±2.16	4.4±4.16	0.28±0.24	1.96±0.52	4±0.96 0±0
1-Decanol	1277	Fatty	fatty waxy floral orange sweet clean watery	0±0					
4,8-Dimethylnonan-1-ol	1289	-	· · · · ·	113.04±32.88	80.76±27.8	46.8±52.2	115.16±119.92	76.72±25.64	179±19.8
4,8-Dimethylnonan-1-ol Eugenol	1289 1371	Spicy	sweet spicy clove woody	113.04±32.88 0±0	80.76±27.8 1.84±1.6	46.8±52.2 0.88±1.56	115.16±119.92 1.08±0.96	76.72±25.64 1.8±1.56	179±19.8 0.96±1.28
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol	1289 1371 1480	Spicy Waxy	sweet spicy clove woody earthy soapy waxy fatty honey coconut	113.04±32.88 0±0 1.56±0.84	80.76±27.8 1.84±1.6 2.44±0.96	46.8±52.2 0.88±1.56 2.04±1.92	115.16±119.92 1.08±0.96 1±0.8	76.72±25.64 1.8±1.56 1±0.04	179±19.8 0.96±1.28 1.6±0.4
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol	1289 1371 1480 1887	Spicy	sweet spicy clove woody	113.04±32.88 0±0 1.56±0.84 4.68±3.76	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04	179±19.8 0.96±1.28 1.6±0.4 1.52±0.24
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol Totals	1289 1371 1480	Spicy Waxy	sweet spicy clove woody earthy soapy waxy fatty honey coconut	113.04±32.88 0±0 1.56±0.84	80.76±27.8 1.84±1.6 2.44±0.96	46.8±52.2 0.88±1.56 2.04±1.92	115.16±119.92 1.08±0.96 1±0.8	76.72±25.64 1.8±1.56 1±0.04	179±19.8 0.96±1.28 1.6±0.4
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol Fotals 1/dehydes	1289 1371 1480 1887 27	Spicy Waxy Waxy	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily	113.04±32.88 0±0 1.56±0.84 4.68±3.76 1188.72±919.04	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04 1119.48±809.68	179±19.8 0.96±1.28 1.6±0.4 1.52±0.24 1333.88±246
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol Ildehydes 3-Methylbutanal	1289 1371 1480 1887 27 643	Spicy Waxy	sweet spicy clove woody earthy soapy waxy fatty honey coconut	113.04±32.88 0±0 1.56±0.84 4.68±3.76 1188.72±919.04 11.54±10.22	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36 12.5±19.9	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64 0±0	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04 1119.48±809.68 6.74±9.92	179±19.8 0.96±1.28 1.6±0.4 1.52±0.24 1333.88±246 1.06±1.86
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol Votals Idehydes	1289 1371 1480 1887 27	Spicy Waxy Waxy	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty	113.04±32.88 0±0 1.56±0.84 4.68±3.76 1188.72±919.04	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04 1119.48±809.68	179±19.8 0.96±1.28 1.6±0.4 1.52±0.24 1333.88±240
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol i-Hexadecanol idehydes 3-Methylbutanal 2-Butenal	1289 1371 1480 1887 27 643 654	Spicy Waxy Waxy Aldehydic	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty	113.04±32.88 0±0 1.56±0.84 4.68±3.76 1188.72±919.04 11.54±10.22 3.3±4.72	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36 12.5±19.9 4.5±6.94	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0 7.44±6.44	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64 0±0 4.56±7.18	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04 1119.48±809.68 6.74±9.92 7.74±7.66	179±19.8 0.96±1.28 1.6±0.4 1.52±0.24 1333.88±244 1.06±1.86 3.6±2.78
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol Idehydes 3-Methylbutanal	1289 1371 1480 1887 27 643 654 669	Spicy Waxy Waxy	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic	113.04±32.88 0±0 1.56±0.84 4.68±3.76 1188.72±919.04 11.54±10.22 3.3±4.72 0.98±1.2	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36 12.5±19.9 4.5±6.94 3.24±0.92	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64 0±0 4.56±7.18 1.12±1.6	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04 1119.48±809.68 6.74±9.92 7.74±7.66 5.52±4.26	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1333.88{\pm}246\\ 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ 2.48{\pm}2.6\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 0tals 3-Methylbutanal 2-Butenal	1289 1371 1480 1887 27 643 654	Spicy Waxy Waxy Aldehydic	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty	113.04±32.88 0±0 1.56±0.84 4.68±3.76 1188.72±919.04 11.54±10.22 3.3±4.72 0.98±1.2 16.4±3.7	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36 12.5±19.9 4.5±6.94	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0 7.44±6.44	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64 0±0 4.56±7.18	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04 1119.48±809.68 6.74±9.92 7.74±7.66 5.52±4.26 7.42±2.94	179±19.8 0.96±1.28 1.6±0.4 1.52±0.24 1333.88±24 1.06±1.86 3.6±2.78
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol dehydes 3-Methylbutanal 2-Butenal 2-Methylbutanal	1289 1371 1480 1887 27 643 654 669	Spicy Waxy Waxy Aldehydic Cocoa	sweet spicy clove woody earthy soapy waxy flaty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic	113.04±32.88 0±0 1.56±0.84 4.68±3.76 1188.72±919.04 11.54±10.22 3.3±4.72 0.98±1.2	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36 12.5±19.9 4.5±6.94 3.24±0.92	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0 7.44±6.44 0.54±0.46	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64 0±0 4.56±7.18 1.12±1.6	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04 1119.48±809.68 6.74±9.92 7.74±7.66 5.52±4.26	$179\pm19.8 \\ 0.96\pm1.28 \\ 1.6\pm0.4 \\ 1.52\pm0.24 \\ 1333.88\pm24 \\ 1.06\pm1.86 \\ 3.6\pm2.78 \\ 2.48\pm2.6 \\ \label{eq:1}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol Idehydes 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal	1289 1371 1480 1887 27 643 654 669 701	Spicy Waxy Waxy Aldehydic Cocoa Fermented	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry	113.04±32.88 0±0 1.56±0.84 4.68±3.76 1188.72±919.04 11.54±10.22 3.3±4.72 0.98±1.2 16.4±3.7	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36 12.5±19.9 4.5±6.94 3.24±0.92 9.84±4.34	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0 7.44±6.44 0.54±0.46 11.46±10.12	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64 0±0 4.56±7.18 1.12±1.6 4.4±1.2	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04 1119.48±809.68 6.74±9.92 7.74±7.66 5.52±4.26 7.42±2.94	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ \textbf{1333.88{\pm}24}\\ 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol Idehydes 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde	1289 1371 1480 1887 27 643 654 669 701 728	Spicy Waxy Waxy Aldehydic Cocoa Fermented	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry	113.04±32.88 0±0 1.56±0.84 4.68±3.76 1188.72±919.04 11.54±10.22 3.3±4.72 0.98±1.2 16.4±3.7 23.26±12.54	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36 12.5±19.9 4.5±6.94 3.24±0.92 9.84±4.34 4.66±6.74	468±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0 7.44±6.44 0.54±0.46 11.46±10.12 2.9±2.54	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64 0±0 4.56±7.18 1.12±1.6 4.4±1.2 17.66±2.22	76.72±25.64 1.8±1.56 1±0.04 0.8±0.04 1119.48±809.68 6.74±9.92 7.74±7.66 5.52±4.26 7.42±2.94 2.62±0.92	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ \hline 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol iotals 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal	1289 1371 1480 1887 27 643 654 669 701 728 746	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ 1877.08{\pm}1341.36\\ 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ \end{array}$	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0 7.44±6.44 0.54±0.46 11.46=10.12 2.9±2.54 0.32±0.3	115.16±119.92 1.08±0.96 1±0.8 1.4±0.6 2203.36±1895.64 0±0 4.56±7.18 1.12±1.6 4.4±1.2 17.66±2.22 2.66±3.38	$\begin{array}{c} 76.72{\pm}25.64\\ 1.8{\pm}1.56\\ 1{\pm}0.04\\ 0.8{\pm}0.04\\ \hline 1119.48{\pm}809.68\\ \hline 6.74{\pm}9.92\\ 7.74{\pm}7.66\\ \hline 5.52{\pm}4.26\\ 7.42{\pm}2.94\\ 2.62{\pm}0.92\\ 1.76{\pm}1.04\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol idehydes 3-Methylbutanal 2-Butenal Tiglic aldehyde 3-Methylpentanal 2-Butenal 2-Butenal 3-Methylpentanal 2-Butenal 3-Bu	1289 1371 1480 1887 27 643 654 669 701 728 746 754 787	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8 \\ 1.84{\pm}1.6 \\ 2.44{\pm}0.96 \\ 3.16{\pm}1.16 \\ 12.5{\pm}19.9 \\ 4.5{\pm}6.94 \\ 3.24{\pm}0.92 \\ 9.84{\pm}4.34 \\ 4.66{\pm}6.74 \\ 2.56{\pm}3.08 \\ 3.18{\pm}1.86 \\ 4.02{\pm}2.54 \end{array}$	468±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0 7.44±6.44 0.54±0.46 11.46±10.12 2.9±2.54 0.32±0.3 2.78±2.52 6.46±5.78	$\begin{array}{c} 115.16\pm119.92\\ 1.08\pm0.96\\ 1\pm0.8\\ 1.4\pm0.6\\ \textbf{2203.36\pm1895.64}\\ 0\pm0\\ 4.56\pm7.18\\ 1.12\pm1.6\\ 4.4\pm1.2\\ 1.7.66\pm2.22\\ 2.66\pm3.38\\ 6.82\pm3.14\\ 3.28\pm0.16\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ 6.74\pm9.92\\ 7.74\pm7.66\\ 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1.333.88{\pm}24\\ \hline 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ \hline 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ \hline \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol ildehydes 3-Methylbutanal 2-Butenal 2-Methylbutanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal	1289 1371 1480 1887 27 643 654 669 701 728 746 754	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Green	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green ethereal nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ \end{array}$	80.76±27.8 1.84±1.6 2.44±0.96 3.16±1.16 1877.08±1341.36 12.5±19.9 4.5±6.94 3.24±0.92 9.84±4.34 4.66±6.74 2.56±3.08 3.18±1.86	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0±0 7.44±6.44 0.54±0.46 11.46±10.12 2.9±2.54 0.32±0.3 2.78±2.52	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \hline \textbf{2203.36{\pm}1895.64}\\ 0{\pm}0\\ 4.56{\pm}7.18\\ 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ \end{array}$	$\begin{array}{c} 76.72{\pm}25.64\\ 1.8{\pm}1.56\\ 1{\pm}0.04\\ 0.8{\pm}0.04\\ \hline 1119.48{\pm}809.68\\ 6.74{\pm}9.92\\ 7.74{\pm}7.66\\ \hline 5.52{\pm}4.26\\ 7.42{\pm}2.94\\ 2.62{\pm}0.92\\ 1.76{\pm}1.04\\ 3.6{\pm}2.46\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1.333.88{\pm}24\\ \hline 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ \hline 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ \hline \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol 2-Hexadecanol 2-Methylbutanal 2-Butenal 7iglic aldehyde 3-Methylpentanal 2-Pentenal 2-Pentenal 2-Butenal, 3-methyl Hexanal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 754 787 804	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity Green	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ 1877.08{\pm}1341.36\\ 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \end{array}$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \hline \textbf{2203.36{\pm}1895.64}\\ \hline \textbf{0}{\pm}0\\ 4.56{\pm}7.18\\ \hline 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ \hline \end{array}$	$\begin{array}{c} 76.72{\pm}25.64\\ 1.8{\pm}1.56\\ 1{\pm}0.04\\ 0.8{\pm}0.04\\ \hline 1119.48{\pm}809.68\\ 6.74{\pm}9.92\\ 7.74{\pm}7.66\\ \hline 5.52{\pm}4.26\\ 7.42{\pm}2.94\\ 2.62{\pm}0.92\\ 1.76{\pm}1.04\\ 3.6{\pm}2.46\\ 3.04{\pm}5.28\\ 15.16{\pm}20.72\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ \hline 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.0\\ \hline \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol idehydes 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal 2-Butenal, 3-methyl Hexanal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 787 804 845	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity Green Green	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ \hline \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ 1877.08{\pm}1341.36\\ 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ 197.88{\pm}245.08 \end{array}$	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 0 ±0 7.44±6.44 0.54±0.46 11.46±10.12 2.9±2.54 0.32±0.3 2.78±2.52 6.46±5.78 1.5±2.62 110.5±107.8	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \textbf{2203.36{\pm}1895.64}\\ 0{\pm}0\\ 4.56{\pm}7.18\\ 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ 141.6{\pm}35.32 \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66 \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ 1.33.88{\pm}24\\ 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.6\\ 266.72{\pm}39.3\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol iotals 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal 2-Butenal, 3-methyl Hexanal Hexanal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 754 804 845 892	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Green Green Green Green	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green ethereal nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ \hline 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ \hline \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ 1877.08{\pm}1341.36\\ 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ \end{array}$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \textbf{2203.36{\pm}1895.64}\\ 0{\pm}0\\ 4.56{\pm}7.18\\ 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ 141.6{\pm}35.32\\ 0.06{\pm}0.1\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 0.6{\pm}0.4\\ 1.52{\pm}0.24\\ 1.52{\pm}0.24\\ 1.333.88{\pm}24\\ 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.6\\ 82.26{\pm}142.0\\ 266.72{\pm}39.2\\ 0.06{\pm}0.06\end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol iddehydes 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Butenal 2-Butenal 3-methyl Hexanal 4-Hexenal Heptanal 2-Hetenal 2-Hetenal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 787 804 845 892 957	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity Green Green Green Green Green	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ \hline 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ \hline 1877.08{\pm}1341.36\\ \hline 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ \end{array}$	$\begin{array}{c} 46.8\pm52.2\\ 0.88\pm1.56\\ 2.04\pm1.92\\ 2.52\pm2.88\\ \hline \textbf{760.84\pm772.88}\\ \hline \textbf{0\pm0}\\ 7.44\pm6.44\\ 0.54\pm0.46\\ 11.46\pm10.12\\ 2.9\pm2.54\\ 0.32\pm0.3\\ 2.78\pm2.52\\ 6.46\pm5.78\\ 1.5\pm2.62\\ \hline 110.5\pm107.8\\ 0.08\pm0.06\\ 1.46\pm1.72\\ \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \hline \textbf{2203.36{\pm}1895.64}\\ \hline \textbf{0}{\pm}0\\ 4.56{\pm}7.18\\ \hline 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ \hline 141.6{\pm}35.32\\ 0.06{\pm}0.1\\ 3.94{\pm}1.9\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 0.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.66{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.66{\pm}1.86\\ 3.6{\pm}2.78\\ \hline 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.0\\ \hline 266.72{\pm}39.3\\ 0.06{\pm}0.06\\ 1.7{\pm}0.14\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol iotals 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal 2-Butenal, 3-methyl Hexanal Hexanal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 754 804 845 892	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Green Green Green Green	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ \hline 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ \hline \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ 1877.08{\pm}1341.36\\ 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ \end{array}$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \textbf{2203.36{\pm}1895.64}\\ 0{\pm}0\\ 4.56{\pm}7.18\\ 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ 141.6{\pm}35.32\\ 0.06{\pm}0.1\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 0.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.66{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.66{\pm}1.86\\ 3.6{\pm}2.78\\ \hline 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.0\\ \hline 266.72{\pm}39.3\\ 0.06{\pm}0.06\\ 1.7{\pm}0.14\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol dehydes 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Butenal, 3-methyl Hexanal 4-Butenal 2-Butenal, 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 754 804 804 845 892 957 966	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Green Green Green Green Green Green Green Fruity	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ \hline 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ 1877.08{\pm}1341.36\\ 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ \end{array}$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \textbf{2203.36{\pm}1895.64}\\ 0{\pm}0\\ 4.56{\pm}7.18\\ 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 1.7.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ 141.6{\pm}35.32\\ 0.06{\pm}0.1\\ 3.94{\pm}1.9\\ 24.4{\pm}32.26\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.64\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm13.8\\ \hline \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 0.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1.52{\pm}0.24\\ \hline 1.333.88{\pm}24\\ \hline 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ \hline 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.4\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.6\\ 82.26{\pm}142.0\\ \hline 266.72{\pm}39.2\\ 0.06{\pm}0.06\\ 1.7{\pm}0.14\\ 51.56{\pm}49.82\\ \hline \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol dtab 1-Hexadecanol 2-Butenal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Butenal 2-Butenal 2-Butenal 2-Hexenal Hexanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Heptenal 2-Heptenal 2-Heptenal 2-Heptenal 2-Heptenal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 754 754 787 804 845 892 957 966 1002	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity Green Green Green Green Fruity Aldehydic	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sldehydic waxy citrus orange peel green herbal fresh fatty	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ 17.12{\pm}23.74\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ \hline 1877.08{\pm}1341.36\\ \hline 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ 29.44{\pm}25.94\\ \end{array}$	$\begin{array}{c} 46.8\pm52.2\\ 0.88\pm1.56\\ 2.04\pm1.92\\ 2.52\pm2.88\\ \hline \textbf{760.84\pm772.88}\\ \hline \textbf{0}\pm0\\ 7.44\pm6.44\\ 0.54\pm0.46\\ 11.46\pm10.12\\ 2.9\pm2.54\\ 0.32\pm0.3\\ 2.78\pm2.52\\ 6.46\pm5.78\\ 1.5\pm2.62\\ \hline 110.5\pm107.8\\ 0.08\pm0.06\\ 1.46\pm1.72\\ 60.54\pm5.74\\ 19.42\pm16.98\\ \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \hline \textbf{2203.36{\pm}1895.64}\\ \hline \textbf{0}{\pm}0\\ 4.56{\pm}7.18\\ \hline 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ \hline 141.6{\pm}3.32\\ 0.06{\pm}0.1\\ 3.94{\pm}1.9\\ 24.4{\pm}32.26\\ \hline 10.52{\pm}12.68\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm13.8\\ \hline 4.52\pm3.94\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 0.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.62{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.66{\pm}1.86\\ 3.6{\pm}2.78\\ \hline 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.0\\ \hline 266.72{\pm}39.2\\ 0.06{\pm}0.06\\ 1.7{\pm}0.14\\ \hline 51.56{\pm}49.82\\ \hline 22{\pm}3.08\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol iotas 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal 2-Butenal, 3-methyl Hexanal 2-Butenal, 3-methyl Hexanal 2-Hexenal Heptanal 2-Heptenal Benzaldehyde Octanal Phenylacetaldehyde	1289 1371 1480 1887 27 643 654 669 701 728 746 754 787 804 845 892 957 966 1002 1059	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity Green Green Green Green Fruity Aldehydic Green	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal fresh fatty green sweet floral hyacinth clover honey cocoa	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ \hline 17.12{\pm}23.74\\ 0{\pm}0\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ 1877.08{\pm}1341.36\\ 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ 29.44{\pm}25.94\\ 0{\pm}0\\ \end{array}$	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 760.84±772.88 760.84±772.88 760.84±772.88 74 ±6.44 0.54±0.46 11.46±10.12 2.9±2.54 0.32±0.3 2.78±2.52 6.46±5.78 1.5±2.62 110.5±107.8 0.08±0.06 1.46±1.72 60.54±53.74 19.42±16.98 0±0	$\begin{array}{c} 115.16\pm119.92\\ 1.08\pm0.96\\ 1\pm0.8\\ 1.4\pm0.6\\ \textbf{2203.36\pm1895.64}\\ \hline 0\pm0\\ 4.56\pm7.18\\ 1.12\pm1.6\\ 4.4\pm1.2\\ 17.66\pm2.22\\ 2.66\pm3.38\\ 6.82\pm3.14\\ 3.28\pm0.16\\ 11.52\pm14.76\\ \textbf{141.6\pm35.32}\\ 0.06\pm0.1\\ 3.94\pm1.9\\ 2.4.4\pm32.26\\ \textbf{10.52\pm12.68}\\ 0\pm0\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm13.8\\ \hline 4.52\pm3.94\\ 0\pm0\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ 1.333.88{\pm}24\\ 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.0\\ 266.72{\pm}39.3\\ 0.06{\pm}0.06\\ 1.7{\pm}0.14\\ 51.56{\pm}49.82\\ 22{\pm}3.08\\ 88.9{\pm}10.64\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol iotals 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal 2-Butenal, 3-methyl Hexanal 4-Butenal 2-Butenal, 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Benzaldehyde	1289 1371 1480 1887 27 643 654 669 701 728 746 754 746 754 804 804 845 892 957 966 1002 1059 1066	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Green Green Green Green Green Green Fruity Aldehydic Green Fruity	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green ethereal nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet fruity pungent brown nutty almond cherry fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal fresh fatty green sweet floral hyacinth clover honey cocoa fatty green herbal	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ \hline 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.54\\ 90.64{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ \hline 17.12{\pm}23.74\\ 0{\pm}0\\ 0{\pm}0\\ \hline \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ \hline 1877.08{\pm}1341.36\\ \hline 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ 29.44{\pm}25.94\\ 0{\pm}0\\ 0{\pm}0\\ \end{array}$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \textbf{2203.36{\pm}1895.64}\\ \hline \textbf{0}{\pm}0\\ 4.56{\pm}7.18\\ 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 1.7.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ 141.6{\pm}35.32\\ 0.06{\pm}0.1\\ 3.94{\pm}1.9\\ 24.4{\pm}32.26\\ 10.52{\pm}12.68\\ 0{\pm}0\\ 27.12{\pm}43.2\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.4\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm13.8\\ \hline 4.52\pm3.94\\ 0\pm0\\ 0.04\pm0.1\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 0.6{\pm}0.4\\ 1.52{\pm}0.24\\ 1.52{\pm}0.24\\ 1.333.88{\pm}24\\ 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.(28{\pm}2.6{\pm}142{\pm}2{\pm}2{\pm}2{\pm}2{\pm}2{\pm}2{\pm}2{\pm}2{\pm}2{\pm}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol idehydes 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal 2-Butenal, 3-methyl Hexanal 2-Butenal, 3-methyl Hexanal 2-Hexenal Heptanal 2-Heptenal Benzaldehyde Octanal Phenylacetaldehyde 2-Octenal 4-Methylbenzaldehyde	1289 1371 1480 1887 27 643 654 669 701 728 746 754 754 787 804 845 892 957 966 1002 1059 1066 1093	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity Green Green Green Green Fruity Aldehydic Green Fruity Aldehydic Green Fruity	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal fresh fatty green sweet floral hyacinth clover honey cocoa fatty green herbal fruity cherry phenolic	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ 17.12{\pm}23.74\\ 0{\pm}0\\ 0{\pm}0\\ 0.46{\pm}0.36\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ \hline 1877.08{\pm}1341.36\\ \hline 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ \hline 29.44{\pm}25.94\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ \end{array}$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \hline \textbf{2203.36{\pm}1895.64}\\ \hline \textbf{0}{\pm}0\\ 4.56{\pm}7.18\\ \hline \textbf{1}.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ \hline \textbf{141.6{\pm}35.32}\\ 0.06{\pm}0.1\\ 3.94{\pm}1.9\\ 24.4{\pm}32.26\\ \hline \textbf{10.52{\pm}12.68}\\ 0{\pm}0\\ 27.12{\pm}43.2\\ 1.44{\pm}0.76\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm13.8\\ \hline 4.52\pm3.94\\ 0\pm0\\ 0.04\pm0.1\\ 0.38\pm0.66\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 0.6{\pm}0.4\\ 1.52{\pm}0.24\\ \hline 1.52{\pm}0.24\\ \hline 1333.88{\pm}24\\ \hline 1.66{\pm}1.86\\ 3.6{\pm}2.78\\ \hline 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ \hline 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.0\\ \hline 266.72{\pm}39.2\\ 0.06{\pm}0.06\\ 1.7{\pm}0.14\\ \hline 51.56{\pm}49.82\\ \hline 22{\pm}3.08\\ 88.9{\pm}10.64\\ 56.84{\pm}9.74\\ 0.86{\pm}0.08\\ \hline \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol iotals 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Butenal, 3-methyl Hexanal 2-Butenal, 3-methyl Hexanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Heptanal 2-Hexenal Benzaldehyde	1289 1371 1480 1887 27 643 654 669 701 728 746 754 787 804 845 892 957 966 1002 1059 1066 1093 1103	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Green Green Green Green Green Green Fruity Aldehydic Green Fruity	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green ethereal nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet fruity pungent brown nutty almond cherry fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal fresh fatty green sweet floral hyacinth clover honey cocoa fatty green herbal	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ \hline 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.54\\ 90.64{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ \hline 17.12{\pm}23.74\\ 0{\pm}0\\ 0{\pm}0\\ \hline \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ \hline 1877.08{\pm}1341.36\\ \hline 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ 29.44{\pm}25.94\\ 0{\pm}0\\ 0{\pm}0\\ \end{array}$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \textbf{2203.36{\pm}1895.64}\\ \hline \textbf{0}{\pm}0\\ 4.56{\pm}7.18\\ 1.12{\pm}1.6\\ 4.4{\pm}1.2\\ 1.7.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ 141.6{\pm}35.32\\ 0.06{\pm}0.1\\ 3.94{\pm}1.9\\ 24.4{\pm}32.26\\ 10.52{\pm}12.68\\ 0{\pm}0\\ 27.12{\pm}43.2\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm13.8\\ 4.52\pm3.94\\ 0\pm0\\ 0.04\pm0.1\\ 0.38\pm0.66\\ 0\pm0\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 0.6{\pm}0.4\\ 1.52{\pm}0.24\\ 1.52{\pm}0.24\\ 1.333.88{\pm}24\\ 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.4\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.(\\ 266.72{\pm}39.2\\ 0.06{\pm}0.06\\ 1.7{\pm}0.14\\ 51.56{\pm}49.82\\ 22{\pm}3.08\\ 88.9{\pm}10.64\\ 56.8{\pm}9.74\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol idehydes 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal 2-Butenal, 3-methyl Hexanal 2-Butenal, 3-methyl Hexanal 2-Hexenal Heptanal 2-Heptenal Benzaldehyde Octanal Phenylacetaldehyde 2-Octenal 4-Methylbenzaldehyde	1289 1371 1480 1887 27 643 654 669 701 728 746 754 754 754 787 804 845 892 957 966 1002 1059 1066 1093	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity Green Green Green Green Fruity Aldehydic Green Fruity Aldehydic Green Fruity	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal fresh fatty green sweet floral hyacinth clover honey cocoa fatty green herbal fruity cherry phenolic	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ 17.12{\pm}23.74\\ 0{\pm}0\\ 0{\pm}0\\ 0.46{\pm}0.36\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ \hline 1877.08{\pm}1341.36\\ \hline 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ \hline 29.44{\pm}25.94\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ \end{array}$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array}$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \hline \textbf{2203.36{\pm}1895.64}\\ \hline \textbf{0}{\pm}0\\ 4.56{\pm}7.18\\ \hline \textbf{1}.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ \hline \textbf{141.6{\pm}35.32}\\ 0.06{\pm}0.1\\ 3.94{\pm}1.9\\ 24.4{\pm}32.26\\ \hline \textbf{10.52{\pm}12.68}\\ 0{\pm}0\\ 27.12{\pm}43.2\\ 1.44{\pm}0.76\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm13.8\\ \hline 4.52\pm3.94\\ 0\pm0\\ 0.04\pm0.1\\ 0.38\pm0.66\\ \end{array}$	$\begin{array}{c} 179\pm19.8\\ 0.96\pm1.28\\ 0.96\pm1.28\\ 1.6\pm0.4\\ 1.52\pm0.24\\ \hline 1333.88\pm24\\ 1.06\pm1.86\\ 3.6\pm2.78\\ 2.48\pm2.6\\ 1.46\pm0.14\\ 5.16\pm4.46\\ 0.32\pm0.28\\ 2.38\pm0.4\\ 3.28\pm2.66\\ 82.26\pm142.0\\ 266.72\pm39.2\\ 0.06\pm0.06\\ 1.7\pm0.14\\ 51.56\pm49.82\\ 22\pm3.08\\ 88.9\pm10.64\\ 56.84\pm9.74\\ 0.86\pm0.08\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol iotas 3-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal 2-Butenal, 3-methyl Hexanal 2-Butenal, 3-methyl Hexanal 2-Heurenal Benzaldehyde Octanal Phenylacetaldehyde 2-Octenal 4-Methylbenzaldehyde Nonanal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 787 804 845 892 957 966 1002 1059 1066 1093 1103	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity Green Green Green Green Green Fruity Aldehydic Green Fruity Aldehydic Herbal	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal fresh fatty green sweet floral hyacinth clover honey cocoa fatty green herbal fruity cherry phenolic waxy aldehydic rose fresh orris orange peel fatty	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ \hline 17.12{\pm}23.74\\ 0{\pm}0\\ 0{\pm}0\\ 0.46{\pm}0.36\\ 6.2{\pm}10.76\\ \hline \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ 1877.08{\pm}1341.36\\ \hline\\ 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline\\ 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline\\ 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ \hline\\ 29.44{\pm}25.94\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0.46{\pm}0.34\\ 10.44{\pm}18.08\\ \end{array}$	46.8±52.2 0.88±1.56 2.04±1.92 2.52±2.88 760.84±772.88 760.84±772.88 760.84±772.88 760.84±772.88 760.84±772.88 750.84±772.88 750.84±772.88 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84±772 750.84	$\begin{array}{c} 115.16\pm119.92\\ 1.08\pm0.96\\ 1\pm0.8\\ 1.4\pm0.6\\ \textbf{2203.36\pm1895.64}\\ \hline 0\pm0\\ 4.56\pm7.18\\ 1.12\pm1.6\\ 4.4\pm1.2\\ 17.66\pm2.22\\ 2.66\pm3.38\\ 6.82\pm3.14\\ 3.28\pm0.16\\ 11.52\pm14.76\\ 141.6\pm35.32\\ 0.06\pm0.1\\ 3.94\pm1.9\\ 24.4\pm32.26\\ 10.52\pm12.68\\ 0\pm0\\ 27.12\pm43.2\\ 1.44\pm0.76\\ 9.22\pm16\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm13.8\\ 4.52\pm3.94\\ 0\pm0\\ 0.04\pm0.1\\ 0.38\pm0.66\\ 0\pm0\\ \end{array}$	$\begin{array}{c} 179{\pm}19.8\\ 0.96{\pm}1.28\\ 0.96{\pm}1.28\\ 1.6{\pm}0.4\\ 1.52{\pm}0.24\\ 1.33.88{\pm}24\\ 1.06{\pm}1.86\\ 3.6{\pm}2.78\\ 2.48{\pm}2.6\\ 1.46{\pm}0.14\\ 5.16{\pm}4.46\\ 0.32{\pm}0.28\\ 2.38{\pm}0.4\\ 3.28{\pm}2.66\\ 82.26{\pm}142.4\\ 266.72{\pm}39\\ 0.06{\pm}0.06\\ 1.7{\pm}0.14\\ 51.56{\pm}4.98\\ 22{\pm}3.08\\ 88.9{\pm}10.64\\ 56.84{\pm}9.74\\ 0.86{\pm}0.08\\ 19.84{\pm}5.1\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol 1-Hexadecanol 1-Hexadecanol 2-Butenal 2-Butenal 2-Butenal 2-Butenal 2-Pentenal 2-Butenal 2-Butenal 2-Butenal 2-Butenal 2-Butenal 2-Hexenal Hexanal 2-Hexenal Heptanal 2-Heptenal Benzaldehyde Octanal Phenylacetaldehyde 2-Octenal 4-Methylbenzaldehyde Nonanal Alpha-campholenal 2-Nonenal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 754 754 787 804 845 892 957 966 1002 1059 966 1002 1059 1066 1093 1103 1144	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Green Green Green Green Green Fruity Aldehydic Green Fatty Fruity Aldehydic Herbal Fatty	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal fresh fatty green sweet floral hyacinth clover honey cocoa fatty green herbal fruity cherry phenolic waxy aldehydic rose fresh orris orange peel fatty herbal green woody amber leafy fatty green waxy cucumber melon	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ \hline 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ \hline 17.12{\pm}23.74\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0.46{\pm}0.36\\ 6.2{\pm}10.76\\ 2.82{\pm}0.4\\ 2.14{\pm}3.5\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ \hline 1877.08{\pm}1341.36\\ \hline 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ \hline 29.44{\pm}25.94\\ 0{\pm}0\\ 0{\pm}0\\$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array} \\ \hline \textbf{760.84 \pm 772.88} \\ \hline \textbf{0} \pm 0 \\ 7.44 \pm 6.44 \\ 0.54 \pm 0.46 \\ 11.46 \pm 10.12 \\ 2.9 \pm 2.54 \\ 0.32 \pm 0.3 \\ 2.78 \pm 2.52 \\ 0.32 \pm 0.3 \\ 2.78 \pm 2.52 \\ 0.32 \pm 0.3 \\ 1.5 \pm 2.62 \\ \hline \textbf{110.5 \pm 107.8} \\ 0.08 \pm 0.06 \\ 1.46 \pm 1.72 \\ \textbf{60.54 \pm 5.78} \\ 1.5 \pm 2.62 \\ \hline \textbf{110.5 \pm 107.8} \\ 0.08 \pm 0.06 \\ 1.46 \pm 1.72 \\ \textbf{60.54 \pm 5.74} \\ \hline \textbf{19.42 \pm 16.98} \\ \textbf{0 \pm 0} \\ \textbf{0 - 0} \\ \textbf{0 - 18 \pm 0.18} \\ 22.06 \pm 1.18 \\ 22.06 \pm 1.18 \\ 23.78 \\ \textbf{0 \pm 0} \\$	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \hline \textbf{2203.36{\pm}1895.64}\\ \hline \textbf{0}{\pm}0\\ 4.56{\pm}7.18\\ \hline \textbf{1}.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ \hline \textbf{1}41.6{\pm}35.32\\ 0.06{\pm}0.1\\ 3.94{\pm}1.9\\ 24.4{\pm}32.26\\ \hline \textbf{1}0.52{\pm}12.68\\ 0{\pm}0\\ 27.12{\pm}43.2\\ 1.44{\pm}0.76\\ 9.22{\pm}16\\ 6.64{\pm}2.22\\ 0.32{\pm}0.28\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm1.38\\ \hline 4.52\pm3.94\\ 0\pm0\\ 0.04\pm0.1\\ 0.38\pm0.66\\ 0\pm0\\ 0\pm0\\ \end{array}$	$\begin{array}{c} 179\pm19.8\\ 0.96\pm1.28\\ 0.6\pm0.4\\ 1.52\pm0.24\\ \hline 1.52\pm0.24\\ \hline 1.333.88\pm24\\ \hline 1.6\pm0.4\\ 1.52\pm0.24\\ \hline 1.333.88\pm24\\ \hline 1.6\pm1.86\\ 3.6\pm2.78\\ \hline 2.48\pm2.6\\ 1.46\pm0.14\\ 5.16\pm4.46\\ 82.26\pm12.0.28\\ 2.38\pm0.4\\ 3.28\pm2.66\\ 82.26\pm142.0\\ 266.72\pm39.3\\ 0.06\pm0.06\\ 1.7\pm0.14\\ 51.56\pm49.82\\ 22\pm3.08\\ 88.9\pm10.64\\ 56.84\pm9.74\\ 0.86\pm0.08\\ 19.84\pm5.1\\ 3.32\pm0.64\\ 0\pm0\end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Dodecanol 1-Hexadecanol 1-Hexadecanol 2-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Pentenal 2-Butenal, 3-methyl Hexanal 2-Butenal, 3-methyl Hexanal 2-Heytenal Benzaldehyde Octanal Phenylacetaldehyde Nonanal 4-Methylbenzaldehyde Nonanal Alpha-campholenal 2-Nonenal Decanal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 787 804 845 892 957 966 1002 1059 1066 1093 1103 1144 1170 1212	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Fruity Green Green Fruity Aldehydic Green Fruity Aldehydic Herbal Fatty Fuity Aldehydic	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal fresh fatty green sweet floral hyacinth clover honey cocoa fatty green herbal fruity cherry phenolic waxy aldehydic rose fresh orris orange peel fatty herbal green woxy cucumber melon sweety aldehydic waxy orange peel citrus floral	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.4{\pm}2.52\\ 49.16{\pm}21.72\\ \hline 17.12{\pm}23.74\\ 0{\pm}0\\ 0{\pm}0\\ 0.46{\pm}0.36\\ 6.2{\pm}10.76\\ 2.82{\pm}0.4\\ 2.14{\pm}3.5\\ 4.1{\pm}1.02\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ \hline 1877.08{\pm}1341.36\\ \hline 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ \hline 29.44{\pm}25.94\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0.46{\pm}0.34\\ 10.44{\pm}18.08\\ 7.7{\pm}4.62\\ 0.16{\pm}0.28\\ 3.46{\pm}0.28\\ \hline 3.46{\pm}0.28\\ \hline 3.46{\pm}0.88\\ \hline \end{array}$	$\begin{array}{c} 46.8\pm52.2\\ 0.88\pm1.56\\ 2.04\pm1.92\\ 2.52\pm2.88\\ \hline \textbf{70.84\pm772.88}\\ $	$\begin{array}{c} 115.16\pm119.92\\ 1.08\pm0.96\\ 1\pm0.8\\ 1.4\pm0.6\\ \textbf{2203.36\pm1895.64}\\ \hline 0\pm0\\ 4.56\pm7.18\\ 1.12\pm1.6\\ 4.4\pm1.2\\ 17.66\pm2.22\\ 2.66\pm3.38\\ 6.82\pm3.14\\ 3.28\pm0.16\\ 11.52\pm14.76\\ \textbf{141.6\pm35.32}\\ 0.06\pm0.1\\ 3.94\pm1.9\\ 24.4\pm32.26\\ 10.52\pm12.68\\ 0\pm0\\ 27.12\pm43.2\\ 1.44\pm32.26\\ 10.52\pm12.68\\ 0\pm0\\ 27.12\pm43.2\\ 1.44\pm0.76\\ 9.22\pm1.6\\ 6.64\pm2.22\\ 0.32\pm0.28\\ 5.78\pm2.96\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm13.8\\ \hline 4.52\pm3.94\\ 0.4\pm0.1\\ 0.38\pm0.66\\ 0\pm0\\ 0.440.1\\ 0.38\pm1.86\\ 0\pm0\\ 0.45\\ 0\pm1.36\\ \hline 1.56\pm1.36\\ \hline \end{array}$	$\begin{array}{c} 179{\pm}19{,}8\\ 0{,}96{\pm}1{,}28\\ 0{,}66{\pm}1{,}28\\ 0{,}66{\pm}1{,}28\\ 1{,}6\pm0{,}4\\ 1{,}52{\pm}0{,}24\\ \hline 1{,}33{,}38{\pm}244\\ \hline 1{,}06{\pm}1{,}86\\ 3{,}6{\pm}2{,}78\\ \hline 2{,}48{\pm}2{,}6\\ 1{,}46{\pm}0{,}14\\ 5{,}16{\pm}4{,}46\\ 0{,}32{\pm}0{,}28\\ 2{,}38{\pm}0{,}4\\ 3{,}28{\pm}2{,}66\\ 8{2}{,}26{\pm}142{,}0\\ \hline 2{,}66{,}72{\pm}39{,}3\\ 0{,}06{\pm}0{,}06\\ 1{,}7{\pm}0{,}14\\ 5{,}15{\pm}49{,}82\\ \hline 2{,}2{\pm}3{,}08\\ 8{8}{,}9{\pm}10{,}64\\ 5{6}{,}84{\pm}9{,}74\\ 0{,}86{\pm}0{,}08\\ 1{,}9{,}84{\pm}5{,}1\\ 3{,}32{\pm}0{,}64\\ 0{\pm}0\\ 1{,}88{\pm}2{,}18\\ \end{array}$
4,8-Dimethylnonan-1-ol Eugenol 1-Dodecanol 1-Hexadecanol 1-Hexadecanol 1-Hexadecanol 2-Methylbutanal 2-Butenal 2-Methylbutanal Pentanal Tiglic aldehyde 3-Methylpentanal 2-Butenal 2-Butenal 2-Butenal 2-Butenal 2-Hexenal Hexanal 2-Hexenal Heptanal Benzaldehyde Octanal Phenylacetaldehyde 2-Octenal 4-Methylbenzaldehyde Nonanal Alpha-campholenal 2-Nonenal	1289 1371 1480 1887 27 643 654 669 701 728 746 754 754 754 754 804 845 892 957 966 1002 1059 966 1002 1059 1066 1093 1103 1144	Spicy Waxy Waxy Aldehydic Cocoa Fermented Green Green Green Green Green Green Fruity Aldehydic Green Fatty Fruity Aldehydic Herbal Fatty	sweet spicy clove woody earthy soapy waxy fatty honey coconut waxy clean greasy floral oily ethereal aldehydic chocolate peach fatty musty cocoa phenolic coffee nutty malty fermented fatty alcoholic fermented bready fruity nutty berry pungent green ethereal nutty anisic fruity pungent green ethereal nutty anisic fruity pungent green apple orange tomato sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty sweet almond bitter fruity green leafy apple plum vegetable fresh aldehydic fatty green herbal cognac ozone green fatty sharp sweet bitter almond cherry aldehydic waxy citrus orange peel green herbal fresh fatty green sweet floral hyacinth clover honey cocoa fatty green herbal fruity cherry phenolic waxy aldehydic rose fresh orris orange peel fatty herbal green woody amber leafy fatty green waxy cucumber melon	$\begin{array}{c} 113.04{\pm}32.88\\ 0{\pm}0\\ 1.56{\pm}0.84\\ 4.68{\pm}3.76\\ \hline 1188.72{\pm}919.04\\ \hline 11.54{\pm}10.22\\ 3.3{\pm}4.72\\ \hline 0.98{\pm}1.2\\ 16.4{\pm}3.7\\ 23.26{\pm}12.54\\ 90.64{\pm}153.32\\ 3.86{\pm}4.16\\ 1.4{\pm}2.44\\ 0.58{\pm}0.64\\ \hline 159.04{\pm}155.88\\ 0.42{\pm}0.36\\ 1.44{\pm}2.52\\ 49.16{\pm}21.72\\ \hline 17.12{\pm}23.74\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0\\ 0{\pm}0.36\\ 2.82{\pm}0.4\\ 2.14{\pm}3.5\\ \end{array}$	$\begin{array}{c} 80.76{\pm}27.8\\ 1.84{\pm}1.6\\ 2.44{\pm}0.96\\ 3.16{\pm}1.16\\ \hline 1877.08{\pm}1341.36\\ \hline 12.5{\pm}19.9\\ 4.5{\pm}6.94\\ \hline 3.24{\pm}0.92\\ 9.84{\pm}4.34\\ 4.66{\pm}6.74\\ 2.56{\pm}3.08\\ 3.18{\pm}1.86\\ 4.02{\pm}2.54\\ 5.34{\pm}5.1\\ \hline 197.88{\pm}245.08\\ 0.18{\pm}0.08\\ 3.86{\pm}5.22\\ 60.98{\pm}53.08\\ \hline 29.44{\pm}25.94\\ 0{\pm}0\\ 0{\pm}0\\$	$\begin{array}{c} 46.8 \pm 52.2 \\ 0.88 \pm 1.56 \\ 2.04 \pm 1.92 \\ 2.52 \pm 2.88 \end{array} \\ \hline \textbf{760.84 \pm 772.88} \\ \hline \textbf{0} \pm 0 \\ 7.44 \pm 6.44 \\ 0.54 \pm 0.46 \\ 11.46 \pm 10.12 \\ 2.9 \pm 2.54 \\ 0.32 \pm 0.3 \\ 2.78 \pm 2.52 \\ 0.32 \pm 0.3 \\ 2.78 \pm 2.52 \\ 0.32 \pm 0.3 \\ 1.5 \pm 2.62 \\ \hline \textbf{110.5 \pm 107.8} \\ 0.08 \pm 0.06 \\ 1.46 \pm 1.72 \\ \textbf{60.54 \pm 5.78} \\ 1.5 \pm 2.62 \\ \hline \textbf{110.5 \pm 107.8} \\ 0.08 \pm 0.06 \\ 1.46 \pm 1.72 \\ \textbf{60.54 \pm 5.74} \\ \hline \textbf{19.42 \pm 16.98} \\ \textbf{0 \pm 0} \\ \textbf{0 - 0} \\ \textbf{0 - 18 \pm 0.18} \\ \textbf{22.06 \pm 19.14} \\ \textbf{3.5 \pm 3.78} \\ \textbf{0 \pm 0} \\ \textbf{0 \pm 0} \\ \textbf{0 - 0} \\ $	$\begin{array}{c} 115.16{\pm}119.92\\ 1.08{\pm}0.96\\ 1{\pm}0.8\\ 1.4{\pm}0.6\\ \hline \textbf{2203.36{\pm}1895.64}\\ \hline \textbf{0}{\pm}0\\ 4.56{\pm}7.18\\ \hline \textbf{1}.12{\pm}1.6\\ 4.4{\pm}1.2\\ 17.66{\pm}2.22\\ 2.66{\pm}3.38\\ 6.82{\pm}3.14\\ 3.28{\pm}0.16\\ 11.52{\pm}14.76\\ \hline \textbf{1}41.6{\pm}35.32\\ 0.06{\pm}0.1\\ 3.94{\pm}1.9\\ 24.4{\pm}32.26\\ \hline \textbf{1}0.52{\pm}12.68\\ 0{\pm}0\\ 27.12{\pm}43.2\\ 1.44{\pm}0.76\\ 9.22{\pm}16\\ 6.64{\pm}2.22\\ 0.32{\pm}0.28\\ \end{array}$	$\begin{array}{c} 76.72\pm25.64\\ 1.8\pm1.56\\ 1\pm0.04\\ 0.8\pm0.04\\ \hline 1119.48\pm809.68\\ \hline 6.74\pm9.92\\ 7.74\pm7.66\\ \hline 5.52\pm4.26\\ 7.42\pm2.94\\ 2.62\pm0.92\\ 1.76\pm1.04\\ 3.6\pm2.46\\ 3.04\pm5.28\\ 15.16\pm20.72\\ \hline 50.14\pm26.66\\ 0.7\pm0.22\\ 1.2\pm0.86\\ 13.96\pm1.38\\ \hline 4.52\pm3.94\\ 0.04\pm0.1\\ 0.38\pm0.66\\ 0\pm0\\ 0.498\pm1.86\\ 0.40\\ \end{array}$	$\begin{array}{c} 179\pm19.8\\ 0.96\pm1.28\\ 0.96\pm1.28\\ 1.6\pm0.4\\ 1.52\pm0.24\\ \hline 1333.88\pm240\\ \hline 1.52\pm0.24\\ \hline 1333.88\pm240\\ \hline 1.6\pm1.86\\ 3.6\pm2.78\\ \hline 2.48\pm2.6\\ 1.46\pm0.14\\ 5.16\pm4.46\\ 0.32\pm0.28\\ 2.38\pm0.4\\ 3.28\pm2.66\\ 82.26\pm142.0\\ \hline 266.72\pm39.3\\ 0.06\pm0.06\\ 1.7\pm0.14\\ \hline 51.56\pm49.82\\ \hline 22\pm3.08\\ 88.9\pm10.64\\ 56.84\pm9.74\\ 0.86\pm0.08\\ 19.84\pm5.1\\ 3.32\pm0.64\\ 0\pm0\\ \end{array}$

Pentadecanal Fotals	1721 24	Waxy	fresh waxy	2.58±1.82 452.94±427.3	1.16±0.66 458.42±424.66	0.82±0.88 303.7±282.42	1.54±1.8 326.82±226.28	0.6±0.1 188.04±115.72	0.5±0.1 674.44±287.
romatic Hydrocarbons									
Toluene	777	Sweet	benzene	0±0	0±0	0±0	0.08±0.14	21.6±36.96	0.9±1.56
1,3-Cyclododecadiene, (E,Z)-	1653	-	-	0.22±0.22	0±0	0±0	0±0	0±0	0±0
Totals Tpoxides	2			0.22±0.22	0±0	0±1	0.08±0.14	21.6±36.96	0.9±1.56
Humulene epoxide I	1620	Herbal	-	0.28±0.08	0.42±0.18	0.26±0.24	0.26±0.1	0.16±0	0.38±0.24
otals	1			0.28±0.08	0.42±0.18	0.26±0.24	0.26±0.1	0.16±0	0.38±0.24
sters Butanoic acid, methyl ester	709	Fruity	fruity apple sweet banana pineapple	0±0	0±0	4.16±7.2	0.54±0.64	0±0	0±0
Ethyl propionate	713	Fruity	sweet fruity rummy juice fruity grape pineapple	1.22±1.06	1.12±0.98	5.56±9.06	2.74±2.92	1.18±1.14	1.98±3.42
Propanoic acid, ethyl ester	721	Fruity	sweet fruity rummy juice fruity grape pineapple	3±4.74	3.5±3.28	0.28±0.5	2.74±2.56	0.74±0.8	0.5±0.88
Methyl butanoate	731	Fruity	pungent ethereal fruity fusel fermented creamy	6±1.84	2.38±3.14	2.62±3.76	1.26±2.18	1.86±0.76	0±0
Butanoic Acid	771	Cheesy	sharp acetic cheesy buttery fruity	110.52±187.5	7.76±7.38	7.66±6.82	36.46±53.56	37.7±62.74	7.72±0.86
Butanole riela			ethereal estery fruity tutti frutti apple green apple						
Methyl 2-methylbutanoate	783	Fruity	lily of the valley powdery fatty	0±0	0 ± 0	0±0	5.96±5.68	20.24±34.82	2.12±2.72
Ethyl butanoate	799	Fruity	fruity juicy fruit pineapple cognac	0.3±0.28	24.22±39.06	78.24±68.14	0.78±0.34	14.52±9.58	99.68±84.26
Butyl acetate	809	Ethereal	ethereal solvent fruity banana	12.84±15.96	5.2±6.04	62.34±55.48	3.36±2.94	2.86±3.1	7.14±6.2
Methyl 3-methylbutanoate	814	Fruity	apple fruity pineapple	76.88±129.4	5.24±2.52	4.42±4.78	52.64±43.26	6.08±2.46	7.04±2.62
Ethyl 2-methylbutanoate	850	Fruity	sharp sweet green apple fruity	134.46±118.76	97.98±34.74	97.52±85.18	125.18±3.46	131.58±65.4	140.4±18.40
Ethyl 2-methylbutyrate	857	Fruity	sharp sweet green apple fruity	0±0	0±0	2.88±4.98	0±0	44.46±77.02	0±0
Isobutyl isobutyrate	886	Fruity	ethereal fruity tropical pineapple grape banana ethereal pineapple fruity apricot strawberry banana	1.22±0.84	2.64±2.98	2.6±3.34	3.46±2.34	0.84±1.26	1.66±2.88
Hexanoic acid, methyl ester	904	Fruity	bacon	0±0	0±0	4.38±7.58	1.46±1.16	3±1.9	1.24±0.3
Propanoic acid	911	Acidic	acidic dairy fruity	3.14±2.1	0.68±0.04	2.76±2.4	1.54 ± 1.42	2.44±1.62	2.94±0.72
I.			ethereal fruity pineapple apricot strawberry fruit						
Methyl hexanoate	923	Fruity	banana bacon	0±0	0 ± 0	3±5.2	1.04±0.84	5.14±3.68	0±0
-methylpentyl 4-methylpentanoate	931	Fruity	fruity waxy soapy herbal	0.48±0.08	5.46±3.86	1.76±2.54	0.92±0.92	5.3±1.74	3.94±1.12
Ethyl Butyrate	940	Fruity	fruity juicy pineapple cognac	0.46±0.28	1.5±1.46	7.28±11.68	0.46±0.8	0.72±0.32	1.3±0.16
2-Methylbutyl propionate	950	Fruity	sweet fruity ethereal rummy	4.3±2.92	1.94±3.36	0.76±0.86	0±0	2.56±1.5	0 ± 0
Isobutyl 2-methylbutyrate	976	Fruity	sweety fruity melon	2.42±2.68	3.82±4.74	9.76±8.66	13±12.8	3.4±4.22	11.4±0.88
Heptanoic acid, methyl ester	986	Fruity	sweet fruity green orris waxy floral berry	9.86±12.82	9.84±13.68	6.54±6.16	37.5±26.76	10.72±5.88	4.8±0.82
2-Methylbutanoic acid	993	Acidic	pungent acidic cheesy roquefort cheese cheesy	18.38±19.86	23.9±23.06	32.84±28.44	13.46±23.3	19.24±19.8	47.1±6.2
Ethyl hexanoate	996	Fruity	sweet fruity pineapple waxy green banana	14.12±18.66	13.72±20.34	0±0	8.64±7.56	7.94±0.96	0 ± 0
Hexyl acetate	1005	Fruity	fruity green apple banana sweet	8.98±5.14	20.16±11.44	75.8±71.9	24.36±5.2	56.44±24.74	0 ± 0
Geranyl isovalerate	1008	Fruity	green fruity apple blueberry pineapple	0±0	0±0	0±0	0±0	0.14±0.26	0.26±0
Butanoic acid, 3-methylbutyl ester	1013	Fruity	fruity green apricot pear banana	7.16±5.02	11.58±8.44	5.38±9.34	18.5±20.24	6.04±4.5	17.14±14.84
Methyl heptanoate	1027	Fruity	sweet fruity green orris waxy floral berry	10.22±8.2	21.54±24.48	5.66±6.68	10.08±3.24	6.92±2.32	0.98±1.7
Heptanoic acid	1031	Cheesy	rancid sour cheesy sweaty	0±0	0±0	0±0	0±0	12.46±11.48	9.62±0.4
3-Methylbutyl 2-methylbutanoate	1087	Fruity	sweet fruity citrus cherry blueberry apple	1.56±0.54	2.72±0.24	7.42±9.94	2.74±3.62	330.2±29.48	18.52±0.64
4-Octenoic acid, methyl ester	1114	· -	-	7.32±2.1	7.38±2.64	3.86±5.38	4.24±1.94	8.52±5.24	12.64±0.74
Valeric acid	1149	Cheesy	acidic sweaty rancid	4.16±2.7	8.38±1.24	7.9±8.32	7.06±2.42	1.98±0.82	19.32±2.42
Octanoic acid	1163	Fatty	fatty waxy rancid oily vegetable cheesy	11.12±1.64	25.54±5.54	7.14±6.52	33.34±15.74	23.12±12.6	41.14±4.02
Nonanoic acid	1181	Waxy	waxy dirty cheesy dairy	1.36±0.68	1.4±0.22	3.9±6.52	1.64±0.94	0.9±0.62	2.06±0.06
Methyl nonanoate	1209	Fruity	sweet fruity pear waxy tropical winey	1.72±1.52	0.38±0.3	0.82±0.72	1.54±1.68	1.42 ± 0.22	0.56±0.56
Methyl dec-5-enoate	1296		-	1.76±0.44	2.7±0.38	1.54±1.34	1.18 ± 0.98	1.3±0.44	1.8±0.24
4-Decenoic acid	1299	Fruity	-	6.42±1.78	5.12±0.6	3.14±2.92	5.28±4.44	5.2±1.9	5.14±0.5
		, i i i i i i i i i i i i i i i i i i i	waxy buttery oily creamy dairy green lactonic						
Decenoic acid	1309	Waxy	plum skin	10.54±2.78	13.16±2.64	8.64±9.78	11.36±5.5	13.8±4.78	11.66±1.98
Methyl 5-bromo-5-hexenoate	1314	· -	-	5.84±1.38	5.1±0.18	3.56±3.16	0.14±0.26	0±0	0±0
trans-Geranic acid methyl ester	1323	Waxy	waxy green fruity floral	6.84±2.5	2.2±0.14	1.18±2.06	7.38±4.82	0±0	0±0
Methyl decanoate	1327	Fermented	oily winey fruity floral	4.1±1.36	3.38±0.96	4.38±3.98	0±0	1.72±0.74	4.92±0.6
Methyl 3-undecenoate	1355	-		3.24±1.22	6.22±1.3	3.88±3.38	45.42±73.76	3.98±2.14	254.54±31.
Decanoic acid	1360	Fatty	rancid sour farty citrus	0.04±0.08	4.58±4.92	2.74±3.04	0.8±1	0±0	0.8±0.84
Geranyl acetate	1383	Floral	floral rose lavender green waxy	29.7±19.02	14.92±2.16	8.4±8.78	13.8±12.82	13.1±4.26	9.1±4.84
Geranyl isobutyrate	1514	Floral	Sweet/fruity, waxy	0.66±0.18	1.74±0.88	1.22±1.14	1.04±0.48	2.36±1.38	1.02±0.8
Methyl dodecanoate	1526	Waxy	waxy soapy creamy coconut mushroom	1.34±0.16	2.38±0.52	1.4±1.26	1.1±0.5	0.8±0.06	1.1±0.12
Dodecanoic acid	1556	Fatty	fatty coconut bay	0.2±0.04	0.66±0.14	1.14±0.98	0.86±0.8	0.32±0.1	0.38±0.16
Hexyl octanoate	1589	Green	fruity green waxy berry apple estery	0.58±0.66	0.98±0.48	0.22±0.2	0.38±0.08	0.2±0.22	0.36±0.12
Ethyl dodecanoate	1595	Waxy	sweet waxy floral soapy clean	0.46±0.4	0.84±0.74	0.62±0.66	0.76±0.04	0.46±0.18	0.14±0.26
otals	47		· · · · ·	524.92±579.32	373.96±241.24	497.3±490.76	506.14±355.94	813.9±409.18	754.16±199
fetones									
3-Buten-2-one, 3-methyl-	677	-	-	18.32±16.06	3.46±1.2	4.04±4.86	13.3±11.74	2.14±1.88	3.06±2.14
1-Penten-3-one	687	Spicy	pungent peppery mustard garlic onion	0±0	0±0	13.3±23.04	27.58±25.08	13.06±10.32	46.42±36.78
2-Hexanone	793	Fruity	fruity fungal meaty buttery	87.98±109.48	18.94±20.56	6.7±5.92	60±94.46	9.3±15.04	3.26±2.68
2-Heptanone	883	Cheesy	fruity spicy sweet herbal coconut woody	1.36±1.18	2.56±0.4	0.36±0.32	2.46±0.06	0.94±0.62	2.8±3.06

4 Mathed 2 handsons	0.45			1 28 2 04	2.0412.26	0.16+0.2	4.00 12.10	0.72+0.24	0.001
4-Methyl-2-heptanone	945	-	- 	1.38±2.04	2.04±3.36	0.16±0.3	4.08±3.18	0.72±0.24	0.26±0.04
	1003	F1 1	sweet pungent hawthorn mimosa almond acacia	1 42 1 04	2.00.2.0	54.00.00.00	0.00.5.50	05 0 01 00	12 24 1 06
Acetophenone	1083	Floral	chemical	1.42±1.04	3.88±3.6	54.82±89.86	8.92±5.52	25.3±21.92	12.24±1.06
2-Decanone	1159	Floral	orange floral fatty peach	7.68±8	29.08±4.38	3.64±3.2	13.6±11.64	11.64±0.5	22.52±8.8
7-Decen-2-one	1164	-	-	1.26±2.2	15.04±4.68	18.74±20.66	2±3.46	3.2±5.56	4.62 ± 4.08
Decanone	1193	-	-	122.46±75.36	146.26±37.5	10.06±8.8	15±17.3	3.98±2.86	9.68±8.66
Undec-2-en-6-one	1262	-	-	135.24±50.48	168.82±42.8	15.8±13.68	24.26±18.7	8.42±0.94	29.18±8.58
2-Dodecanone	1342	Citrus	fruity citrus floral orange	25.34±12.86	49.32±12.86	15.34±13.36	26.08±23.56	5.34±1.24	1.42±0.22
	1359	Chrus	hung entrus horar orange	0.74±0.52	1.74±0.48	0.46±0.4	0.52±0.46	0.62±0.2	0±0
2-INOHAdecanone	1559	=	-	0.74±0.32	1.74±0.48	0.40±0.4	0.32±0.46	0.02±0.2	0±0
_			natural sweet fruity rose plum grape raspberry						
Damascenone	1391	Floral	sugar	44.98±23.14	79.26±28.4	4.34±7.54	22.54±12.24	23.58±4.3	38.12±11.98
Ethyl decanoate	1397	Waxy	sweet waxy fruity apple grape oily brandy	1.32±0.94	8.66±0.86	6.94±6.14	2.14±0.4	6.9±1.52	3.4±0.14
(Z)-6-Pentadecen-2-one	1660	-	· · · · · · · · ·	0.7±0.34	0.4±0.38	0.34±0.36	0.56±0.3	0.3±0.02	0.28±0.06
Totals	15			450.18±303.64	529.46±161.46	155.04±198.44	223.04±228.1	115.44±67.16	180.36±89.6
Lactones									
Gamma-hexalactone	1055	Tonka	herbal coconut sweet coumarinic tobacco	65.08±11.8	88.5±15.82	50.64±44.04	78.06±21.3	43.8±6.94	21.66±9.5
	1454					0±0			0±0
Alpha-ionone	1454	Floral	sweet woody floral violet orris tropical fruity	0±0	0±0	0±0	0.72±1.26	1.5±0.46	0 ± 0
			fresh green fruity waxy rose woody magnolia						
Geranylacetone	1454	Floral	tropical	1.44±0.4	2.12±1.84	2.58±2.36	2.7±0.78	0.38±0.16	1.66±0.16
Gamma-decalactone	1488	Fruity	fresh oily waxy peach coconut buttery sweet	0.86±0.9	0.84±0.08	0.56±0.62	1±1.08	0.42±0.14	0±0
Totals	4	, i i i i i i i i i i i i i i i i i i i		67.38±13.1	91.46±17.74	53.78±47.02	82.48±24.42	46.1±7.7	23.32±9.66
Monoterpenes				0/100-1011	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	00110-1110-	01110-1111	1011-111	101012-0100
Alpha-thujene	933	Woody	woody green herbal	1.34±2.32	5.04±8.76	29.38±36.6	4.2±1.06	18.34±21.62	0±0
Myrcene	971	Spicy	peppery terpenic spicy balsamic plastic	4.52±5.9	9.68±16.76	0±0	37.98±30.74	33.82±13.46	32.46±28.46
			dry woody resionous pine hay green eucalyptus						
Beta-pinene	980	Herbal	camporeous	27.66±41	7.32±2.28	2.14±3.72	4.1±7.12	13.4±3.52	11.16±0.78
Beta-myrcene	991	Spicy	pepper terpenic spicy balsamic plastic	34.54±37.96	63.2±33.96	27.26±24.08	121.9±161.46	49.96±30.52	285.72±29.1
2		1 5	citrus herbal terpenic green woody pepper black						
alpha-Phellandrene	1011	Terpenic	pepper	0±0	0±0	0±0	0±0	5.44±9.42	10.84±18.78
alpha-Terpinene	1017		woody terpenic lemon herbal medicinal citrus	2.48±3.04	8.78±9.3	1.56±1.36	1.28±1.14	0±0	4.9±8.48
		Woody							
	1019	Minty	minty terpenic	4.96±1.76	22.32±18.44	15.86±25.16	12.86±4.58	5.48±5.02	9.5±8.3
Terpinolene	1024	Herbal	herbal spicy chamomile green basil	12.42±8.94	14.48±17.44	10.32±14.06	12.48±12.2	10.76±1.14	18.2±4.62
			citrus herbal terpenic green woody pepper black						
Alpha-phellandrene	1037	Terpenic	pepper	8.58±1.88	7.48±7.58	6.24±10.52	11.68±5.76	5.52±0.8	33.14±3.24
D-Limonene	1045	Citrus	citrus orange fresh sweet	4.9±3.64	12.16±14.36	0.98±1.12	22.14±4.26	1.52±2.64	11.18±0.34
cis-beta-ocimene	1048	Floral	warm floral herbal sweet	1.74±2.08	14.5±12.84	1.3±1.36	5.62±9.76	6.12±3.02	30.98±4.28
trans-beta-Ocimene	1053	Floral	citrus tropical green terpenic woody green	0.34±0.32	0.44±0.78	1.36±1.42	0.8±1.12	2.96±2.04	9.14±3.6
Cymene	1063	Terpenic	fresh citrus terpenic woody spicy	27.38±5.88	24.6±8.68	8.62±7.48	2.86±2.66	2.64±0.32	0.2±0.34
gamma-Terpinene	1069	Terpenic	oily woody terpenic lemon lime tropical herbal	1.56±1.82	1.42±0.24	16.9±27.04	8.24±8.12	3.66±6.34	20.36±1.72
beta-Terpineol	1097	Woody	pungent earthy woody	24.52±27.78	33.2±28.18	7.24±10.06	62.92±42.8	22.24±8.72	11.36±0.04
	1100	Floral	citrus floral sweet bois de rose green blueberry	22.24±13.3	43.3±21.46	21.48±19.48	57.82±51.82	34.08±8.14	231.64±21.2
	1105	Phenolic	phenolic spicy styreen clove guaiacol	0.34±0.42	1.24±0.14	0.06±0.1	1.42±0.52	2.12±1.5	0±0
	1118	Thenone	phenone spicy styreen clove guaracor	53.84±35.02			97.48±52.8		85.26±22.98
		-	-		173.82±55.96	7.92±6.9		38.96±15.98	
	1146	Floral	sweet floral nut skin pepper herbal tropical	0.24±0.44	3.64±6.32	4.3±5.2	5.42±4.84	0±0	10.38±0.2
	1151	-	-	3.74±0.6	16.92±0.86	7.38±6.7	8.24±7.24	16.16±3	13.54±1.32
6-Camphenol	1185	-	-	13.96±3.24	15.36±3.86	12.24±10.6	21.94±9.84	23.14±8.36	24.14±3.1
Terpinen-4-ol	1190	Spicy	peppery woody earthy musty sweet	12.62±10.94	0±0	11.28±10.62	21.58±11.6	8.48±4.28	42±12.14
	1196	Floral	fresh floral lavender citrus	46.42±21.62	57.64±16.4	17.72±28.62	10.54±18.26	1.28±1.18	7.3±6.66
alpha-Terpineol	1198	Terpenic	pine terpenic lilac citrus woody floral	14.56±25.22	75.38±24.94	58.42±50.9	95.74±40.86	27.56±13.78	270.98±23.5
alpha-Terpineol acetate	1201	Herbal	herbal bergamot lavender lime citrus	40.38±12.54	162.68±41.32	93.46±81.94	112.54±68.14	60.26±15.22	43.28±4.9
Myrtenol	1218	Herbal	woody pine balsamic sweet minty medicinal	3.8±3.74	2.14±0.98	12.16±18.56	8.1±9.2	9.7±2.22	4±1.14
			sweet spicy cinnamon tonka terpenic camporeous						
Myrtenal	1220	Spicy	jammy	0 ± 0	0±0	0.52±0.9	0±0	0±0	5.92±0.26
trans-Geraniol	1224	Floral	sweet floral fruity rose waxy citrus	128.5±43.14	134±57.36	79.84±76.26	136.78±76.66	50.38±11.6	339.2±31.76
Verbenone	1230	Camphoreous	camphor menthol celery	8.24±1.54	13.84 ± 2.08	2.74±2.38	17.28±13.64	1.24±0.2	10.44±1.6
	1236	Floral	floral leathery waxy rose citrus	11.76±3.4	9.14±3.1	5.26±4.72	11.54±6.14	8.32±1.56	14.64±3.7
Circollelloi	1230	1.101.01		11./0±3.4	J.14±J.1	J.2014./2	11.04±0.14	0.04±1.00	14.04±3./
			minty spearmint cooling green herbal caraway	ao (o) a = -				101.0	FO C- -
Carveol	1244	Minty	spicy	29.68±5.76	37.2±5.78	3.84±4.02	50.54±33.06	12.1±3.26	58.68±9
			tropical saffron herbal clean rose sweet tobacco						
beta-Cyclocitral	1248	Tropical	green fruity	2.64±4.56	12.96±4.42	104.94±181.76	4.08±7.06	4.7±0.86	0±0
2-Carene	1253	r		147.14±254.84	131.12±227.12	35.7±61.86	0±0	120.38±58.66	0±0
Geraniol	1255	Floral	sweet floral fruity rose waxy citrus	728.46±365.86	531.6±244.28	73.54±65.32	589.2±370.7	5.42±9.4	1276.34±14
d-Carvone	1267	Minty	spicy bready caraway	3.56±1.9	35.4±8.28	13.08±11.34	16.74±7.46	7.26±2.32	16.62±4.14
Geranial	1273	Citrus	citrus lemon	164.94±50.48	205.14±28.82	17.18±14.9	353.38±155.06	65.54±18.68	444.96±32.7
	1326	Waxy	waxy green fruity floral	0±0	4.98±0.96	0±0	0 ± 0	4.44±1.66	0±0
Methyl geranate	1520					712.22±827.06			

Cedeme 1568 Woody woody cedar sweet fresh 15 dec10 5.88±4.42 5 82±5.9 9.188 76 6.4±2.82 5.3±5.41 alpha-Chobehen 137 Herbal herbal vary 0±0 5.1±2.02 4.12±4.32 3.8±3.70 0.6±0.42 1.74±1.38 1.22±0.18 Longriolene 1401 Woody sweedt woody rose medicinal fir needle 0.66±0.2 1.16±0.1 3.48±5.02 0.66±0.42 1.74±1.38 1.22±0.18 Copane 1408 Woody woody spicy honey 0.3±0.14 0.8±0.74 0.46±0.44 0.40±2.8 0.56±0.1 0.98±0.48 gamma-Muurolene 1430 Woody herdbal woody spicy clove dry 0.64±0.22 0.66±0.52 0.54±0.04 0.38±0.02 0.18±0.24 0.38±0.04 0.18±0.22 0.64±0.23 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02 0.95±0.02	gamma-Elemene	1308	-	-	2.22±0.96	3.68±0.48	2.18±1.88	1.84±1.28	1.48±0.36	1.8±0.18
alpha-Cubebene 1378 Herhal herhal waxy 0±0 5, 1±2,02 4, 12±4, 32 3, 56±, 362 0, 34±0, 05 1, 74±1, 38 1, 12±0, 18 Longifione 1405 - - 0, 44±0, 46 1, 36±0, 18 0, 92±0, 86 0, 66±0, 22 0, 56±0, 1 0, 36±0, 02 1, 12±0, 34 gamma-Munvolen 1430 Woody herdal woody spicy 0, 36±0, 1 0, 36±0, 02 0, 16±0, 28 0, 42±0, 14 0, 42±0, 14 0, 42±0, 28 0, 42±0, 14 0, 16±0, 28 0, 36±0, 24 0, 54±0, 08 1, 12±0, 34 0, 36±0, 24 0, 54±0, 08 1, 12±0, 34 0, 36±0, 24 0, 54±0, 08 0, 36±0, 24 0, 54±0, 08 0, 16±0, 12 0, 44±0, 12 0, 44±0, 12 0, 44±0, 12 0, 44±0, 13, 28 0, 84±0, 12 0, 44±0, 12 0, 44±0, 12 0, 44±0, 12 0, 44±0, 12 0, 44±0, 12 0, 44±0, 12 0, 44±0, 12	Cedrene	1368	Woody	woody cedar sweet fresh	15.46±10	5.88±4.42	5.82±5.9	9.18±8.76	6.4±2.82	5.3±5.34
Vingene 1405 1 1 0 44:0.46 1.38:0.18 0.92:0.86 0.66:0.22 0.5:0.1 0.5:0.1 0.5:0.1 Copane 1430 Woody herbal woody spicy 0.3:6:0.26 1.1:6:0.46:0.44 0.4:0.22 0.5:6:0.26 0.5:6:0.26 0.2:2:0.38 0.4:40.32 0.3:6:0.04 0.3:6:0.06 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 0.5:6:0.02 <t< td=""><td>alpha-Cubebene</td><td>1378</td><td>Herbal</td><td>herbal waxy</td><td>0±0</td><td>5.1±2.02</td><td>4.12±4.32</td><td>3.56±3.62</td><td>0.34±0.6</td><td>15.56±8.16</td></t<>	alpha-Cubebene	1378	Herbal	herbal waxy	0±0	5.1±2.02	4.12±4.32	3.56±3.62	0.34±0.6	15.56±8.16
Cop 1408 Woody woody spicy honey 0.56:0.26 1.16:0.46 0.46:0.74 0.4:0.28 0.56:0.1 0.98:0.48 gamma-Muurolene 1439 - - 0.68:0.22 0.66:0.56 0.22:0.38 0.44:0.22 0.3:0.02 0.16:0.28 beta-Panasinsene 1439 - - 0.32:0.14 0.42:0.14 0.1:0.2 0.56:0.12 0.54:0.08 1.0:2:0.94 Caryophyllene 1451 Spicy sweet woody spicy clove dry 0.64:0.28 8.42:9:18 1.14:1.08 0.75:0.7 2.3:0.38 1.38:0.3 alpha-Elemene 1452 Woody woody cirus herbal woedy 0.2:0.2 0.18:0.34 0.18:0.32 0.06:0.1 0.9:0.12 0.3:4:0.16 trans-beta-Farnesene 1469 Woody woody cirus herbal woedy spicy 2.22:1.54 1.4:6:0.4 1.08:1.1 1.3:1.4 0.9:0.12 0.3:4:0.16 beta-Farnesene 1483 Woody woody spicy clow spicy 2.22:1.54 1.4:6:0.4 1.08:1.1 1.3:1.4 0.9:0.12 0.3:4:0.16 0.2:0.2:0	Longifolene	1401	Woody	sweet woody rose medicinal fir needle	0.66±0.2	1.16±0.1	3.48±5.02	0.66±0.42	1.74±1.38	1.22±0.18
gamma-Muurolene 1430 Woody herbal woody spicy 0.120, 14 0.82±0.78 0.8±0.74 0.36±0.04 0.38±0.02 1.12±0.34 beta-Copane 1439 - 0.68±0.22 0.66±0.56 0.22±0.38 0.44±0.32 0.34±0.02 0.16±0.28 beta-Copane 1440 - 0.32±0.14 0.42±0.14 0.14±0.8 0.7±0.7 2.3±0.38 1.02±0.94 Caryophyllene 1458 - 0.2±0.2 0.18±0.2 0.18±0.2 0.06±0.12 0.41±1.08 0.7±0.7 2.3±0.38 1.38±0.3 alpha-Elemene 1458 - 0.2±0.2 0.18±0.2 0.18±0.2 0.8±0.34 0.18±0.16 0.28±0.12 0.34±0.02 0.8±0.24 gamma-Muurolene 1469 Woody woody citrus herbal sweet 0.2±0.2 0.2±0.2 0.8±0.34 0.18±0.16 0.28±0.12 0.34±0.02 0.8±0.44 gamma-Muurolene 150 mama- 0.76±0.3 1.98±0.54 0.6±0.56 0.8±0.44 1.02±0.2 0.8±0.16 0.2±0.2 0.9±0.08 3.0±0.2 0.8±0.12 0.4±0.12 0.4±0.12 0.4±0.12 0.4±0.12 0.4±0.12	Ylangene	1405	-	-	0.44±0.46	1.38±0.18	0.92±0.86	0.66±0.22	0.5±0.14	0.5±0.1
gamma-Muurolene 1430 Woody herbal woody spicy 0.31/4 0.82±0.78 0.84:0.74 0.36±0.02 0.12±0.34 beta-Capaene 1440 - 0.68±0.22 0.66±0.56 0.22±0.38 0.44±0.32 0.54±0.08 1.02±0.94 Caryophyllene 1451 Spicy sweet woody spicy clove dry 0.64±0.28 8.42±9.18 1.14±1.08 0.7±0.7 2.3±0.38 1.38±0.3 alpha-Elemene 1458 - 0.2±0.2 0.18±0.2 0.18±0.2 0.18±0.2 0.8±0.44 0.8±0.34 0.18±0.16 0.28±0.12 0.34±0.16 gamma-Muurolene 1469 Woody woody cirtus herbal sweet 0.2±0.2 0.2±0.14 0.8±0.34 0.18±0.16 0.28±0.12 0.34±0.16 gamma-Muurolene 1483 Woody woody spicy 2.2±1.05 1.46±0.4 1.08±1.1 1.3±1.4 0.9±0.18 0.64±0.24 gamma-Muurolene 150 Herbal woody spicy 2.2±2.066 5.6±1.98 3.8±2.3.88 3.04±1.72 3.72±1.26 3.28±0.78 gamma-Muurolene 150 Herbal woody spicy 0.2±2.04 0.44±0.12 0.44±0.4 0.4	Copaene	1408	Woody	woody spicy honey	0.56±0.26	1.16±0.46	0.46±0.44	0.4±0.28	0.56±0.1	0.98±0.48
beta-Copane 1440 - - 0.32±0.14 0.42±0.14 0.1±0.2 0.56±0.24 0.54±0.08 1.02±0.94 Caryophyllen 1451 Spicy sweet woody spicy clove dry 0.64±0.28 8.42±9.18 1.14±1.032 0.06±0.12 0.4 0.33±0.3 1.38±0.3 alpha-Elemen 1452 Woody woody cirus herbal sweet 0.26±0.2 0.18±0.2 0.18±0.03 0.06±0.12 0.4 0.33±0.24 0.34±0.16 0.32±0.24 0.34±0.16 0.32±0.24 0.34±0.16 0.28±0.12 0.34±0.16 0.32±0.24 0.43±0.16 0.28±0.12 0.34±0.16 0.28±0.12 0.34±0.16 0.28±0.12 0.34±0.16 0.28±0.12 0.34±0.16 0.28±0.12 0.34±0.16 0.28±0.12 0.34±0.16 0.28±0.12 0.34±0.16 0.28±0.12 0.34±0.16 0.28±0.34 0.8±1.1 1.3±1.4 0.9±0.18 0.68±0.54 gamma-Muurolen 1483 Woody herbal woody spicy 2.22±0.66 5.5±1.98 3.82±3.88 3.04±1.72 3.72±1.26 3.28±0.78 data Selinen 1501	gamma-Muurolene	1430	Woody		0.3±0.14	0.82±0.78	0.8±0.74	0.36±0.04	0.38±0.02	1.12±0.34
Caryophyllene 1451 Spicy sweet woody spicy clove dry 0.64+0.28 8.42±9.18 1.14±1.08 0.7±0.7 2.3±0.38 1.3±0.3 alpha-Elemene 1458 - - 0.2±0.2 0.18±0.2 0.18±0.32 0.06±0.12 0±0 0.36±0.24 0.38±0.16 0.2±0.21 0.18±0.32 0.06±0.12 0±0 0.36±0.24 0.38±0.16 0.2±0.21 0.18±0.22 0.18±0.32 0.06±0.12 0.2±0.21 0.36±0.24 0.38±0.16 0.2±0.21 0.18±0.22 0.18±0.32 0.18±0.16 0.2±0.21 0.36±0.24 0.32±0.78 0.3±0.12 0.3±0.14 0.3±0.14 0.3±0.14 0.3±0.14 0.3±0.16 0.2±0.24 0.3±0.16 0.2±0.24 0.4±0.12	beta-Panasinsene	1439	-	-	0.68±0.22	0.66±0.56	0.22±0.38	0.44±0.32	0.3±0.02	0.16±0.28
alpla-Elemene 1458 145 0.240.2 0.18±0.2 0.18±0.32 0.06±0.12 0±0 0.36±0.24 trans-beta-Famesene 1462 Woody woody citrus herbal sweet 0.26±0.14 0.58±0.44 0.38±0.14 0.18±0.16 0.28±0.12 0.34±0.16 mass-beta-Famesene 1462 Woody woody citrus herbal sweet 2.22±1.54 1.46±0.4 1.08±1.1 1.3±1.4 0.9±0.18 0.68±0.54 gamma-Muurolene 1483 Woody herbal woody spicy 2.22±0.66 5.56±1.98 3.82±3.88 3.04±1.72 3.72±1.26 3.28±0.78 beta-Selinene 1501 Herbal 0.76±0.3 1.98±0.54 0.6±0.52 0.8±0.44 1.02±0.2 0.84±0.12 alpha-Selinene 1505 amber 0.38±0.16 1.2±0.54 0.6±0.52 0.5±0.22 0.14±0.14 0.8±0.56 Guaiol 1534 - 0.88±0.12 0.78±0.08 0.54±0.52 0.78±0.4 0.48±0.12 0.44±0.12 Cubenene 1547 Woody green woody 1.12±0.38 2.08±0.78 1.12±1.02 1.24±0.72 1.8±0.36 0.96±0.46 0.66±0	beta-Copaene	1440	-	-	0.32±0.14	0.42±0.14	0.1±0.2	0.56±0.24	0.54±0.08	1.02±0.94
trans-betaFamesene 1462 Woody woody citrus herbal sweet 0.26±0.14 0.58±0.44 0.38±0.34 0.18±0.16 0.28±0.12 0.34±0.16 beta-Farnesene 1469 Woody herbal sweet 2.22±1.54 1.46±0.4 1.08±1.1 1.3±1.4 0.9±0.18 0.68±0.54 gamma-Muurolene 1483 Woody herbal woody spicy 2.22±0.66 5.56±1.98 3.82±3.83 3.04±1.72 3.72±1.5 0.94±0.08 3.06±2.04 beta-Selinene 1501 Herbal 0.76±0.3 1.98±0.54 0.6±0.55 0.8±0.44 1.02±0.2 0.84±0.12 alpha-Selinene 1505 - amber 0.44±0.2 2.4±1.4 0.44±0.4 3.72±1.5 0.94±0.08 3.06±2.04 gamma-Cadimene 1520 - - 0.38±0.16 1.2±0.54 0.6±0.52 0.78±0.4 0.48±0.12 0.4±0.14 0.8±0.54 Guaiol 1534 - - 0.88±0.12 0.78±0.08 0.54±0.52 0.78±0.4 0.48±0.12 0.4±0.14 0.9±0.34 0.6±0.56 0.6±0.56 0.6±0.56 0.6±0.56 0.6±0.50 0.6±0.56 0.6±0.52	Caryophyllene	1451	Spicy	sweet woody spicy clove dry	0.64±0.28	8.42±9.18	1.14±1.08	0.7±0.7	2.3±0.38	1.38±0.3
beta-Farnesene 1469 Woody woody citrus herbal sweet 2.22±1.54 1.46±0.4 1.08±1.1 1.3±1.4 0.9±0.18 0.68±0.54 gamma-Muurolene 1483 Woody herbal woody spicy 2.22±0.66 5.56±1.98 3.82±3.88 3.04±1.72 3.72±1.26 3.28±0.78 beta-Selinene 1501 Herbal - 0.76±0.3 1.98±0.54 0.6±0.56 0.8±0.44 1.02±0.2 0.84±0.12 alpha-Selinene 1505 - amber 0.76±0.3 1.98±0.54 0.6±0.52 0.5±0.22 0.14±0.14 0.8±0.56 Guaiol 1534 - - 0.38±0.16 1.2±0.54 0.6±0.52 0.5±0.22 0.14±0.14 0.8±0.56 Guaiol 1534 - - 0.88±0.12 0.78±0.08 0.54±0.52 0.78±0.4 0.4±0.12 0.4±0.12 0.4±0.12 0.4±0.14 0.8±0.54 0.6±0.4 0.4±0.14 0.8±0.54 0.6±0.18 0.76±0.14 0.8±0.45 0.6±0.18 0.76±0.14 0.8±0.45 0.8±0.4 0.4±0.12 0.4±0.12	alpha-Elemene	1458		-	0.2±0.2	0.18±0.2	0.18±0.32	0.06±0.12	0 ± 0	0.36±0.24
gamma-Muurolene 1483 Woodý herbal woody spicy 2.22±0.66 5.56±1.98 3.82±3.88 3.04±1.72 3.72±1.26 3.28±0.78 beta-Selinene 1501 Herbal - 0.76±0.3 1.98±0.54 0.6±0.56 0.8±0.44 1.02±0.2 0.84±0.12 alpha-Selinene 1505 - amber 0.44±0.2 2.4±1.4 0.44±0.56 0.8±0.44 1.02±0.2 0.84±0.12 gamma-Cadinene 1520 - - 0.38±0.16 1.2±0.54 0.6±0.52 0.78±0.4 0.48±0.12 0.4±0.12 Guaiol 1534 - - 0.88±0.12 0.78±0.08 0.54±0.52 0.78±0.4 0.48±0.12 0.4±0.12 Cubenene 1541 Spicy spicy fruity mango 0.76±0.14 1.08±0.178 0.9±0.34 0.66±0.18 0.76±0.14 beta-Cadinene 1572 Spicy spicy fruity mango 0.64±0.32 0.94±0.2 0.36±0.34 0.52±0.36 0.36±0.04 0.4±0.14 alpha-Calacorene 1573 - woody 0	transbetaFamesene	1462	Woody	woody citrus herbal sweet	0.26±0.14	0.58±0.44	0.38±0.34	0.18±0.16	0.28±0.12	0.34±0.16
beta-Selinene 1501 Herbal - 0,76±0.3 1,98±0.54 0,6±0.56 0.8±0.44 1,02±0.2 0.84±0.12 alpha-Selinene 1505 - amber 0.44±0.2 2.4±1.4 0.44±0.4 3,72±1.5 0.94±0.08 3,06±2.04 gamma-Cadime 1520 - - 0.38±0.16 1.2±0.54 0.6±0.52 0.5±0.22 0.14±0.14 0.8±0.44 0.4±0.2 Guaiol 1534 - - 0.88±0.12 0.78±0.08 0.54±0.52 0.78±0.4 0.48±0.12 0.4±0.12 Cubenene 1541 Spicy spicy fruity mango 0.76±0.14 1.08±0.14 0.9±0.98 0.9±0.34 0.66±0.18 0.76±0.14 Abta-Cadimene 1547 Woody green woody 0.76±0.14 1.12±1.02 0.36±0.34 0.52±0.36 0.36±0.04 0.4±0.14 Abta-Calcorene 1573 - woody 0.36±0.14 1.1±0.26 0.36±0.33 0.22±0.40 0.2±0.2 0.1±0.08 Caryophyllene oxide 1606 Woody <	beta-Farnesene		Woody	woody citrus herbal sweet		1.46 ± 0.4			0.9±0.18	
alpha-Selinene 1505 - amber 0.44±0.2 2.4±1.4 0.44±0.4 3.72±1.5 0.94±0.08 3.06±2.04 gamma-Cadinene 1520 - - 0.38±0.16 1.2±0.54 0.6±0.52 0.5±0.22 0.14±0.14 0.8±0.56 Guaiol 1534 - - 0.88±0.12 0.78±0.08 0.5±0.52 0.78±0.4 0.4±0.12 0.4±0.12 Cubenene 1541 Spicy spicy fruity mango 0.76±0.14 1.88±0.12 0.9±0.34 0.66±0.18 0.76±0.14 beta-Cadinene 1547 Woody green woody 1.12±0.38 2.08±0.78 1.12±1.02 1.24±0.72 1.88±0.86 1.96±0.46 Cadina-1,4-tiene 1572 Spicy spicy fruity mango 0.64±0.32 0.94±0.2 0.36±0.3 0.22±0.36 0.36±0.4 0.4±0.14 alpha-Calacorene 1573 - woody 0.36±0.14 1.1±0.26 0.36±0.3 0.22±0.06 0.2±0.2 0.1±0.08 Caryophyllene oxide 1606 Woody sweet fresh dry woody spicy 4.2±2.06 1.9±0.02 1.4±1.48 0.9±1.58 1.2±0.34	gamma-Muurolene	1483	Woody	herbal woody spicy	2.22±0.66	5.56±1.98	3.82±3.88	3.04±1.72	3.72±1.26	3.28±0.78
gamma-Cadimene 1520 - - 0.38±0.16 1.2±0.54 0.6±0.52 0.5±0.22 0.1±0.14 0.8±0.56 Guaiol 1534 - - 0.88±0.12 0.78±0.08 0.54±0.52 0.78±0.4 0.4±0.12 0.4±0.12 0.4±0.12 Cubenene 1541 Spicy spicy fruity mango 0.76±0.14 1.08±0.18 0.9±0.93 0.9±0.34 0.66±0.18 0.76±0.14 beta-Cadimene 1547 Woody green woody 1.12±0.38 2.08±0.78 1.12±1.02 1.24±0.72 1.58±0.86 1.96±0.46 Cadima-1,4-diene 1572 Spicy spicy fruity mango 0.64±0.32 0.94±0.2 0.36±0.34 0.52±0.36 0.36±0.44 0.4±0.14 alpha-Calacorene 1573 - woody 0.36±0.14 1.1±0.26 0.36±0.34 0.52±0.36 0.2±0.20 0.1±0.08 Caryophyllene oxide 1606 Woody sweet fresh dry woody spicy 4.2±2.06 1.9±0.02 1.4±1.48 0.9±1.58 1.2±0.32 3.16±1.2 Humulenol-II			Herbal	-	0.76±0.3	1.98±0.54	0.6±0.56		1.02±0.2	
Guaiol 1534 - - 0.88±0.12 0.78±0.08 0.54±0.52 0.78±0.4 0.48±0.12 0.4±0.12 Cubenene 1541 Spicy spicy fuity mango 0.76±0.14 1.08±0.14 0.99±0.98 0.9±0.34 0.66±0.18 0.76±0.14 Ubeta-Cadimene 1547 Woody green woody 1.12±1.038 2.08±0.78 1.12±1.02 1.24±0.72 1.58±0.86 0.96±0.44 Cadima-1,4-diene 1572 Spicy spicy fuity mango 0.64±0.32 0.94±0.2 0.36±0.34 0.52±0.36 0.36±0.04 0.4±0.14 alpha-Calacorene 1573 - woody 0.36±0.14 1.1±0.26 0.36±0.3 0.22±0.06 0.2±0.2 0.1±0.08 Caryophyllene oxide 1060 Woody sweet fresh dry woody spicy 4.2±2.06 1.9±0.02 1.4±1.48 0.9±1.58 1.2±0.34 0.6±1.4 Humulenol-II 1651 - - 1.4±0.42 5.8±2.26 2.56±2.28 2±0.72 2.12±0.82 3.16±1.2 T-Muurolo 1669 Herbal herbal spicy honey 1.0±0.8 1.8±0.38 1±0.94 0.3±0.1	alpha-Selinene	1505	-	amber	0.44±0.2	2.4±1.4	0.44±0.4	3.72±1.5	0.94±0.08	3.06±2.04
Cubenene 1541 Spicy spicy fruity mango 0.76±0.14 1.08±0.14 0.9±0.98 0.9±0.34 0.66±0.18 0.76±0.14 beta-Cadinene 1547 Woody green woody 1.12±0.38 2.08±0.78 1.12±1.02 1.24±0.72 1.58±0.86 1.96±0.46 Cadina-1,4-diene 1572 Spicy spicy fruity mango 0.64±0.32 0.94±0.2 0.36±0.34 0.52±0.36 0.36±0.04 0.4±0.14 alpha-Calacorene 1573 - woody 0.36±0.14 1.1±0.26 0.36±0.3 0.22±0.06 0.2±0.2 0.14±0.4 Caryophyllene oxide 1606 Woody sweet fresh dry woody spicy 4.2±2.06 1.9±0.02 1.44±1.48 0.9±1.58 1.2±0.34 1.68±1.46 Humulenol-II 1651 - - 1.46±0.42 5.88±2.26 2.56±2.28 2±0.72 2.12±0.82 3.16±1.2 T-Muurolo 1669 Herbal spicy honey 1.04±0.8 1.82±0.38 1±0.94 0.3±0.1 0.9±0.4 0.1±0.08 Cadalene 1690 -	gamma-Cadinene		-	-					0.14±0.14	
beta-Cadimen 1547 Woody green woody 1.12±0.38 2.08±0.78 1.12±1.02 1.24±0.72 1.58±0.86 1.96±0.46 Cadima-1,4-diene 1572 Spicy spicy fruity mango 0.64±0.32 0.94±0.2 0.36±0.34 0.52±0.36 0.36±0.04 0.4±0.14 alpha-Calacorene 1573 - woody 0.36±0.14 1.1±0.26 0.36±0.33 0.22±0.06 0.2±0.2 0.1±0.48 Caryophyllene oxide 1606 Woody sweet fresh dry woody spicy 4.2±2.06 1.9±0.02 1.44±1.48 0.9±1.58 1.2±0.34 1.6±1.46 Humulenol-II 1651 - - 1.46±0.42 5.8±2.26 2.56±2.28 2±0.72 2.12±0.82 3.16±1.2 T-Muurolol 1669 Herbal herbal spicy honey 1.04±0.8 1.82±0.38 1±0.94 0.3±0.1 0.9±0.4 0.1±0.08 Cadalene 1690 - - 1.85±0.52 4.98±0.22 2.16±2.04 1.46±0.52 1.36±0.5 2.8±0 Totals 26 -	Guaiol	1534	-	-	0.88±0.12	0.78 ± 0.08	0.54±0.52	0.78±0.4	0.48±0.12	0.4±0.12
Cadina-1,4-diene 1572 Spicy spicy fruity mango 0.64±0.32 0.94±0.2 0.36±0.34 0.52±0.36 0.36±0.44 0.4±0.14 alpha-Calacorene 1573 woody 0.36±0.14 1.1±0.26 0.36±0.34 0.52±0.36 0.24±0.02 0.1±0.08 Caryophyllene oxide 1606 Woody sweet fresh dry woody spicy 4.2±2.206 1.9±0.02 1.44±1.48 0.9±1.58 1.2±0.34 0.6±1.42 Humulenol-II 1651 - 1.46±0.42 5.8±2.26 2.56±2.28 2±0.72 2.12±0.82 3.16±1.2 T-Muurolol 1669 Herbal herbal spicy honey 1.04±0.8 1.82±0.38 1±0.94 0.3±0.1 0.9±0.4 0.1±0.08 Calelne 1690 - - 1.85±0.52 4.98±0.22 2.16±2.04 1.36±0.52 2.8±0 Totals 26 - 39.8±20.76 62.6±2.816 36.78±37.84 36.28±26.24 30.4±11.38 49.66±25.42	Cubenene	1541	Spicy	spicy fruity mango	0.76±0.14	1.08 ± 0.14	0.9±0.98	0.9±0.34	0.66±0.18	0.76±0.14
alpha-Calacorene 1573 - woody 0.36±0.14 1.1±0.26 0.36±0.3 0.22±0.06 0.2±0.2 0.1±0.08 Caryophyllene oxide 1606 Woody sweet fresh dry woody spicy 4.2±2.06 1.9±0.02 1.44±1.48 0.9±1.58 1.2±0.34 1.68±1.46 Humulenol-II 1651 - - 1.46±0.42 5.88±2.26 2.56±2.28 2±0.72 2.12±0.82 3.16±1.2 T-Muurolol 1669 Herbal spicy honey 1.04±0.8 1.82±0.38 1±0.94 0.3±0.1 0.9±0.4 0.1±0.08 Cadalene 1690 - 1.58±0.52 4.9±0.22 2.16±2.04 1.46±0.52 1.36±0.5 2.8±0 Totals 26 39.8±20.76 62.6±28.16 36.78±37.84 36.28±26.24 30.4±11.38 49.66±25.42	beta-Cadinene		Woody	green woody	1.12±0.38	2.08±0.78	1.12±1.02	1.24±0.72	1.58±0.86	1.96±0.46
Caryophyllene oxide 1606 Woody sweet fresh dry woody spicy 4.2±2.06 1.9±0.02 1.44±1.48 0.9±1.58 1.2±0.34 1.68±1.46 Humulenol-II 1651 - 1.46±0.42 5.88±2.26 2.56±2.28 2±0.72 2.12±0.82 3.16±1.2 T-Muurolo 1669 Herbal spicy honey 1.04±0.8 1.82±0.38 1±0.94 0.3±0.1 0.9±0.4 0.1±0.08 Cadalene 1690 - 1.58±0.52 4.98±0.22 2.16±2.04 1.46±0.52 1.36±0.5 2.8±0 Totals 26 39.8±20.76 62.6±28.16 36.78±37.84 36.28±26.24 30.4±11.38 49.66±25.42	Cadina-1,4-diene		Spicy	spicy fruity mango						
Humulenol-II 1651 - 1.46±0.42 5.88±2.26 2.56±2.28 2±0.72 2.12±0.82 3.16±1.2 T-Muurolol 1669 Herbal herbal spicy honey 1.04±0.8 1.82±0.38 1±0.94 0.3±0.1 0.9±0.4 0.1±0.08 Cadalene 1690 - 1.58±0.52 4.98±0.22 2.16±2.04 1.36±0.5 2.8±0 Totals 26 39.8±20.76 62.6±28.16 36.78±37.84 36.28±26.24 30.4±11.38 49.66±25.42			-							
T-Muurolol Cadalene 1669 1690 Herbal - herbal spicy honey 1.04±0.8 1.82±0.38 1±0.94 0.3±0.1 0.9±0.4 0.1±0.08 Totals 26 - 1.58±0.52 4.98±0.22 2.16±2.04 1.46±0.52 1.36±0.5 2.8±0			Woody	sweet fresh dry woody spicy						
Cadalene 1690 - 1.58±0.52 4.98±0.22 2.16±2.04 1.46±0.52 1.36±0.5 2.8±0 Totals 26 39.8±20.76 62.6±28.16 36.78±37.84 36.28±26.24 30.4±11.38 49.66±25.42			-	-						
Totals 26 39.8±20.76 62.6±28.16 36.78±37.84 36.28±26.24 30.4±11.38 49.66±25.42			Herbal	herbal spicy honey						
			-	-						
	Totals	26			39.8±20.76	62.6±28.16	36.78±37.84	36.28±26.24	30.4±11.38	49.66±25.42

² Relative peak area percent compounds were identified by comparison of mass spectra with NIST14 (National Institute of Standards and Technology, Gaithersburg, MD, USA), Flavors and Fragrances of Natural and Synthetic Compounds (FFNSC3, John Wiley & Sons, Inc., Hoboken, NJ, USA), and Adams Essential Oils (Adams 2007) mass spectral libraries and comparison of calculated Kovats retention indices (Kováts 1958) with previously reported values.

Table 4. Volatile aroma compounds^z identified in muscadine genotypes grown at, North Carolina (Kings Mountain, NC) and evaluated at the University of Arkansas System Division of Agriculture Clarksville, AR (2021)

	Retention	Aroma	J	\mathcal{O}			,	()					
mpound Name	Index	Category	Aroma Descriptor	Paulk	Oh My!®	Lane	RazzMatazz®	Hall	Supreme	JB 08-38-1-10	JB-06-30-2-20	JB-09-15-3-09	Summit
stals	198			5090.50±526.46	3803.86±1997.2 8	5285.38±1420.1 6	3385.84±421	5107±81.02	4182.38±1710	2541.36±636.4 6	2367.12±366.9	3741.16±783.1 4	4060.58
cohols		a 1											
2-Butanol	610 644	Fruity Fermented	sweet apricot fusel oily sweet balsamic whiskey	0±0 3.68±1.2	10.66±11.86 0±0	13.92±23.22 2.8±2.48	8.64±12.48 3.16±5.48	0±0 0±0	12.8±21.08 142.36±242.52	1.06±1.84 10.48±12.52	2.14±3.72 2.36±2.12	9.74±8.5 8.72±1.84	0±0 0±0
1-Penten-3-ol	683	Green	ethereal horseradish green radish chrysanthemum vegetable tropical fruity	0±0	7.76±7.16	25.76±22.08	39.68±25.44	18.16±10.56	0±0	50.96±11.88	22.12±38.32	76.28±66.12	0±0 0±0
2-Methyl-1-butanol	735	Ethereal	fusel ethereal alcoholic fatty greasy winey whiskey leathery cocoa	3.64±1.88	10±17.36	5.04±6.72	0±0	0±0	0±0	8.4±8.12	25.12±20.36	25.96±20.84	21.76±20
3-Methyl-3-buten-1-ol	739	Fruity	sweet fruity	0±0	25.84±44.76	19.76±30.68	34.76±46.76	10.92±12.68	9.76±14	15.08±23.08	38.52±61.48	13.04±4.96	318.32±
1-Pentanol	763	Fermented	pungent fermented bready yeasty fusel winey solvent	0.88±1.56	6.72±8.24	6.48±11.24	8.4±10.76	11.72±2.6	34.6±32.8	2.96±2.76	10.8±9.36	3.96±3.52	0±0
3-Methyl-1-butanol	767	Fermented	fusel alcoholic pungent ethereal cognac fruity banana molasses	66.8±25.28	52.28±49.84	10±10.56	0±0	53.4±29.92	0±0	57.48±8.88	397.04±478.64	39.6±1.68	0±0
3-Hexen-1-ol	781	Green	leafy	0±0	0±0	2.24±3.88	16.6±22.08	8.6±8.6	6.2±10.76	21.52±19.48	50.32±27.52	73.96±14.28	0±0
2-Hexen-1-ol 2 Heptanol	836 861	Fruity Citrus	fruity green leafy fresh lemongrass herbal sweet floral fruity green	530.36±907.44 138.72±132.68	157.52±214.84 81.76±96.08	415.92±403.32 55.64±95.4	587.52±996.44 181.44±199.76	8.96±3.12 387.4±11.44	10.24±9.24 319.96±292.64	10.32±9.8 293.12±86.96	269.64±463.4 210.88±363.24	26.72±26.8 829.2±125.36	471.88= 0.16±0.
2 Heptanol	871	Herbal	ethereal fusel oily fruity alcoholic sweet green	6.32±5.6	8.8±11.36	0±0	0±0	1.84±1.04	0±0	0.32±0.6	210.88±303.24 0±0	0±0	564.2±9
5-Methyl-1-heptanol	894	-	-	8.92±3.36	41.84±70.64	6.64±1.96	7.04±1.68	7.6±2.48	7.76±1.12	6.64±6.6	1.84±3.24	9.68±6.64	3.64±3.
2-Methyl-1-heptanol	900		-	13.76±9.16	24.96±42.32	3.84±3.6	11.88±3.2	10.08±2.4	6.52±6.36	14.36±11.68	9.84±11.56	47.44±3.32	1.72±2
2-Methyl-6-hepten-3-ol	919	-	-	0.84±0.44	1.08 ± 0.84	4.6±6.24	0.52±0.28	4.32±2.4	0.28±0.04	0±0	0±0	0.84±0.8	0.4±0.4
2-methyl-2-heptanol	933	÷		2.28±3.92	3.08±5.4	1.16±1	0±0	0±0	0±0	0.56±0.96	1.12±0.2	2.04±2.4	0.36±0
1-Octen-3-ol	960 973	Earthy	mushroom earthy green oily fungal raw chicken	0±0 190.36±42.56	0±0	0±0 30 56±15 92	11.8±20.48	0±0	2.04±3.52 0±0	26.72±26.6 4 8±8 32	9.6±9.2 0±0	0±0 21.28±19.44	17.68± 6.76±1
1- Heptanol 2-Ethylhexanol	1034	Green	musty leafy violet herbal green sweet woody peony citrus fresh floral oilv sweet	7 52±0 64	139.36±206.88 0±0	30.56±15.92 13.08±5.16	99.6±152.96 0±0	33.68±58.36 0±0	0±0 3.64±1.84	4.8±8.52 2.4±0.68	0±0 1 8±1 64	21.28±19.44 4 44±3 16	0.76±1
2-Ethymexanor 1-Octanol	1074	Waxy	waxy green orange aldehydic rose mushroom	21±1.6	10 04±8 2	9 72±3 08	15.92±1.72	9.64±2.76	7.88±6.52	2.4±0.08 1.4±0.48	1.6±0.28	2.72±1.12	0.30±0
1-Phenylethanol	1127	Floral	fresh sweet almond gardenia hyacinth	125.48±163.56	149.48±205.8	42.52±73.64	770.84±216.8	895.8±334.32	436.08±424	70 96±95 04	103.92±103.08	100.88±54.8	0.24±0
2-Phenylethanol	1129	Floral	floral rose dried rose	0±0	0±0	664.92±225.2	0±0	0±0	0±0	100.88±174.72	0±0	237.32±82.56	259.6±
1-Nonanol	1176	Floral	fresh clean fatty floral rose orange dusty wet oily	8.76±1.72	5.24±6.48	4.6±3.64	6.08±5.56	5.76±3.16	5.64±5.92	1.2±0.32	1.16±0.88	9.92±11.16	2.24±0
2,4-Octadien-1-ol	1231	Fatty	fatty chicken creamy waxy	0±0	6.24±6.88	0±0	0±0	0±0	0±0	26.32±5.44	0±0	0±0	16±3.7
1-Decanol	1277	Fatty	fatty waxy floral orange sweet clean watery	3.44±0.32 44.32±7.76	8.48±13.88	0±0 162 28±74 4	1.2±1.32 8.84±15.32	0±0 93.04±12.16	6.36±10.72 273 72±238 52	5.12±2.92	2.08±1.24	8.12±0.68	5.4±3.8
4,8-Dimethylnonan-1-ol Eugenol	1289 1371	-	-	44.32±7.76 5.24±0.76	0±0 5.2±3.68	162.28±74.4 6.32±1.56	8.84±15.32 4.88±1.08	93.04±12.16 2±0.16	273.72±238.52 3.88±1.6	0±0 0±0	19.92±10.76 0±0	55.24±5.72 0±0	49.28± 0±0
Eugenol 1-Dodecanol	13/1 1480	Spicy Waxy	sweet spicy clove woody earthy soapy waxy fatty honey coconut	5.24±0.76 1.92±0.2	5.2±3.68 3.08±3.28	6.32±1.56 1.76±0.28	4.88±1.08 1.24±0.28	2±0.16 0.88±0.12	3.88±1.6 1.16±0.52	0±0 3.04±0.96	0±0 2.28±0.6	0±0 2.76±0.48	0±0 1.04±0
1-Hexadecanol	1887	Waxy	waxy clean greasy floral oily	0±0	3.68±2.6	2.28±0.68	1.28±0.28	1.12±0.88	0±0	0±0	0±0	0±0	3.64±1
				1184.24±1311.6		1525.76±1049.1	1829.96±1752.6	1564.92±499.1			1186.24±1614.5		1744.6
als ehvdes	28			4	773.76±1050.24	6	4	6	1303.68±1344.8	737.16±522.48	6	1619.6±474.68	8
ehydes 3-Methylbutanal	643	Aldehydic	ethereal aldehydic chocolate peach fatty	0±0	6.84±6.02	3.48±3.56	0±0	0±0	3.68±4.06	3.28±5.7	3.58±4.4	0±0	0+0
2-Butenal	654	-	-	5.06±1.8	4±3.7	2.5±1.5	0.48±0.42	6.08±5.2	18.14±16.72	11.52±6.84	7.3±8.54	16.54±6.02	13.38±
2-Methylbutanal	669	Cocoa	musty cocoa phenolic coffee nutty malty fermented fatty alcoholic	2.22±3	0.84±1.04	0.64±0.48	1.86±2.96	8.58±7.18	0±0	2.14±3.7	0.5±0.14	1.14±0.72	0±0
Pentanal	701	Fermented	fermented bready fruity nutty berry	1.14±1.96	14.56±21.24	0±0	20.76±18.1	7.18±6.66	0±0	4.82±5.98	14.2±21.5	0±0	0±0
Tiglic aldehyde	728	Green	pungent green ethereal nutty anisic fruity	0±0	23.06±24.14	9.3±16.12	49.66±68.64	25.14±12	9.34±16.2	2.32±2.92	1.14±1.98	5.5±0.86	0 ± 0
3-Methylpentanal	746	-	-	1.78±1.5	0.2±0.36	1.32±2.3	0.76±0.96	0.16±0.3	0±0	0.76±0.84	4.98±4.12	0.26±0.24	0±0
2-Pentenal	754 787	Green	pungent green apple orange tomato	6.46±0.4 0.08±0.12	20.76±25.76 0±0	1.8±1.7 8.28±14.1	2.56±1.66 3.58±4.08	2.7±0.72 0.5±0.2	45.4±68.1 0±0	1.26±1.08 1.42±2.46	48.92±69.98 4.04±3.94	12.62±2.72 31.38±30.96	74.84± 0±0
2-Butenal, 3-methyl Hexanal	804	Fruity Green	sweet fruity pungent brown nutty almond cherry fresh green fatty aldehydic grassy leafy sweaty	0.08±0.12 0±0	0±0 0±0	8.28±14.1 1.68±2.92	5.58±4.08 0.34±0.6	0.5±0.2 0±0	0±0 171.76±118.46	1.42±2.46 22.64±35.52	4.04±5.94 2.5±3.44	31.38±30.96 0±0	0±0 7.14±6
Furfural	841	Bready	sweet woody almond bread baked caramellike phenolic	1098.26±319.24	223.34±211	0±0	47 92±48 46	11 62±4 12	2.5±4.36	14 62±13 32	392.04±414	70 48±42 76	147.24
2-Hexenal	845	Green	sweet almond bitter fruity green leafy apple plum vegetable	0±0	0±0	136.38±48.36	58.3±84.88	132.86±65.5	341.96±298.98	108.66±180.56	103.82±108.34	3.92±1.06	122.6±
Heptanal	892	Green	fresh aldehydic fatty green herbal cognac ozone	0.3±0.14	0.96±1.26	0.28±0.14	0.22±0.2	0±0	0±0	0.12±0.12	0.2±0.08	0.14±0.14	0.48±0
2-Heptenal	957	Green	green fatty	1.06±0.28	6.22±3.72	0.86±0.14	4.58±4.56	1.66±0.04	0.86±0.26	0.9±0.22	3.54±0.36	2.44±1.12	4.98±2
Benzaldehyde	966	Fruity	sharp sweet bitter almond cherry	153±19.22	139.86±52.58	113.08±13.24	186.9±110.72	125.74±60.18	136.5±116.9	25.62±22.84	31.32±14.96	87.54±24.4	34.2±6
Octanal	1002	Aldehydic	aldehydic waxy citrus orange peel green herbal fresh fatty	19.1±1.52 29.42±25.48	5.58±9.68 170 2±131 28	14.4±3.86	8.56±7.72 97.78±81.92	16.78±2.24 64.46±6.76	10.9±2.4 0+0	26.42±20.46 21.76±19.58	4.62±6.92 19 74±34 22	31.12±17.76	22.72±
Phenylacetaldehyde 2-Octenal	1059	Green	green sweet floral hyacinth clover honey cocoa fatty green herbal	29.42±25.48 22.7±19.7	1/0.2±131.28 33.24±47.52	29.06±25.18 0±0	97.78±81.92 3.72±6.46	64.46±6.76 60.64±28.9	0±0 57.58±74.24	21.76±19.58 385.8±304.06	19./4±34.22 46.68±80.86	0±0 164.82±46.72	17.44± 0±0
3-Methylbenzaldehyde	1090	Fatty Fruity	sweety fruity cherry almond bitter phenolic	32.74±3.56	21±15.78	33.2±2.62	31.8±4.46	20.7±5.74	21.8±16.88	0.34±0.14	40.08±80.80 0.34±0.06	0.34±0.12	0.36±0
Nonanal	1103	Aldehydic	waxy aldehydic rose fresh orris orange peel fatty	34.9±6.24	13.56±7.52	9.5±1.5	14.32±5.6	17.76±4.68	10.26±8.88	18.9±3.56	9.96±17.26	30.56±11	8.26±1
Alpha-campholenal	1144	Herbal	herbal green woody amber leafy	2.94±3.46	4.54±3.5	3.34±1.92	2.44±4.22	5.44±4.44	6.28±4.68	0±0	2.46±1.78	2.58±1	2.38±0
2-Nonenal	1170	Fatty	fatty green waxy cucumber melon	4.02±2.08	73.92±125.42	2.16±0.9	4.06±0.96	3.38±0.28	37.5±58.82	0±0	0±0	0±0	0±0
Decanal	1212	Aldehydic	sweety aldehydic waxy orange peel citrus floral	1.86±1.62	2.24±2.52	3.06±0.8	3.02±0.82	2±0.16	2.02±2.12	2.06±3.08	0.64±1.12	1.04±1.82	3±1.52
2-Decenal	1270	Fatty	fatty orange rose aldehydic floral green	14.06±1.9	0±0	9.76±8.56	5.18±4.48	0±0	3.34±5.78	0±0	0±0	0±0	0±0
Citral	1282	Citrus	sharp lemon sweet	60.94±10.26	114.18±110.22	76.96±25.32	60.48±54.8	34.24±8.3	205.04±286.34	36.66±11.58	24.72±19	63.22±23.5	27.42±
Dodecanal Pentadecanal	1419 1721	Aldehydic Waxy	soapy waxy aldehydic citrus green floral fresh waxy	0.32±0.08 1.14±0.16	0.82±1.06 9.86±15.02	0±0 1.82±0.58	0±0 1.1±0.28	0±0 0.58±0.06	1.42±2.1 0±0	0.4±0.22 5.82±2.5	0±0 2.56±1.16	0±0 1 5±0 44	0±0 1.6±0
Pentadecanai	1/21	waxy	rresn waxy	1.14±0.16	9.86±15.02	1.82±0.58	1.1±0.28	0.58±0.06	1086.28±1106.2	5.82±2.5	2.56±1.16	1.5±0.44	1.6±0.4
als	26			1493.5±423.72	889.78±820.34	462.86±175.8	610.38±517.96	548.2±223.66	8	698.24±647.34	729.8±818.28	527.14±213.36	488.04
omatic Hydrocarbons													
Toluene	777	Sweet	benzene	2.94±0.46	0.62±0.7	0±0	0.26±0.26	1.2±1.16	7.52±13.02	0.64±1.12	0±0	2.9±5.02	14.64±
1,3-Cyclododecadiene, (E,Z)- als	1653	•	·	2.2±1.18 5.14±1.64	2.6±1.28 3.22±1.98	2.26±2.1 2.26±2.1	2.24±1.48 2.5±1.74	1.56±1.04 2.76±2.2	3.64±3.24 11.16±16.26	1.8±0.48 2.44±1.6	1.8±1.18 1.8±1.18	0±0 2.9±5.02	0±0 14.64±
oxides	2			5.14±1.04	3.22±1.98	2.20±2.1	2.5±1.74	2.70±2.2	11.10±10.20	2.44±1.0	1.0±1.10	2.9±5.02	14.041
Humulene epoxide I	1620	Herbal		0.16±0.02	0.38±0.54	0.14±0	0.16±0	0±0	0.4±0.56	0.58±0.02	0.3±0.1	0.36±0.16	0.22±0.
Humulene epoxide II	1630			0±0	1.28±1.24	0.64±0.1	0±0	0.22±0.06	0.66±0.56	0.14±0.12	0±0	0±0	0±0
als	2			0.16±0.02	1.66±1.78	0.78±0.1	0.16±0	0.22±0.06	1.06±1.12	0.72±0.14	0.3±0.1	0.36±0.16	0.22±0
Butanoic acid, methyl ester	709	Fruity	fruity apple sweet banana pineapple	3.06±0.62	7.04±11.54	0 82±1 42	0.4±0.06	0±0	0±0	1 96±3 06	3 18±5 18	11 32±9	6 48±8
Ethyl propionate	713	Fruity	sweet fruity rummy juice fruity grape pineapple	0.2±0.34	1.9±3.3	3.06±3.2	1.2±1.16	0±0	0±0 0±0	4.06±1.98	0.96±1.66	1.48±1.34	0.48±0
Propanoic acid, ethyl ester	721	Fruity	sweet fruity rummy juice fruity grape pineapple	0±0	0.12±0.22	0.52±0.9	2.16±0.88	0±0	1.88±3.26	0.36±0.3	2.72±2.7	2.7±4.68	0±0
Methyl butanoate	731	Fruity	pungent ethereal fruity fusel fermented creamy	4±3.14	6.92±11.98	0.22±0.38	0.76±0.8	1.62±1.6	1.74±1.72	0.64±0.74	0.54±0.96	0±0	1.86±2
Butanoic Acid	771	Cheesy	sharp acetic cheesy buttery fruity	1.08±1.36	1.66±2.88	1.7±1.02	96.9±148.66	5.84±6.18	24.74±39.6	5.84±5.24	0±0	0±0	0±0
	702	10 St.	ethereal estery fruity tutti frutti apple green apple lily of the valley powdery	0.5610.5	1.44.2.1	16 26 12 50	0.0	0.0	0.04.1.14	22.01.45.1	0.0	0.0	7.04
Methyl 2-methylbutanoate Ethyl butanoate	783 799	Fruity	fatty fruity jujay fruit nineannle compa	0.56±0.5 17.2±29.82	1.44±2.1 26.12±30.42	16.76±12.58 10.68±10.38	0±0 153 24±137 48	0±0 73.26±37.36	0.94±1.14 87.88±64.56	32.9±45.1 78.42±66.72	0±0 46 98±79 72	0±0 103 7±3 46	7.26±8 52.26±
Ethyl butanoate Butyl acetate	799	Fruity Ethereal	fruity juicy fruit pineapple cognac ethereal solvent fruity banana	17.2±29.82 30.84±25.2	26.12±30.42 38.46±32.28	10.68±10.38 1.28±2.22	153.24±137.48 23.32±23.02	73.26±37.36 23.04±24.4	8/.88±64.56 0±0	78.42±66.72 9.24±6.5	46.98±/9.72 5.2±3.78	103.7±3.46 192.58±151.92	52.26± 54.76±
Methyl 3-methylbutanoate	809	Fruity	apple fruity pineapple	5.18±2.1	38.46±32.28 14.78±8.72	1.28±2.22 14.48±18.18	23.32±23.02 2.2±2.1	23.04±24.4 30.08±33.12	5.8±5.04	9.24±0.5 3.42±4.54	5.2±3.78 3.48±1.54	192.58±151.92 0±0	54.76± 48.64±
Ethyl 2-methylbutanoate	850	Fruity	sharp sweet green apple fruity	100.24±41.52	49.9±57.2	0±0	302.94±211.18	179.34±65.56	128.48±117.96	185.58±154.98	162.96±155.7	77.38±15.88	1.42±2
	857	Fruity	sharp sweet green apple fruity	98.44±38.54	22.12±38.32	65.34±3.3	24.92±43.18	0±0	0±0	0±0	0±0	0±0	40.84
Ethyl 2-methylbutyrate	886	Fruity	ethereal fruity tropical pineapple grape banana	1.76±0.94	0.24±0.44	1.76±2.36	0.84±1.46	0±0	0±0	0.1±0.18	1.4±1.1	0±0	0±0
		Fruity	ethereal pineapple fruity apricot strawberry banana bacon	3.04±0.58	4.62±6.74	1.8±0.72	5.84±6.98	11.84±12.8	0.88±0.8	2.36±1.2	0.98±1.42	12.14±12.42	1.54±2
Ethyl 2-methylbutyrate Isobutyl isobutyrate Hexanoic acid, methyl ester	904					2.28±1	8.48±6.76	3.5±1.54	2.82±0.22	4.82±2.48	2.3±2.94	6.04±1.36	1.34±1
Ethyl 2-methylbutyrate Isobutyl isobutyrate Hexanoic acid, methyl ester Propanoic acid	911	Acidic	acidic dairy fruity	3.94±0.94	4.66±3.94								
Ethyl 2-methylbutyrate Isobutyl isobutyrate Hexanoic acid, methyl ester Propanoic acid Methyl hexanoate		Acidic Fruity	acidic dairy fruity ethereal fruity pineapple apricot strawberry fruit banana bacon	3.94±0.94 3.06±2.4	4.66±3.94 2.7±3.42	2.28±1 0±0	8.48±0.76 4.62±2.24	2.02±2.4	0±0	4.02±2.40 0±0	0.6±0.56	1.04±0.72	0±0
Ethyl 2-methylbutyrate Isobutyl isobutyrate Hexanoic acid, methyl ester Propanoic acid	911		acidic dairy fruity										

	950				0 14±0 24	0.4±0.08	2.96±2.86	0.42±0.14	1 56±1 1	0 12±0 22	8 44±7 4	0.68±0.3	0+0
2-Methylbutyl propionate Isobutyl 2-methylbutyrate	950	Fruity Fruity	sweet fruity ethereal rummy sweety fruity melon	1.26±0.52 16±3.72	0.14±0.24 1.38±1.24	0.4±0.08 6.14±6.98	2.96±2.86 5.3±4.6	0.42±0.14 14 44±0 76	1.56±1.1 11.98±2.62	0.12±0.22 2.38±1.64	8.44±/.4 8.3±2.28	0.68±0.5 8.64±7.54	0±0 8 08±10 28
Heptanoic acid, methyl ester	986	Fruity	sweety nutry meton sweet fruity green orris waxy floral berry	0±0	6 3±5 2	0±0	7 36±3 3	7 24±0 42	3 68±3 2	2.82±2.52	6 56±5 44	10±2.88	11 88±10 98
2-Methylbutanoic acid	993	Acidic	pungent acidic cheesy roquefort cheese cheesy	20.46±5.24	3.82±4.42	17.82±1.08	5.8±3.22	14.62±11.24	29.86±26.7	10.72±6.38	10.12±9.3	2.06±0.52	33.96±13.52
Ethyl hexanoate	996	Fruity	sweet fruity pineapple waxy green banana	1.22±1.16	9.02±6.44	0±0	5.08±3.54	2.4±1.92	2.24±1.96	1.72±0.26	3.34±3.08	1.08±0.14	0±0
Hexyl acetate	1005	Fruity	fruity green apple banana sweet	32.96±28.64	0±0	65.9±57.06	46.5±61.86	0±0	0±0	7.74±1.1	12.54±10.46	0±0	0±0
Geranyl isovalerate	1008	Fruity	green fruity apple blueberry pineapple	1.04±0.26	0.02±0.04	0.66±0.78	1.14±1.16	1.7±0.96	1.7±1	0.08±0	0.04±0.04	4.56±1.92	0±0
Butanoic acid, 3-methylbutyl	1013												
ester Methyl heptanoate	1013	Fruity	fruity green apricot pear banana sweet fruity green orris waxy floral berry	0±0 0 74±0 06	0±0 4 3±3 1	0±0 0 16±0 28	1.16±2.02 4.88±1.44	5.6±9.68 2.56±0.8	0±0 4 04±6 3	0±0 5 26±5 28	0±0 0±0	0±0 0±0	6.52±8.12 15.52±7.4
Heptanoic acid	1027	Fruity Cheesy	rancid sour cheesy sweaty	6.24±0.78	4.3±3.1 7.08±1.26	0.16±0.28 4.44±1.54	4.88±1.44 9.32±2.24	2.56±0.8 10.16±2.48	4.04±6.5 4.26±3.7	5.26±5.28 9.42±3.86	0±0 5.1±3.72	0±0 5.2±1	15.52±7.4 0±0
3-Methylbutyl 2-methylbutanoate	1087	Fruity	sweet fruity citrus cherry blueberry apple	24.02±7.38	228.84±354.24	12.18±3.72	8 4±4 56	9 3±5 8	2.48±1.66	0±0	0.82±0.88	3 2±4 86	2.92±4.44
4-Octenoic acid, methyl ester	1114	-	-	21.12±7.16	50±51.88	18.04±11.24	16.94±7.4	18.1±5.62	25.38±7.96	4.84±1.7	4.5±1.42	20.64±19.58	154.66±140.04
Methyl octanoate	1121	Waxy	waxy green sweet orange aldehydic vegetable herbal	294.3±290.66	752.38±659.56	0±0	0±0	656±433.84	457.86±553	0±0	0±0	1058.4±580.32	0±0
Allyl isovalerate	1123	Fruity	sweet fruity banana apple pineapple cherry	64.04±11.82	0±0	98.7±49.44	0±0	78.8±72.98	0±0	0±0	0±0	0±0	474.54±585.86
Ethyl 3-hydroxyhexanoate	1130	Fruity	fruity grape woody burnt wood hay spicy pineapple cranberry dusty woody	5.48±1	0±0	0±0	0±0	0±0	0±0	1.96±1.7	2.24±3.88	0±0	0±0
Valeric acid	1149	Cheesy	acidic sweaty rancid	15.42±8.88	0±0	25.7±9.04	2.88±1.02	6.86±1.08	2.34±1.44	0.5±0.1	0.5±0.38	0±0	4.82±4.18
Octanoic acid	1163	Fatty	fatty waxy rancid oily vegetable cheesy	122.88±46.02	0.92±1.6	107.76±4.72	51.28±44.62	0±0	37.14±37.76	1.92±2.72	2.44±2.22	0±0	6.3±1.8
Nonanoic acid	1181	Waxy	waxy dirty cheesy dairy	0.94±0.98	2.5±3.86	0.96±0.58	0.98±0.46	2.34±0.64	4.48±2.98	1.68±0.64	1.46±0.82	3.4±0.5	1.8±0.64
Methyl nonanoate methyl carvacrol	1209	Fruity Herbal	sweet fruity pear waxy tropical winey	0.88±0.32 5.68±4.94	0.16±0.14 0±0	0.38±0.1 0±0	1.08±0.22 0.94±1.64	0.78±0.18 0±0	0.5±0.5 24.82±38.7	1.68±0.74 0±0	0.54±0.1 0±0	1.34±0.08 0±0	0.8±0.26 0±0
Methyl carvacroi Methyl dec-5-enoate	1250	Herbal	herbal spicy leafy citrus	5.68±4.94 3.8±0.44	0±0 4 56±2 3	0±0 2.86±1.08	0.94±1.64 2.8±1.42	0±0 1.68±0.2	24.82±58.7 2.1±1.94	2.12±0.3	0±0 1.06±0.56	0±0 3.14±1.1	0±0 1 76±0 64
4-Decenoic acid	1290	Fruity		4.18±0.34	1.74±1.16	3.32±1.28	9.08±1.9	2.36±0.28	3.76±2.74	12.4±4.02	1.5±1.02	6.42±1.96	8.78±2.62
Decenoic acid	1309	Waxy	waxy buttery oily creamy dairy green lactonic plum skin	7.68±3.38	9±6.72	5.8±1.84	10.54±2.5	9.58±3.02	8.66±4.58	0±0	8.84±4.36	8.08±1.22	11.22±5.14
Methyl 5-bromo-5-hexenoate	1314	-	-	1.88±0.16	1.62±0.64	3.1±1.38	1.96±1.14	0.88±0.78	1.58±1.66	10.88±2.88	0±0	5.62±7.16	3.34±1.68
trans-Geranic acid methyl ester	1323	Waxy	waxy green fruity floral	0.6±0.52	1.06±1.22	0±0	0.44±0.44	2.08±0.78	1.62±0.5	2.66±1.26	1.6±0.1	1.74±0.32	4.06±1.52
Methyl decanoate	1327	Fermented	oily winey fruity floral	2.22±0.22	3.36±1.72	1.88±0.88	2.96±0.74	1.1±0.64	2±2.34	6.88±1.42	4.02±1.44	7.76±3.9	3.92±0.3
Methyl 3-undecenoate	1355	-		12.66±1.04	22.48±19.98	0±0	10.7±5.68	6.4±0.46	6.62±5.38	21.78±10.3	2.84±0.92	4.04±0.44	2.9±0.28
Decanoic acid	1360	Fatty	rancid sour farty citrus	0.56±0.98	0±0	0±0	2.04±0.68	0.8±0.32	1.7±0.76	0.56±0.12	0±0	0±0	0±0
Geranyl acetate	1383	Floral	floral rose lavender green waxy	16.02±7.76	15.98±17.54	5.46±1.04 2.82±1.2	4.5±0.9	4.14±2.3	4.58±3.44	36.7±8.66	28.26±7.24 0.98±0.36	54.26±24.86	18.38±4.46
4-tert-Butylphenyl acetate Geranyl isobutyrate	1412 1514	Floral	- Sweet/fruity, waxy	3±0.08 1.98±0.32	3.62±3.62 3.02±1.68	2.82±1.2 2.28±0.72	2.52±1.24 3.38±1.98	1.18±0.18 1.36±0.6	1.98±0.86 1.28±0.8	2.8±0.76 2.86±0.52	0.98±0.36 1.38±0.66	0±0 1.76±1.26	0.08±0.14 0.74±0.16
Methyl dodecanoate	1526	Waxy	waxy soapy creamy coconut mushroom	1.72±0.18	1.36±1.34	0.9±0.44	1.24±0.38	0.42±0.46	1.28±0.8 3.48±4.86	1.28±0.3	1.1±0.38	2.32±0.26	1.44±0.42
Dodecanoic acid	1556	Fatty	fatty coconut bay	0.34±0.28	0±0	0.4±0.36	0.6±0.18	0.26±0.1	1.24±0.76	0±0	0±0	0±0	0±0
Hexyl octanoate	1589	Green	fruity green waxy berry apple estery	0.18±0.04	1.56±1.96	0.22±0.06	0.32±0.16	0.28±0.14	0.16±0.14	0.42±0.26	0.42±0.02	1.7±1.86	0.26±0.1
Ethyl dodecanoate	1595	Waxy	sweet waxy floral soapy clean	0.46±0.14	0.98±1.16	0.46±0.2	0.46±0.22	0.44±0.04	0.76±0.42	6.76±2.98	0.98±0.2	0±0	0.66±0.14
								1196.28±744.1				1625.94±865.2	
Totals	52			967.54±586.92	1320.9±1368.78	512.1±216.52	854.18±752.4	8	913.92±957.94	491.36±356.58	352±326.3	2	996.52±1151.22
Ketones 3-Buten-2-one, 3-methyl-	677			5 32±1 04	0±0	0±0	4.26±7.4	10.96±12.5	5.22±5.88	4 34±4 96	0±0	18 58±21 26	0±0
3-Buten-2-one, 3-metnyl- 1-Penten-3-one	687	Spicy	-	5.32±1.04 53.46±45.72	0±0 15.26±12.44	0±0 8 58±7 5	4.20±7.4 0±0	10.96±12.5 23.58±10.44	5.22±5.88 0±0	4.34±4.96 6.52±11.32	0±0 3 34±3 84	18.58±21.26 2.02±0.02	0±0 0±0
Methyl Isobutyl Ketone	716	Green	pungent peppery mustard garlic onion sharp solvent green herbal fruity dairy spicy	1.82±3.16	0±0	0.14±0.24	0±0	25.58±10.44 0±0	0±0	0.32±11.32 0±0	0.38±0.66	2.02±0.02 0±0	3.92±3.52
2-Hexanone	793	Fruity	fruity fungal meaty buttery	86 66±92 76	0±0	18 02±30 16	1 54±2 36	0±0	0.94±1.64	3.02±3.36	2.7±3.24	10.1±8.56	7 22±7 02
2-Heptanone	883	Cheesy	fruity spicy sweet herbal coconut woody	1.84±0.96	2.08±2.94	0.8±0.32	1.24±0.96	3.54±0.96	2.62±2.36	1.3±1.26	1.66 ± 1.44	1.3±1.58	1.64±1.94
4-Methyl-2-heptanone	945	-	-	0.08±0.14	0.2±0.36	0±0	0.12±0.2	0.06±0.1	1.02±1.78	0.04±0.08	0.12±0.1	0±0	4.48±3.7
Acetophenone	1083	Floral	sweet pungent hawthorn mimosa almond acacia chemical	0±0	3.82±4.44	4.52±1.3	8.64±4.44	6.32±9.88	2.04±1.44	1.22±1.18	3.12±2.84	3.88±1.64	2.12±0.64
2-Decanone	1159	Floral	orange floral fatty peach	0±0	49.24±45.46	0±0	0±0	37.2±1.64	0.1±0.18	4.66±1.5	6.22±3.86	5.18±1.64	6.6±1.8
7-Decen-2-one	1164		-	13.78±17.92	2.96±2.92	38.6±43.86	61.24±91.86	63.04±10.34	0±0	0±0	5.08±0.74	0±0	8.7±1.24
Decanone	1193		-	10.04±8.7	6.74±4.24	3.96±5.06	5.78±5.2 158 56±44 72	30.78±4.98	18.36±24.22	41.66±40.42	10.46±8.98	24.8±8.88	48.54±11.44
Undec-2-en-6-one 2-Dodecanone	1262 1342	Citrus	-	119.24±22.66	77.16±38.4	103.06±32.78		6.94±6.02	166.72±234.1	52.94±36.22	0±0	32.08±6.46	59.3±20.54
		Citrus	fruity citrus floral orange	10.36±3.3	3.88±3.64	0±0	8.26±8.58	47.68±8.66	1.4±0.26	0.9±0.16	1.74±1.72	5.28±1.7	24.34±9.82
2-Nonadecanone	1359	-	-	1.14±0.12	0.4±0.34	324±97.6	1.24±0.4	0.82±0.66	1.4±0.64	3.94±0.4	0.2±0.24	2.54±3.36	0.66±0.14
2-Nonadecanone Damascenone	1359 1391	- Floral	natural sweet fruity rose plum grape raspberry sugar	1.14±0.12 60.02±5.2	0.4±0.34 66.24±56.2	324±97.6 111.22±61.74	1.24±0.4 53.08±16.88	0.82±0.66 50.88±21.9	1.4±0.64 156.5±120.82	3.94±0.4 52.5±17.84	0.2±0.24 39.6±27.8	2.54±3.36 39.7±12.1	0.66±0.14 22.16±17.36
2-Nonadecanone	1359	-	-	1.14±0.12	0.4±0.34	324±97.6	1.24±0.4	0.82±0.66	1.4±0.64	3.94±0.4	0.2±0.24	2.54±3.36	0.66±0.14
2-Nonadecanone Damascenone Ethyl decanoate (Z)-6-Pentadecen-2-one Totals	1359 1391 1397	- Floral	natural sweet fruity rose plum grape raspberry sugar	1.14±0.12 60.02±5.2 5.08±1.02	0.4±0.34 66.24±56.2 4.92±4.1	324±97.6 111.22±61.74 4.24±1.06	1.24±0.4 53.08±16.88 7.58±2.36	0.82±0.66 50.88±21.9 1.28±0.18	1.4±0.64 156.5±120.82 1±0.88	3.94±0.4 52.5±17.84 1.86±0.22	0.2±0.24 39.6±27.8 4.42±1.84	2.54±3.36 39.7±12.1 6±1.28	0.66±0.14 22.16±17.36 3.14±0.96
2-Nonadecanone Damascenone Ethyl decanoate (Z)-6-Pentadecen-2-one Totals Lactones	1359 1391 1397 1660 16	- Floral Waxy -	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy	1.14±0.12 60.02±5.2 5.08±1.02 0.52±0.08 369.36±202.78	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74	324±97.6 111.22±61.74 4.24±1.06 0.26±0.06 617.4±281.68	1.24±0.4 53.08±16.88 7.58±2.36 0.58±0.36 312.12±185.72	0.82±0.66 50.88±21.9 1.28±0.18 0.16±0.14 283.24±88.4	1.4±0.64 156.5±120.82 1±0.88 0.12±0.1 357.44±394.3	3.94±0.4 52.5±17.84 1.86±0.22 0.74±0.4 175.64±119.32	0.2±0.24 39.6±27.8 4.42±1.84 0.38±0.16 79.42±57.46	2.54±3.36 39.7±12.1 6±1.28 0±0 151.46±68.48	0.66±0.14 22.16±17.36 3.14±0.96 0.52±0.16 193.34±80.28
2-Nonadecanone Dama scenone Ethyl decanoate (Z)-6-Pentadecen-2-one Lactones Gamma-hexalactone	1359 1391 1397 1660 16 1055	- Floral Waxy - Tonka	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconut sweet coumarinic tobacco	1.14±0.12 60.02±5.2 5.08±1.02 0.52±0.08 369.36±202.78 37.22±16.1	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74 40.82±35.34	324±97.6 111.22±61.74 4.24±1.06 0.26±0.06 617.4±281.68 11.72±9.44	1.24±0.4 53.08±16.88 7.58±2.36 0.58±0.36 312.12±185.72 44.64±6.74	0.82±0.66 50.88±21.9 1.28±0.18 0.16±0.14 283.24±88.4 25±8.6	1.4±0.64 156.5±120.82 1±0.88 0.12±0.1 357.44±394.3 85.24±76.82	3.94±0.4 52.5±17.84 1.86±0.22 0.74±0.4 175.64±119.32 17.22±15.3	0.2±0.24 39.6±27.8 4.42±1.84 0.38±0.16 79.42±57.46 18.42±16.26	2.54±3.36 39.7±12.1 6±1.28 0±0 151.46±68.48 82±32.46	0.66±0.14 22.16±17.36 3.14±0.96 0.52±0.16 193.34±80.28 0±0
2-Nonadecanone Damasecnone Ethyl decanoate (Z)-6-Pentadecen-2-one Total Lactones Gamma-hexalactone Grenaylacetone	1359 1391 1397 1660 16 1055 1454	- Floral Waxy - Tonka Floral	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconut sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical	1.14±0.12 60.02±5.2 5.08±1.02 0.52±0.08 369.36±202.78 37.22±16.1 2.4±0.34	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74 40.82±35.34 3.88±2.52	324±97.6 111.22±61.74 4.24±1.06 0.26±0.06 617.4±281.68 11.72±9.44 2.92±0.9	1.24±0.4 53.08±16.88 7.58±2.36 0.58±0.36 312.12±185.72 44.64±6.74 3.9±1.12	0.82±0.66 50.88±21.9 1.28±0.18 0.16±0.14 283.24±88.4 25±8.6 2.38±0.48	1.4±0.64 156.5±120.82 1±0.88 0.12±0.1 357.44±394.3 85.24±76.82 1.54±1.44	3.94±0.4 52.5±17.84 1.86±0.22 0.74±0.4 175.64±119.32 17.22±15.3 1.58±0.36	0.2±0.24 39.6±27.8 4.42±1.84 0.38±0.16 79.42±57.46 18.42±16.26 3.52±2	2.54±3.36 39.7±12.1 6±1.28 0±0 151.46±68.48 82±32.46 3.96±1.52	0.66±0.14 22.16±17.36 3.14±0.96 0.52±0.16 193.34±80.28 0±0 3.14±0.36
2-Nonadecanone Dama secone Ethyl decanoate (Z)-6-Pentadecen-2-one Lactones Gamma-hexalactone Gamma-decalactone	1359 1391 1397 1660 16 1055	- Floral Waxy - Tonka	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconut sweet coumarinic tobacco	1.14±0.12 60.02±5.2 5.08±1.02 0.52±0.08 369.36±202.78 37.22±16.1 2.4±0.34 1.08±0.2	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74 40.82±35.34 3.88±2.52 0.66±0.12	324±97.6 111.22±61.74 4.24±1.06 0.26±0.06 617.4±281.68 11.72±9.44 2.92±0.9 0.92±0.12	1.24±0.4 53.08±16.88 7.58±2.36 0.58±0.36 312.12±185.72 44.64±6.74 3.9±1.12 0±0	0.82±0.66 50.88±21.9 1.28±0.18 0.16±0.14 283.24±88.4 25±8.6 2.38±0.48 0.42±0.06	$\begin{array}{c} 1.4{\pm}0.64\\ 156.5{\pm}120.82\\ 1{\pm}0.88\\ 0.12{\pm}0.1\\ \textbf{357.44{\pm}394.3}\\ \end{array}$	3.94±0.4 52.5±17.84 1.86±0.22 0.74±0.4 175.64±119.32 17.22±15.3 1.58±0.36 1.28±0.26	0.2±0.24 39.6±27.8 4.42±1.84 0.33±0.16 79.42±57.46 18.42±16.26 3.52±2 0.58±0.22	2.54±3.36 39.7±12.1 6±1.28 0±0 151.46±68.48 82±32.46 3.96±1.52 2.06±0.88	0.66±0.14 22.16±17.36 3.14±0.96 0.52±0.16 193.34±80.28 0±0 3.14±0.36 0.5±0.08
2-Nonadecanone Damasecnone Ethyl decanoate (Z)-6-Pentadecen-2-one Total Lactones Gamma-hexalactone Grenaylacetone	1359 1391 1397 1660 16 1055 1454 1488 3	Floral Floral Waxy - Tonka Floral Fruity	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconut sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical	1.14±0.12 60.02±5.2 5.08±1.02 0.52±0.08 369.36±202.78 37.22±16.1 2.4±0.34 1.08±0.2 40.7±16.64	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74 40.82±35.34 3.88±2.52 0.66±0.12 45.36±37.98	324±97.6 111.22±61.74 4.24±1.06 0.26±0.06 617.4±281.68 11.72±9.44 2.92±0.9 0.92±0.12 15.56±10.46	1 24±0.4 53.08±16.88 7.58±2.36 0.58±0.36 312.12±185.72 44.64±6.74 3.9±1.12 0±0 48.54±7.86	0.82±0.66 50.88±21.9 1.28±0.18 0.16±0.14 283.24±88.4 25±8.6 2.38±0.48 0.42±0.06 27.8±9.14	1.4±0.64 156.5±120.82 1±0.88 0.12±0.1 357.44±394.3 85.24±76.82 1.54±1.44 1.32±2.3 88.1±80.56	3.94±0.4 52.5±17.84 1.86±0.22 0.74±0.4 175.64±119.32 17.22±15.3 1.58±0.36 1.28±0.26 20.08±15.92	0.2±0.24 39.6±27.8 4.42±1.84 0.38±0.16 79.42±57.46 18.42±16.26 3.52±2	2.54±3.36 39.7±12.1 6±1.28 0±0 151.46±68.48 82±32.46 3.96±1.52 2.06±0.88 88.02±34.86	0.66±0.14 22.16±17.36 3.14±0.96 0.52±0.16 193.34±80.28 0±0 3.14±0.36 0.5±0.08 3.64±0.44
2-3-Nonadecanone Damas econe Ethyl decanoate (2)-6-Pentadecen-2-one Tatals Gamma-hexalactone Geranylacetone Gamma-decalactone Tatal Monoterpenes Alpha-thujene	1359 1391 1397 1660 16 1055 1454 1488 3 933	- Floral Waxy - Tonka Floral	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconut sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical fresh oily waxy peach coconut buttery sweet woody green herbal	1.14±0.12 60.02±5.2 5.08±1.02 0.52±0.08 369.36±202.78 37.22±16.1 2.4±0.34 1.08±0.2	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74 40.82±35.34 3.88±2.52 0.66±0.12	324±97.6 111.22±61.74 4.24±1.06 0.26±0.06 617.4±281.68 11.72±9.44 2.92±0.9 0.92±0.12 15.56±10.46 0±0	1.24±0.4 53.08±16.88 7.58±2.36 0.58±0.36 312.12±185.72 44.64±6.74 3.9±1.12 0±0 48.54±7.86 51.7±66.84	0.82±0.66 50.88±21.9 1.28±0.18 0.16±0.14 283.24±88.4 25±8.6 2.38±0.48 0.42±0.06 27.8±9.14 37.72±17.38	1.4±0.64 156.5±120.82 1±0.88 0.12±0.1 357.44±394.3 85.24±76.82 1.54±1.44 1.32±2.3 88.1±80.56 48.34±41.86	3.94±0.4 52.5±17.84 1.86±0.22 0.74±0.4 175.64±119.32 17.22±15.3 1.58±0.36 1.28±0.26	0.2±0.24 39.6±27.8 4.42±1.84 0.38±0.16 79.42±57.46 18.42±16.26 3.52±2 0.58±0.22 22.52±18.48 0±0	2.54±3.36 39.7±12.1 6±1.28 0±0 151.46±68.48 82±32.46 3.96±1.52 2.06±0.88 88.02±34.86 8.64±0.92	0.66±0.14 22.16±17.36 3.14±0.96 0.52±0.16 193.34±80.28 0±0 3.14±0.36 0.5±0.08 3.64±0.44 10.58±14.7
2-3-Nonadecanone Damas ecnone Ethyl decanoate (2)-6-Pentadecen-2-one Totals Garnay-hevalachone Garnay-hevalachone Garnay-hevalachone Totals Monolerpenes Mipha-thujene	1359 1391 1397 1660 16 1055 1454 1458 3 933 971	Floral Waxy Tonka Floral Fruity Woody Spicy	natural sweet fuilty cose plum grape raspberry sugar sweet waxy fuilty apple grape oily brandy herbal ecconut sweet coumarinic tobacco feeds green fuilty waxy poech ecconut buttery sweet woody green herbal peppeyr terpenie spicy balsamic plastic	1.14±0.12 60.02±5.2 5.08±1.02 0.52±0.08 369.36±202.78 37.22±16.1 2.4±0.34 1.08±0.2 40.7±16.64 30.32±30.04 0±0	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74 40.82±35.34 3.88±2.52 0.66±0.12 45.36±37.98 0±0 0±0	324497.6 111.22±61.74 4.24±1.06 0.26±0.06 617.4±281.68 11.72±9.44 2.92±0.9 0.92±0.12 15.56±10.46 0±0 30.76±28.36	$\begin{array}{c} 1.24{\pm}0.4 \\ 53.08{\pm}16.88 \\ 7.58{\pm}2.36 \\ 0.58{\pm}0.36 \\ \textbf{312.12}{\pm}185.72 \\ 44.64{\pm}6.74 \\ 3.9{\pm}1.12 \\ 0{\pm}0 \\ \textbf{48.54}{\pm}7.86 \\ \textbf{51.7}{\pm}66.84 \\ 35.58{\pm}47.22 \end{array}$	0.82±0.66 50.88±21.9 1.28±0.18 0.16±0.14 283.24±88.4 2.38±0.48 0.42±0.06 27.8±9.14 37.72±17.38 71.16±10.14	$\begin{array}{c} 1.4\pm0.64\\ 156.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.1\\ 357.4\pm394.3\\ 85.24\pm76.82\\ 1.54\pm1.44\\ 1.32\pm2.3\\ 88.1\pm80.56\\ 48.34\pm41.86\\ 80.24\pm31.14\\ \end{array}$	$\begin{array}{c} 3.94\pm0.4\\ 52.5\pm17.84\\ 1.8\pm0.22\\ 0.74\pm0.4\\ 175.64\pm119.32\\ 17.22\pm15.3\\ 1.58\pm0.36\\ 1.28\pm0.26\\ 20.08\pm15.92\\ 1.34\pm2.34\\ 0\pm0\\ \end{array}$	$\begin{array}{c} 0.2\pm 0.24\\ 39.6\pm 27.8\\ 4.42\pm 1.84\\ 0.38\pm 0.16\\ \hline \textbf{79.42\pm 57.46}\\ 18.42\pm 16.26\\ 3.52\pm 2\\ 0.58\pm 0.22\\ \hline \textbf{22.52\pm 18.48}\\ 0\pm 0\\ 3.32\pm 2.38\\ \end{array}$	2 5 4+3 36 39.7±12.1 6±1.28 0±0 151.46±68.48 82±32.46 3.96±1.52 2.06±0.88 88.02±34.86 8.64±0.92 12.8±22.18	0.6640.14 22.16417.36 3.1440.96 0.5240.16 193.34280.28 0±0 3.1440.36 0.540.08 3.6440.44 10.58±14.7 2.1443.7
2-3-Nonadecanone Damas econe Ethyl decanoate (2)-6-Pentadecen-2-one Totals Gamma-decalactone Geranylacetone Gamma-decalactone Total Monoterpenes Alpha-thujene Beta-pinene	1359 1391 1397 1660 1055 1454 1458 3 933 971 980	- Floral Waxy - Tonka Floral Fruity Woody Spicy Herbal	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconut sweet counarito tobacco fresh green fruity waxy rose woody magnola tropical fresh oily waxy peach coconut buttery sweet woody green herbal peppery terpenic spicy balsamic plastic dy woody restones pinc hay green eacalyptus camporous	$\begin{array}{c} 1.14{\pm}0.12\\ 6.002{\pm}5.2\\ 5.08{\pm}1.02\\ 0.52{\pm}0.08\\ 369.36{\pm}202.78\\ \hline 37.22{\pm}16.1\\ 2.4{\pm}0.34\\ 1.08{\pm}0.2\\ \hline 40.7{\pm}16.64\\ \hline 30.32{\pm}30.04\\ 0{\pm}0\\ 18.1{\pm}1.68\\ \end{array}$	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74 40.82±35.34 3.88±2.52 0.66±0.12 45.36±37.98 0±0 0±0 0±0 11.28±0.52	$\begin{array}{c} 324497.6\\ 111.22\pm61.74\\ 4.24\pm1.06\\ 0.26\pm0.06\\ 617.4\pm281.68\\ \hline\\ 11.72\pm9.44\\ 2.92\pm0.9\\ 0.92\pm0.12\\ \hline\\ 15.56\pm10.46\\ \hline\\ 0.6\pm0\\ 30.76\pm28.36\\ 9.54\pm0.86\\ \end{array}$	1 24+0 4 53 08+16 88 7.58+2.36 0.58+0.36 312.12+185.72 44.64±6.74 3.9±1.12 0±0 48.54±7.86 51.7±66.84 35.58±47.22 12.96±8.68	$\begin{array}{c} 0.82{\pm}0.66\\ 50.88{\pm}21.9\\ 1.28{\pm}0.18\\ 0.16{\pm}0.14\\ \textbf{283.24{\pm}88.4}\\ \textbf{25{\pm}8.6}\\ 2.38{\pm}0.48\\ 0.42{\pm}0.06\\ \textbf{27.8{\pm}9.14}\\ \textbf{37.72{\pm}17.38}\\ 71.16{\pm}10.14\\ 5.5{\pm}5.92\\ \end{array}$	1 4±0 64 156.5±12.82 1±0.88 0.12±0.1 357.4±394.3 85.24±76.82 1.54±1.44 1.32±2.3 88.1±80.56 48.34±41.86 80.24±31.14 17.12±13.08	3.94±0.4 52.5±17.84 1.86±0.22 0.74±0.4 175.64±119.32 17.22±15.3 1.58±0.36 1.28±0.26 20.08±15.92 1.34±2.34 0±0 0±0 4.64±7.1	0.2±0.24 39.6±27.8 4.42±1.84 0.38±0.16 0.38±0.16 18.42±16.26 3.52±2 0.58±0.22 22.52±18.48 0±0 3.32±2.38 2.24±1.96	2 54+3 36 39.7±12.1 6±1.28 0±0 151.46+68.48 82±32.46 3.96+1.52 2.06+0.88 88.02±34.86 8.64±0.92 12.8±22.18 2.38±2.14	0.66±0.14 22.16±17.36 3.14±0.96 0.52±0.16 193.34±80.28 0±0 3.14±0.36 0.5±0.08 3.64±0.44 10.58±14.7 2.14±3.7 15.4±3.02
2-3-Nonadecanone Damas econo Ethyl decanoate (2)-5-Pentadecen-2-one Totals Gamma-lexalactone Gamma-decalactone Totals Monoterpenes Alpha-thujene Beta-pinene Beta-pinene Beta-pinene	1359 1391 1397 1660 1055 1454 1454 1488 3 933 971 980 991	- Floral Waxy - Tonka Floral Fruity Woody Spicy Herbal Spicy	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconst sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical fresh oily waxy peach coconat buttery sweet woody green herbal pepper terpenge spicy balamic plastic dy woody resionous pine hay green eucalypus camporeous pepper terpenge spicy balamic plastic	$\begin{array}{c} 1.14{\pm}0.12\\ 60.02{\pm}5.2\\ 5.08{\pm}1.02\\ 0.52{\pm}0.08\\ 369.36{\pm}202.78\\ 37.22{\pm}0.16\\ 1.24{\pm}0.34\\ 1.08{\pm}0.2\\ 40.7{\pm}16.64\\ 30.32{\pm}30.04\\ 0{\pm}0\\ 18.1{\pm}1.68\\ 80.34{\pm}8.56\\ \end{array}$	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74 40.82±35.34 3.88±2.52 0.66±0.12 45.36±37.98 0±0 0±0 0±0 0±0 0±29.0±6.94	$\begin{array}{c} 324497.6\\ 111.22\pm61.74\\ 4.24\pm1.06\\ 0.26\pm0.06\\ 617.4\pm281.68\\ 11.72\pm9.44\\ 2.92\pm0.9\\ 0.92\pm0.12\\ 15.56\pm10.46\\ 0\pm0\\ 30.76\pm28.36\\ 9.54\pm0.86\\ 159.86\pm70.02\\ \end{array}$	$\begin{array}{c} 1.24{\pm}0.4 \\ 53.08{\pm}16.88 \\ 7.58{\pm}2.36 \\ 0.58{\pm}0.36 \\ 312.12{\pm}185.72 \\ 44.64{\pm}6.74 \\ 3.9{\pm}1.12 \\ 0{\pm}0 \\ 48.54{\pm}7.86 \\ 51.7{\pm}6.84 \\ 35.58{\pm}47.22 \\ 12.96{\pm}8.68 \\ 15.86{\pm}7.68 \end{array}$	$\begin{array}{c} 0.82{\pm}0.66\\ 50.88{\pm}21.9\\ 1.28{\pm}0.18\\ 0.16{\pm}0.14\\ \textbf{283.24{\pm}88.4}\\ \textbf{258.8}\\ 6.23{\pm}0.48\\ 0.42{\pm}0.06\\ \textbf{27.8}{\pm}9.14\\ \textbf{37.72{\pm}17.38}\\ 71.16{\pm}10.14\\ 5.5{\pm}.92\\ \textbf{27.4.74{\pm}200.46} \end{array}$	$\begin{array}{c} 1.4\pm0.64\\ 156.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.1\\ 357.4\pm394.3\\ 85.24\pm76.82\\ 1.54\pm1.44\\ 1.32\pm2.3\\ 88.1\pm80.56\\ \hline 48.34\pm41.86\\ 80.24\pm31.14\\ 17.12\pm13.08\\ 59.9\pm10.34\\ \end{array}$	$\begin{array}{c} 3.94\pm0.4\\ 52.5\pm17.84\\ 1.86\pm0.22\\ 0.74\pm0.4\\ 175.64\pm119.32\\ 17.22\pm15.3\\ 1.58\pm0.36\\ 1.28\pm0.26\\ 1.28\pm0.26\\ 1.28\pm0.26\\ 1.28\pm0.26\\ 1.34\pm2.34\\ 0\pm0\\ 4.64\pm7.1\\ 2.3.46\pm14.64\\ \end{array}$	$\begin{array}{c} 0.2\pm 0.24\\ 39.6\pm 27.8\\ 4.42\pm 1.84\\ 0.38\pm 0.16\\ \hline \textbf{79.42\pm57.46}\\ 18.42\pm 16.26\\ 3.52\pm 2\\ 0.58\pm 0.22\\ \hline \textbf{22.52\pm 18.48}\\ \hline \textbf{0\pm0}\\ 3.32\pm 2.38\\ 2.24\pm 1.96\\ 8.02\pm 4.58\\ \end{array}$	$\begin{array}{c} 2,54\pm3,36\\ 39.7\pm12.1\\ 6\pm1.28\\ 0\pm0\\ \textbf{151.46\pm8.848}\\ 82\pm32.46\\ 3.96\pm1.52\\ 2.06\pm0.88\\ \textbf{88.02\pm34.86}\\ \textbf{88.02\pm34.86}\\ \textbf{86.44\pm0.92}\\ 12.8\pm22.18\\ 2.38\pm2.14\\ 12.52\pm3.02\end{array}$	0.66:e0.14 22.16:17.36 3.14:e0.96 0.52:e0.16 193.34:80.28 0:e0 3.14:e0.36 0.5:40.08 3.6 :e0.44 10.58:e1.4.7 2.14:s3.7 15.4:e3.70 15.4:e3.02
2-Nonadecanone Damas ecnone Ethyl decanoate (2)-6-Pentadecen-2-one Tatals Gamma-hexalactone Geranylacetone Gamma-decalactone Tatal Monolerprenes Alpha-thujene Beta-myrcene Beta-myrcene Beta-myrcene	1359 1391 1397 1660 1055 1454 1488 3 933 971 980 991 1011	- Floral Waxy - Tonka Floral Fruity Woody Spicy Herbal Spicy Terpenic	natural sweet finity rose plum grape raspberry sugar sweet waxy finity apple grape oily brandy herbal coconut sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical fresh oily waxy peach coconut buttery sweet woody green herbal peppery terpenic spicy balsamic plastic dy woody resonous pine havg green eucalyphus camporous pepper terpenic spicy balsamic plastic citrus herbal terpenic green woody pepper black pepper	$\begin{array}{c} 1.14{\pm}0.12\\ 6.002{\pm}5.2\\ 5.08{\pm}1.02\\ 0.52{\pm}0.08\\ 369.36{\pm}202.78\\ \hline 37.22{\pm}16.1\\ 2.4{\pm}0.34\\ 1.08{\pm}0.2\\ \hline 40.7{\pm}16.64\\ \hline 30.32{\pm}30.04\\ 0{\pm}0\\ 18.1{\pm}1.68\\ 80.34{\pm}8.56\\ 0{\pm}0\\ \hline \end{array}$	$\begin{array}{c} 0.4\pm 0.34\\ 66.24\pm 56.2\\ 4.92\pm 4.1\\ 1.08\pm 1.26\\ 233.98\pm 176.74\\ \hline \\ 40.82\pm 35.34\\ 3.88\pm 2.52\\ 0.66\pm 0.12\\ \hline \\ 45.36\pm 37.98\\ \hline \\ 0\pm 0\\ 0\pm 0\\ 11.28\pm 0.52\\ 29.06\pm 6.94\\ 5.32\\ 29.06\pm 6.52\\ 3.22\\ 3$	$\begin{array}{c} 324497.6\\ 111.22\pm61.74\\ 4.24\pm1.06\\ 0.26\pm0.06\\ 617.4\pm281.68\\ \hline\\ 11.72\pm9.44\\ 2.92\pm0.9\\ 0.92\pm0.12\\ \hline\\ 15.56\pm10.46\\ \hline\\ 0.0\\ 0.95\pm0.12\\ \hline\\ 15.86\pm70.02\\ 8.6\pm32.22\\ \hline\end{array}$	$\begin{array}{c} 1.24{\pm}0.4\\ 53.08{\pm}1.6\ 88\\ 7.58{\pm}2.36\\ 0.58{\pm}0.36\\ 312.12{\pm}185.72\\ \hline 44.64{\pm}6.74\\ 3.9{\pm}1.12\\ 0{\pm}0\\ \hline 48.54{\pm}7.86\\ \hline 51.7{\pm}66.84\\ 35.58{\pm}47.22\\ 1.296{\pm}8.68\\ 15.86{\pm}7.68\\ 0{\pm}0\\ \hline \end{array}$	$\begin{array}{c} 0.82{\pm}0.66\\ 5.088{\pm}21.9\\ 1.28{\pm}0.18\\ 0.16{\pm}0.14\\ 283.24{\pm}88.4\\ \hline \\ 25{\pm}8.6\\ 2.38{\pm}0.48\\ 0.42{\pm}0.06\\ \hline \\ 27.8{\pm}9.14\\ \hline \\ 37.72{\pm}17.38\\ 71.16{\pm}10.14\\ 5.5{\pm}5.9\\ 274.74{\pm}200.46\\ 0{\pm}0\\ \hline \end{array}$	1 4±0 64 156.5±12.82 1±0.88 0.12±0.1 357.4±394.3 85.24±76.82 1.54±1.44 1.32±2.3 88.1±80.56 48.34±41.86 80.24±31.14 17.12±13.08 59.9±10.34 0±0	$\begin{array}{c} 3.94\pm0.4\\ 52.5\pm17.84\\ 1.86\pm0.22\\ 0.74\pm0.4\\ 175.64\pm119.32\\ \hline 175.64\pm119.32\\ \hline 1.28\pm0.26\\ \hline 20.08\pm15.92\\ \hline 1.34\pm2.34\\ 0\pm0\\ 4.64\pm7.1\\ 23.46\pm14.64\\ 0\pm0\\ \end{array}$	0.2±0.24 39.6±27.8 4.42±1.84 0.38±0.16 0.38±0.16 18.42±16.26 3.52±2 0.58±0.22 22.52±18.48 0±0 3.32±2.38 2.24±1.96 8.02±4.58 5.1±8	2 5 4±3 36 39 7±12.1 6±1.28 0±0 151.46±68.48 82±32.46 3.96±1.52 2.06±0.88 88.02±34.86 8.64±0.92 12.8±22.18 2.38±2.14 12.52±3.02 0±0	0 66:e0.14 22.16:17.36 3.14:0.96 0:52:0.16 193.34:80.28 0:0 3.14:0.36 0.3:0.08 3.64:0.44 10.58:14.7 2.14:3.7 15.4:23.02 3.64:9.4 0:50 0
2-3-Nonadecanone Damas econo Ethyl decanoate (2)-5-Pentadecen-2-one Totals Gamma-hexalactone Gamma-decalactone Totals Monoterpenes Alpha-thujene Beta-pinene Beta-pinene alpha-Phellandrene alpha-Phellandrene	1359 1391 1397 1660 16 1055 1454 1458 3 933 971 980 991	- Floral Waxy - Tonka Floral Fruity Woody Spicy Herbal Spicy Terpenic Woody	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconut sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical fresh oily waxy peach coconat buttery sweet woody green herbal pepper terpence spicy balamic plastic dy woody resionous pine hay green eucalyptas camporeous pepper terpence spicy balamic plastic citrus herbal terpenic green woody pepper blaste, enopere	$\begin{array}{c} 1.14{\pm}0.12\\ 6002{\pm}5.2\\ 5008{\pm}1.02\\ 0.52{\pm}0.08\\ 369.36{\pm}202.78\\ 3722{\pm}16.1\\ 2.4{\pm}0.34\\ 1.08{\pm}0.2\\ 40,7{\pm}16.64\\ 30.32{\pm}30.04\\ 0{\pm}0\\ 18.1{\pm}1.68\\ 80.34{\pm}8.56\\ 0{\pm}0\\ 15.82{\pm}2.1\\ \end{array}$	0.4±0.34 66.24±56.2 4.92±4.1 1.08±1.26 233.98±176.74 40.82±35.34 3.88±2.52 0.66±0.12 45.36±37.98 0±0 0±0 0±0 0±0 0±0 0±0 0±29.06±6.94 51.26±52.32 5.28±4.72	324497.6 111.22+61.74 4.24+7.06 0.26+0.06 617.4±281.68 11.72±9.44 2.92±0.9 0.92±0.12 15.56±10.46 0±0 30.76±2.8.36 9.54±0.86 159.866+70.02 18.66±32.22 6.94±6.58	$\begin{array}{c} 1.24{\pm}0.4\\ 5.3\ 0.8{\pm}16\ 88\\ 7.58{\pm}2.36\\ 0.58{\pm}0.36\\ 312.12{\pm}185.72\\ 44.64{\pm}6.74\\ 3.9{\pm}1.12\\ 0{\pm}0\\ 48.54{\pm}7.86\\ 51.7{\pm}66.84\\ 35.58{\pm}47.22\\ 12.96{\pm}8.68\\ 15.86{\pm}7.68\\ 0{\pm}0\\ 13.02{\pm}5.56\\ \end{array}$	$\begin{array}{c} 0.82{\pm}0.66\\ 50.88{\pm}21.9\\ 1.28{\pm}0.18\\ 0.16{\pm}0.14\\ \textbf{283.24{\pm}88.4}\\ \textbf{258.8}\\ 6.2_{3}{\pm}0.48\\ 0.4{\pm}2{\pm}0.06\\ \textbf{27.8{\pm}9.14}\\ \textbf{37.72{\pm}17.38}\\ 71.16{\pm}10.14\\ 5.5{\pm}.92\\ \textbf{27.4.74{\pm}200.46}\\ \textbf{27.4}{\pm}20.46\\ \end{array}$	1.4±0.64 156.5±120.82 1±0.88 0.12±0.1 357.44±394.3 85.24±76.82 1.54±1.44 1.32±2.3 88.1±80.56 48.34±41.86 80.24±31.14 17.12±13.08 59.9±10.34 0±0 2±2.28±14.16	$\begin{array}{c} 3.94\pm0.4\\ 52.5\pm17.84\\ 1.86\pm0.22\\ 0.74\pm0.4\\ 175.64\pm119.32\\ 17.22\pm15.3\\ 1.58\pm0.36\\ 1.28\pm0.26\\ 1.28\pm0.26\\ 1.28\pm0.26\\ 1.28\pm0.26\\ 1.34\pm2.34\\ 0\pm0\\ 4.64\pm7.1\\ 2.3.46\pm14.64\\ \end{array}$	0.2±0.24 39.6±27.8 4.42±1.84 0.38±0.16 79.42±57.46 18.42±16.26 3.52±2 0.58±0.22 22.52±18.48 0±0 3.32±2.38 2.24±1.96 8.02±4.58 5.1±8 1.68±1.52	2 54±3 36 39.7±12.1 6±1.28 0±0 151.46±68.48 8 2±32.46 3.96±1.52 2.06±0.88 88.02±34.86 8.64±0.92 12.8±22.18 2.38±2.14 12.52±3.02 0±0 0±0	0.66:01.4 22.16:17.36 0.52:0.16 193.34:80.28 0:40 0.54:0.16 0.54:0.36 0.54:0.08 3.44:0.26 0.54:0.08 3.64:0.44 10.58:14.7 15.4:23.02 3.64:0.44 15.56:14 15.64:23.02 3.64:0.44 15.64:15 15.64:23.02 0:40 0:42 0:40 0:4
2-3-Nonadecanone Damas econo Ethyl decanoate (2)-5-Pentadecen-2-one Tetals Lactones Gamma-decalactone Tetals Monoterpenes Alpha-thujene Myrcene Beta-philanderene alpha-Theilanderene alpha-Theilanderene Beta-pheilanderene Beta-pheilanderene Beta-pheilanderene Beta-pheilanderene	1359 1391 1397 1660 16 1055 1454 1458 3 933 971 980 991 1011 1017	Floral Waxy Tonka Floral Fruity Woody Spicy Herbal Spicy Terpenic Woody Winty	natural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstinic tobacco fresh green fuity waxy rose woody magnolia tropical fresh oily waxy peach coconut buttery sweet woody green herbal peppey terpenic spicy balsamic plastic dy woody resionous fine hay green escalyptus camporeous chruss behal penesis green woody terpenic results wood by pepper thack pepper woody terpenic lemon herbal medicinal citrus minty terpenic	$\begin{array}{c} 1.14{\pm}0.12\\ 6.002{\pm}5.2\\ 5.08{\pm}1.02\\ 0.52{\pm}0.08\\ 369.36{\pm}202.78\\ \hline 37.22{\pm}16.1\\ 2.4{\pm}0.34\\ 1.08{\pm}0.2\\ \hline 40.7{\pm}16.64\\ \hline 30.32{\pm}30.04\\ 0{\pm}0\\ 18.1{\pm}1.68\\ 80.34{\pm}8.56\\ 0{\pm}0\\ \hline \end{array}$	$\begin{array}{c} 0.4\pm 0.34\\ 66.24\pm 56.2\\ 4.92\pm 4.1\\ 1.08\pm 1.26\\ 233.98\pm 176.74\\ \hline \\ 40.82\pm 35.34\\ 3.88\pm 2.52\\ 0.66\pm 0.12\\ \hline \\ 45.36\pm 37.98\\ \hline \\ 0\pm 0\\ 0\pm 0\\ 11.28\pm 0.52\\ 29.06\pm 6.94\\ 5.32\\ 29.06\pm 6.52\\ 3.22\\ 3$	$\begin{array}{c} 324497.6\\ 111.22\pm61.74\\ 4.24\pm1.06\\ 0.26\pm0.06\\ 617.4\pm281.68\\ \hline\\ 11.72\pm9.44\\ 2.92\pm0.9\\ 0.92\pm0.12\\ \hline\\ 15.56\pm10.46\\ \hline\\ 0.0\\ 0.95\pm0.12\\ \hline\\ 15.86\pm70.02\\ 8.6\pm32.22\\ \hline\end{array}$	$\begin{array}{c} 1.24{\pm}0.4\\ 53.08{\pm}1.6\ 88\\ 7.58{\pm}2.36\\ 0.58{\pm}0.36\\ 312.12{\pm}185.72\\ \hline 44.64{\pm}6.74\\ 3.9{\pm}1.12\\ 0{\pm}0\\ \hline 48.54{\pm}7.86\\ \hline 51.7{\pm}66.84\\ 35.58{\pm}47.22\\ 1.296{\pm}8.68\\ 15.86{\pm}7.68\\ 0{\pm}0\\ \hline \end{array}$	0.82+0.66 50.88+21.9 1.28±0.18 0.16+0.14 25±8.6 2.38±0.48 0.42±0.06 27.8±9.14 37.72±17.38 71.16±10.14 37.72±17.38 71.4±20.046 0+0 13.6±3.82 0+60	1 4±0 64 156.5±12.82 1±0.88 0.12±0.1 357.4±394.3 85.24±76.82 1.54±1.44 1.32±2.3 88.1±80.56 48.34±41.86 80.24±31.14 17.12±13.08 59.9±10.34 0±0	$\begin{array}{c} 3.94:0.4\\ 52.5:1.78:4\\ 1.86:0.22\\ 0.74:0.4\\ 175.64:-119.32\\ 175.64:-119.32\\ 175.64:-119.32\\ 1.28:0.36\\ 1.28:0.26\\ 20.08:15.92\\ 1.34:2.34\\ 0.46:4:7.1\\ 23.46:14.64\\ 0.16\\ 0.09:60.96\\ 1.88:3.24\\ \end{array}$	0.2±0.24 39.6±27.8 4.42±1.84 0.38±0.16 79.42±57.46 18.42±16.26 3.52±2 0.58±0.22 22.52±18.48 0±0 3.32±2.38 2.24±1.96 8.02±4.58 5.1±8 1.68±1.52 12.78±10.3	2 5 4±3 36 39 7±12.1 6±1.28 0±0 151.46±68.48 82±32.46 3.96±1.52 2.06±0.88 88.02±34.86 8.64±0.92 12.8±22.18 2.38±2.14 12.52±3.02 0±0	0 66:e0.14 22.16:17.36 3.14:0.96 0:52:0.16 193.34:80.28 0:0 3.14:0.36 0.3:0.08 3.64:0.44 10.58:14.7 2.14:3.7 15.4:23.02 3.64:9.4 0:50 0
2-3-Nonadecanone Damas econo Ethyl decanoate (2)-5-Pentadecen-2-one Totals Genarylaectone Genarylaectone Totals Monolerpenes Alpha-thujene Beta-phienlandrene alpha-Phiellandrene Beta-phiellandrene Beta-phiellandrene	1359 1391 1391 1660 1660 1454 1454 1488 3 933 971 980 991 1011 1017 1017 1017 1017 1019 1024	- Floral Waxy - Tonka Floral Floral Fruity Woody Minty Herbal Spicy Terpenic Woody Minty Herbal Terpenic	natural sweet fuilty cose plum grape raspberry sugar sweet waxy fuilty apple grape oily brandy herbal coconut sweet coumarinic tobacco feed green fuilty waxy noes woody magnolia tropical fresh oily waxy peach coconut buttery sweet woody green herbal pepper terpenic spicy blasmic plastic dy woody resionous pine hay green euclypus camporeous pepper terpenic spicy blasmic plastic dy mody resionous pine hay green euclypus to moreous pepper terpenic spicy blasmic plastic dy mody resionous pine herbal modernial climas minty terpenic herbal spicy chanomil green basil herbal spicy chanomil green basil	1.1440.12 60.02x5.2 5.08x1.02 0.52±0.08 369.36x202.78 37.22±16.1 2.4±0.34 1.08±0.2 40.7±16.64 40.7±16.64 30.32±0.004 0±0 15.82±2.1 6.38±1.06 9.18±2.6 8.94±2.98	0.4c0.34 66.24:56.2 4.92:84.1 1.08:1.26 233.98:176.74 40.82:45.34 3.88:4.25 0.66:0.12 45.36:37.98 0:60 0:60 0:60 0:60 0:12.84:52 29.06:6.94 51.12:85.32 5.28:4.72 10.06:6.34 8.38:6.3 2.14:42.1	$\begin{array}{c} 324 + 97\ 6\\ 111\ 122 + 61\ 74\\ 4\ 241\ 106\\ 0\ 264\ 106\\ 617\ 44\ 281\ 68\\ 11\ 72\ 9\ 44\\ 3\ 922\ 0\ 9\\ 0\ 922\ 0\ 12\\ 15\ 564\ 10\ 46\\ 10\ 762\ 8.3\\ 632\ 0\ 10\ 562\ 32\\ 632\ 522\ 10\ 10\ 562\ 32\\ 632\ 522\ 10\ 10\ 562\ 32\\ 632\ 522\ 10\ 10\ 562\ 32\\ 632\ 522\ 10\ 10\ 562\ 32\\ 632\ 522\ 10\ 10\ 562\ 32\\ 632\ 522\ 10\ 10\ 562\ 32\\ 632\ 522\ 10\ 10\ 562\ 32\\ 632\ 522\ 10\ 10\ 562\ 32\\ 632\ 522\ 10\ 10\ 10\ 10\ 10\ 10\ 10\ 10\ 10\ 10$	$\begin{array}{c} 1.2440.4\\ 53.08\pm16.88\\ 7.58\pm2.36\\ 0.58\pm0.36\\ 312.12\pm185.72\\ 44.6485.74\\ 3.9\pm1.12\\ 0.e0\\ 48.54\pi7.86\\ 51.7\pm6.684\\ 35.58\pm47.22\\ 12.9658.68\\ 15.86\pi7.68\\ 0.e0\\ 13.025.56\\ 10.44\pm2.44\\ 6.28\pm5.48\\ 6.02\pm4.68\\ \end{array}$	0.82:00.66 50.88:21.9 1.28:40.18 0.16:40.14 283.24:88.4 25:88.6 2.38:40.48 0.42:40.06 27.8:9.14 37.72:47.38 71.16:40.14 5.5:5.52 274.74:200.46 0:40 0:13.6:53.82 0:40 0:40 0:40 0:42	1 440 64 156, 5±120 82 1±0, 88 0, 12±0, 13 357, 44±394, 3 88, 24±476, 82 1, 54±1, 44 1, 32±2, 3 88, 1±80, 56 48, 34±41, 86 80, 24±31, 14 17, 12±13, 308 59, 9±10, 34 0±0 22, 38±14, 16 8, 54±6, 44 18, 82±73, 56 14, 2±12, 34 12, 2±14 14, 2±12, 34 14, 2±12, 34 14, 2±12, 34 14, 2±12, 34 14, 2±12, 34 15, 5±16,	3 04:04 52.5:17.84 1 86:0 22 0.74:04 175.64:119.32 175.64:119.32 175.64:119.32 175.64:119.32 10.08:15.92 20.08:15.92 1.34:234 0:0 0:46:14.64 0:0 0:0 0:00.96 1.88:3.24 6.76:5.04 0:0 0:0 0:0 0:0 0:0 0:0 0:0 0	0.2-0.24 39.6-27.8 4.42=1.84 0.38=0.16 79.42±57.46 18.42=16.26 3.52±2 0.58=0.22 22.52±18.48 0+0 0-3.32±2.28 2.24±1.96 8.02±4.58 5.1±8 1.68±1.52 1.2.78±10.3 24.325.7 0+0	2.5443.36 39.7412.1 641.28 040 151.46+65.48 82:832.46 3.9661.52 2.06e0.88 88.02:31.36 88.02:31.36 88.02:31.36 88.02:31.36 88.02:31.36 88.02:31.36 2.38:21.14 12.52 3 .302 040 040 040 1.0661.84 29.28 8 -744	0.66:01.4 22.16:17.36 0.52:0.16 193.34:80.28 0:40 0.54:0.16 193.34:80.28 0:40 0.50:08 3.64:0.44 10.58:14.7 2.14:43.7 15.4:23.02 3.6:04:50 0:50 0:50 0:50 0:52 0:55
2-3-Nonadecanone Damas econo Ethyl decanoate (2)-6-Pentadecen-2-one Tatals Canima-hexalactone Garama-decalactone Totals Monoterpenes Alpha-thujene Beta myrcene alpha-thellandrene Beta-phellandrene Terpinotene Halpa-phellandrene Canima-decalactone Terpinotene	1359 1391 1397 1660 16 1055 1454 1488 3 933 971 980 991 1011 1017 1019 1017 1019 1019 1040	- Floral Waxy Tonka Floral Floral Fruity Woody Spicy Hopicy Tepenic Woody Minty Herbal Tepenic Floral Floral	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconut sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical fresh oily waxy peach coconut buttery sweet woody green herbal peppeys repression spire halsamic plastic dry woody restinensus pine hay green exictlytus camperous pepper terpressi epixy balaamic plastic dry woody restinensus pine hay green exictlytus camperous pepper terpressi epixy balaamic plastic dry woody restine lenon herbal patien citrus herbal terpenic green woody pepper black pepper woody terpenic herbal spice thanomile green basil citrus herbal terpenic green woody pepper black, pepper	$\begin{array}{c} 1.14\pm0.12\\ 6(0.02\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 369.36\pm202.78\\ 37.22\pm6.1\\ 2.4\pm0.34\\ 1.08\pm0.2\\ 407.716.64\\ 30.32\pm30.04\\ 0.09\\ 1.16\\ 80.34\pm8.56\\ 0.04\\ 80.34\pm8.56\\ 0.04\\ 1.82\pm2.1\\ 6.38\pm1.06\\ 9.18\pm2.6\\ 8.94\pm2.98\\ 0.40\\ \end{array}$	0.4c0.34 66.24x56.2 4.9224.1 1.08x1.26 233,98x176,74 40.82x25,34 3.88x2.52 0.66c0.12 45.36x25,32 0.660 0.12 45.36x7,98 0.60 0.12 21.06x5,32 21.84x0.52 21.06x5,34 5.28x4,72 10.06x6,94 10.06x6,94 10.0	$\begin{array}{c} 324497.6\\ 111.228-61.74\\ 4.2481.06\\ 0.2661.06\\ 617.44281.68\\ 2.922-0.9\\ 0.922-0.12\\ 15.5661.0.66\\ 9.054-0.3\\ 30.76428.36\\ 9.544.036\\ 15.5661.0.66\\ 15.5661.0.6\\ 15.986-70.02\\ 18.6632.22\\ 6.946-58\\ 10.5662.38\\ 6.5285.76\\ 8.588.204\\ 0.60\\ \end{array}$	$\begin{array}{c} 1.2460.4\\ 53.08\pm16.88\\ 7.58\pm2.36\\ 0.58\pm0.36\\ 312.12\pm185.72\\ 44.64\pm6.74\\ 3.9\pm1.12\\ 0.00\\ 48.5447.86\\ 51.766.84\\ 32.58\pm47.22\\ 12.96\pm6.86\\ 15.367.68\\ 15.367.68\\ 10.442.24\\ 6.28\pm5.48\\ 6.02\pm4.68\\ 0.54\pm1.1\end{array}$	0.82:00.66 50.88:21.9 1.28:40.18 0.16:40.14 283.24:88.4 25:86.6 2.38:40.48 0.42:40.06 273.89:14 37.72:47.38 77.14:57.40 77.14:57.40 77.14:57.40 77.42:40.74 77.42:40 77.42:40 77.42:40 77.42:40 77.42:40 77.42:40 77.42:40 77.42:44 77.42:44 77.42:44 77.42:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:44 77.52:45 77.52:44 77.52:45 77.52:44 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:45 77.52:55 77.52:55 77.52:55 77.52:55 77.52:55 77.52:55 77.52:55 77.52:55 77.52:55 77.52:55 77.52:55 77.52:55 77.52:55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 77.55 	$\begin{array}{l} 1.4 \pm 0.64 \\ 156.5 \pm 120.82 \\ 1 \pm 0.88 \\ 0.12 \pm 0.1 \\ 357.44 \pm 394.3 \\ 85.24 \pm 76.82 \\ 1.5 \pm 1.44 \\ 1.5 \pm 2.2 \\ 88.1 \pm 80.56 \\ 48.31 \pm 44 \\ 132 \pm 2.3 \\ 88.1 \pm 80.56 \\ 112 \pm 13.14 \\ 112 \pm 13.04 \\ 100.34 \\ 010.04 \\ 022 \\ 22.28 \pm 14.16 \\ 8.54 \pm 6.44 \\ 18.82 \pm 7.36 \\ 14.2 \pm 12.34 \\ 0 \pm 0 \\ 0 \\$	$\begin{array}{c} 3.940.4\\ 5.2.5*17.84\\ 1.86*0.22\\ 0.74*0.4\\ 175.64*119.32\\ 175.64*119.32\\ 175.64*119.32\\ 1.58*0.36\\ 1.28*0.36\\ 1.28*0.36\\ 1.28*0.26\\ 20.08*15.92\\ 1.34*2.34\\ 0.60\\ 0.0\\ 0.96*0.96\\ 1.88*3.24\\ 6.76*5.04\\ 0.60\\ 3.4*1.36\\ \end{array}$	0.2-0.24 39.6+27.8 4.42=1.84 0.38+0.16 79.42±57.46 18.42=16.26 3.52=2 0.58+0.22 2.52=18.48 0+0 94 3.32=2.28 2.24=1.96 8.02=4.58 5.1±8 1.68=1.52 1.278+10.3 4.33=2.7 0+0 0.054=1.38	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 641.28\\ 0.40\\ \textbf{151,46+05,48}\\ 82.452.46\\ 3.96e1.52\\ 2.06e0.88\\ \textbf{88,02-21,48}\\ \textbf{88,02-21,48}\\ \textbf{88,02-21,28}\\ 1.2.3842.14\\ 1.2.384$	$\begin{array}{c} 0.66:0.14\\ 2.2.16:17.36\\ 0.52:0.16\\ 193.34:80.28\\ 0.52:0.16\\ 193.34:80.28\\ 0.52:0.16\\ 193.34:80.28\\ 0.53:0.08\\ 0.5$
2-3-Nonadecanone Damas econo Ethyl decanoate (2)-5-Pentadecen-2-one Totals Gamma-decalactone Totals Monoterpenes Alpha-thujene Beta-pinene	1359 1391 1391 1660 1655 1454 1488 3 933 971 980 993 991 1011 1017 1017 1019 1024 1037 1040	- Floral Waxy Floral Floral Fourity Woody Spicy Terpenic Woody Michael Spicy Terpenic Floral Floral Floral Floral Floral Floral Citrus	natural sweet fuilty cose plum grape raspberry sugar sweet waxy fuilty apple grape oily brandy behal coconut sweet coumarine tobacco feed green fuilty waxy none woody magnolin tropical fresh green fuilty waxy none woody progree back pepper terporie sity balasmic plastic dry woody terpories lens het affectional ditus drast sheful terponic green woody pepper black pepper woody terporie. I enon het hat motical ditus behal specy chamomic green bacal motical sheful terpolic green woody pepper black pepper warm fional herbal sweet	$\begin{array}{c} 1.14\pm0.12\\ 6.00.25\times2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 369,36\pm02.78\\ 369,36\pm02.78\\ 37,22\pm16.1\\ 2.4+0.24\\ 1.08\pm0.2\\ 40,7\pm16.64\\ 30.32\pm3.0.04\\ 0.60\\ 18.1\pm1.68\\ 80.34\pm8.56\\ 0.60\\ 18.81\pm1.08\\ 80.34\pm8.56\\ 0.60\\ 15.88\pm2.1\\ 15.88\pm2.6\\ 8.94\pm2.98\\ 0.60\\ 7.14\pm0.58\\ \end{array}$	0.4d=0.34 66.24±56.2 1.08±1.26\\1.08±1.26\\1.08±1.26\\1.08±1.26\\1.08±1.26\\1.08\pm1.26\\1.08\pm1.26\\1.08\pm1.26\\1.08\pm1.26\\1.08\pm1.26\\1.08\pm	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.241.06\\ 0.26+0.06\\ 617,4231.68\\ 1.922.64\\ 0.922-0.12\\ \mathbf{15.56+10.46}\\ 0.90\\ 0.922-0.12\\ \mathbf{15.56+10.46}\\ 0.93\\ 0.76+28.36\\ 9.54+0.36\\ 10.56+2.38\\ 6.54+6.58\\ 10.56+2.38\\ 6.53+2.76\\ 8.538,2.76\\ 0.538,2.76\\ 0.538\\ 0.54\\ 0.538\\ 0.54\\ 0.55\\ 0.538\\ 0.56\\ 0.56\\ 0.58$	124604 53.08±16.88 7.58±2.36 0.58±0.35 44.64±6.74 39.12±185.72 44.64±6.74 39.12 0±0 48.54±7.86 51.7±66.84 53.558±47.22 12.9±68.68 53.558±7.68 0±0 13.02±5.64 11.03±5.54 41.03±5.54 41.03±5.54 42.03±5.64 0.04±1.1 2.98±3.92	0.82:00.66 50.88:21.9 1.28:40.18 0.16:40.14 283.24:88.4 25:88.6 2.38:40.48 0.42:40.06 27:8:9.14 37.72:47.38 71.16:40.14 5:55:52 274.74:200.46 0:40 0:60 0:70:22:44:80 23.16:61.264 9.24:1.14 0:40 0:4	1.4±0.64 155.5±120.82 1±0.88 0.12±0.1 357.44±394.3 8.544±76.62 1.32±2.3 88.1±80.56 48.34±41.86 80.24±31.14 17.12±13.08 59.9±10.34 0±0 0±31.14 17.12±13.04 59.9±10.34 0±0 14.2±12.34 0±0 14.2±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±12.34 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±	3 04:04 52.5:17.84 1 86:06 22 0.74:04 17.5:64:119.32 17.5:64:119.32 17.5:64:119.32 17.5:64:119.32 1.5:8:0.36 1.2:8:0.36 1.2:8:0.26 20.08:15.92 1.3:4:2.34 0:0 0:4:04:14.64 0:0 0:0:60.96 1.88:3.24 6.76:5.04 0:0 0:4:1.36 0:0 0:5.04 0:	$\begin{array}{c} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 79.42 \pm 87.46\\ 79.42 \pm 87.46\\ 3.52 \pm 27.46\\ 3.52 \pm 27.46$	2.5443.36 39.7412.1 641.28 0+0 151.64658.48 25.252.46458.48 25.252.46458.48 25.2644592 2.3664592 2.3664592 2.3664592 2.3862.14 2.3862.14 12.522-302 0+0 0+1 12.522-302 0+0 0+0 13.527.44 0.40 2.3464574 0.44 2.3464574 0.44 2.3464574 0.44 2.3464574 0.44 2.3464574 0.44 0.54055	0.66:01.4 22.16:17.36 0.52:0.16 193.34:80.28 0:40 0.50.08 3.64:0.44 10.58:14.7 0.54:0.08 3.64:0.44 10.58:14.7 15.4:23.02 3.6.04:50 0:40 0:50 0:40 0:50 0:40 0:50 0:40 0:50
2-3-Nonadecanone Damas econe Ethyl decanoate (2)-6-Pentadecen-2-one Tatals Lactories Gamma-decalactone Gamma-decalactone Tatals Monoterpenes Alpha-thuljene Myrcene Beta-phellandrene Beta-phellandrene Torpiolene Alpha-phellandrene Torpiolene Alpha-phellandrene Gamba-thulandrene Cis-beta-Okimene Cis-beta-Okimene D-1-imonene D-1-imonene	1359 1391 1391 1660 16 10 55 1454 1488 3 933 973 990 991 1011 1017 1019 1019 1019 1019 1	- Floral Waxy Tonka Floral Fruity Woody Minty Harbal Spico Harbal Minty Harbal Terpenic Floral Floral Terpenic Floral Flora Flor	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconut sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical fresh oily waxy peach coconut buttery sweet woody green harbal peppery repression graps in hay green excelypts: course pression graps in hay green excelypts: course behal terpenic green woody pepper black pepper woody terpenic lemon herbal medicinal citrus minity terpenic lemon herbal medicinal citrus minity terpenic elemon herbal medicinal citrus minity terpenic herbal soje to chanomile green basil citrus herbal terpenic green woody pepper black pepper warm floral herbal sweet citrus orange fresh sweet	$\begin{array}{c} 1.14\pm0.12\\ 6(0.02\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 369.36\pm202.78\\ 37.22\pm16.1\\ 2.4\pm0.34\\ 1.08\pm0.2\\ 40.7\pm16.64\\ 30.32\pm30.04\\ 0.00\\ 1.81\pm1.68\\ 80.14\pm5.6\\ 0.032\pm2.1\\ 6.38\pm1.06\\ 9.18\pm2.6\\ 8.84\pm2.98\\ 0.60\\ 7.14\pm0.58\\ 0.60\\ \end{array}$	$\begin{array}{c} 0.4{=}0.34\\ 66.24{\pm}56.2\\ 1.08{\pm}1.26\\ 233,98{\pm}176,74\\ 49,22{\pm}5.34\\ 3.88{\pm}2.52\\ 0.66{-}0.12\\ 45,36{\pm}2.52\\ 0.66{-}0.12\\ 45,36{\pm}2.52\\ 0.66{-}0.12\\ 35,38{\pm}2.52\\ 0.66{-}0.22\\ 35,38{\pm}2.52\\ 0.66{-}0.22\\ 35,38{\pm}2.52\\ 0.66{-}0.22\\ 35,38{\pm}2.52\\ 0.66{-}0.22\\ 35,38{\pm}2.52\\ 0.66{-}0.22\\ 0.66$	$\begin{array}{c} 324497.6\\ 111.228-61.74\\ 4.2481.06\\ 0.266.00\\ 617.42281.68\\ 11.7229.44\\ 2.922-0.9\\ 0.922-0.12\\ 15.56e1.0.66\\ 0.0\\ 15.56e1.0.6\\ 0.0\\ 15.966.0.02\\ 15.966.00$	$\begin{array}{c} 1.24e0.4\\ 53.08\pm16.88\\ 7.58\pm2.36\\ 0.58\pm0.36\\ 312.12\pm185.72\\ 44.64\pm6.74\\ 3.9\pm1.12\\ 0-0\\ 48.5447.86\\ 13.66.84\\ 13.66.84\\ 13.66.84\\ 13.66.84\\ 13.67.68\\ 0.36.25.56\\ 10.442.24\\ 6.28\pm5.48\\ 6.22\pm4.68\\ 0.54\pm1.1\\ 2.98\pm3.92\\ 9.12\pm1.1.4\\ \end{array}$	0.82:00.66 50.88:21.9 1.28:40.18 0.16:40.14 253.24:88.4 255.8.6 2.38:40.48 0.42:40.06 27.8:97.14 37.72:17.38 71.16:40.114 5.5:5.52 27.74:49:20.46 0:40 13.6:43.82 0:40 0:40 13.6:43.82 0:40 0:40 0:40 0:40 0:40 0:40 0:40 0:4	$\begin{array}{l} 1.4\pm0.64\\ 155.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.1\\ 357.44\pm294.3\\ 85.24\pm76.82\\ 1.5\pm1.14\\ 1.3\pm2.2\\ 38.1\pm80.56\\ 48.3\pm\pm1.86\\ 88.1\pm80.56\\ 48.3\pm\pm1.14\\ 1.71.12\pm12.08\\ 5.56\\ 22.28\pm1.16\\ 8.5\pm6.44\\ 18.82\pm7.36\\ 14.2\pm12.34\\ 0\pm0\\ 1.12\pm1.52\\ 2.14\pm2.56\\ \end{array}$	$\begin{array}{c} 3.940.4\\ 52.5 \pm 17.84\\ 1.8640.22\\ 0.7440.4\\ 175.64\pm 19.32\\ 175.64\pm 19.32\\ 175.64\pm 19.32\\ 12.840.26\\ 20.08\pm 15.92\\ 1.34\pm 2.34\\ 040\\ 0.0964.096\\ 1.38\pm 3.24\\ 4.64\pm 7.1\\ 23.66\pm 16.46\\ 0.0964.096\\ 1.88\pm 3.24\\ 6.76\pm 5.04\\ 0.096.0\\ 0.940.66\\ \end{array}$	$\begin{array}{c} 0.2 = 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.38 \pm 0.16\\ \hline \textbf{79.42 \pm 67.46}\\ \hline \textbf{18.42 \pm 16.26}\\ 3.52 \pm 2\\ 0.58 \pm 0.22\\ \textbf{27.52 \pm 18.48}\\ \hline \textbf{Phi}\\ \hline \textbf{28.12}\\ 3.32 \pm 2.38\\ $	2.5443.36 39.7412.1 641.28 0:40 151.46:68.48 82:432.46 3.9661.52 2.06640.88 88.02:24.36 88.02:24.36 88.02:24.36 0:40 1.1222.18 2.3822.18 2.3822.14 1.1222.30 0:40 0:40 0:40 0:40 0:40 0:40 0:40 0:	0 6660.14 22.16±17.36 3.14±0.96 0.52±0.16 193.34±80.28 0±0 0.540.08 3.14±0.3 3.14±0.36 0.540.08 3.44±0.7 2.14±3.7 2.14±3.7 3.64±0.44 10.58±14.7 2.14±3.7 3.64±0.44 4.8±2.24 3.66±2.78 2.174±1.9 4.2±7.3 5.56±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.54±3.7 1.555±2.52 0±0 3.55±2.52 0±0 0±0 3.55±2.52 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±
2-3-Nonadecanone Damas econo Ethyl decanoate (2)-4-Pentadecen-2-one Totals Gamma-decalactone Gamma-decalactone Gamma-decalactone Totals Monoierpenes Alpha-thujene Beta-pinelandrene Beta-pinela	1359 1391 1391 1660 165 1454 1454 1458 3 933 971 980 991 1011 1017 1017 1017 1017 1017 1014 1014	- Floral Waxy Tonka Floral Floral Pruty Woody Spicy Herbal Spicy Tepenic Woody Minty Herbal Herbal Herbal Floral Floral Floral Floral Floral	natural sweet fuilty one plum grape raspberry sugar sweet waxy fuilty apple grape oily brandy herbal ecconnt sweet coumarine tobacco feeds green fuilty waxy tooe woody magnolia tropical feeds areen fuilty waxy tooe woody magnolia tropical feeds and waxy peach ecconnt buttery sweet woody green herbal pepper terpenic sipicy blasmic plastic dry woody resionous pinte hay green euclyptus camporeous pepper terpenic sipicy blasmic plastic eithus herbal terpenic green woody pepper black, pepper woody terpenic lemon herbal molecular ditus minity terpenic minity terpenic warm floral herbal sweet warm floral herbal sweet	$\begin{array}{c} 1.14\pm0.12\\ 6.00.25\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 369,36\pm02.78\\ 37,22\pm16.1\\ 10,52\pm0.04\\ 37,22\pm16.4\\ 37,22\pm16.64\\ 30,32\pm0.04\\ 0.60\\ 18.1\pm1.68\\ 80.34\pm5.56\\ 0.60\\ 18.8\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 1.58\pm2.1\\ 1$	0.4d0.34 66.24±56.2 4.92±4.1 1.08±126.7 4.932±4.7 4.932±253 0.66±0.12 45.36±37.98 0±0 0±0 11.28±0.52 29.06±6.94 51.28±6.52 29.06±6.94 51.28±6.52 29.06±6.94 51.28±6.72 29.06±6.94 51.28±6.27 29.05±6.94 51.28±6.27 29.05±6.94 51.28±6.27 29.05±6.94 51.28±6.27 20.2±0.34 1.18±0.9 1.168±1.48	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline 0.74+281.68\\ 0.92-0.12\\ 1.92-0.44\\ 0.92-0.12\\ \hline 1.5256+10.46\\ 0.90\\ 0.92-0.12\\ \hline 1.5256+10.46\\ 0.93-0.12\\ 1.99.86+70.02\\ 1.8.6+32.22\\ 6.54+6.58\\ 1.056+2.38\\ 6.54+6.58\\ 1.056+2.38\\ 0.54+6.58\\ 0.55+6.58\\ 0.55+6.$	$\begin{array}{c} 1.2460.4\\ 53.08\pm16.88\\ 7.58\pm2.36\\ 0.58\pm0.36\\ 31.21\pm185.72\\ 44.64\pm6.74\\ 3.9\pm1.12\\ 0.66\\ 1.12\\ 0.66\\ 51.7\pm66.84\\ 55.58\pm7.26\\ 13.02\pm5.6\\ 13.02\pm5.6\\ 13.02\pm5.6\\ 0.64\\ 13.02\pm5.6\\ 0.64\pm1.1\\ 2.98\pm3.92\\ 2.98\pm3.92\\ .298\pm3.92\\ .298\pm4.92\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928$.298\pm4.928 .298\pm4.928	0.82:00.66 50.88:21.9 1.28:00.18 0.16:00.14 253.8.6 24:8:00 24:8:00 24:8:00 27:8:9.14 37.72:817.38 77.11:6:10.14 5.5:5.92 274.74:80.046 0:0 0:40 0:10.14 5.5:5.92 274.74:80.046 0:0 0:0 0:0 0:0 0:0 0:0 0:0 0:	1.4±0.64 155.5±120.82 1±0.88 0.12±0.1 357.4±1394.3 85.24±15.62 1.32±2.3 88.1±80.56 48.34±41.86 80.24±31.14 17.12±13.08 89.9±10.34 0±0 0±2.228±14.16 8.3±6.44 1.82±7.73 1.82±7.73 1.12±1.52 1.12±1.52 2.14±2.26 0.92±1.6	$\begin{array}{c} 3.946.4\\ 5.2.5e1.7.84\\ 1.866.0.22\\ 0.74e0.4\\ 1.752.465.128\\ 1.722.415.2\\ 1.722.415.2\\ 1.28e0.26\\ 1.28e0.26\\ 1.28e0.26\\ 1.28e0.26\\ 1.28e0.26\\ 1.28e0.26\\ 0.460\\ 0.460\\ 0.460\\ 0.560\\ 0.560\\ 0.560\\ 0.560\\ 0.4136$	$\begin{array}{c} 0.2 + 0.2 \\ 39.6 \pm 7.8 \\ 4.42 \pm 1.84 \\ 0.38 \pm 0.16 \\ \hline \textbf{79.42457.46} \\ 18.42 \pm 6.26 \\ 3.54 \pm 0.27 \\ \textbf{22.52 \pm 18.48} \\ \hline \textbf{0+0} \\ 0.35 \pm 0.27 \\ \textbf{22.52 \pm 18.48} \\ 0.40 \\ 3.32 \pm 2.38 \\ 2.24 \pm 1.96 \\ 8.02 \pm 4.58 \\ 5.1 \pm 8. \\ 1.68 \pm 1.52 \\ 1.68 \pm 1.$	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 60.128\\ 0.40\\ \textbf{151.46458.48}\\ \textbf{82.452.46}\\ \textbf{82.452.46458.48}\\ \textbf{82.452.46458}\\ \textbf{82.452.46458}\\ \textbf{82.452.486}\\ \textbf{85.452.486}\\ \textbf{85.452.486}\\ \textbf{12.52.5302}\\ 0.40\\ 1.0661.84\\ 2.028.7.44\\ 0.520.5\\ 0.540.5\\ 1.4440.46\\ 3.40.36\\ \end{array}$	0.66:01.4 22.16:17.36 0.52:0.16 193.34:80.28 0.0 0.50 0.50.08 3.64:0.44 10.58:14.7 2.14:37 15.4:23.02 3.60:4:50 0:
2-3-Nonadecanone Damas econe Ethyl decanoate (2)-6-Pentadecen-2-one Tatals Lactones Gamma-decalactone Gamma-decalactone Tatals Monoterpenes Alpha-thuljene Myrcene Bes-pinene Be	1359 1391 1391 1660 16 16 3 933 971 980 991 1011 1011 1011 1019 1019 1011 1019 1014 1037 1040 1045 1045	- Floral Waxy Tonka Floral Fruity Woody Spicy Harbal Harbal Spicpenic Woody Minty Harbal Terpenic Floral Floral Citrus Floral Floral Floral Terpenic	natural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstinic tobacco fresh green fuity waxy rose woody magnolia tropical fresh oily waxy peach coconut buttery sweet woody green herbal pripero trepenies plum hay green cellyfus camperous popper trepenie green woody topper black pepper woody trepenie lemon herbal modicinal citrus minty terpenie berbal spoy chanomile green basil citrus herbal terpenie green woody peppe thack pepper waat therbal mode static titrus herbal terpenie green woody peppe thack pepper waat therbal mode sweet warm floan herbal sweet citrus torpical green togoty peppe thack pepper warm floan herbal sweet citrus torpical green togoty peppe thack pepper warm floan herbal sweet citrus torpical green togoty peppe thack pepper warm floan herbal sweet citrus torpical green togoty peppe thack pepper warm floan herbal sweet citrus torpical green togoty pepper basil stopical green togoty pepper togoty per terpenie woody spreen fesh citrus terpenie woody spreen fesh citrus terpenie woody spreen fesh citrus terpenie woody spreen	$\begin{array}{c} 1.14\pm0.12\\ 6.002\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 36934\pm202.78\\ 37.22\pm16.1\\ 2.4\pm0.34\\ 1.08\pm0.2\\ 40.7\pm6.64\\ 30.32\pm0.04\\ 0.0\\ 118.14\pm0.6\\ 0.0\\ 118.24\pm0.6\\ 0.0\\ 0.38\pm1.06\\ 0.00\\ 1.8.24\pm2.6\\ 0.38\pm1.06\\ 0.14\pm0.5\\ 0.14\pm0.$	$\begin{array}{c} 0.4{=}0.34\\ 66.24{\pm}562\\ 1.08{\pm}126\\ 3.38{\pm}253\\ 3.38{\pm}252\\ 0.66{-}0.12\\ 45.36{\pm}7.98\\ 0.66{-}0.12\\ 45.36{\pm}7.98\\ 0.66\\ 0.0\\ 1.128{\pm}0.52\\ 20.06{\pm}0.2\\ 1.28{\pm}0.52\\ 20.06{\pm}0.2\\ 1.28{\pm}0.52\\ 20.06{\pm}0.2\\ 1.28{\pm}0.52\\ 2.28{\pm}1.28\\ 0.20{\pm}0.2\\ 1.28{\pm}0.52\\ 1.$	324497.6 111.22461.74 4.2441.06 0.266-0.06 617.44281.68 11.7249.44 2.922-0.9 0.922-0.12 15.5641.0.66 0.40 0.40 0.40 0.42.83.65 15.4641.0.66 0.40 0.42.83.65 15.4641.0.6 0.464.63 10.5642.38 0.572-576 8.5882.04 0.400 0.400 0.420000000000	$\begin{array}{c} 1.24e0.4\\ 53.08\pm16.88\\ 7.58\pm2.36\\ 0.58\pm0.36\\ 33\pm1.12\\ 0.68\\ 33\pm1.12\\ 0.68\\ 33\pm1.12\\ 0.68\\ 35\pm1.12\\ 0.68\\ 13.86\pm7.86\\ 13.86\pm7.86\\ 13.86\pm7.86\\ 13.86\pm7.86\\ 13.86\pm7.86\\ 13.82\pm7.86\\ 14.82\pm7.86\\ 14$	0.82-00.66 50.88-21.9 1.28-00.18 0.16-00.14 283.24-88.4 255.8.6 2.38-00.48 0.42-00.06 27.84-91.4 37.72±17.38 71.16±10.14 37.72±17.38 71.42±00.46 0.43-00.46 0.43-00.46 0.43-00.46 0.43-00.46 0.42-00.46 0.	$\begin{array}{l} 1.4\pm0.64\\ 155.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.1\\ 357.44\pm294.3\\ 85.24\pm76.82\\ 1.5\pm1.14\\ 1.3\pm2.2\\ 38.1\pm80.56\\ 48.3\pm\pm1.86\\ 88.1\pm80.56\\ 48.3\pm\pm1.14\\ 1.71.12\pm12.08\\ 5.56\\ 22.28\pm1.16\\ 8.5\pm6.44\\ 18.82\pm7.36\\ 14.2\pm12.34\\ 0\pm0\\ 1.12\pm1.52\\ 2.14\pm2.56\\ \end{array}$	$\begin{array}{c} 3.940.4\\ 52.5 \pm 17.84\\ 1.8640.22\\ 0.7440.4\\ 175.64\pm 19.32\\ 175.64\pm 19.32\\ 175.64\pm 19.32\\ 12.840.26\\ 20.08\pm 15.92\\ 1.34\pm 2.34\\ 040\\ 0.0964.096\\ 1.38\pm 3.24\\ 4.64\pm 7.1\\ 23.66\pm 16.46\\ 0.0964.096\\ 1.88\pm 3.24\\ 6.76\pm 5.04\\ 0.096.0\\ 0.940.66\\ \end{array}$	$\begin{array}{c} 0.2 \pm 0.24\\ 39.6 \pm 7.8\\ 4.42 \pm 1.84\\ 0.38 \pm 0.16\\ 3.52 \pm 25.746\\ 3.52 \pm 25.746\\ 3.52 \pm 25.746\\ 3.52 \pm 25.758\\ 3.52 \pm 25.758\\ 3.52 \pm 10.88\\ 3.52 \pm 10.88\\ 3.52 \pm 10.88\\ 1.68 \pm 1.52\\ 1.2.78 \pm 10.3\\ 2.24 \pm 1.06\\ 6.118\\ 1.68 \pm 1.52\\ 1.2.78 \pm 10.3\\ 2.34 \pm 10.3\\ 2.34 \pm 10.3\\ 1.68 \pm 1.52\\ 1.2.78 \pm 10.3\\ 2.34 \pm 10.3\\ 1.68 \pm 1.52\\ 1.2.78 \pm 10.3\\ 1.2.78 $	2.5443.36 39.7412.1 641.28 0:40 151.46:68.48 82:432.46 3.9661.52 2.06640.88 88.02:24.36 88.02:24.36 88.02:24.36 0:40 1.1222.18 2.3822.18 2.3822.14 1.1222.30 0:40 0:40 0:40 0:40 0:40 0:40 0:40 0:	$\begin{array}{c} 0.66:0.14\\ 2.2.16:17.36\\ 3.14:0.96\\ 0.52:0.16\\ 193.34:80.28\\ 0.52\\ 0.16\\ 193.34:80.28\\ 0.52:0.16\\ 193.34:80.28\\ 0.53:0.08\\ 3.14:0.36\\ 0.53:0.08\\ 3.14:0.36\\ 0.53:0.08\\ 3.14:0.36\\ 0.53:0.08\\ 3.14:0.36\\ 0.53:0.08\\ 3.14:0.36\\ 0.53:0.08\\ 0.$
2-3-Nonadecanone Damas econo Ethyl decanoate (2)-5-Pentadecen-3-one Totals Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Beta-phollandrene Beta-phollandrene Terpinolene Tarpinolene Cymone gamma-Terpinone	1359 1391 1391 1660 165 1454 1454 1458 3 933 971 980 991 1011 1017 1017 1017 1017 1017 1014 1014	Floral Waxy Tonka Floral Floral Fraty Woody Spicy Herbal Spicy Tepenic Woody Minity Herbal Tepenic Floral Floral Floral Floral Floral Tepenic	natural sweet fuilty one plum grape raspberry sugar sweet waxy fuilty apple grape oily brandy herbal coconti, sweet countarinic babaco feeds green fuilty waxy rose woody magnolia tropical fresh oily waxy peach cocont buttery sweet woody green herbal pepper terpenie spicy balamic plastic dy woody resionous pitc hay green euclyptus camporeous pepper terpenie spicy balamic plastic citrus herbal terpenie green woody pepper black, pepper woody terpenie lenon herbal medicania citrus minity terpenie herbal spicy chanomile green basil citrus therbal terpenie green woody pepper black, pepper vierus herbal terpenie green woody pepper black, pepper vierus freiden feels weet warm floral herbal sweet warm floral herbal sweet vierus toroitag freien ksweet vierus toroitag ingeren terpenie woody green fesh citrus terpenie cimenui mit tropical herbal oily woody terpenie cimenui mit tropical herbal	$\begin{array}{c} 1.14\pm0.12\\ 6.00.25\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 369,36\pm02.78\\ 37,22\pm16.1\\ 10,52\pm0.04\\ 37,22\pm16.4\\ 37,22\pm16.64\\ 30,32\pm0.04\\ 0.60\\ 18.1\pm1.68\\ 80.34\pm5.56\\ 0.60\\ 18.8\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 6.38\pm1.06\\ 9,182\pm2.1\\ 1.58\pm2.1\\ 1$	$\begin{array}{c} 0.4a0.34\\ 66.24\pm56.2\\ 1.08\pm12.6\\ \textbf{23.398\pm176.74}\\ 40.82\pm35.34\\ 3.38\pm2.53\\ 3.38\pm2.53\\ 0.660.0\\ 0.60\\ 0.60\\ 11.28\pm0.52\\ 20.0656.94\\ 51.2655.32\\ 22.0656.94\\ 51.2655.32\\ 2.28\pm4.72\\ 10.069.34\\ 1.840.91\\ 1.840.91\\ 1.88\pm1.48\\ 0.60\\ 1.68\pm1.48\\ 0.60\\ 1.68\pm1.48\\ 0.60\\ 0.45\pm7.86\\ 0.60\\ 1.85\pm1.48\\ 0.60\\ 0.60\\ 1.85\pm1.48\\ 0.60\\ 0.60\\ 1.85\pm1.48\\ 0.60\\ 0.60\\ 0.55\pm1.88\\ 0.60\\ 0.$	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline 0.74+281.68\\ 0.92-0.12\\ 1.92-0.44\\ 0.92-0.12\\ \hline 1.5256+10.46\\ 0.90\\ 0.92-0.12\\ \hline 1.5256+10.46\\ 0.93-0.12\\ 1.99.86+70.02\\ 1.8.6+32.22\\ 6.54+6.58\\ 1.056+2.38\\ 6.54+6.58\\ 1.056+2.38\\ 0.54+6.58\\ 0.55+6.58\\ 0.55+6.$	$\begin{array}{c} 1.2460.4\\ 53.08\pm16.88\\ 7.58\pm2.36\\ 0.58\pm0.36\\ 31.21\pm185.72\\ 44.64\pm6.74\\ 3.9\pm1.12\\ 0.66\\ 1.12\\ 0.66\\ 51.7\pm66.84\\ 55.58\pm7.26\\ 13.02\pm5.6\\ 13.02\pm5.6\\ 13.02\pm5.6\\ 0.64\\ 13.02\pm5.6\\ 0.64\pm1.1\\ 2.98\pm3.92\\ 2.98\pm3.92\\ .298\pm3.92\\ .298\pm4.92\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928\\ .298\pm4.928$.298\pm4.928 .298\pm4.928	0.82:00.66 50.88:21.9 1.28:00.18 0.16:00.14 253.8.6 24:8:00 24:8:00 24:8:00 27:8:9.14 37.72:817.38 77.11:6:10.14 5.5:5.92 274.74:80.046 0:0 0:40 0:10.14 5.5:5.92 274.74:80.046 0:0 0:0 0:0 0:0 0:0 0:0 0:0 0:	$\begin{array}{c} 1.4\pm0.64\\ 156.5\pm120.82\\ 1\pm0.88\\ 0.012\pm0.1\\ 357.44\pm394.3\\ 1.5\pm1.44\\ 1.71.2\pm1.30\\ 0.024\pm1.14\\ 1.71.2\pm1.30\\ 0.024\pm1.14\\ 1.72.228\pm1.16\\ 8.5\pm6.44\\ 11.88.22\pm7.36\\ 1.12\pm1.23\\ 0.221.8\pm1.16\\ 1.242.26\\ 0.241.8\pm1.23\\ 0.241.8\pm1.8\pm1.23\\ 0.241.8\pm1.8\pm1.23\\ 0.241.8\pm1.8\pm1.23\\ 0.241.8\pm1.23\\ 0.241.8\pm1.8\pm1.23\\ 0.241.8\pm1.8\pm1.8\pm1.23\\ 0.241.8\pm1.8\pm1.8\pm1.23\\ 0.241.8\pm1.8\pm1.8\pm1.8\pm1.23\\ 0.241.8\pm1.8\pm1.23\\ 0.241.8\pm1.8\pm1.8\pm1.8\pm1.8\pm1.8\pm1.8\pm1.8\pm1.8\pm1.8\pm$	$\begin{array}{c} 3.940.4\\ 5.2.5e1.784\\ 1.8640.22\\ 0.74e0.4\\ 175.64+119.32\\ 175.64+119.32\\ 175.64+119.32\\ 175.64+119.32\\ 1.28e0.36\\ 1.28e0.36\\ 1.28e0.36\\ 1.28e0.36\\ 1.28e0.36\\ 1.28e0.36\\ 0.0960.96\\ 1.88e3.24\\ 4.64e7.1\\ 4.64e7.1\\ 4.64e7.1\\ 4.64e7.1\\ 0.9660.96\\ 0.9660.96\\ 0.996.06\\ 2.1e1.24\\ 0.0660.12\\ \end{array}$	$\begin{array}{c} 0.2 + 0.2 \\ 39.6 \pm 7.8 \\ 4.42 \pm 1.84 \\ 0.38 \pm 0.16 \\ \hline \textbf{79.42457.46} \\ 18.42 \pm 6.26 \\ 3.54 \pm 0.27 \\ \textbf{22.52 \pm 18.48} \\ \hline \textbf{0+0} \\ 0.35 \pm 0.27 \\ \textbf{22.52 \pm 18.48} \\ 0.40 \\ 3.32 \pm 2.38 \\ 2.24 \pm 1.96 \\ 8.02 \pm 4.58 \\ 5.1 \pm 8. \\ 1.68 \pm 1.52 \\ 1.68 \pm 1.$	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 641.28\\ 0+0\\ \hline 151.46+05.48\\ 3.96e1.52\\ 2.06e10.88\\ 88.02\pm34.86\\ 88.02\pm34.86\\ 88.02\pm34.86\\ 88.02\pm34.86\\ 0+0\\ 1.282\pm2.18\\ 2.382\pm2.18\\ 2.382\pm2.18\\ 2.382\pm2.18\\ 2.382\pm2.18\\ 2.382\pm2.14\\ 1.222\pm3.02\\ 0+0\\ 0+0\\ 1.06e1.84\\ 20.28e7.744\\ 0+0\\ 0+0\\ 1.06e1.84\\ 20.28e7.744\\ 0+0\\ 0.12\pm0.2\\ 2.24e40.52\\ 0.550.5\\ 1.44e40.46\\ 3.0.36\\ 0.12\pm0.2\\ \end{array}$	0.66:01.4 22.16:17.36 0.52:0.16 193.34:80.28 0.0 0.50 0.50.08 3.64:0.44 10.58:14.7 2.14:37 15.4:23.02 3.60:4:50 0:
2-3-Nonadecanone Damas econe Ethyl decanoate (2)-6-Pentadecen-2-one Tatals Lactones Gamma-decalactone Gamma-decalactone Tatals Monoterpenes Alpha-thuljene Myrcene Bes-pinene Be	1359 1391 1391 1660 16 1055 1454 1458 3 933 971 980 991 1011 1017 1017 1017 1017 1017 1024 1037 1048 1048 1048 1048 1053 1069	- Floral Waxy Tonka Floral Fruity Woody Spicy Harbal Harbal Spicpenic Woody Minty Harbal Terpenic Floral Floral Citrus Floral Floral Floral Terpenic	natural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstinic tobacco fresh green fuity waxy rose woody magnolia tropical fresh oily waxy peach coconut buttery sweet woody green herbal pripero trepenies plum hay green cellyfus camperous popper trepenie green woody topper black pepper woody trepenie lemon herbal modicinal citrus minty terpenie berbal spoy chanomile green basil citrus herbal terpenie green woody peppe thack pepper waat therbal mode static titrus herbal terpenie green woody peppe thack pepper waat therbal mode sweet warm floan herbal sweet citrus torpical green togoty peppe thack pepper warm floan herbal sweet citrus torpical green togoty peppe thack pepper warm floan herbal sweet citrus torpical green togoty peppe thack pepper warm floan herbal sweet citrus torpical green togoty peppe thack pepper warm floan herbal sweet citrus torpical green togoty pepper basil stopical green togoty pepper togoty per terpenie woody spreen fesh citrus terpenie woody spreen fesh citrus terpenie woody spreen fesh citrus terpenie woody spreen	$\begin{array}{c} 1.14\pm0.12\\ 6.00.25\times2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 33034c+20.78\\ 37.22\pm16.1\\ 2.24\pm0.34\\ 1.16.04\\ 40.7216.64\\ 30.32\pm0.04\\ 0.e0\\ 18.11.68\\ 80.34\pm8.56\\ 0.e0\\ 18.811.68\\ 80.34\pm8.56\\ 0.91\\ 8.83\pm2.1\\ 6.38\pm1.06\\ 9.18\times2.6\\ 0.18\times2.6\\ 0$	$\begin{array}{c} 0.4{=}0.34\\ 66.24{\pm}562\\ 1.08{\pm}126\\ 3.38{\pm}253\\ 3.38{\pm}252\\ 0.66{-}0.12\\ 45.36{\pm}7.98\\ 0.66{-}0.12\\ 45.36{\pm}7.98\\ 0.66\\ 0.0\\ 1.128{\pm}0.52\\ 20.06{\pm}0.2\\ 1.28{\pm}0.52\\ 20.06{\pm}0.2\\ 1.28{\pm}0.52\\ 20.06{\pm}0.2\\ 1.28{\pm}0.52\\ 2.28{\pm}1.28\\ 0.20{\pm}0.2\\ 1.28{\pm}0.52\\ 1.$	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline {\bf 617.4281.68}\\ 11.72+9.44\\ 2.92.0.10\\ 0.9201.12\\ 0.9201.12\\ 0.9201.12\\ 0.924.0.86\\ 11.72+9.44\\ 0.9201.12\\ 0.924.0.86\\ 11.72+9.44\\ 0.924.0.86\\ 11.72+9.44\\ 0.924.0.86\\ 11.72+9.44\\ 0.924.0.86\\ 11.72+9.46\\ 0.94-6.58\\ 10.56+2.38\\ 0.94-6.58\\ 10.56+2.58$	$\begin{array}{c} 1.2440.4\\ 5.308\pm16.88\\ 7.5842.36\\ 0.5840.36\\ 312.12\pm185.72\\ 44.6445.74\\ 3.9\pm1.12\\ 0.00\\ 43.5447.36\\ 51.766.84\\ 35.5847.22\\ 12.966.86\\ 55.5847.22\\ 12.966.86\\ 0.00\\ 13.02\pm5.56\\ 10.442.24\\ 6.285.54\\ 8.6224.48\\ 0.298\pm3.92\\ 9.12\pm1.14\\ 0.422.074\\ 3.964.382\\ 2.3642.244\\ \end{array}$	$\begin{array}{c} 0.82:00.66\\ 50.88;=21.9\\ 1.28:00.18\\ 0.16:0.14\\ \hline \textbf{253.86}\\ 2.38:0.48\\ 3.23:0.06\\ 0.22:0.78\\ 3.72:24:7.38\\ 7.72:7.38\\ 7.72:7.38\\ $	$\begin{array}{l} 1.4\pm0.64\\ 155.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.1\\ 357.44\pm294.3\\ 85.24\pm76.82\\ 1.5\pm1.144\\ 1.3\pm2.2\\ 38.1\pm80.56\\ 48.3\pm\pm1.86\\ 88.1\pm80.56\\ 48.3\pm\pm1.14\\ 1.712\pm12.04\\ 5.222.8\pm1.16\\ 8.5\pm6.44\\ 18.82\pm7.36\\ 14.2\pm12.34\\ 0\pm0\\ 1.12\pm1.52\\ 2.14\pm2.26\\ 0.92\pm1.6\\ 1.12\pm1.96\\ \end{array}$	$\begin{array}{c} 3.940.4\\ 5.2.5e1.7.84\\ 1.8640.22\\ 0.7440.4\\ 1.722e15.3\\ 1.5840.36\\ 1.2840.56\\ 1.2840.56\\ 1.2840.56\\ 1.2840.56\\ 1.2840.56\\ 1.2840.56\\ 1.2840.56\\ 1.2840.56\\ 0.60\\ 0.500.56$	$\begin{array}{c} 0.2 + 0.2 \\ 39.6 \pm 7.8 \\ 4.42 \pm 1.84 \\ 0.38 \pm 0.16 \\ \hline \textbf{79.42457.46} \\ 18.42 \pm 16.26 \\ 3.53 \pm 0.27 \\ \textbf{22.52 \pm 18.48} \\ \hline \textbf{0+0} \\ 0.35 \pm 0.27 \\ \textbf{22.52 \pm 18.48} \\ 0.40 \\ 3.32 \pm 2.38 \\ 2.24 \pm 1.96 \\ 8.02 \pm 4.58 \\ 5.1 \pm 8 \\ 1.08 \pm 1.52 \\ 1.27 \pm 1.04 \\ 1.08 \pm 1.52 \\ 1.08 \\ 1.08 \pm 1.52 \\ 1.08 \\ 1.08 \\ 1.08 \\ 1.08 \\ 1.08 \\ 1.08 \\ 1.08 \\ 1.08 \\ 1.$	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 60.128\\ 0.00\\ \textbf{151,} 126648, \textbf{48}\\ \textbf{82}, 243.26\\ 3.9661.58\\ 2.9664.98\\ \textbf{80}, \textbf{20}, 243.48\\ \textbf{80}, \textbf{20}, 243.48\\ \textbf{80}, \textbf{20}, 243.48\\ \textbf{80}, \textbf{20}, 243.48\\ \textbf{10}, 243.28\\ \textbf{11}, 243$	0.66:01.4 22.16:17.36 0.52:0.16 193.34:80.28 0:40 0:50
2-3-Nonadecanone Danas econo Entyl decanoate (2)-6-Pentadecen-2-one (2)-6-Pentadecen-2-one (2)-6-Pentadecen-2-one Gramylacetone Gramylacetone Gramylacetone Gramylacetone Beta-philanderone Beta-philanderone Beta-philanderone Beta-philanderone Beta-philanderone Beta-philanderone Beta-philanderone Cis-beta-Cuimene cis-beta-Cuimene	1359 1391 1391 1660 16 1455 1454 1488 3 933 971 980 11 1017 1017 1017 1019 1024 1037 1045 1033 1045 1033 1063 1063 1063 1063 1063 1063 1063	Floral Waxy Tonka Floral Floral Spicy Torpent Torpent Torpent Torpent Torpent Citrus Floral Citrus Floral Floral Floral Floral Floral Torpent Torpent Torpent Torpent	natural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstrinic tobacco fresh green furty waxy rose woody magnolia tropical fresh oily waxy peach coconut buttery sweet woody green herbal peppey terpenic spicy balsamic plastic day woody resionous pline hay green exalyptate camporeous drives behal beneficient citrus minty terpenic berbal spicy chanomile green basil citrus behal terpenic green woody terpenic termon behal medicinal citrus minty terpenic berbal spicy chanomile green basil citrus behal terpenic green woody terpenic terbal spicy chanomile green basil citrus behal terpenic green woody terpenic warm fuenal terbal sweet warm fuenal terbal sweet warm fuenal terbal sweet man fuenal terbal sweet warm fuenal terbal sweet w	$\begin{array}{c} 1.14\pm0.12\\ 6.00255.2\\ 5.0851.02\\ 0.524.008\\ 369365202.78\\ 3722\pm16.1\\ 2.440.34\\ 1.0860.2\\ 40.7216.64\\ 30.32\pm0.04\\ 0.00\\ 18.116.8\\ 30.3428.56\\ 0.03\\ 30.3428.56\\ 0.381.06\\ 9.1822.6\\ 1.6882.22.11\\ 6.381.106\\ 9.1822.6\\ 8.942.29\\ 0.00\\ 0.610.58\\ 0.600.58\\$	$\begin{array}{c} 0.4 = 0.34 \\ 66.24 \pm 56.2 \\ 4.92 \pm 4.1 \\ 1.08 \pm 1.26 \\ 1.08 \pm 1.26 \\ 3.08 \pm 76.76 \\ 4.93 \pm 8.75 \\ 3.08 \pm 2.57 \\ 0.66 \pm 0.12 \\ 4.53 \pm 4.57 \\ 8.38 \pm 5.26 \\ 0.66 \pm 0.12 \\ 4.53 \pm 4.57 \\ 8.38 \pm 6.3 \\ 5.10 \\ 0.67 \pm 3.48 \\ 8.38 \pm 6.3 \\ 2.14 \pm 2.1 \\ 7.94 \pm 8.62 \\ 0.24 \\ 0.24 \\ 1.0 \\ 0.67 \\ 0.47 \\ 1.0 \\ 0.67 \\ 0.47 \\ 1.0 \\ 0.47 \\ 0.47 \\ 1.0 \\ 0.47 \\ 0.47 \\ 1.0 \\ 0.47 \\ 1.0 \\ 0.47 \\ 1.0 \\ 0.47 \\ 1.0 \\ 0.47 \\ 1.0 \\ 0.47 \\ 1.0 \\ 0.47 \\ 1.0 \\ 0.47 \\ 1.0 \\ 1.0 \\ 0.47 \\ 1.0 \\ 1$	$\begin{array}{c} 324497.6\\ 111.22\times61.74\\ 4.24\times1.06\\ 0.26\times0.06\\ 617.442381.68\\ 11.7229.44\\ 2.925.09\\ 0.92\times0.12\\ 15.56\pm0.46\\ 0.92\\ 0.92\times0.12\\ 15.56\pm0.46\\ 0.92\\ 0.92\times0.12\\ 15.95\pm7.02\\ 1.94\times5.8\\ 0.95\times0.12\\ 1.94\times5.8\\ 0.95\times0.12\\ 1.95\times5.7\\ 0.95\times0.12\\ 0.95\times0.1$	$\begin{array}{c} 1.24e0.4\\ 5.308e1.688\\ 7.58e2.36\\ 0.58e0.36\\ 31.212e185.72\\ 44.64e5.74\\ 3.9e1.12\\ 0.e0\\ 48.54e7.86\\ 15.17e66.84\\ 35.588e4.722\\ 12.966.84\\ 55.588e4.722\\ 12.966.84\\ 55.588e4.722\\ 12.966.84\\ 0.461.12\\ 2.98e3.92\\ 10.44e2.44\\ 6.0224.46\\ 0.04e1.13\\ 2.98e3.92\\ 10.44e2.44\\ 6.0224.46\\ 0.04e1.13\\ 2.98e3.92\\ 12.11.14\\ 0.42e0.74\\ 2.38e2.48\\ 3.366.66\\ 23.6489.42\\ 2.58e5.36\\ \end{array}$	$\begin{array}{c} 0.82:00.66\\ 50.88:21.9\\ 1.28:00.18\\ 0.016:00.14\\ \hline {\bf 25:8.6}\\ 2.38:00.48\\ 0.42:00.06\\ \hline {\bf 27:8:9.14}\\ \hline {\bf 37:72:17.38}\\ 71.16:10.14\\ 5.5:8.5 9.2\\ 71.16:10.14\\ 5.5:8.5 9.2\\ 71.16:10.14\\ 5.5:8.5 9.2\\ 71.16:10.14\\ 5.5:8.9 9.14\\ \hline {\bf 13:6:3.82}\\ 0.60\\ \hline {\bf 7:92:44.18}\\ 9.24:1.14\\ 0.60\\ 0.28:0.04\\ 9.24:1.14\\ 0.23\\ 0.28:0.04\\ 5.5:8.28\\ 0.23\\ 0.28:0.04\\ 5.5:8.28\\ 0.23\\ 0.2$	1.4±0.64 155.5±120.82 1±0.88 0.12±0.1 357.44±393.43 352.44±394.34 352.44±394.34 352.44±394.34 352.44±394.34 352.44±394.34 352.44±394.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±31.34 352.44±2.34 353.44±2.34 354.44 353.44±2.34 354.44 353.44±2.34 354.44 354.44 354.44±2.34 354.44 354.44±2.34 354.44 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34 354.44±2.34±2.34 354.44±2.34±2.34 354.44±2.34±2.34	$\begin{array}{c} 3.946.4\\ 5.2.5e1.784\\ 1.866.022\\ 0.74e0.4\\ 175.645109.22\\ 172.2e15.3\\ 1.58e0.36\\ 1.28e0.26\\ 20.08e15.92\\ 20.08e15.92\\ 20.08e15.92\\ 20.08e15.92\\ 20.08e15.92\\ 20.08e15.92\\ 20.08e15.92\\ 1.28e0.26\\ 0.50\\ 0.5$	$\begin{array}{c} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 37.94 \pm 257.46\\ 77.94 \pm 257.46\\ 3.52 \pm 2.5\\ 3.52 \pm 2.5\\ 3.52 \pm 2.5\\ 3.52 \pm 2.38\\ 1.68 \pm 1.52\\ 1.278 \pm 10.3\\ 2.43 \pm 2.57\\ 0.60\\ 0.7 \pm 0.48\\ 0.08 \pm 0.3\\ 3.56 \pm 1.52\\ 3.56$	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 60.1\\ 28\\ 0.40\\ \textbf{15.1}\\ \textbf{4.5}\\ \textbf{5.2}\\ 39.641.52\\ 20.640.98\\ \textbf{8.022.34.86}\\ \textbf{8.022.34.86}\\ \textbf{8.022.34.86}\\ \textbf{8.022.34.86}\\ \textbf{8.022.34.86}\\ \textbf{12.522.30}\\ 0.00\\ 1.2522.18\\ 2.2582.744\\ 0.40\\ 1.0621.84\\ 20.288.744\\ 0.40\\ 2.2460.52\\ 0.540.5\\ 1.4440.46\\ 3.40.36\\ 0.1240.2\\ 0.40\\ $	0.66:01.4 22.16:17.36 3.14:0.96 0.52:0.16 193.34:80:28 0:60 3.14:0.36 0.5:0.08 3.6:40:34 10.58:14.7 15.4:23.02 3.6:04:30 0.5:0.08 3.6:04:30 0.5:0.08 3.6:04:30 0.5:0.08 3.0:02:78 21.74:1.9 4.22:47 3.0:02:78 21.74:1.9 4.22:47 3.0:02:78 21.74:1.9 4.22:47 3.0:02:78 21.74:1.9 4.22:47 3.0:02:78 21.74:1.9 4.22:47 3.0:02:78 21.74:1.9 4.22:47 3.0:02:78 21.74:1.9 4.22:47 3.0:02:58 5.0:02:52
2-Nonadecanone Damasecnone Ethyl decanoate (2)-5-Pentadecen-2-one Tatali Lactones Gamma-decalactone Gamma-decalactone Tatali Monoterpenes Alpha-thujene Beta-pinene Beta-science Beta	1359 1391 1391 1660 1655 1454 1458 3 933 971 980 991 1011 1011 1019 1019 1019 1014 1045 1044 1045 1069 1069 1069 1069 1069	Floral Waxy Tonka Floral Floral Fruity Woody Herbal Spicy Herbal Spicy Herbal Tepenic Herbal Tepenic Floral Floral Floral Floral Tepenic Woody Minty Herbal Tepenic Floral Flora Flora Flora Flora Floral Floral Floral Floral Floral Floral Floral Floral Floral Floral Flora Flo	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconst sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical fresh eren fruity waxy rose woody magnolia tropical fresh eren fruity waxy peach cocona buttery sweet woody green herbal pepper terpenie spiry balsamic plastic dy woody resioneus pine hay green euclyptus camporeous pepper terpenie spiry balsamic plastic dy woody reserve lenno herbal medicaial citrus minty terpenie herbal spiry chanomile green basil citrus herbal terpenie green woody pepper black, pepper warm floal herbal sweet ditus onage fresh sweet ditus onage fresh sweet ditus onage fresh sweet ditus onage fresh sweet goity woody repenie lennon lime tropical herbal papant earthy woody pinus floal avece bios de rose green hukeberty phenolic spicy styren clove guaiacol	$\begin{array}{c} 1.14\pm0.12\\ 6.002\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 369,4c=202,78\\ 37,22\pm16.1\\ 2.24\pm0.34\\ 1.08\pm0.2\\ 440,7216.64\\ 30,32\pm0.04\\ 0.e0\\ 18,11-68\\ 80,34\pm8.56\\ 0.e0\\ 18,11-68\\ 80,34\pm8.56\\ 0.e0\\ 18,81-16\\ 8,94\pm2.98\\ 0.46\pm0.58\\ 0.46\pm0.58\\ 0.46\pm2.44\\ 0.46\pm0.58\\ 0.46\pm2.44\\ 0.46\pm0.58\\ 0.46\pm0.58\\ 0.46\pm2.44\\ 0.46\pm0.58\\ 0.48\pm0.58\\ 0.$	0.4c0.34 66.24:56.2 4.92:4.1 1.08:1.26 23.398:176.74 40.82:35.34 3.88:2.52 0.66:0.12 43.36:2.52 0.66:0.12 9.06:6.94 51.26:53.32 23.06:6.94 51.26:53.32 23.06:6.94 51.26:53.32 2.38:4.72 10.06:9.34 8.38:6.3 2.14:2.1 7.94:8.62 0.2:0.34 1.18:0.9 1.68:1.48 6.2:4.54 1.18:0.9 1.68:1.48 6.2:4.54 1.18:0.9 1.68:1.48 6.2:4.54 1.18:0.9 1.68:1.48 6.2:4.54 1.18:0.9 1.68:1.48 6.2:4.54 1.18:0.9 1.68:1.48 6.2:4.54 1.18:0.9 1.68:1.48 6.54:1.55:1.55 6.54:1.55 6.55	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline {\bf 617.4281.68}\\ 11.72\pm9.44\\ 2.92\pm0.9\\ 0.92\pm0.12\\ 30.76\pm28.36\\ 9.94\pm0.86\\ 10.56\pm2.22\\ 6.94\pm6.58\\ 10.56\pm2.38\\ 6.52\pm5.76\\ 8.58\pm2.04\\ 0.60\\ 0.60\\ 0.12\pm0.22\\ 1.7\pm1.68\\ 8.58\pm2.04\\ 0.60\\ 1.12\pm0.22\\ 1.7\pm1.68\\ 1.12\pm0.22\\ $	$\begin{array}{c} 1.2460.4\\ 5.308\pm16.88\\ 7.58\pm2.36\\ 0.58\pm0.36\\ 312.12\pm185.72\\ 44.64\pm6.74\\ 3.9\pm1.12\\ 0.00\\ 3.9\pm1.12\\ 0.00\\ 51.7a66.84\\ 55.58\pm7.68\\ 55.58\pm7.68\\ 0.00\\ 13.02\pm5.56\\ 10.44\pm2.44\\ 6.28\pm5.48\\ 0.06\pm1.12\\ 2.98\pm3.92\\ 12.216\pm2.48\\ 0.06\pm1.12\\ 2.98\pm3.92\\ 12.216\pm2.48\\ 0.06\pm1.12\\ 2.98\pm3.92\\ 12.216\pm2.48\\ 0.06\pm1.12\\ 2.98\pm3.92\\ 12.216\pm2.48\\ 0.06\pm1.12\\ 2.36\pm9.42\\ 2.36\pm9.42\\ 2.36\pm9.42\\ 12.85\pm3.6\\ 0.28\pm7.26\\ 9.28\pm7.26\\ 9.28\pm7.26$ 9.28\pm7.26 9.28\pm7.26 9.28\pm7.26 9.	$\begin{array}{l} 0.82:00\ 66\\ 0.82:01\ 66\\ 50.88=21.9\\ 1.28:01\ 86\\ 0.16:0.14\\ \textbf{253:8.6}\\ \textbf{253:8.6}\\ \textbf{233:0.06}\\ 0.22:0.06\\ 0.27:8:9.14\\ \textbf{37,72=17.38}\\ \textbf{71.16:10.14}\\ 5.5:5.92\\ \textbf{274.74:20.46}\\ 0.60\\ 0.60\\ 0.79:24.42\\ \textbf{00.06}\\ \textbf{33,04:10.14}\\ \textbf{35,04:10.14}\\ \textbf{35,05:92}\\ \textbf{35,04:10.14}\\ \textbf{35,05:92}\\ \textbf{35,04:10.14}\\ 35,$	$\begin{array}{l} 1.4 \pm 0.64 \\ 156.5 \pm 120.82 \\ 140.88 \\ 0.1240.11 \\ 357.44 \pm 394.3 \\ 1.54 \pm 1.34 \\ 1.32 \pm 2.3 \\ 85.124 \pm 76.82 \\ 1.32 \pm 2.2 \\ 85.124 \pm 76.82 \\ 1.32 \pm 2.3 \\ 85.124 \pm 76.82 \\ 1.32 \pm 2.3 \\ 1.32 \pm 2.3 \\ 1.34 \pm 1.34 \\ 1.32 \pm 2.34 \\ 1.34 \pm 1.34 \\ 1.32 \pm 2.34 \\ 1.34 \pm 2.3$	$\begin{array}{c} 3.946.4\\ 5.2.5e1.7.84\\ 1.866.0.22\\ 0.74e0.4\\ 175.2e1.5.3\\ 1.38e0.36\\ 1.2.8e0.36\\ 1.2.2e0.36\\ 1.$	$\begin{array}{c} 0.2 + 0.2 \\ 39.6 + 27.8 \\ 4.42 + 1.84 \\ 0.38 + 0.16 \\ \hline \textbf{79.4257.46} \\ 18.42 + 16.26 \\ 3.52 + 2 \\ 0.38 + 22.7 \\ 0.38 + 22.7 \\ 0.38 + 22.2 \\ 0.38 + 22.2 \\ 0.38 + 22.2 \\ 2.52 + 18.48 \\ 0.40 \\ 3.32 + 22.8 \\ 2.24 + 10.68 \\ 8.02 + 4.58 \\ 5.1 + 8 \\ 1.08 + 1.52 \\ 1.27 + 10.48 \\ 1.08 + 1.52 \\ 1.27 + 10.48 \\ 0.34 + 1.38 \\ 0.36 + 10.48 $	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 641.28\\ 0+0\\ \hline 151.464.84.88\\ 82\pm32.6\\ 3.96\pm1.53\\ 2.06\pm0.88\\ 8.02\pm24.86\\ 8.8.02\pm24.86\\ 8.8.02\pm24.86\\ 8.8.02\pm24.86\\ 12.8\pm2.18\\ 2.38\pm2.14\\ 12.8\pm2.18\\ 2.38\pm2.14\\ 12.52\pm3.02\\ 0+0\\ 0+0\\ 1.06\pm1.84\\ 0+0\\ 20.28\pm7.44\\ 0+0\\ 0+0\\ 1.14\pm0.24\\ 0+10.6\\ 30.12\pm0.2\\ 0+0\\ 0+0\\ 1.14\pm0.24\\ 0+0\\ 0&11.25\pm2.2\\ 0+0\\ 0+0\\ 1.14\pm0.24\\ 0+0\\ 0&11.25\pm2.2\\ 0+0\\ 0+0\\ 0&11.25\pm2.2\\ 0+0\\ 0&10\\ $	$\begin{array}{l} 0.66e0.14\\ 2.2.16e17.36\\ 3.14e0.96\\ 0.52e0.16\\ 193.34e30.28\\ \hline 0.52e0.16\\ 3.14e0.36\\ 0.34e0.28\\ 0.34e30.28\\ 0.34e30.28\\ 1.16e2.37\\ 3.36e0.44\\ 10.58e1.47\\ 3.36e0.44\\ 10.58e1.47\\ 3.36e2.78\\ 3.3$
2-3-Nonadecanone Danas econo Ethyl decanoate (2)-4-Pentadecen-2-one (2)-4-Pentadecen-2-one Gramylacetone Gramylacetone Gramylacetone Gramylacetone Monolerpenes Alpha-shellandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phienlandrene Beta-phiendrene Beta-phienlandrene Beta-phiendrene Beta-	1359 1391 1391 1660 165 1454 1488 3 933 931 931 980 991 1011 1017 1017 1017 1017 1017 1017	- Floral Waxy Tonka Floral Floral Fraity Woody Spicy Herbal Spicy Tepenic Woody Minity Herbal Tepenic Floral Florad Flora Flora Flora Flora Flora Flora Flora Flora Floral Floral Floral Floral Floral Florad Flora	natural sweet finity rose plum grape raspberry sugar sweet waxy finity apple grape oily brandy herbal coconnt sweet commarine tobacco fresh green fruity waxy rose woody magnolia tropical fresh aren fruity waxy rose woody magnolia tropical fresh aren fruity waxy peak occonta buttery sweet woody green herbal pepper terpenie spicy balamic plastic dry woody resionous pine hav green euclyptus camporous pepper terpenie spicy balamic plastic citrus herbal terpenie green woody pepper black pepper woody terpenie lemn herbal merkenia clitrus minty terpenie herbal spicy channenie green basil citrus herbal terpenie green tossil citrus herbal terpenie green tossil citrus herbal terpenie green tossil citrus torpical green terpenie woody pepper black pepper warm floral herbal sweet warm floral herbal sweet warm floral herbal sweet citrus torpical green terpenie woody green fiesh citrus terpenie citemon imter topical herbal pagnet carthy woody citrus floral weet biois de rose green blueberty	$\begin{array}{c} 1.14\pm0.12\\ 6.002+5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 369,36\pm202,78\\ 37,22\pm6.1\\ 2.4+0.34\\ 1.08\pm0.2\\ 40,7\pm16.64\\ 30.32\pm3.0.04\\ 0.40\\ 18,1\pm1.08\\ 80.34\pm5.5\\ 0.032\pm2.0.1\\ 6.38\pm1.06\\ 9.18\pm2.6\\ 8.94\pm2.98\\ 0.60\\ 5.04\pm2.4\\ 0.60\\ 0.53\pm2.6\\ 0.53\pm2.6$	0.4d=0.34 66.24±56.2 4.92±4.1 1.08±1.26 4.932±4.1 1.08±1.26 4.932±5.14 3.938±7.57.4 3.938±7.	$\begin{array}{c} 324497.6\\ 111.22\times61.74\\ 4.24\pm1.06\\ 0.26\pm0.06\\ 617.42381.68\\ 0.9250.09\\ 11.72\pm9.44\\ 2.9250.09\\ 0.9250.12\\ 115.55\pm10.46\\ 0.90\\ 0.9250.12\\ 155.55\pm10.46\\ 0.9550.12\\ 159.5657.00\\ 1159.4657.00\\ 1159.4657.00\\ 1159.4657.00\\ 1159.4657.00\\ 1159.4657.00\\ 1159.4657.00\\ 1126.02\\ 126.$	$\begin{array}{c} 1.24e0.4\\ 5.308\pm16.88\\ 7.58e2.36\\ 0.58e0.36\\ 31.212\pm185,72\\ 41.6486.74\\ 3.9\pm1.12\\ 0.e0\\ 48.54\pm7.86\\ 51.766.84\\ 35.58\pm47.22\\ 12.966.86\\ 35.58\pm47.22\\ 12.966.86\\ 35.58\pm47.22\\ 12.966.86\\ 10.24\pm5.66\\ 0.02\pm4.68\\ 0.02\pm4.68\\ 0.02\pm1.11\\ 10.24\pm2.54\\ 6.02\pm4.68\\ 0.02\pm1.11\\ 10.24\pm2.54\\ 6.02\pm4.68\\ 0.04\pm1.1\\ 2.98\pm3.92\\ 9.12\pm1.114\\ 0.24\pm5.38\\ 2.36\pm2.48\\ 0.42\pm0.73\\ 3.36\pm3.82\\ 2.36\pm2.46\\ 3.36\pm2.46\\ 3.36\pm$	$\begin{array}{c} 0.82:00.66\\ 50.88; -21.9\\ 1.28:00.18\\ 0.016:-0.14\\ \hline \textbf{Z53,24:-88,4}\\ \hline \textbf{Z54,6}\\ 0.42:-0.06\\ 0.42:-0.06\\ \hline \textbf{Z73,8:-9.14}\\ \hline \textbf{Z73,8:-9.14}\\ \hline \textbf{Z73,8:-9.14}\\ \hline \textbf{Z73,8:-9.14}\\ \hline \textbf{Z73,8:-9.14}\\ \hline \textbf{Z74,74:-200.46}\\ 0.60\\ \hline \textbf{U}_{23}, 0.62\\ \hline \textbf{U}_{23}$	$\begin{array}{c} 1.4\pm0.64\\ 155.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.12\\ 357.44\pm394.34\\ 1.52\pm1.54\\ 1.52\pm1.54\\ 1.52\pm1.54\\ 1.52\pm1.54\\ 1.52\pm2.3\\ 1.52\pm2.$	$\begin{array}{c} 3.946.4\\ 5.2.5e1.7.84\\ 1.866.0.22\\ 0.74e0.4\\ 175.645.102\\ 3.1586.036\\ 1.72.24.15\\ 3.1586.036\\ 1.2860.26\\ 20.08415.92\\ 1.2860.26\\ 20.08415.92\\ 1.248.026\\ 2.3.46614.64\\ 0.60\\ 0.40\\ 0.466.012\\ 0.60\\ 0.546.05\\ 0.60\\ 0.546.02\\ 0.60\\ 0.546.02\\ 0.60\\ 0.546.02\\ 0.60\\ 0.546.02\\ 0.60\\ 0.546.02\\ 0.60\\ 0.546.02\\ 0.60\\ 0.546.02\\ 0.60\\ 0.2441.32\\ 0.60\\ 0.560\\ 0.60\\ 0.2441.32\\ 0.60\\ 0.560\\ 0.$	$\begin{array}{c} 0.2 + 0.2 \\ 39.6 + 27.8 \\ 4.42 + 1.84 \\ 0.58 + 0.16 \\ \hline \textbf{79.42457.46} \\ \textbf{79.42457.46} \\ \textbf{79.42457.46} \\ \textbf{79.42457.46} \\ \textbf{53.524} \\ \textbf{22.52418.48} \\ \textbf{600} \\ 0.58 + 0.22 \\ \textbf{22.52418.48} \\ \textbf{602} \\ \textbf{32.522.38} \\ \textbf{22.441.96} \\ \textbf{53.522.38} \\ \textbf{22.441.96} \\ \textbf{53.522.38} \\ \textbf{22.441.96} \\ \textbf{53.522.38} \\ \textbf{23.541.96} \\ \textbf{53.542.57} \\ \textbf{0.46} \\ \textbf{0.584.08} \\ \textbf{33.264.172} \\ \textbf{33.7245.32} \\ \textbf{23.161.72} \\ \textbf{33.7245.32} \\ \textbf{13.541.92} \\ \textbf{13.551.92} \\ 13.5$	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 60.1\\ 89.742.1\\ 0.40\\ \textbf{151.46455.48}\\ \textbf{152.52.45}\\ \textbf{30.74152}\\ 2.064152\\ 2.064152\\ 2.064158\\ \textbf{85.02234.86}\\ \textbf{85.02234.86}\\ \textbf{85.02234.86}\\ \textbf{12.522.18}\\ 2.28422.18\\ 1.2522.302\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.50.5\\ 1.4440.46\\ 3.40.36\\ 0.12440.24\\ 0.40\\ 0.540.5\\ 0.540.5\\ 1.4440.024\\ 1.2440.024\\ 0.40\\ 0$	0.66:01.4 22.16:17.36 0.52:0.16 193.34:80.28 0:49 0.54:0.08 3.64:0.37 10.58:14.7 2.14:3.7 15.4:23.02 3.6:04:50 0:50
2-Nonadecanone Damasecnone Ethyl decanoate (2)-5-Pentadecen-2-one Tatais Catories Gamma-decalactone Gamma-decalactone Tatais Monoterpenes Alpha-theijene Beta-phiellandrene Beta-phiellandrene Beta-phiellandrene Catories Beta-phiellandrene Catories Chiang-beta-colimene Catories Cator	1359 1391 1391 1660 1654 1454 1458 3 933 971 980 991 1011 1011 1019 1024 1037 1024 1037 1024 1037 1048 1053 1069 1069 1063 1069 1065 1188 1146 1151	Floral Waxy Tonka Floral Floral Fruity Woody Herbal Spicy Herbal Spicy Herbal Tepenic Herbal Tepenic Floral Floral Floral Floral Tepenic Woody Minty Herbal Tepenic Floral Flora Flora Flora Flora Floral Floral Floral Floral Floral Floral Floral Floral Floral Floral Flora Flo	natural sweet fruity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconst sweet coumarinic tobacco fresh green fruity waxy rose woody magnolia tropical fresh eren fruity waxy rose woody magnolia tropical fresh eren fruity waxy peach cocona buttery sweet woody green herbal pepper terpenie spiry balsamic plastic dy woody resioneus pine hay green euclyptus camporeous pepper terpenie spiry balsamic plastic dy woody reservice lenno herbal medicinal citrus minty terpenie herbal spire haomonie green woody pepper black, pepper warm foral herbal sweet ditus onage fresh sweet ditus onage fresh sweet ditus onage fresh sweet ditus onage fresh sweet fresh citrus terpenie konody green fresh citrus terpenie konod green guitus floral sweet bios de rose green blueberty phenolic spicy styren clove guaiacol	$\begin{array}{c} 1.14\pm0.12\\ 6.002+5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 369.4\pm02.78\\ 37.2\pm16.1\\ 2.3\pm0.34\\ 1.08\pm0.2\\ 37.2\pm16.1\\ 37.2\pm16.1\\ 30.32\pm30.04\\ 0\pm0\\ 18.1\pm1.68\\ 80.34\pm8.56\\ 0\pm0\\ 18.83\pm1.06\\ 9.18\pm2.6\\ 8.84\pm2.98\\ 0\pm0\\ 7.14\pm0.58\\ 0\pm0\\ 7.14\pm0.58\\ 0\pm0\\ 0.60\\ 1.8\pm2.6\\ 8.84\pm2.98\\ 0\pm0\\ 0.6\pm0.58\\ 5.04\pm2.24\\ 0\pm0\\ 0.6\pm0.58\\ 5.04\pm2.24\\ 0.0\pm0\\ 0.58\\ 0\pm0\\ 0\pm0\\ 0.58\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	0.4c0.34 66.24:56.2 4.92:4.1 1.08:1.26 23.398:176.74 40.82:35.34 3.88:2.52 0.66:0.12 43.38:2.52 0.66:0.12 43.36:37.98 0:60 0:60 11.28:0.52 29.06:6.94 51.26:53.33 5.28:4.72 10.06:9.34 8.38:6.3 2.14:2.1 7.94:8.62 0:29.34 1.18:0.9 1.08:1.48 0:40 0:40 5.28:4.178 0:40 0:40 5.28:4.18 0:40 0:4	$\begin{array}{c} 324497.6\\ 111.228-61.74\\ 4.2481.06\\ 0.2661.06\\ 617.44281.68\\ 2322-0.9\\ 0.922-0.12\\ 3292-0.9\\ 0.922-0.12\\ 30.76228.36\\ 9.954-0.86\\ 30.76228.36\\ 9.954-0.86\\ 30.76228.36\\ 9.954-0.86\\ 30.76228.36\\ 0.946-58\\ 10.5622.38\\ 6.528-5.76\\ 8.5882.04\\ 0.69\\ 0$	$\begin{array}{c} 1.2460.4\\ 53.08\pm16.88\\ 7.58\pm2.36\\ 0.58\pm0.36\\ 33.0\pm1.212\pm185.72\\ 44.64\pm6.74\\ 3.3\pm1.12\\ 0.60\\ 51.766.84\\ 3.558\pm47.26\\ 13.558\pm47.26\\ 13.658\pm56\\ 13.02\pm5.56\\ 10.44\pm2.44\\ 6.28\pm5.48\\ 6.02\pm4.68\\ 0.04\pm1.12\\ 2.98\pm3.92\\ 9.12\pm1.14\\ 0.42\pm0.74\\ 2.366.66\\ 2.28\pm5.48\\ 5.366.66\\ 2.28\pm5.36\\ 2.268\pm3.92\\ 2.268\pm9.42\\ 2.3686.66\\ 2.28\pm5.36\\ 2.268\pm3.92\\ 2.268\pm9.42\\ 2.3686.66\\ 2.28\pm5.36\\ 2.268\pm3.92\\ 2.268\pm9.42\\ 2.3686.66\\ 2.28\pm5.36\\ 2.268\pm3.36\\ 2.268\pm3.$	$\begin{array}{l} 0.82:00\ 66\\ 0.82:01\ 66\\ 50.88:21.9\\ 1.28:01\ 86\\ 0.16:0.14\\ \textbf{283.24:88.4}\\ \textbf{25:84.0}\\ \textbf{25:84.0}\\ \textbf{37.22:47.38}\\ \textbf{37.72:47.38}\\ \textbf{77.116:10.14}\\ 5.5:592\\ \textbf{274.74:20.46}\\ 0.60\\ 0.792:44.20\\ \textbf{36.03}\\ \textbf{274.74:20.46}\\ 0.60\\ 0.792:44.8\\ \textbf{37.92:44.8}\\ \textbf{37.92:46.9}\\ \textbf{37.92:44.8}\\ \textbf{37.92:44.8}\\ \textbf{37.92:44.8}\\ \textbf{37.92:44.8}\\ \textbf{37.92:46.8}\\ \textbf{37.92:46.8}$	$\begin{array}{l} 1.4\pm0.64\\ 155.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.1\\ 357.44\pm70.82\\ 1.55\pm1.42\\ 357.44\pm70.82\\ 1.55\pm1.42\\ 1.32\pm2.3\\ 385.1\pm80.56\\ 483.1\pm80.56\\ 88.1\pm80.56\\ 88.02\pm31.14\\ 17.12\pm13.08\\ 80.2\pm31.14\\ 17.12\pm13.08\\ 80.2\pm31.14\\ 17.12\pm13.08\\ 80.2\pm31.14\\ 17.12\pm13.08\\ 80.2\pm31.14\\ 17.12\pm13.08\\ 80.2\pm31.14\\ 17.12\pm13.08\\ 80.2\pm31.14\\ 17.12\pm13.08\\ 0.222.28\pm14.16\\ 8.5\pm6.44\\ 11.82\pm7.36\\ 11.22\pm1.36\\ 0.22\\ 11.22\pm1.36\\ 0.22\\ 11.22\pm1.36\\ 0.22\\ 11.22\pm1.36\\ 0.22\\ 11.22\pm1.36\\ 0.23\\ 0.222\\ 0.22$	$\begin{array}{c} 3.940.4\\ 5.25, str.17.84\\ 1.86:0.22\\ 0.74:0.4\\ 17.52:46.12, 20\\ 17.22:15.3\\ 1.58:0.36\\ 1.28:$	$\begin{array}{l} 0.2 + 0.2 \\ 39.6 + 27.8 \\ 4.42 + 1.84 \\ 0.38 + 0.16 \\ \hline \textbf{79.42} \pm 57.36 \\ \hline \textbf{79.42} \pm 52.52 \\ \hline \textbf{79.42} \pm 52.57 \\ \hline \textbf{79.42} $	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 641.28\\ 0+0\\ 151.46+65.48\\ 82\pm32.46\\ 3.96\pm1.52\\ 2.06\pm0.88\\ 8.02\pm32.46\\ 3.96\pm1.52\\ 2.06\pm0.88\\ 8.02\pm32.48\\ 12.8\pm22.18\\ 12.8\pm22.18\\ 12.8\pm22.18\\ 12.8\pm22.18\\ 2.38\pm2.14\\ 12.52\pm3.02\\ 0+0\\ 0+0\\ 1.06\pm1.84\\ 29.28\pm7.44\\ 0+0\\ 0.04\\ 0.12\pm0.2\\ 0.24\pm0.52\\ 0.50.5\\ 1.4\pm40.46\\ 3.0.36\\ 0.12\pm0.2\\ 0.12\pm0.2\\ 0.14\pm0.46\\ 3.0.36\\ 0.12\pm0.2\\ $	$\begin{array}{l} 0.66:0.14\\ 2.2.16:17.36\\ 3.14:0.96\\ 0.52:0.16\\ 193.34:80.28\\ 0.40\\ 0.54:0.16\\ 3.14:0.36\\ 0.54:0.08\\ 3.44:0.28\\ 1.05:14.7\\ 1.5:42.302\\ 3.5:40.44\\ 10.5:14.7\\ 1.5:42.302\\ 3.5:40.44\\ 10.5:14.7\\ 1.5:42.302\\ 3.5:40.44\\ 3.3:60.42.78\\ 3.3:60.42.78\\ 3.3:60.2.78\\ 3.3:62.26\\ 3.3:42.73\\ 3.5:62.52\\ 0.42\\ 3.3:52.62\\ 3.3:43.7\\ 3.3:62.62\\ 3.3:43.7\\ 3.3:62.62\\ 3.3:62.62\\ 3.3:62.63\\$
2-3-Nonadecanone Danas econo Ethyl decanoate (2)-6-Pentadecen-2-one Totals Genarya hevalachone Genarya hevalachone Genarya hevalachone Totals Monolerpenes Alpha-thulandene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-bilandene Beta-bilandene Beta-bilandene Beta-formene Beta-formene Beta-formene Beta-formene Beta-formene Cymene Gamma-decaladene Beta-formene Bet	1359 1391 1391 1660 165 1454 1488 3 933 933 933 933 931 944 980 991 1017 1019 1019 1019 1019 1019 1019	Floral Waxy Floral Floral Floral Spicy Herbal Spicy Tepenic Woody Herbal Tepenic Floral Floral Floral Floral Tepenic Floral Flor	natural sweet fluity rose plum grape raspberry sugar sweet waxy fluity apple grape oily brandy behal cocont sweet coumarine tobacco frash airy waxy none woody magnolin tropical frash airy waxy peach cocont buttery sweet woody green herbal pepper terpenic sity: blasmic plastic dy woody resionous pine hay green euclyptus camporeous pepper terpenic sity: blasmic plastic dy woody resioneous pine hay green euclyptus to apporteous pepper terpenic sity: blasmic plastic dy woody resioneous pine hay green euclyptus to apport dista behal terpenic green woody pepper black pepper woody terpenic lemon herbal morelinal citrus behal specy chamomic green basel eurus ondig terpenic green towody pepper black pepper warm floral herbal sweet warm floral herbal sweet itrus torbal green terpenic woody green fesh citrus terpenic lemon fine tropical herbal pagate tartity woody direst floral green terpenic woody green fesh citrus terpenic lemon fine tropical herbal pagate tartity woody direst floral green terpenic woody green fesh citrus terpenic lemon fine tropical herbal pagate tartity woody direst floral green terpenic woody green fesh citrus terpenic lemon fine tropical herbal pagate tartity woody direst floral green terpenic woody green fesh citrus terpenic lemon fine tropical herbal pagate tartity woody direst floral green terpenic woody green fesh citrus terpenic lemon fine tropical herbal pagate tartity woody direst floral green terpenic woody green fesh floral weet blas d to see green blueberty plexing floral floral mut skin pepper herbal topical	$\begin{array}{c} 1.14\pm0.12\\ 6.00.25\times2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 339.36\times20.78\\ 37.22\pm6.4\\ 37.22\pm6.4\\ 40.7416.64\\ 30.32\pm0.04\\ 0.60\\ 18.11-68\\ 80.34\pm5.56\\ 0.60\\ 18.11-68\\ 80.34\pm5.56\\ 0.60\\ 18.11-68\\ 80.34\pm5.56\\ 0.60\\ 0.58\pm2.6\\ 8.94\pm2.98\\ 0.660\\ 5.94\pm2.4\\ 0.660\\ 5.94\pm2.4\\ 0.60\\ 0.660\\ 5.94\pm2.24\\ 0.60\\ 0.660\\ 0.58\\ 5.94\pm2.24\\ 0.60\\ 0.60\\ 0.62\\ 0.58\\ 0.60\\ 0.60\\ 0.62\\ 0.58\\ 0.60\\ 0.60\\ 0.60\\ 0.60\\ 0.60\\ 0.58\\ 0.60\\ 0.$	0.4d0.34 66.24±56.2 4.92±4.1 1.08±1.26 4.932±4.1 4.932±534 4.932±534 4.932±534 0.66±0.12 45.36±37.98 0±0 0±0 11.28±0.52 29.06±6.94 31.265±3.24 2.28±4.74 10.06±0.34 31.265±3.24 2.16±2.10±2.10 2.16±2.1	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline 0.74+281.68\\ 0.925.012\\ 1.7229.44\\ 2.925.019\\ 0.925.012\\ 1.55.6+10.46\\ 0.90\\ 0.925.012\\ 1.55.6+10.46\\ 0.93.76+28.36\\ 9.95.4+0.86\\ 1.99.86+70.02\\ 1.8,6+23.22\\ 0.95.76\\ 0.94-6,38\\ 1.09.25.76\\ 0.94-6,38\\ 0.94-6,3$	$\begin{array}{c} 1.24e0.4\\ 5.308\pm16.88\\ 7.58e2.36\\ 0.58e0.36\\ 31.212\pm185.72\\ 41.6485.72\\ 84.6485.72\\ 0.60\\ 48.5487.86\\ 10.2\\ 12.2665.86\\ 15.7.566.84\\ 35.58847.22\\ 12.9665.68\\ 15.8687.68\\ 0.6\\ 11.3045.56\\ 10.345.54\\ 10.345.54\\ 0.6481.12\\ 2.9883.92\\ 9.12\pm11.14\\ 0.4280.74\\ 33.666.382\\ 2.2883.92\\ 9.12\pm11.14\\ 0.4280.74\\ 33.666.48\\ 2.3485.48\\ 0.6481.12\\ 2.3685.36\\ 2$	$\begin{array}{c} 0.82:00.66\\ 50.88; -21.9\\ 1.28:00.18\\ 0.016:-0.14\\ \hline \textbf{Z53,24:-88,4}\\ \hline \textbf{Z54,6}\\ 0.42:-0.06\\ 0.42:-0.06\\ \hline \textbf{Z73,8:-9.14}\\ \hline Z73$	$\begin{array}{l} 1.4\pm0.64\\ 155.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.1\\ 357.44\pm394.34\\ 8.52.44\pm76.682\\ 1.32\pm2.3\\ 8.54\pm76.682\\ 1.32\pm2.3\\ 8.54\pm76.682\\ 1.32\pm2.3\\ 8.54\pm76.682\\ 1.32\pm2.3\\ 8.54\pm76.682\\ 1.32\pm2.3\\ 1.32\pm2.32\pm2.3\\ 1.32\pm2.32\pm2.3\\ 1.32\pm2.32\pm2.3\\ 1.32\pm2.32\pm2.3\\ 1.32\pm2.32\pm2.3\pm$	$\begin{array}{c} 3.940.4\\ 5.2.5e1.784\\ 1.8640.22\\ 0.7440.4\\ 1.75646119.32\\ 1.7224153\\ 1.5840.36\\ 1.2840.26\\ 1$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 79.42 \pm 57.46\\ 18.42 \pm 16.26\\ 3.52 \pm 27.46\\ 2.52 \pm 18.48\\ 0.60\\ 0.58 \pm 0.22\\ 2.25 \pm 18.48\\ 0.60\\ 0.58 \pm 0.22\\ 2.24 \pm 1.96\\ 8.02 \pm 4.58\\ 5.1 \pm 8.8\\ 0.24\\ 3.25 \pm 2.38\\ 2.24 \pm 1.96\\ 0.60\\ 0.34 \pm 1.38\\ 0.7 \pm 0.48\\ 0.08 \pm 0.08\\ 3.26 \pm 1.72\\ 3.37 \pm 3.22\\ 1.14 \pm 1.02\\ 1.32 \pm 1.02\\ 0.18 \pm 0.3\\ 2.26 \pm 1.72\\ 3.37 \pm 3.22\\ 1.14 \pm 1.02\\ 1.13 \pm 1.02\\ 0.18 \pm 0.3\\ 2.26 \pm 1.72\\ 3.27 \pm 3.22\\ 1.14 \pm 1.02\\ 1.14 \pm 0.2\\ 1.13 \pm 0.26\\ 1.14 \pm 0.2\\ 1$	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 641.28\\ 0+0\\ \hline {\bf 151.46495.48}\\ \hline {\bf 82-82.46}\\ {\bf 82-82.46}\\ {\bf 82-82.46}\\ {\bf 82-82.46}\\ {\bf 82-82.48}\\ {\bf 84.022.34.86}\\ \hline {\bf 88.022.34.86}\\ \hline {\bf 88.022.34$	0.66:01.4 22.16:17.36 0.52:0.16 193.34:80.28 0+0 0.54:0.08 3.64:0.44 10.58:14.7 2.14:43.7 15.4:23.02 3.6.04:50 0:40 0:50
2-3-Nondecanone Danas econo Entyl decanoate (2)-6-Pentadeen-3-one (2)-6-Pentadeen-3-one Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Data Monoterpress Alpha-thelialardene alpha-Thelialardene alpha-Thelialardene alpha-thelialardene Carama-beta-Coimene beta-Terpinoel beta-Te	1359 1391 1391 1660 16 1455 1454 1488 3 933 971 990 11 1017 1019 900 11 1017 1019 1024 1037 1045 1045 1045 1045 1045 1045 1045 1045	Floral Waxy Tonka Floral Foral Spicy Woody Spicy Harby Yoody Minty Harbal Terpenic Woody Minty Herbal Clinnal Floral Clinnal Floral Flo	Antural sweet fuity cose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstinic tobacco frosh green fuity waxy toos woody magnola tropical frosh oily waxy peach coconut buttery sweet woody green harbal pripers terpenic spicy halamic plastic of the priper terpenic spicy halamic plastic of the sheat spice is green toody to pept black pepper woody terpenic lemon harbal madicinal citrus miny terpenic tirus harbal terpenic green woody pept black pepper warm floral harbal sweet of the sheat spice is woody spice of the sheat spice is woody spice of the sheat spice woody spice of woody terpenic lemon line tropical harbal papent earthy wood citrus floral avecel biosi de rose green blacberts phenolic spice system close guated	$\begin{array}{c} 1.14\pm0.12\\ 6.002\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 36934\pm202.78\\ 3722\pm16.1\\ 2.40034\\ 1.08\pm0.2\\ 40.7116.64\\ 30.32\pm0.04\\ 0.00\\ 118.14.68\\ 1.08\pm0.2\\ 40.7116.64\\ 30.32\pm0.04\\ 0.00\\ 118.24.28\\ 0.00\\ 0.00\\ 15.82\pm2.0\\ 0.00\\ $	$\begin{array}{c} 0.4 = 0.34 \\ 66.24 \pm 56.2 \\ 4.92 \pm 4.1 \\ 1.08 \pm 1.26 \\ 1.08 \pm 1.26 \\ 3.388 \pm 76.74 \\ 3.388 \pm 5.27 \\ 0.66 \pm 0.12 \\ 45.36 \pm 37.88 \\ 0.60 \\ 0.10 \\ 1.108 \pm 0.52 \\ 1.26 \pm 3.24 \\ 3.88 \pm 6.3 \\ 2.148 \pm 2.1 \\ 0.24 \\ 0.24 \\ 3.48 \\ 5.28 \\ 4.72 \\ 1.006 \pm 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 0.34 \\ 1.006 \\ 1.$	$\begin{array}{c} 324497.6\\ 111.228-61.74\\ 4.2481.06\\ 0.2661.06\\ 617.44281.68\\ 2322-0.9\\ 0.922-0.12\\ 3292-0.9\\ 0.922-0.12\\ 30.76228.36\\ 9.954-0.86\\ 30.76228.36\\ 9.954-0.86\\ 30.76228.36\\ 9.954-0.86\\ 30.76228.36\\ 0.946-58\\ 10.5622.38\\ 6.528-5.76\\ 8.5882.04\\ 0.69\\ 0$	$\begin{array}{c} 1.24e0.4\\ 5.30&k=16.88\\ 7.5&k=2.36\\ 0.5&k=0.36\\ 3.1212=185,72\\ 4.46+6,74\\ 3.9=1.12\\ 0.e0\\ 4.8,54z7,86\\ 1.355&k=47,22\\ 1.26e5.46\\ 1.30&25.56\\ 1.355&k=47,22\\ 1.26e5.46\\ 1.30&25.56\\ 1.04+2.24\\ 6.28\pm5.48\\ 6.02\pm4.68\\ 0.04=1.1\\ 2.38\pm5.48\\ 0.04=1.1\\ 2.38\pm3.42\\ 3.96\pm3.82\\ 2.38\pm3.92\\ 1.38\pm3.42\\ 3.96\pm3.82\\ 2.38\pm3.92\\ 1.38\pm3.82\\ 1.3$	$\begin{array}{l} 0.82:00\ 66\\ 0.82:01\ 66\\ 50.88:21.9\\ 1.28:01\ 86\\ 0.16:0.14\\ \textbf{283.24:88.4}\\ \textbf{25:84.0}\\ \textbf{25:84.0}\\ \textbf{37.22:47.38}\\ \textbf{37.72:47.38}\\ \textbf{77.116:10.14}\\ 5.5:592\\ \textbf{274.74:20.46}\\ 0.60\\ 0.792:44.20\\ \textbf{36.03}\\ \textbf{274.74:20.46}\\ 0.60\\ 0.792:44.8\\ \textbf{37.92:44.8}\\ \textbf{37.92:46.9}\\ \textbf{37.92:44.8}\\ \textbf{37.92:44.8}\\ \textbf{37.92:44.8}\\ \textbf{37.92:44.8}\\ \textbf{37.92:46.8}\\ \textbf{37.92:46.8}$	L4:0.64 155.5±120.82 1=0.88 0.12:0.1 357.44:394.34 85.24:76.82 1.54:1.44 1.32:2.3 88.14:44 1.32:2.3 88.14:44 1.50.24:31.14 17.12:13.08 0:24:31.14 17.12:13.08 0:24:31.14 17.12:13.08 0:24:31.14 17.12:13.08 0:24:31.14 17.12:13.08 0:24:31.14 17.12:13.08 0:24:31.14 17.12:13.08 0:24:32 0:	$\begin{array}{c} 3.940.4\\ 5.25, str.17.84\\ 1.86:0.22\\ 0.74:0.4\\ 17.52:46.12, 20\\ 17.22:15.3\\ 1.58:0.36\\ 1.28:$	$\begin{array}{l} 0.2 + 0.2 \\ 39.6 + 27.8 \\ 4.42 + 1.84 \\ 0.38 + 0.16 \\ \hline \textbf{79.42} \pm 57.36 \\ \hline \textbf{79.42} \pm 52.52 \\ \hline \textbf{79.42} \pm 52.57 \\ \hline \textbf{79.42} $	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 60.128\\ 0+0\\ \textbf{15.1}& \textbf{46-65.48}\\ \textbf{8}& \textbf{54-52.46}\\ 3.9661.52\\ 2.0660.88\\ \textbf{8}& \textbf{80.22-34.86}\\ \textbf{8}& \textbf{80.22-34.86}\\ \textbf{8}& \textbf{80.22-34.86}\\ \textbf{80.22-34.86}\\ \textbf{10-62.18}\\ 0+0\\ 0-12.822.18\\ 0-2.282.182.18\\ 0-2.282.18\\ 0-2.282.182.18\\ 0-2.282.18\\ 0-2.282.18\\ 0-2.282.$	$\begin{array}{l} 0.66:0.14\\ 2.2.16:17.36\\ 3.14:0.96\\ 0.52:0.16\\ 193.34:80.28\\ 0.69\\ 3.14:0.36\\ 0.54:0.08\\ 3.44:0.36\\ 0.54:0.08\\ 3.44:0.36\\ 0.54:0.08\\ 3.44:0.36\\ 0.54:0.08\\ 3.44:0.36\\ 0.54:0.08\\ 3.64:2.36\\ 0.60\\ 0.6$
2-3-Nonadecanone Damas ecnone Ethyl decanoate (2)-6-Pentadecen-3-one Tatals Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Beta-pholane Beta-pholane Beta-pholane Beta-pholane Beta-pholane Beta-pholane Colores Beta-pholane Beta-pholane Colores Beta-pholane Colores	1359 1391 1391 1660 165 1454 1488 3 933 933 933 933 931 944 980 991 1017 1019 1019 1019 1019 1019 1019	Floral Waxy Floral Floral Floral Spicy Herbal Spicy Tepenic Woody Herbal Tepenic Floral Floral Floral Floral Tepenic Floral Flor	hatural sweet fuity one plum grape raspberry sugar sweet waxy fuity apple grape oily brandy heads account sweet countariate tobacco feeds green fuity waxy too woody magnolia topical fresh green fuity waxy too woody magnolia topical fresh green fuity waxy too woody magnolia topical fresh green fuity waxy too woody magnolia topical dy woody resionous pitte hay green euclyptus camporeous pepper topical sity blasmic plastic dy woody resionous pitte hay green euclyptus camporeous pepper topical sity blasmic plastic dy woody represion fresh methadical citrus minity terpenic herbal sity channel green basil warm floral herbal sweet warm floral herbal sweet itrus soning fresh sweet warm floral herbal sweet itrus topical green texpain towody peper black pepper woody terpenic lecond inter topical herbal pagnet carthy woody itrus floral sweet blosi de rose green hlueberty phenofic spicy styreen clove guaiacol sweet floral nut skin pepper herbal topical	$\begin{array}{c} 1.14\pm0.12\\ 6.00.25\times2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 339.36\times20.78\\ 37.22\pm6.4\\ 37.22\pm6.4\\ 40.7416.64\\ 30.32\pm0.04\\ 0.60\\ 18.11-68\\ 80.34\pm5.56\\ 0.60\\ 18.11-68\\ 80.34\pm5.56\\ 0.60\\ 18.11-68\\ 80.34\pm5.56\\ 0.60\\ 0.58\pm2.6\\ 8.94\pm2.98\\ 0.660\\ 5.94\pm2.4\\ 0.660\\ 5.94\pm2.4\\ 0.60\\ 0.660\\ 5.94\pm2.24\\ 0.60\\ 0.660\\ 0.58\\ 5.94\pm2.24\\ 0.60\\ 0.60\\ 0.62\\ 0.58\\ 0.60\\ 0.60\\ 0.62\\ 0.58\\ 0.60\\ 0.60\\ 0.60\\ 0.60\\ 0.60\\ 0.58\\ 0.60\\ 0.$	0.4d0.34 66.24±56.2 4.92±4.1 1.08±1.26 4.932±4.1 4.932±534 4.932±534 4.932±534 0.66±0.12 45.36±37.98 0±0 0±0 11.28±0.52 29.06±6.94 31.265±3.24 2.28±4.74 10.06±0.34 31.265±3.24 2.16±2.10±2.10 2.16±2.1	$\begin{array}{c} 324497.6\\ 111.228-61.74\\ 4.2481.06\\ 0.2661.06\\ 617.44281.68\\ 2922-0.9\\ 0.922-0.12\\ 392-0.9\\ 0.922-0.12\\ 15.5641.04.6\\ 30.76z28.36\\ 9.54-0.86\\ 10.56z2.38\\ 6.528-5.76\\ 8.5882.04\\ 0.59\\ 6.528-5.76\\ 8.5882.04\\ 0.59\\ 6.528-5.76\\ 8.5882.04\\ 0.59\\ 6.528-5.76\\ 8.5882.04\\ 0.59\\ 6.528-5.76\\ 8.5882.04\\ 0.59\\ 6.528-5.76\\ 8.5882.04\\ 0.59\\ 6.528-5.76\\ 8.5882.04\\ 0.59\\ 6.528-5.76\\ 8.5882.04\\ 0.59\\ 6.528-5.76\\ 8.5882.04\\ 0.59$	$\begin{array}{c} 1.24e0.4\\ 5.308\pm16.88\\ 7.58e2.36\\ 0.58e0.36\\ 31.212\pm185.72\\ 41.6485.72\\ 84.6485.72\\ 0.60\\ 48.5487.86\\ 10.2\\ 12.2665.86\\ 15.7.566.84\\ 35.58847.22\\ 12.9665.68\\ 15.8687.68\\ 0.6\\ 11.3045.56\\ 10.345.54\\ 10.345.54\\ 0.6481.12\\ 2.9883.92\\ 9.12\pm11.14\\ 0.4280.74\\ 33.666.382\\ 2.2883.92\\ 9.12\pm11.14\\ 0.4280.74\\ 33.666.48\\ 2.3485.48\\ 0.6481.12\\ 2.3685.36\\ 2$	$\begin{array}{c} 0.82:00\ 66\\ 0.82:01\ 66\\ 0.16:01\ 12\\ 0.16:01\ 14\\ \hline \textbf{23}, 24:-88.4\\ \hline \textbf{24}, 24:-28.4\\ \hline \textbf{24}, 24:-28.4\\ \hline \textbf{25}, 25:-28.4\\ \hline \textbf{25}, 25$	$\begin{array}{l} 1.4\pm0.64\\ 155.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.1\\ 357.44\pm394.34\\ 8.52.44\pm76.682\\ 1.32\pm2.3\\ 8.54\pm76.682\\ 1.32\pm2.3\\ 8.54\pm76.682\\ 1.32\pm2.3\\ 8.54\pm76.682\\ 1.32\pm2.3\\ 8.54\pm76.682\\ 1.32\pm2.3\\ 1.32\pm2.32\pm2.3\\ 1.32\pm2.32\pm2.3\\ 1.32\pm2.32\pm2.3\\ 1.32\pm2.32\pm2.3\\ 1.32\pm2.32\pm2.3\pm$	$\begin{array}{c} 3.940.4\\ 5.2.5e1.784\\ 1.8640.22\\ 0.7440.4\\ 17.22415.3\\ 1.2840.26\\ 1.28$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 7.8\\ 4.42 \pm 1.84\\ 0.38 \pm 0.16\\ 33.52 \pm 57.46\\ 79.42 \pm 57.46\\ 3.52 \pm 27\\ 3.52 \pm 27\\ 3.52 \pm 27\\ 3.52 \pm 27\\ 3.52 \pm 18.48\\ 0.0\\ 3.22 \pm 18.48\\ 1.0\\ 2.24 \pm 1.0\\ 6.1\\ 2.24 \pm 1.0\\ 8.24 \pm 1.0\\ 8.78 \pm 4.2\\ 1.84 \pm 1.0\\ 8.53 \pm 1.0\\ 1.84 \pm$	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 641.28\\ 0+0\\ \hline {\bf 151.46495.48}\\ \hline {\bf 82-82.46}\\ {\bf 82-82.46}\\ {\bf 82-82.46}\\ {\bf 82-82.46}\\ {\bf 82-82.48}\\ {\bf 84.022.34.86}\\ \hline {\bf 88.022.34.86}\\ \hline {\bf 88.022.34$	0.66:01.4 22.16:17.36 0.52:0.16 193.34:80.28 0+0 0.54:0.08 3.64:0.44 10.58:14.7 2.14:43.7 15.4:23.02 3.6.04:50 0:40 0:50
2-3-Nondecanone Danas econo Entyl decanoate (2)-6-Pentadeen-3-one (2)-6-Pentadeen-3-one Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Data Monoterpress Alpha-thelialardene alpha-Thelialardene alpha-Thelialardene alpha-thelialardene Carama-beta-Coimene beta-Terpinoel beta-Te	1359 1391 1391 1660 1655 1454 1454 1458 3 933 971 980 991 1011 1017 1019 1024 1033 1065 1055 1188 1180 1198 1198 1201 1	- Floral Waxy Tonka Floral Floral Fraty Woody Spicy Herbal Spicy Tepenic Woody Minty Herbal Tepenic Floral Tepenic Floral Floral Phenolice - Floral Floral Phenolice - Floral Floral Phenolice - Floral Floral Phenolice - Floral Floral - Floral Flor	Antural sweet fuity cose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstinic tobacco frosh green fuity waxy toos woody magnola tropical frosh oily waxy peach coconut buttery sweet woody green harbal pripers terpenic spicy halamic plastic of the priper terpenic spicy halamic plastic of the sheat spice is green toody to pept black pepper woody terpenic lemon harbal madicinal citrus miny terpenic tirus harbal terpenic green woody pept black pepper warm floral harbal sweet of the sheat spice is woody spice of the sheat spice is woody spice of the sheat spice woody spice of woody terpenic lemon line tropical harbal papent earthy wood citrus floral avecel biosi de rose green blacberts phenolic spice system close guated	$\begin{array}{l} 1.14\pm0.12\\ 6.00.25\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 30.94\pm20.278\\ 37.22\pm16.1\\ 2.24\pm0.34\\ 1.16.04\\ 30.32\pm0.04\\ 0.e0\\ 18.11\pm0.8\\ 80.34\pm8.56\\ 0.e0\\ 18.11\pm0.8\\ 80.34\pm8.56\\ 0.91\\ 18.82\pm2.1\\ 6.38\pm10.6\\ 9.18\pm2.6\\ 9.18\pm2.6\\ 9.18\pm2.6\\ 0.66\pm0.5\\ 8.54\pm2.9\\ 0.66\pm0.5\\ 8.54\pm2.2\\ 0.60\\ 0.66\pm0.5\\ 8.54\pm2.2\\ 0.60\\ 0.62\pm4.4\\ 2.4\pm1.14\\ 0.40\\ 0.61\\ 0.42\\ 2.28\pm5.56\\ 0.10\\ 1.18\\ 2.28\pm5.56\\ 1.04\pm1.8\\ 3.52\\ 6.4\pm10.18\\ 1.08\\ 2.28\pm5.56\\ 1.04\pm1.8\\ 3.52\\ 6.4\pm10.18\\ 1.08\\ 1.$	0.4d0.34 66.24±56.2 4.92±4.1 1.08±12.6 23.98±176.74 40.82±35.34 3.88±2.53 0.660.0 0.60 0.60 0.60 0.60 0.62 11.28±0.52 29.06±6.94 51.26±5.32 2.28±4.72 10.06±9.34 8.38±6.3 12.14±2.62 2.38±1.48 0.60 0.45 2.14±1.48 0.60 0.5 2.28±3.14 0.60 0.5 2.28±3.14 0.60 0.45 2.15±1.58 2.15±1	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline {\bf 07.44281.68}\\ 11.72+9.44\\ 2.92.0.10\\ 0.920.10\\ 12.56+10.46\\ \hline {\bf 0.9}\\ 0.76+28.36\\ 9.54+0.86\\ 10.56+2.38\\ 6.52+5.76\\ 8.58+2.04\\ 0.69\\ 0.12+0.22\\ 1.74+1.68\\ 1.48.228.91.16\\ 1.48.126\\ 1.94.128\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 5.428.11\\ 1.48\\ 1.28\\ 1.48$	$\begin{array}{c} 1.24 0.4 \\ 5.3 0.8 \pm 16.88 \\ 7.5 8.82 3.6 \\ 0.5 8.0 3.6 \\ 312.12\pm 185.72 \\ 44.6 4 \pm 5.74 \\ 33 \pm 1.12 \\ 0.0 \\ 33 \pm 1.12 \\ 0.0 \\ 35.58 \pm 7.86 \\ 84.547.36 \\ 13.0 \\ 24.547.36 \\ 13.0 \\ 25.55 \\ 10.442 \\ 24.8 \\ 25.56 \\ 10.442 \\ 24.8 \\ 25.66 \\ 10.42 \\ 24.8 \\ 23.68 \\ 32.8 \\ 32.68 \\ 32.8 \\ 32.68 \\ 32.8 \\ 32.68 \\ 32.8 \\ 32.68 \\ 32.8 \\ 32.68 \\ 32.8 \\ 32.68 \\ 32.8 \\ 32.68 \\ 32.8 \\ 32.8 \\ 32.68 \\ 32.8 \\ 3$	$\begin{array}{l} 0.82:00.66\\ 50.88;=21.9\\ 1.28:00.18\\ 0.016:0.14\\ \hline \textbf{253.8.6}\\ 255.8.6\\ 0.42:0.06$	$\begin{array}{l} 1.4 \pm 0.64 \\ 156.5 \pm 120.82 \\ 1 \pm 0.88 \\ 0.12 \pm 0.1 \\ 357.44 \pm 394.3 \\ 1 \pm 34 \pm 1.34 \\ 1 $	$\begin{array}{c} 3.940.4\\ 5.2.5e1.7.84\\ 1.8640.22\\ 0.7440.4\\ 17.22e15.3\\ 1.5840.36\\ 1.280.36\\ 1.$	$\begin{array}{c} 0.2 + 0.2 \\ 39.6 + 27.8 \\ 4.42 + 1.84 \\ 0.38 + 0.16 \\ \hline \textbf{79.42457.46} \\ 18.42 + 16.26 \\ 3.52 + 27.2 \\ \textbf{22.52 + 18.48} \\ \hline \textbf{0+0} \\ 0.35 + 0.2 \\ \textbf{22.52 + 18.48} \\ 0.40 \\ 3.32 + 2.38 \\ 2.2 + 1.96 \\ 8.02 + 4.58 \\ 5.1 + 8 \\ 8.02 + 4.58 \\ 5.1 + 8 \\ 8.02 + 4.58 \\ 5.1 + 8 \\ 1.08 + 1.52 \\ 1.27 + 1.04 \\ 1.38 + 1.05 \\ 1.27 + 1.04 \\ 1.38 + 1.05 \\ 1.27 + 1.04 \\ 1.38 + 1.02 \\ 1.37$	$\begin{array}{c} 2,5443,36\\ 39,7412,1\\ 641,28\\ 0+0\\ \hline {\bf 151,46435,48}\\ 82\pm32,45\\ 396\pm15,8\\ 2060,93,8\\ 86,022\pm43,86\\ \hline {\bf 85,022\pm4,86}\\ \hline {\bf 125,22\pm3,02\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0+0\\ 0$	$\begin{array}{c} 0.66:0.14\\ 2.2.16:17.36\\ 3.14:0.96\\ 0.52:0.16\\ \hline 193.34:80.28\\ \hline 0.52:0.16\\ 0.52:0.16\\ 0.52:0.16\\ 0.53:0.08\\ 0.54:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:0.08\\ 0.55:$
2-3-Nonadecanone Danas econo Entyl decanoate (2)-6-Pentadecen-2-one (2)-6-Pentadecen-2-one (2)-6-Pentadecen-2-one (3)-6-Pentadecen-2-one	1359 1391 1391 1660 16 1454 1488 3 933 931 931 1017 1019 1024 1037 1045 1045 1045 1045 1045 1045 1045 1045	- Floral Waxy Floral Floral Floral Spicy Herbal Spicy Woody Woody Woody Woody Herbal Floral F	natural sweet fuity cose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal cocount sweet coumarinic tobacco fresh entry waxy rose woody magnolia tropical fresh eily waxy peach cocount buttery sweet woody green herbal pepper terpenic spicy blasmic plastic dy woody resistones jin hay green eacdpus camporeous pepper terpenic spicy blasmic plastic dy woody resistones plastic plastic dy woody resonous plastic plastic dy woody resonous plastic plastic dy woody resonous plastic plastic dy woody resonous plastic woody prependie construction wood green fresh circus terpenic woody spico dirus herbal green terpeici wood green fresh circus terpenic woody spico dirus fonal arces how terpeical berbal papent entry woody entry fonal such and pepper herbal topical weet float ant skin pepper herbal topical weet float ant skin pepper herbal topical plastic stropical green dy fonal factor fuel and with pepper herbal topical berbal bregamot lawender fume circus woody pine blander circus woody float berbal bregamot lawender lime circus woody pine blandie sweet finne circus	$\begin{array}{c} 1.14\pm0.12\\ 6.0025+5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 36936+202,78\\ \hline 3722\pm16.1\\ 2.4+0.54\\ 1.08\pm0.2\\ \hline 40.7\pm16.64\\ \hline 30.32\pm3.0.44\\ 0.40\\ 18.1\pm1.68\\ 80.34\pm3.56\\ 0.68\\ 20.24\\ 1.168\pm1.06\\ 9.18\pm2.6\\ 8.94\pm2.98\\ 0.40\\ 0.61\pm0.58\\ 0.66\pm0.58\\ 0.62\pm0.24\\ 0.62\pm0.24\\$	$\begin{array}{c} 0.4 = 0.34 \\ 66.24 \pm 56.2 \\ 4.92 \pm 4.1 \\ 1.08 \pm 1.26 \\ 3.93 \pm 176, 74 \\ \hline 23.93 \pm 176, 74 \\ \hline 3.83 \pm 2.52 \\ 0.66 \pm 0.12 \\ \hline 45.36 \pm 37.98 \\ \hline 0.66 \\ 0.10 \\ 1.12 \pm 0.26 \pm 0.54 \\ 0.20 \\ 0.66 \\ 0.12 \\ 1.25 \pm 0.54 \\ 0.20 \\ $	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ 617.42381.68\\ 11.722+9.44\\ 2.925.09\\ 0.92\pm0.12\\ 15.56\pm10.46\\ 0.92\\ 0.92\pm0.12\\ 15.56\pm10.46\\ 0.93\\ 0.92\pm0.12\\ 15.65\pm10.46\\ 0.93\\ 0.92\pm0.12\\ 19.65\pm10.26\\ 0.93\\ 0.92\pm0.12\\ 19.65\pm0.22\\ 0.94\pm0.26\\ 0.94\pm0.26\\ 0.94\pm0.26\\ 0.94\pm0.26\\ 0.94\pm0.26\\ 0.94\pm0.26\\ 0.94\pm0.26\\ 0.95\pm0.22\\ 0.95\pm0.22$	$\begin{array}{c} 1.24e0.4\\ 5.30&16.88\\ 7.58&2.36\\ 0.58e0.36\\ 31.212e185.72\\ 41.64e5.72\\ 3.94e1.12\\ 0.e0\\ 48.54e7.86\\ 35.58e4.722\\ 12.9e68.68\\ 15.1.766.84\\ 35.58e4.722\\ 12.9e68.68\\ 15.86e7.68\\ 0.35.58e4.722\\ 12.9e8.68\\ 10.34e5.56\\ 0.35.58e4.722\\ 12.9e8.68\\ 0.35.58e4.722\\ 12.9e8.68\\ 0.35.58e4.722\\ 12.9e8.39\\ 0.42e0.72\\ 0.35.58e4.722\\ 0.35.58e4.72$	$\begin{array}{c} 0.82:00.66\\ 50.88:21.9\\ 1.28:00.18\\ 0.016:0.14\\ \hline \textbf{283.24:88.4}\\ \hline \textbf{254.8.6}\\ 2.38:0.48\\ 0.042:0.06\\ \hline \textbf{27.8:29.14}\\ \hline \textbf{37.72:17.38}\\ 7.1.16:10.14\\ 5.5:65.92\\ 7.47.4:20.046\\ 0.05:3.82\\ 0.06\\ \hline \textbf{7.92:44}\\ 8.3.16:12.64\\ 9.24:1.14\\ 0.00\\ 7.92:44.18\\ 3.3.16:12.64\\ 9.24:1.14\\ 0.40\\ 0.28:0.48\\ 3.3.16:0.58\\ 0.28:0.48\\ 3.3.16:0.58\\ 0.28:0.48\\ 3.3.16:0.58\\ 0.28:0.48\\ 3.3.16:0.58\\ 0.28:0.48\\ 3.3.16:0.58\\ 0.28:0.48\\ 3.3.16:0.58\\ 0.28:0.48\\ 3.3.16:0.58\\ 0.28:0.48\\ 3.3.16:0.58\\ 0.28:0.48\\ 3.3.16:0.58\\ 0.28:0.48\\ $	1.4±0.64 155.5±120.82 1±0.88 0.12±0.1 357.44±394.3 357.44±394.3 352.44±394.3 352.44±394.3 352.44±394.3 352.44±395.5 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17 353.14±17	$\begin{array}{c} 3.940.4\\ 5.2.5e17.84\\ 1.8640.22\\ 0.74e0.4\\ 175.64519.22\\ 1.722e15.3\\ 1.58e0.36\\ 1.28e0.26\\ 2.08845.92\\ 1.28e0.26\\ 2.08845.92\\ 2.08845.92\\ 1.248e0.26\\ 2.3.46e14.64\\ 0.096.09\\ 6.1288.324\\ 6.76e5.04\\ 0.060\\ 0.90.06\\ 2.14e1.24\\ 0.060\\ 0.90.06\\ 2.14e1.24\\ 0.060\\ 0.90.06\\ 2.14e1.32\\ 1.92e0.58\\ 8.66e2.88\\ 8$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 33.52 \pm 1.84\\ 0.58 \pm 0.16\\ 33.52 \pm 2.57 \pm 6\\ 33.52 \pm 2.58\\ 33.52 \pm 2.58\\ 22.52 \pm 18.48\\ 0.60\\ 33.52 \pm 2.38\\ 22.54 \pm 1.96\\ 33.52 \pm 2.38\\ 22.54 \pm 1.96\\ 33.52 \pm 2.38\\ 1.58 \pm 1.52\\ 1.27 \pm 10.38\\ 24.38 \pm 1.58\\ 1.58 \pm 1.52\\ 1.27 \pm 10.38\\ 32.64 \pm 1.38\\ 0.07 \pm 0.48\\ 0.08 \pm 0.08\\ $	$\begin{array}{c} 2.544.3.06\\ 39.7i12.1\\ 60.1\\ 28.7i2.1\\ 60.1\\ 18.128\\ 0.00\\ 18.128\\ 0.00\\ 18.128\\ 2.064.0\\ 88.022.3.486\\ 88.022.3.486\\ 88.022.3.486\\ 88.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 18.022.3.486\\ 19.$	0.66:01.4 22.16:17.36 3.14:0.96 0.52:0.16 193.34:802.28 0:0 0.40 3.14:0.36 0.5:0.08 3.6:49.44 10.58:14.7 15.4:23.02 3.6:04:50 0.5:0.08 3.6:04:50 0.5:0.08 3.6:04:50 0.5:0.278 21.744:19 4.22:47 3.06:2.78 21.744:19 4.22:47 3.06:2.78 21.744:19 4.22:47 3.06:2.58 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:40 0:5:0.28 0:5:0.2
2-3-Nonadecanone Damasecnone Ethyl decanote (2)-5-Pentadecen-3-one Tatali Gamma-hexalactone Gamma-decalactone Gamma-decalactone Tatali Monoterpenes Mapha-thylione Beta-pinellandrene Beta-pinellandrene Beta-pinellandrene Beta-pinellandrene Cis-beta-Coimene Cis-beta-Coimene Cis-beta-Coimene Gamayerane Beta-pinellandrene Gamayerane Beta-pinellandrene Cymone gamma-Terpineone Allo-ocimene G-Camphenol Debydro-p-cymene G-Camphenol Coimene G-Coimene	1359 1391 1391 1660 1655 1454 1454 1458 93 933 971 980 991 1011 1017 1019 991 1011 1017 1019 1024 1048 1065 1065 1066 1067 107 1017 1019 1024 1060 1060 1060 1065 1060 107 108 108 108 108 108 108 108 108	- Floral Waxy Tonka Floral Fraty Woody Spicy Herbal Spicy Tepenic Woody Minity Herbal Tepenic Floral Tepenic Floral Tepenic Floral Flora Flora Floral Floral Flora	hatural sweet fuity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herds account sweet commarine tobacco fresh green fruity waxy rose woody magnolia tropical fresh green fruity waxy rose woody magnolia tropical fresh argent fruity waxy rose woody magnolia tropical fresh argent fruity waxy rose woody magnolia tropical fresh argent fruity waxy rose woody progree brands comported dy woody reservice size blassing for the size green euclyptus camporeous pepper terperic size brands mice plastic citrus torbal terpenic green woody pepper black pepper woody terpenic lemon herd machenical citrus minty terpenic herds algo term for the size of the size of the size citrus torbal green terpenic woody pepper black pepper views from ange free the size woody pepper black pepper views for algo teren terpenic woody pepper black pepper views for algo teren terpenic woody spece fresh citrus terpenic lemon inter the point herdsal pagnet earthy woody views for algo veet blos de rose green blachers phenetic size, styreen clove guaiacol sweet for leman terved the ince trops woody terpenic campore torbal torpical herdsal by and woody for all herdsal by and woody for all herdsal by and unavely and wood spice blackering is more spice internanto the ak terpenic campore coust giarmy of the blasmic weet minty medicinal wood ty pine blasmic weet minty medicinal weet spice internanto the ak terpenic campore coust giarmy	$\begin{array}{c} 1.1440.12\\ 6.002+5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 33034e:202.78\\ 37.22\pm16.1\\ 2.24\pm0.34\\ 1.080.44\\ 37.22\pm16.1\\ 30.32\pm0.04\\ 0.e0\\ 18.11.68\\ 80.34\pm5.56\\ 0.e0\\ 18.11.68\\ 80.34\pm5.56\\ 0.e0\\ 18.82\pm2.1\\ 6.38\pm1.06\\ 9.182\pm2.6\\ 8.94\pm2.98\\ 0.e0\\ 0.66\pm0.58\\ 5.04\pm2.24\\ 0.e0\\ 0.66\pm0.58\\ 5.04\pm2.24\\ 0.e0\\ 0.66\pm0.58\\ 5.04\pm2.24\\ 0.e0\\ 0.66\pm0.58\\ 5.04\pm2.24\\ 0.e0\\ 0.66\pm0.58\\ 5.04\pm2.44\\ 2.4\pm1.14\\ 0.e0\\ 9.2\pm18.86\\ 0.104\pm1.8\\ 352.06\pm10.18\\ 8.34\pm2.4\\ 1.08\pm1.44\\ 1.08\pm1.46\\ 1.08\pm1.48\\ 1.08\pm1.48$	0.4d0.34 66.24±56.2 4.92±4.1 1.08±12.6 23398±176.74 40.82±35.34 3.88±2.05.2 0.660.0 0±0 0±0 11.28±0.52 29.06±6.94 51.26±53.32 2.28±4.72 10.06±9.34 8.38±6.3 2.14±2.1 0.528±4.72 10.65±9.34 2.14±2.1 0.528±4.72 10.65±9.34 2.14±2.1 0.528±4.73 0.528±4.73 0.528±4.73 0.528±4.73 0.528±4.73 0.528±4.73 0.528±4.73 0.528±4.73 0.528±4.73 0.528±4.73 0.528±5.73 2.54±2.2	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline {\bf 617.44281.68}\\ 11.72+9.44\\ 2.92+0.0\\ 12.56+10.46\\ \hline {\bf 15.56+10.46}\\ \hline {\bf 0-0}\\ 0.076+28.36\\ 9.54+0.86\\ 10.56+2.38\\ 0.04-6.88\\ 10.56+2.38\\ 0.04-6.58\\ 10.56+2.38\\ 0.04-6.58\\ 10.56+2.38\\ 0.04-6\\ 0.12+0.22\\ 1.74+1.68\\ 1.48\\ 0.22+2.38\\ 0.04-1.28\\ 0.04-1.$	$\begin{array}{c} 1.24 0.4 \\ 5.3 0.8 \pm 16.88 \\ 7.5 8.82 3.6 \\ 0.5 8.0 3.6 \\ 312.12\pm 185.72 \\ 44.6 4 \pm 6.74 \\ 3.3 \pm 1.12 \\ 0.00 \\ 312.12\pm 185.72 \\ 12.9 66.84 \\ 53.5 8.84 7.22 \\ 12.9 66.84 \\ 53.5 8.84 7.22 \\ 12.9 66.84 \\ 60.0 \\ 13.0 2\pm 5.56 \\ 10.4 \pm 2.44 \\ 6.2 8.5 5.48 \\ 6.0 2\pm 4.68 \\ 13.0 2\pm 5.56 \\ 10.4 \pm 2.44 \\ 5.3 6.66 \\ 2.3 4.68 \\ 3.2 6.66 \\ 3.2 8.5 2.6 \\ 3.2 8.66 \\ 3.2 8.5 2.6 \\ 3.2 8.6 \\ 3.2 8.6 \\ 3.2 8.5 \\ 3.$	$\begin{array}{c} 0.82:00.66\\ 50.88;=21.9\\ 1.28:00.18\\ 0.16:0.14\\ \hline \textbf{253.86}\\ \textbf{253.86}\\ \textbf{233.00}\\ \textbf{48}\\ \textbf{233.00}\\ \textbf{48}\\ \textbf{513.00}\\ 513.$	$\begin{array}{l} 1.4 \pm 0.64 \\ 156.5 \pm 120.82 \\ 1 \pm 0.88 \\ 0.12 \pm 0.13 \\ 85.2 \pm 24 \pm 76.82 \\ 1.3 \pm 1.3 \\ 1.3 \pm 2.3 \\ 85.2 \pm 24 \pm 76.82 \\ 1.3 \pm 2.3 \\ 85.1 \pm 30.56 \\ 88.1 \pm 30.56 \\ 88.1 \pm 30.56 \\ 88.1 \pm 30.56 \\ 88.1 \pm 30.56 \\ 1.3 \pm 2.2 \\ 1.3 \pm 1.4 \\ 1.7 \\ 1.2 \pm 1.3 \\ 0.2 \\ 2.2 \\ 2.2 \\ 8.1 \pm 1.4 \\ 1.7 \\ 1.2 \pm 1.3 \\ 0.4 \\ 0.2 \\ 2.2 \\ 8.1 \pm 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 8.1 \pm 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 8.1 \\ 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 8.1 \\ 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 1.4 \\ 1.5 \\ 2.2 \\ 2.2 \\ 1.4 \\ 1.5 \\ 2.2 \\ 2.4 \\ 1.5 \\ 2.5$	$\begin{array}{c} 3.940.4\\ 5.2.5e1.7.84\\ 1.8640.22\\ 0.7440.4\\ 1.752.415.3\\ 1.5840.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.860.26\\ 1.2.260.56\\ 0.090.66\\ 1.2.260.56\\ 0.090.66\\ 1.2.260.56\\ 0.090.66\\ 1.2.260.56\\ 0.090.66\\ 1.2.260.56\\ 0.00\\ 0.0660.12\\ 0.060.12\\ 0.0660.12\\ 0.060.12\\ 0.060.12\\ 0.060.12\\ 0.060.$	$\begin{array}{l} 0.2 + 0.2 \\ 39.6 + 27.8 \\ 4.42 + 1.84 \\ 0.38 + 0.16 \\ \hline \textbf{79.41257.36} \\ \textbf{18.42 + 16.26} \\ 13.42 + 16.26 \\ 13.53 + 0.22 \\ \textbf{22.52 + 18.48} \\ \hline \textbf{0-0} \\ 3.32 + 2.2 \\ 3.32 + 2.38 \\ 2.2 + 1.96 \\ 8.02 + 4.58 \\ 5.1 \pm 8 \\ 1.08 + 1.52 \\ 1.27 \pm 1.08 \\ \textbf{-1.52} \\ 1.27 \pm 1.08 \\ \textbf{-1.52} $	$\begin{array}{c} 2, 5443, 36\\ 39, 7412, 1\\ 641, 28\\ 0+0\\ \hline {\bf 151}, 46+35, 48\\ \hline {\bf 82+32, 46}\\ 3, 96+1, 52\\ 2, 06+0, 88\\ \hline {\bf 82+32, 46}\\ 3, 96+1, 52\\ 2, 06+0, 88\\ \hline {\bf 84, 022+3, 86\\ \hline {\bf 84, 022, 86\\ \hline {\bf 84, 023, 022\\ \hline {\bf 84, 023, 022, 022\\ \hline {\bf 84, 023, 022\\ \hline {\bf 84, $	$\begin{array}{l} 0.66:0.14\\ 2.2.16:17.36\\ 3.14:0.96\\ 0.52:0.16\\ 193.34:80.28\\ 0.52:0.16\\ 193.34:80.28\\ 0.52:0.16\\ 0.54:0.08\\ 0.54:0.08\\ 0.54:0.08\\ 0.54:0.08\\ 0.54:0.08\\ 0.54:0.08\\ 0.55:0$
2-3-Nonadecanone Danas econo Ethyl decanoate (2)-6-Pentadecan-2-one	1359 1391 1391 1660 165 1454 1488 3 933 931 931 1017 1017 1017 1017 1017 1017 1017 10	- Floral Waxy Floral Floral Floral Spicy Herbal Spicy Herbal Spicy Herbal Terpenic Floral Flo	natural sweet fuity cose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy herbal coconst sweet coumarinic tobacco fresh entry waxy rose woody magnolin tropical fresh entry waxy rose woody magnolin tropical fresh entry waxy pose woody magnolin tropical proper terpenic gively balamic plastic dy woody green herbal pepper terpenic gively balamic plastic dy woody green herbal pepper terpenic gively balamic plastic dy woody green herbal magnotic plastic plastic dy woody green herbal rose wood way for the state of the state dy wood y resion wood y peper black pepper terperie terpenic green woody peper black pepper war floral herbal sweet citrus sorbal green terpai to wood y peper black pepper war floral herbal sweet warm floral herbal sweet titrus sorbal green terpai to wood y green fesh citrus terpai terpenic wood y green divers topical green terpai to wood y green terpai terpai terpai terpai terpai terpai terpai divers floral apprecision fresh fertai sterpenic kong terpai terpai divers floral and status pepper herbal topical sweet floral nut skin pepper herbal topical pepper you ody carthy must y sweet fresh floral sucedar critics woody pres halismic sweet finite firme citrus woody preshimic more time terpai carbon person pendic spicy styree clove guaincol sweet floral floring therbal therbal sweet floral floring time citrus woody preshimic sweet firme citrus woody preshimic sweet firme citrus woody preshimic sweet firme citrus woody preshimic sweet firme citrus sweet floral floring terpai carbon pendic appression sweet floral floring terpai carbon pendic carbon pendic sampon sweet floral floring terpai carbon pendic carbon p	$\begin{array}{c} 1.14\pm0.12\\ 6.002\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 369,36\pm202,78\\ 369,36\pm202,78\\ 37,22\pm6.4\\ 1.24\pm0.34\\ 1.08\pm0.2\\ 40,7\pm16.64\\ 30.32\pm0.04\\ 0.40\\ 18.1\pm1.68\\ 80.34\pm5.5\\ 0.40\\ 0.38\pm2.6\\ 8.94\pm2.98\\ 0.46\\ 0.58\pm2.6\\ 8.94\pm2.98\\ 0.46\\ 0.58\pm2.6\\ 8.94\pm2.98\\ 0.46\\ 0.58\pm2.6\\ 0.48\pm2.6\\ 0.48$	$\begin{array}{c} 0.4 = 0.34 \\ 66.24 \pm 56.2 \\ 4.92 \pm 4.1 \\ 1.08 \pm 1.26 \\ 1.08 \pm 1.26 \\ 3.98 \pm 75.4 \\ 3.98 \pm 75.$	$\begin{array}{c} 324497.6\\ 111.22\times61.74\\ 4.24\times10.6\\ 0.26\times0.06\\ 617.42381.68\\ 0.925.09\\ 0.925.012\\ 11.7229.44\\ 2.925.09\\ 0.925.012\\ 15.56\times10.46\\ 0.90\\ 0.925.012\\ 15.56\times10.46\\ 0.95\times102\\ 15.9.56\times10.21\\ 15.9.56\times10.21\\ 15.9.56\times10.21\\ 15.9.56\times10.21\\ 15.9.56\times10.21\\ 15.9.56\times10.21\\ 15.66\times10.22\\ 1.74\times10.8\\ 1.95\\ 0.22\times10.22\\ 1.74\times10.8\\ 1.95\\ 0.22\times10.22\\ 1.74\times10.8\\ 1.95\\ 0.22\times10.22\\ 1.74\times10.8\\ 1.95\\ 0.22\times10.22\\ 1.95\\ 0.22\times10.2$	$\begin{array}{c} 1.24e0.4\\ 5.30&16.88\\ 7.5&82.36\\ 0.5&0.36\\ 31.212e185.72\\ 41.64e5.72\\ 0.e0\\ 43.54e7.766.84\\ 35.58e4.72\\ 12.9e68.68\\ 35.58e4.72\\ 12.9e68.68\\ 35.58e4.72\\ 12.9e68.68\\ 35.58e4.72\\ 12.9e68.68\\ 35.58e4.72\\ 12.9e68.68\\ 0.64e1.12\\ 2.98e3.92\\ 9.12e11.14\\ 0.24e5.56\\ 0.02e4.68\\ 0.04e1.13\\ 2.98e3.92\\ 9.12e11.14\\ 0.24e5.53\\ 0.04e1.13\\ 2.36e2.46\\ 0.04e1.13\\ 2.36e2.46\\ 0.04e1.13\\ 2.98e3.92\\ 9.12e11.14\\ 0.24e5.53\\ 0.04e1.13\\ 2.36e2.46\\ 0.04e1.13\\ 2.36e2.46\\ 0.04e1.13\\ 2.36e2.46\\ 0.04e1.13\\ 2.36e2.46\\ 0.04e1.13\\ 2.36e2.46\\ 0.04e1.13\\ 2.98e3.92\\ 2.36e2.24\\ 0.04e1.13\\ 2.36e2.46\\ 0.04e1.14\\ 2.34e0.76\\ 4.14e2.06\\ 0.04e1.14\\ 0.04e1.14$	$\begin{array}{c} 0.82:0.66\\ 50.88;21.9\\ 1.28:0.18\\ 0.016:0.14\\ \hline \textbf{283.24:88.4}\\ \hline \textbf{283.04}\\ \textbf{88}\\ 0.42:0.06\\ \textbf{27.84:9.14}\\ \hline \textbf{37.72:17.38}\\ \textbf{71.16:10.14}\\ 5.5:5.92\\ \textbf{27.74:7.38}\\ \textbf{71.16:10.14}\\ 5.5:5.92\\ \textbf{27.74:7.38}\\ \textbf{72.92:4.18}\\ \textbf{32.16:12.64}\\ \textbf{92.34:11.46}\\ \textbf{0:60}\\ \textbf{72.92:4.48}\\ \textbf{32.16:12.64}\\ \textbf{92.34:1.14}\\ \textbf{0:60}\\ \textbf{75.92:4.18}\\ \textbf{33.04:0.28}\\ \textbf{35.04:0.28}\\ 35.04:$	1.4±0.64 155.5±120.82 1±0.88 0.12±0.1 357.44±394.3 352.44±76.82 1.54±1.44 1.32±2.3 358.1±88.56 48.34±41.86 30.24±31.14 17.12±13.08 30.24±31.14 17.12±13.08 30.24±31.14 17.12±13.08 30.24±31.14 17.12±13.08 30.24±31.14 17.12±13.08 30.24±31.14 11.22±1.32 21.44±2.26 0.92±1.16 11.12±1.52 21.44±2.26 0.92±1.6 31.061.62 3.068±2.02 41.15.22 21.84±2.26 0.92±1.6 31.061.62 3.085±2.02 41.15.22 3.085±2.02 41.15.22 3.085±2.02 41.15.22 3.085±2.02 41.15.22 3.085±2.02 41.15.22 3.085±2.02 41.15.22 3.085±2.02 41.15.23 3.085±2.02 41.15.23 3.085±2.02 41.15.23 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.085±7.02 3.01	$\begin{array}{c} 3.940.4\\ 5.2.5e17.84\\ 1.8640.22\\ 0.7440.4\\ 1.75.64519.22\\ 1.72.2415.3\\ 1.5840.36\\ 1.72.2415.2\\ 1.2840.26\\ 1.2840.2$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 79.42 \pm 57.46\\ 79.42 \pm 57.46\\ 18.42 \pm 16.26\\ 3.52 \pm 2.28\\ 2.24 \pm 16.6\\ 3.52 \pm 2.28\\ 2.24 \pm 1.96\\ 8.02 \pm 8.8\\ 5.188 \pm 52\\ 1.278 \pm 10.3\\ 2.48 \pm 1.56\\ 1.278 \pm 10.3\\ 2.36 \pm 1.27\\ 2.37 \pm 2.28\\ 2.24 \pm 1.96\\ 3.26 \pm 1.27\\ 2.37 \pm 2.28\\ 2.24 \pm 1.96\\ 3.26 \pm 1.27\\ 2.37 \pm 2.28\\ 2.24 \pm 1.96\\ 3.26 \pm 1.27\\ 3.72 \pm 2.28\\ 2.24 \pm 1.96\\ 3.26 \pm 1.27\\ 3.72 \pm 2.28\\ 2.24 \pm 1.96\\ 3.26 \pm 1.27\\ 3.72 \pm 2.28\\ 2.24 \pm 1.28\\ 3.26 \pm 1.27\\ 3.72 \pm 2.28\\ 3.26 \pm 1.27\\ 3.72 \pm 1.28\\ 3.26 \pm 1.27\\ 3.26 \pm 1.27\\ 3.26 \pm 1.28\\ 3.26 \pm 1.27\\ 3.26 \pm 1.28\\ 3.26 \pm 1.27\\ 3.26 \pm 1.28\\ 3.28 \pm 1.28\\ 3.28 \pm 1.28\\ 3.28 \pm$	$\begin{array}{c} 2,544,3.6\\ 39,7i12,1\\ 6e1,128\\ 0:e0\\ \textbf{153},46e58,\textbf{48}\\ \hline \textbf{154},224,24\\ 2,06e1,52\\ 2,06e1,52\\ 2,06e1,52\\ 2,06e1,58\\ \textbf{88},\textbf{022;34;36}\\ \textbf{88},\textbf{022;34;36}\\ \textbf{88},\textbf{022;34;36}\\ \textbf{12},224,22,18\\ 12,224,224,22,18\\ 12,224,22,18\\ 12,224,22,18\\ 12,224,22,18\\ 12,224,22,22,22\\ 12,224,22,22,22\\ 12,224,224,22\\ 12,224,22,22\\ 12,224,22,22\\ 12,224,22,22\\ 12,224,22,22\\$	0.66:01.4 22.16:17.36 3.14:0.96 0.52:0.16 193.34:80.28 0:40 3.14:0.36 0.50.08 3.64:0.44 10.58:14.7 2.14:3.7 15.4:23.02 3.6:04:50 0
2-Nonadecanone Damasecnone Ethyl decanote (2)-5-Pentadecen-2-one Tatais Gamma-hexalactone Gamma-decalactone Gamma-decalactone Tatais Monoterpenes Alpha-thujene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-pinene Beta-terpinene Be	1359 1391 1391 1660 1655 1454 1454 1458 93 931 971 980 991 1011 1017 1019 1017 1019 1017 1019 1040 1040 1040 1040 1040 1040 1055 1040 1055	- Floral Waxy Tonka Floral Floral Fraity Woody Spicy Herbal Spicy Tepenic Woody Minity Herbal Tepenic Floral Tepenic Floral Phor	natural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstinic tobacco frosh green fuity waxy rose woody magnolia tropical frosh oily waxy peach coconut buttery sweet woody green herbal pripers (reprine) says (balamic plastic pripers) terprine is price node poper to the compore ous prime of the precision green out of the compore ous prime of the precision green out of the compore ous minty terprecision wordy terprecision green to woody preper black perper woody terprecision green to woody preper black perper woody terprecision green to woody preper therbal sweet dirus herbal terprecision green out of the precision green to woody warm float herbal sweet dirus herbal terprecisic woody green fresh cirus terprecision woody green phenolic sing; wyteren clove guainet phenolic sing; wyteren clove guainet phenolic sing; wyteren clove guainet phenolic sing; wyteren clove guainet phenolic sing; wyteren clove guainet fresh floral lavered to give terprecision terms the tropical preper woody carthy musty sweet fresh floral lavered time cirus bertapic to the cirus woody floral herbal bergamot lavered time cirus ware floral herbal mode time. The preper woody carthy musty sweet fresh floral lavered time cirus for the floral lavered time cirus for the floral herbal time cirus for the floral herbal function herbal bergamot lavered time cirus weet floral floral avered time cirus for the floral herbal terms the floral precisional herbal bergamot lavered time cirus weet floral floral time cirus weet floral floral words (floral herbal bergamot lavered time cirus weet floral floral words (floral herbal bergamot lavered time cirus weet floral floral words) floral herbal bergamot lavered time cirus weet floral floral words (floral herbal bergamot lavered time cirus weet floral floral words) floral herbal bergamot lavered time cirus weet floral floral words (floral herbal bergamot lavered time cirus weet floral floral words) floral herbal bergamot lavered to time cirus weet fl	$\begin{array}{c} 1.14\pm0.12\\ 6.002\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 36934\pm202.78\\ 37.22\pm16.1\\ 2.4\pm0.34\\ 1.08\pm0.2\\ 40.7116.64\\ 30.32\pm0.04\\ 0.40\\ 118.31\pm0.6\\ 0.40\\ 118.31\pm0.6\\ 0.40\\ 118.31\pm0.6\\ 0.40\\ 118.32\pm2.1\\ 0.48\pm2.6\\ 0.40\\ 0.53\pm1.06\\ 0.40\\ 0.53\pm1.06\\ 0.40\\ 0.53\pm1.06\\ 0.40\\ 0.53\pm2.0\\ 0.40\\ 0.40\\ 0.53\pm2.0\\ 0.40\\ 0.$	$\begin{array}{c} 0.4 = 0.34 \\ 66.24 \pm 56.2 \\ 4.92 \pm 4.1 \\ 1.08 \pm 1.26 \\ 3.388 \pm 176.74 \\ \hline 23.398 \pm 176.74 \\ \hline 40.82 \pm 5.51 \\ 3.388 \pm 5.21 \\ 0.66 \pm 0.12 \\ \hline 45.36 \pm 37.98 \\ \hline 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 1.10 \\ 0.40 \\ 0.40 \\ 1.10 \\ 0.40 \\ 0.40 \\ 1.10 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.40 \\ 0.41 \\ 0.47 $	$\begin{array}{c} 324497.6\\ 111.122+61.74\\ 4.24+1.06\\ 0.26+0.06\\ 617.4231.68\\ 11.722+0.9\\ 0.922+0.12\\ 11.722+0.44\\ 2.922-0.9\\ 0.922+0.12\\ 15.56+10.46\\ 0.932+0.12\\ 13.76+2.36\\ 0.932+0.12\\ 13.76+2.36\\ 0.932+0.12\\ 13.66+2.36\\ 0.932+0.12\\ 13.66+2.36\\ 0.126+2.36$	$\begin{array}{c} 1.24e0.4\\ 5.308\pm16.88\\ 7.58\pm2.36\\ 0.58e0.36\\ 3.1212\pm185,72\\ 4.64\pm6.74\\ 3.9\pm1.12\\ 0.e0\\ 4.8,54\pm7.86\\ 1.2\\ 3.58\pm4.72\\ 1.2\\ 5.45\pm4.68\\ 0.24\pm1.2\\ 0.26,56\\ 0.24\pm0.68\\ 0.24\pm0.68\\ 0.24\pm0.78\\ 0.22\pm0.78\\ 0.22\pm0.$	$\begin{array}{l} 0.82:00\ 66\\ 0.82:01\ 66\\ 50.88:21.9\\ 1.28:01\ 86\\ 0.16:0.14\\ \hline {\bf 253:8.6}\ 62\\ 2.38:0.48\\ 0.42:0.06\\ 0.22:38:0.48\\ 0.42:0.06\\ 0.27:58:9.14\\ 37.72:24:7.38\\ 7.1.16:10.14\\ 5.5:5.92\\ 2.74:74:20.46\\ 0.60\\ 0.42\\ 0.40\\ 0.42\\ 0.40\\ 0.42\\ 0.40\\ 0.42\\ 0.40\\ 0$	$\begin{array}{l} 1.4\pm0.64\\ 155.5\pm120.82\\ 1\pm0.88\\ 0.12\pm0.12\\ 357.44\pm394.34\\ 352.44\pm394.34\\ 1.32\pm2.3\\ 352.44\pm76.82\\ 1.34\pm1.44\\ 1.32\pm2.3\\ 352.44\pm76.80\\ 24\pm31.14\\ 171.21\pm1.06\\ 302.44\pm31.16\\ 302.44\pm31.16\\ 302.44\pm31.16\\ 302.44\pm31.16\\ 112.22.34\\ 0\pm0\\ 0.024\\ 22.8\pm14.16\\ 18.82\pm7.36\\ 114.2\pm12.24\\ 0\pm0\\ 0.29.82\pm20.1\\ 0\pm0\\ 0\pm0\\ 0.29.82\pm20.1\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm0\\ 0\pm$	$\begin{array}{c} 3.940.4\\ 5.2.5+17.84\\ 1.86+0.22\\ 0.74+0.4\\ 1.75.64+119.22\\ 1.722+15.3\\ 1.28+0.36\\ 1.28+0.26\\ 1.28+0.26\\ 1.28+0.26\\ 1.28+0.26\\ 1.28+0.26\\ 1.28+0.26\\ 1.28+0.36\\ 1.28+0.26\\ 1.28+0.36\\$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.38 \pm 0.16\\ 33.52 \pm 57.46\\ 79.42 \pm 57.46\\ 3.52 \pm 27.8\\ 3.52 \pm 18.48\\ 1.68 \pm 1.22\\ 2.24 \pm 1.06\\ 2.26 \pm 1.28\\ 2.26 \pm $	$\begin{array}{c} 2.5443.36\\ 39.7412.1\\ 641.28\\ 0+0\\ \textbf{15.1}\\ \textbf{36.645,48}\\ \textbf{8.2452.46}\\ 3.9661.52\\ 2.0660.88\\ \textbf{8.02-54.86}\\ \textbf{8.02-54.86}\\ \textbf{8.02-54.86}\\ \textbf{8.02-54.86}\\ \textbf{8.02-54.86}\\ \textbf{9.1}\\ 2.2822.1822.18\\ 2.2822.1822.18\\ 2.2822.1822.1822.1822.1822.1822.1822.18$	$\begin{array}{l} 0.66:0.14\\ 2.2.16:17.36\\ 3.14:0.96\\ 0.52:0.16\\ 193.34:50.28\\ 0.62\\ 3.14:0.36\\ 3.4:50.28\\ 0.5:0.08\\ 3.4:50.28\\ 3.4:50.28\\ 3.4:50.28\\ 3.4:50.28\\ 3.6:2.78\\ 2.14:3.7\\ 1.5.4:2.50\\ 3.0:62.78\\ 2.174:1.9\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.78\\ 3.0:62.68\\ 3.0:6$
2-3-Nonadecanone Danas econo Ethyl decanoate (2)-6-Pentadecon-2-one Control Co	1359 1391 1391 1397 1660 16 1455 1454 1488 3 933 933 971 980 991 1017	- Floral Waxy Floral Foral Foral Foral Spicy Tepenic Woody Methal Spicy Tepenic Woody Methal Tepenic Floral Citrus Floral Floral Tepenic Floral Flora Flora Flora Flora Flora Flora Flora Flora Flora Flora F	natural sweet fluity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy feed area for any second to the second fragment feed area for any waxy none woody magnolin tropical feed area for any waxy none woody magnolin tropical feed area for any second battery sweet woody green ferdul pepper terpenic sity blasmic plastic dy woody resionous pine hay green euclyptus camporeous pepper terpenic sity blasmic plastic dy woody resionous pine hay green euclyptus camporeous pepper terpenic sity blasmic plastic dy woody repenic woody pepper black pepper woody terpenic green woody pepper black pepper ware floral sweet ware floral hereit and second second second feed attus terpenic green to woody green feed attus terpenic green to woody green feed attus terpenic konce inter topical herbal pagnet earthy woody plantic upicy styrem olove guaiced were floral nut skin pepper berbal topical experiment in the second second provide terpenic interpenic land that pagnet earthy woody plantic upicy styrem olove guaiced provide upicy styrem olove guaiced provide terpenic interpenic land that pagnet earthy woody plantic terpenic interpenic land that pagnet earthy woody plantic terpenic interpenic terpenic land that topical pepper year of the construction provide that terpenic interpenic interpenic interpenic interpenic plantic terpenic interpenic	$\begin{array}{c} 1.14\pm0.12\\ 6.002\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 339.36\pm202.78\\ \hline 37.22\pm6.4\\ 1.08\pm0.2\\ 1.08\pm0.2\\ \hline 40.7\pm16.64\\ \hline 30.34\pm5.56\\ 0.00\\ 18.1\pm1.68\\ 80.34\pm5.56\\ 0.00\\ 18.1\pm1.68\\ 80.34\pm5.56\\ 0.00\\ 18.1\pm0.8\\ 8.94\pm2.98\\ 0.66\pm0.58\\ 5.04\pm2.24\\ 0.66\pm0.58\\ 5.04\pm2.24\\ 0.00\\ 0.65\pm0.58\\ 5.04\pm2.24\\ 0.00\\ 0.05\pm0.58\\ 0.00\\ 0$	0.4d0.34 66.244:56.2 4.9224.1 1.088:126 4.9328:176.74 233398:176.74 4.9322:53 0.66:0.12 45.36:437.98 0:60 0:12 45.36:437.98 0:0 0:0 0:12 23.06:6:0.94 5.2884.07 2.184:21 0:240:54 2.184:21 0:240:34 1.188:0.9 1.188:1.48 0:0 0:241:1.88 2.542:23 2.544:1.58 2.544:1.58 2.544:1.58 2.544:56 2.234:56 1.197.66 2.234:56 2.2	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline {\bf 07.4+281.68}\\ 1.022-0.0\\ 0.022-0.12\\ \hline {\bf 17.220}.44\\ 2.022.09\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.00\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.00\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.022-0.22\\ 0.022-0.02$	$\begin{array}{c} 1.24e0.4\\ 5.308\pm16.88\\ 7.58e2.36\\ 0.58e0.36\\ 31.212\pm185.72\\ 41.6485.72\\ 84.6485.72\\ 0.60\\ 48.58e7.86\\ 51.7e66.84\\ 53.58847.22\\ 12.9668.68\\ 53.58847.22\\ 12.9668.68\\ 13.045.56\\ 13.045.56\\ 0.0\\ 13.045.56\\ 0.0\\ 0.0\\ 13.045.56\\ 0.0\\ 0.0\\ 13.045.56\\ 0.0\\ 0.0\\ 0.0\\ 0.0\\ 0.0\\ 0.0\\ 0.0\\ 0.$	$\begin{array}{l} 0.82:00.66\\ 50.88;21.9\\ 1.28:00.18\\ 0.016:0.14\\ \hline \textbf{253.46} \\ \textbf{254.86} \\ 2.38:06.48\\ 0.42:0.10\\ \textbf{0} \\ \textbf{273.89.14} \\ \textbf{37.72:17.38} \\ \textbf{71.16:10.14} \\ 5.5:5.92\\ \textbf{274.74:200.46} \\ 0.60\\ \textbf{0} \\ \textbf{13.64:3.82} \\ \textbf{0} \\ \textbf{0} \\ \textbf{274.74:200.46} \\ \textbf{0} \\ \textbf{0} \\ \textbf{0} \\ \textbf{0} \\ \textbf{274.74:200.46} \\ \textbf{0} \\ \textbf{0}$	$\begin{array}{l} 1.4 \pm 0.64 \\ 156.5 \pm 120.82 \\ 1 \pm 0.88 \\ 0.12 \pm 0.12 \\ 0.12 \pm 0.12 \\ 0.12 \pm 0.12 \\ 0.12 \pm 0.12 \\ 0.1$	$\begin{array}{c} 3.940.4\\ 5.2.5e17.84\\ 1.8640.22\\ 0.7440.4\\ 175.64519.22\\ 17.22415.2\\ 17.22415.2\\ 17.22415.2\\ 17.22450.26\\ 1.2840.2$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 79.42 \pm 57.46\\ 18.42 \pm 16.26\\ 3.52 \pm 27.48\\ 18.42 \pm 16.26\\ 3.52 \pm 27.48\\ 2.24 \pm 10.66\\ 3.52 \pm 27.28\\ 2.24 \pm 1.96\\ 8.02 \pm 4.58\\ 5.148\\ 8.02 \pm 4.58\\ 1.57 \pm 0.26\\ 1.57 \pm 0$	$\begin{array}{c} 2.544.3.6\\ 39.741.2.1\\ 641.28\\ 0.40\\ \textbf{151.464654.8}\\ \textbf{152.52.45}\\ \textbf{2.6641.52}\\ 2.0664.58\\ \textbf{8.022-34.86}\\ \textbf{8.022-34.86}\\ \textbf{8.022-34.86}\\ \textbf{8.022-34.86}\\ \textbf{12.522-3.16}\\ 0.40\\ 0.40\\ 1.2.522.3.02\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.540.5\\ 0.520.5\\ 1.4440.24\\ 0.540.5\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.40\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.40\\ 0.440.52\\ 0$	0.66:01.4 22.16:17.36 3.14:0.96 0.52:0.16 193.34:80.28 040 3.14:0.36 0.50.08 3.64:0.44 10.58:14.7 2.14:3.7 15.4:23.02 3.6.04:50 0.6 0.50
2-3-Nonadecanone Danas econor Entyl decanoate (2)-63-Pentadeen-3-one (2)-63-Pentadeen-3-one (2)-63-Pentadeen-3-one Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Myrcene Myrcene Myrcene Myrcene Myrcene Beta-phellanderne Beta-freipineol Linalool Delydoro-perymene Cosimer de Cosimer de	1359 1391 1391 1397 1660 16 1455 1454 1488 3 933 971 990 14488 3 991 901 1017 1019 1024 1037 1045 1045 1045 1045 1045 1045 1045 1045	- Floral Waxy - - - - - - - - - - - - - - - - - - -	natural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstrink tobacco fresh green fuity waxy rose woody magnola tropical fresh green fuity waxy rose woody magnola tropical (def the stropic spectra stropic spectra provide the stropic spectra stropic spectra (def the stropic spectra) spectra (def the stropic spectra) spectra (def the stropic spectra) s	$\begin{array}{c} 1.14\pm0.12\\ 6.002\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 36934\pm202.78\\ 3722\pm16.1\\ 2.40.034\\ 1.08\pm0.2\\ 40.7316.64\\ 30.32\pm0.04\\ 0.00\\ 18.3\pm1.68\\ 0.00\\ 18.3\pm1.68\\ 0.00\\ 18.3\pm2.6\\ 0.00\\ 18.3\pm2.6\\ 0.00\\ 18.3\pm2.6\\ 0.00\\ 0.$	$\begin{array}{c} 0.4 = 0.34 \\ 66.24 \pm 56.2 \\ 4.92 \pm 4.1 \\ 1.08 \pm 1.26 \\ 1.08 \pm 1.26 \\ 3.08 \pm 10.86 \\ 1.08 \pm 1.26 \\ 3.08 \pm 10.86 \\ 1.08 \pm$	$\begin{array}{c} 324497.6\\ 111.22\times61.74\\ 4.24\times10.6\\ 0.26\times0.06\\ 617.42381.66\\ 11.72\times9.44\\ 2.92.0.9\\ 0.92\times0.12\\ 15.56\times10.46\\ 0.92\times0.12\\ 15.56\times10.46\\ 0.92\times0.12\\ 15.56\times10.46\\ 0.92\times0.12\\ 15.56\times10.46\\ 0.93\times0.12\\ 15.56\times10.46\\ 0.93\times0.12\\ 11.74\times10.6\\ 0.93\times0.12\\ 10.56\times2.38\\ 0.93\times0.12\\ 0.93\times0.12\\ 10.56\times2.38\\ 0.93\times0.12\\ 0.93\times0.1$	$\begin{array}{c} 1.24e0.4\\ 3.5.08\pm16.88\\ 7.58\pm2.36\\ 0.58e0.36\\ 3.1212\pm185,72\\ 4.64\pm6.74\\ 3.9\pm1.12\\ 0.e0\\ 4.8.54\pm7.86\\ 1.2\\ 0.e0\\ 4.8.54\pm7.86\\ 1.3.58\pm47.22\\ 1.2.96\pm8.48\\ 1.3.58\pm47.22\\ 1.2.96\pm8.48\\ 1.3.58\pm47.22\\ 1.2.96\pm8.48\\ 0.46\pm1.2\\ 0.2.46\\$	$\begin{array}{c} 0.82:00\ 66\\ 0.82:01\ 66\\ 50.88:21.9\\ 1.28:01\ 86\\ 0.16:01\ 14\\ \hline \textbf{283.24:88.4}\\ \hline \textbf{233.44:88.4}\\ 0.42:01\ 06\\ \hline \textbf{27.849.14}\\ \hline \textbf{37.72:17.38}\\ 71.16:10.14\\ 5.5.59.2\\ 71.16:10.14\\ 5.5.59.2\\ 71.16:10.14\\ 5.5.59.2\\ 71.16:10.14\\ 5.5.59.2\\ 71.16:10.14\\ 5.5.59.2\\ 71.16:10.14\\ 7.22:44.8\\ 72.24:11.4\\ 0.60\\ 7.92:44.8\\ 7.82:00.46\\ 0.60\\ 7.92:44.8\\ 7.83:10.2\\ 7.56:0\ 82\\ 7.56$	L4:0.64 155.5±120.82 1=0.88 0.12±0.1 357.44:394.3 357.44:394.3 357.44:394.3 357.44:394.3 357.44:394.3 357.44:39.56 48.34:441.86 30.24:31.14 17 .12:13.08 30.24:31.14 17 .12:13.06 16 .02 31.661.52 31.661.52 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 31.661.62 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31.661	$\begin{array}{c} 3.940.4\\ 3.52.5+17.84\\ 1.86+0.22\\ 0.74+0.4\\ 1.75.64+119.22\\ 1.722+15.3\\ 1.28+0.36\\ 1.28+0.36\\ 1.28+0.26\\ 1.28+0.26\\ 1.28+0.26\\ 1.28+0.36$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 32.62 \pm 1.84\\ 0.58 \pm 0.16\\ 3.52 \pm 27.8\\ 3.52 \pm 27.8$	$\begin{array}{c} 2.5443.36\\ 39.7112.1\\ 60.128\\ 0+0\\ 115.1466.05,48\\ 82252.46\\ 3.9661.52\\ 2.0660.88\\ 88.022-34.86\\ 88.022-34.86\\ 88.022-34.86\\ 12.8422.14\\ 12.8422.18\\ 12.842$	$\begin{array}{l} 0.66:0.14\\ 2.2.16:17.36\\ 3.14:0.96\\ 0.52:0.16\\ 193.34:80:28\\ 0.62\\ 3.14:0.36\\ 0.52:0.10\\ 3.44:0.36\\ 0.52:0.08\\ 3.44:0.36\\ 0.52:0.08\\ 3.44:0.36\\ 0.52:0.08\\ 3.44:0.36\\ 0.52:0.08\\ 3.06:2.78\\ 2.1,44:3.7\\ 3.06:2.78\\ 2.1,44:3.7\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,74:1.9\\ 3.06:2.78\\ 2.1,44:1.9\\ 3.06:2.8\\ 3.06$
2-Nonadecanone Danas econo Ethyl decanoate (2)-6-Pentadecon-2-one Tatab Comma-decalactone Gamma-decalactone Gamma-decalactone Tatab Monoterpenes Alpha-thujene Beta-pinene- Beta-pinene- B	1359 1391 1391 1397 1660 16 1455 1454 1488 3 933 933 971 980 991 1017	- Floral Waxy Floral Foral Foral Foral Spicy Tepenic Woody Methal Spicy Tepenic Woody Methal Tepenic Floral Citrus Floral Floral Tepenic Floral Flora Flora Flora Flora Flora Flora Flora Flora Flora Flora F	natural sweet fluity rose plum grape raspberry sugar sweet waxy fruity apple grape oily brandy feeds area frainty waxy none woody magnolin tropical feeds green fraity waxy none woody magnolin tropical feeds green fraity waxy more woody magnolin tropical green brand pepper trepnic sity blasmic plastic dy woody resionous pine hay green euclyptus camporeous pepper trepnic sity blasmic plastic dy woody resionous pine hay green euclyptus camporeous pepper trepnic sity blasmic plastic dy woody represent woody pepper black pepper woody tepper to provide the static dy the static class herbal terpenic green woody pepper black pepper wood for the static dy the static dy the static brack apper terpenic green to woody green feeds dratus terpenic green to woody green feeds dratus terpenic kernen inte topical herbal pagnet cartity woody plantic upicy styreen dove guaiced were floral nut skin pepper berbal topical experiment of the static terpenic land that pagnet cartity woody plantic upicy styreen dove guaiced provide terpenic kernen integration berbal torpical backet woody for all herbal sweet grien terpenic kernen integration topical experiment deveder time static wood price blastime trever times medication wood price blastime terver times medic	$\begin{array}{c} 1.14\pm0.12\\ 6.002\pm5.2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 339.36\pm202.78\\ \hline 37.22\pm6.4\\ 1.08\pm0.2\\ 1.08\pm0.2\\ \hline 40.7\pm16.64\\ \hline 30.34\pm5.56\\ 0.00\\ 18.1\pm1.68\\ 80.34\pm5.56\\ 0.00\\ 18.1\pm1.68\\ 80.34\pm5.56\\ 0.00\\ 18.1\pm0.8\\ 8.94\pm2.98\\ 0.66\pm0.58\\ 5.04\pm2.24\\ 0.66\pm0.58\\ 5.04\pm2.24\\ 0.00\\ 0.65\pm0.58\\ 5.04\pm2.24\\ 0.00\\ 0.05\pm0.58\\ 0.00\\ 0$	0.4d0.34 66.244:56.2 4.9224.1 1.088:126 4.9328:176.74 233398:176.74 4.9322:53 0.66:0.12 45.36:437.98 0:60 0:12 45.36:437.98 0:0 0:0 0:12 23.06:6:0.94 5.2884.07 2.184:21 0:240:54 2.184:21 0:240:34 1.188:0.9 1.188:1.48 0:0 0:241:1.88 2.542:23 2.544:1.58 2.544:1.58 2.544:1.58 2.544:56 2.234:56 1.197.66 2.234:56 2.2	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline {\bf 07.4+281.68}\\ 1.022-0.0\\ 0.022-0.12\\ \hline {\bf 17.220}.44\\ 2.022.09\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.00\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.00\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.022-0.12\\ \hline {\bf 15.56+10.46}\\ 0.022-0.22\\ 0.022-0.02$	$\begin{array}{c} 1.24e0.4\\ 5.308\pm16.88\\ 7.58e2.36\\ 0.58e0.36\\ 31.212\pm185.72\\ 41.6485.72\\ 84.6485.72\\ 0.60\\ 48.58e7.86\\ 51.7e66.84\\ 53.58847.22\\ 12.9668.68\\ 53.58847.22\\ 12.9668.68\\ 13.045.56\\ 13.045.56\\ 0.0\\ 13.045.56\\ 0.0\\ 0.0\\ 13.045.56\\ 0.0\\ 0.0\\ 13.045.56\\ 0.0\\ 0.0\\ 0.0\\ 0.0\\ 0.0\\ 0.0\\ 0.0\\ 0.$	$\begin{array}{l} 0.82:00.66\\ 50.88;21.9\\ 1.28:00.18\\ 0.016:0.14\\ \hline \textbf{253.46} \\ \textbf{254.86} \\ 2.38:06.48\\ 0.42:0.10\\ \textbf{0} \\ \textbf{273.89.14} \\ \textbf{37.72:17.38} \\ \textbf{71.16:10.14} \\ 5.5:5.92\\ \textbf{274.74:200.46} \\ 0.60\\ \textbf{0} \\ \textbf{13.64:3.82} \\ \textbf{0} \\ \textbf{0} \\ \textbf{274.74:200.46} \\ \textbf{0} \\ \textbf{0} \\ \textbf{0} \\ \textbf{0} \\ \textbf{274.74:200.46} \\ \textbf{0} \\ \textbf{0}$	$\begin{array}{l} 1.4 \pm 0.64 \\ 156.5 \pm 120.82 \\ 1 \pm 0.88 \\ 0.12 \pm 0.12 \\ 0.12 \pm 0.12 \\ 0.12 \pm 0.12 \\ 0.12 \pm 0.12 \\ 0.1$	$\begin{array}{c} 3.940.4\\ 5.2.5e17.84\\ 1.8640.22\\ 0.7440.4\\ 175.64519.22\\ 17.22415.2\\ 17.22415.2\\ 17.22415.2\\ 17.22450.26\\ 1.2840.2$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 79.42 \pm 57.46\\ 18.42 \pm 16.26\\ 3.52 \pm 27.48\\ 18.42 \pm 16.26\\ 3.52 \pm 27.48\\ 2.24 \pm 10.66\\ 3.52 \pm 27.28\\ 2.24 \pm 1.96\\ 8.02 \pm 4.58\\ 5.148\\ 8.02 \pm 4.58\\ 1.57 \pm 0.26\\ 1.57 \pm 0$	$\begin{array}{c} 2.544.3.6\\ 39.741.2.1\\ 641.28\\ 0.40\\ \textbf{151.464654.8}\\ \textbf{152.52.45}\\ \textbf{2.6641.52}\\ 2.0664.58\\ \textbf{8.022-34.86}\\ \textbf{8.022-34.86}\\ \textbf{8.022-34.86}\\ \textbf{8.022-34.86}\\ \textbf{12.522-3.16}\\ 0.40\\ 0.40\\ 1.2.522.3.02\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.540.5\\ 0.520.5\\ 1.4440.24\\ 0.540.5\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.40\\ 0.40\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.40\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.540.5\\ 0.1240.2\\ 0.40\\ 0.40\\ 0.440.52\\ 0$	0.66:01.4 22.16:17.36 3.14:0.96 0.52:0.16 193.34:80.28 040 3.14:0.36 0.50.08 3.64:0.44 10.58:14.7 2.14:3.7 15.4:23.02 3.6.04:50 0.6 0.50
2-3-Nonadecanone Danas econor Entyl decanoate (2)-63-Pentadeen-3-one (2)-63-Pentadeen-3-one (2)-63-Pentadeen-3-one Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Carama-decalactone Myrcene Myrcene Myrcene Myrcene Myrcene Beta-phellanderne Beta-freipineol Linalool Delydoro-perymene Cosimer de Cosimer de	1359 1391 1391 1397 1660 16 1455 1454 1488 3 933 933 971 980 991 1017 1019 1019 1019 1019 1019 1019 1019 1019 1019 1019 1019 1019 1037 1040 1045 1045 1045 1045 1045 1045 1053 1063 1065 1065 1065 1065 1065 1065 1065 1065 107 1045 1055 1065 107 107 108 109 109 109 109 109 109 109 109	- Floral Waxy - - - - - - - - - - - - - - - - - - -	natural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstrink tobacco fresh green fuity waxy rose woody magnola tropical fresh green fuity waxy rose woody magnola tropical (def the stropic spectra stropic spectra provide the stropic spectra stropic spectra (def the stropic spectra) spectra (def the stropic spectra) spectra (def the stropic spectra) s	$\begin{array}{c} 1.14\pm0.12\\ 6.00.25\times2\\ 5.08\pm1.02\\ 0.52\pm0.08\\ 339.36\times20.78\\ 37.22\pm6.4\\ 37.22\pm6.4\\ 30.32\pm0.04\\ 0.60\\ 18.11\times6\\ 80.34\pm5.56\\ 0.60\\ 18.11\times6\\ 80.34\pm5.56\\ 0.60\\ 18.11\times6\\ 80.34\pm5.56\\ 0.60\\ 0.52\pm0.6\\ 0.52\pm0.6\\ 0.60\\ 0.60\pm0.5\\ 0.60$	0.4d0.34 66.24±56.2 4.92±4.1 1.08±125 4.98±253 0.66±0.12 45.36±37.98 0±0 0±0 11.28±0.52 20.06±6.94 31.205±3.22 20.06±6.94 31.205±3.22 20.06±6.94 31.205±3.22 2.38±4.72 2.38±4.72 2.38±4.72 2.38±4.72 2.38±3.22 2.44±2.1 7.94±8.62 0±0 0±0 2.28±4.13 0±0 0±0 2.28±4.13 2.34±4.13 0±0 0±0 2.34±4.13 0±0 0±0 0±0 2.34±4.13 0±0 0±0 0±0 2.34±4.13 0±0 0±0 0±0 2.34±4.13 0±0 0±0 0±0 0±0 0±0 0±0 2.34±4.13 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±0 0±	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline 0.74+281.68\\ 0.92-60.12\\ 1.72-9.44\\ 1.72-9.44\\ 0.92-0.12\\ 1.5.56+10.46\\ 0.90\\ 0.92-0.12\\ 1.5.56+10.46\\ 0.90\\ 0.92-0.12\\ 1.5.56+10.46\\ 0.90\\ 0.92-0.12\\ 1.5.9.65+70.02\\ 1.8.652.12\\ 0.94-6.38\\ 0.94-6.3$	$\begin{array}{c} 1.24e0.4\\ 5.308\pm16.88\\ 7.58e2.36\\ 0.58e0.36\\ 31.212\pm185.72\\ 41.64e5.74\\ 30.912\\ 0.90\\ 48.54e7.86\\ 51.7e66.84\\ 35.58e4.72\\ 12.9e68.68\\ 53.58e4.72\\ 12.9e68.68\\ 13.02\pm5.66\\ 0.00\\ 48.54e7.86\\ 0.00\\ 13.02\pm5.64\\ 11.032\pm5.64\\ 11.032\pm5.64\\ 11.032\pm5.64\\ 11.032\pm5.64\\ 11.032\pm5.64\\ 0.04\pm1.12\\ 2.98e3.92\\ 2.98e3.92\\ 2.36e2.46\\ 3.36e6.63\\ 2.36e6.64\\ 2.36e6.64\\ 2.36e6.64\\ 2.36e6.64\\ 2.36e6.64\\ 2.36e6.64\\ 2.36e6.74\\ 2.36e6.7$	$\begin{array}{l} 0.82:00.66\\ 50.88; -21.9\\ 1.28:00.18\\ 0.016:-0.14\\ \hline \textbf{253.46} & \textbf{18}\\ 2.58:60.48\\ 0.42:-0.06\\ \textbf{-12.78:9.14}\\ \hline \textbf{37.72:417.38}\\ \textbf{71.16:10.14}\\ 5.55:50\\ 2.74:74:200.46\\ 0.06\\ 0.28:0.48\\ 0.23:0.48\\ 0.$	1.4±0.64 155.5±120.82 1±0.88 0.12±0.1 357.4±1394.3 85.24±76.62 1322-23 88.1±80.56 48.3±441.86 80.24±31.14 17.12±13.08 59.9±10.34 0±0 0±0.34 14.2±12.34 0±0 0±2.22.8±14.16 8.3±43±7.36 11.2±1.23 2.14±2.26 0.92±1.6 1.12±1.96 0±0 0±0 5.16±1.62 3.08±2.02 0.4±1.52 2.0.8±1.52	$\begin{array}{c} 3.940.4\\ 5.2.5e1.784\\ 1.8640.22\\ 0.7440.4\\ 1.75646119.32\\ 1.722415.840.36\\ 1.722415.2\\ 1.2840.26\\ 1.284$	$\begin{array}{l} 0.2 + 0.2 \\ 39.6 + 27.8 \\ 4.42 + 1.84 \\ 0.38 + 0.16 \\ \hline \textbf{79.42457.46} \\ \textbf{79.4457.46} \\ \textbf{79.4457.46} \\ \textbf{79.4457.46} \\ \textbf{79.4457.46} \\ \textbf{79.4457.46} \\ \textbf{79.4468.26} \\ $	2:544:3.65 39.7412.1 641.28 0:40 151.64:55.48 82:242.46 82:242.46 85:02:24.28 85:02:24.28 85:02:24.28 85:02:24.28 10:02:02 11:25:22:302 0:40 11:25:22:302 0:40 11:25:22:302 0:40 11:25:22:302 0:40 11:25:22:302 0:40 11:25:22:302 0:40 0:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 5:20:51 1:44:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:40 2:24:20 2:24:40 2:24:20 2:24:20 2:24:20 2:24:20 2:24:20 2:24:20 2:24:20 2:24:20 2:24:20 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:24 2:242:27 2:24 2:242:272 2:242:272 2:242:272 2:242:272 2:242:272 2:242:272 2:	0.66:01.4 22.16:17.36 3.14:0.96 0.52:0.16 193.34:80.28 0.6 0.51.008 3.64:0.44 10.58:14.7 2.14:37 15.4:23.02 36.04:50 0:40 3.60:4:50 0:40 4.8:25.44 3.06:4:50 0:40 3.36:4:0.44 3.06:4:50 0:40 3.36:4:0.44 3.36:4:4.57 3.36:4:4:50 0:40 0:42:25 3.35:4:25 0:40 0:50:028 3.35:4:25 0:40 0:50:028 0:42:25 0:40 0:50:028 0:40:028 0:5
2-3-Nonadecanone Danas econor Entyl decanoate (2)-6-Pentadecano-2-one (2)-6-Pentadecano-2-one (2)-6-Pentadecano-2-one (3)-6-Pe	1359 1391 1391 1397 1660 16 1454 1488 3 933 931 941 1488 3 931 941 1017 1019 1024 1037 1045 1037 1045 1033 1045 1033 1045 1053 1053 1045 1053 1055 1116 1115 1116 1115 1118 1185 1118 1185 1118 1196 1196 1196 1196 1196 1196 1196	- Floral Waxy Floral Floral Floral Spicy Herbal Spicy Herbal Spicy Horody Minty Herbal Flora Flora Flora Fl	natural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy berbal cocourt sweet counsarinic tobacco frash oily waxy posed woody magnolia tropical frash oily waxy peach cocount buttery sweet woody green herbal preper terpenic spicy blasmic plastic dy woody resoinces finh hay green eacdplast samporeous priper terpenic spicy blasmic plastic dy woody respective plastic blast dy poper woody terpenic lemon that green basil titus schedl prepenic green woody op perpet tack poper words y terpenic fermo woody op perpet tack, poper words y terpenic green woody op perpet tack, poper wards final sweet itsus schedl green terpenic woody green finats urbal tagen terpenic woody green dists torbal green terpenic woody green berbal green terpenic woody green berbal sweet for do rose green blackers pagent entry woody eitsus fonal arbers box de rose green blackers pagent entry woody eitsus fonal arbers box de rose green blackers pagent entry woody eitsus fonal arbers box de rose green blackers pagent entry woody fonal berbal breamd tawade time citrus wood yne blasmic sweet minus medicinal sweet fonal nut skin perper herbal torpical sweet fonal nut skin perper herbal torpical sweet fonal nut y awar rose citrus grappin menthol celors moody predisamic sweet minus medicinal sweet fonal fury rose way citrus endpine menthol celors final safety awar rose citrus mot perpenite tabal can cross weet tobacco green furto torpical althout babla clan cross weet tobacco green furto torpical althout babla clan cross weet tobacco green furto torpical barban columna tabal clan cross weet tobacco green furto torpical althout perpenite spice	$\begin{array}{c} 1.14\pm0.12\\ 6.0025.5\\ 5.085.102\\ 0.0254.02\\ 8.0952002, 78\\ \hline 30395202, 78\\ \hline 30395202, 78\\ \hline 30395202, 78\\ \hline 3032520, 40\\ -108602\\ \hline 40.7216.64\\ \hline 3032520, 10\\ -108602\\ \hline 40.7216.64\\ \hline 40.7216.64\\ \hline 503222, 11\\ -108602\\ \hline 503222, 11\\ -108602\\ \hline 503222, 11\\ -108602\\ \hline 503222, 11\\ -108602\\ \hline 50322, $	$\begin{array}{c} 0.4 = 0.34 \\ 66.24 \pm 56.2 \\ 4.92 \pm 4.1 \\ 1.08 \pm 1.26 \\ 1.08 \pm 1.26 \\ 3.98 \pm 76.76 \\ 4.93 \pm 75.44 \\ 3.83 \pm 2.52 \\ 0.66 \pm 0.12 \\ 4.53 \pm 6.37.98 \\ 0.60 \\ 0.00 \\ 1.12 \pm 8.05 \\ 2.00 \pm 6.05 \\ 2.00 $	$\begin{array}{c} 324497.6\\ 111.22\times61.74\\ 4.24\times10.6\\ 0.26\times0.06\\ 617.442381.68\\ 0.22\times0.9\\ 0.92\times0.12\\ 11.72\times9.44\\ 2.92\times0.9\\ 0.92\times0.12\\ 15.56\pm0.46\\ 0.92\\ 0.92\times0.12\\ 15.9.6\pm7.02\\ 1.9.46\times58\\ 0.94\times0.36\\ 1.9.46\times58\\ 0.94\times0.36\\ 0.95\times0.36\\ 0$	$\begin{array}{c} 1.24e0.4\\ 5.30&16.88\\ 7.58&2.36\\ 0.58&0.36\\ 31.212e185.72\\ 41.64e5.72\\ 84.64e5.72\\ 12.9e6.84\\ 94.12\\ 0.e0\\ 48.54e7.86\\ 13.55&84.72\\ 12.9e6.86\\ 13.55&84.72\\ 12.9e6.86\\ 13.55&84.72\\ 12.9e6.86\\ 13.55&84.72\\ 12.9e6.86\\ 13.55&84.72\\ 13.8e7.76\\ 0.328&55\\ 10.44e2.44\\ 6.28e4.54\\ 8.60&24.46\\ 0.42e4.74\\ 6.28e4.54\\ 8.60&24.46\\ 0.42e4.74\\ 10.42e2.46\\ 0.42e4.74\\ 2.36e4.92\\ 2.38e3.30\\ 2.38e3.32\\ 2.38$	$\begin{array}{l} 0.82:00\ 66\\ 0.82:01\ 66\\ 0.16:01\ 12\\ 0.16:01\ 14\\ \hline \textbf{283,24=88.4}\\ \hline \textbf{253,86}\\ 1.28:01\ 86\\ 0.16:01\ 14\\ \hline \textbf{253,86}\\ 1.28:01\ 48\\ 0.14:01\ 16\\ 0.14:01\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\ 14\ 14\ 14\ 14\ 14\ 14\ 14\ 14\ 1$	1.4±0.64 155.5±120.82 1±0.88 0.12±0.1 357.4±393.43 352.4±7.68 352.4±7.68 352.4±7.68 352.4±7.68 353.4±8.41 353.4±8.41 353.4±8.41 353.4±8.41 353.4±8.41 353.4±8.41 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 	$\begin{array}{c} 3.940.4\\ 3.52.5+17.84\\ 1.86+0.22\\ 0.74+0.4\\ 175.64+119.22\\ 175.26+15.92\\ 1.228+0.26\\ 1.238+0.26$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 33.52 \pm 1.84\\ 0.58 \pm 0.16\\ 33.52 \pm 25.74\\ 63.52 \pm 25.54\\ 23.52 \pm 25.84\\ 23.52 \pm 3.84\\ 0.60\\ 33.52 \pm 2.38\\ 33.52 \pm 2.38\\ 23.54 \pm 1.96\\ 33.52 \pm 2.38\\ 33.54 \pm 2.38\\ 33.54 \pm 2.22\\ 33.54 \pm 1.38\\ 33.56 \pm 1.27\\ 33.56 \pm 1.47\\ 33.54 \pm 1.56\\ 34.55 \pm 1.56\\ 34.55 \pm 1.56\\ 34.55 \pm 1.56\\ 34.55 $	$\begin{array}{c} 2.544.3.66\\ 39.7i12.1\\ 60.1\\ 80.7i12.1\\ 61.128\\ 0.40\\ \textbf{15.1}\\ 39.7i12.1\\ 64.128\\ 0.40\\ \textbf{15.1}\\ 39.242.46\\ 39.641.52\\ 20.640.88\\ \textbf{8.622.3.86\\ \textbf{8.622.3.86\\ \textbf{8.622.3.86\\ \textbf{8.622.3.86\\ \textbf{6.622.1}\\ 12.522.3.02\\ 0.40\\ 0.40\\ 12.522.18\\ 22.582.7.44\\ 0.40\\ 22.484.0.46\\ 3.40.36\\ 0.140.0.6\\ 0.14$	0.66:01.4 22.16:17.36 3.14:0.96 0.52:0.16 193.34:50.28 0:0 0:0 3.44:0.36 0:50.08 3.64:0.44 10.58:14.7 15.4:23.02 3.6:04:50 0.5:0.08 3.6:04:50 0.5:0.08 3.6:04:50 0.5:0.278 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.36:2.52 0:40 0:50 0
2-Nondecanone Damasecnone Ethyl decanote (2)-6-Pentadecon-2-one Tatal Carone Carma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Gamma-decalactone Beta-pholane Beta-pholane Beta-pholane Beta-pholane Beta-pholane Beta-pholane Beta-pholane Beta-pholane Beta-pholane Carmone Compositione Compositione Compositione Beta-pholane Compositione Compositione Beta-topinene Beta-topinene Beta-topinene Compositione Compositione Beta-Terpinene Beta-Terpinene Beta-Terpinene Beta-Terpinene Compositione Compositione Beta-Terpinene Beta-Terpinene Compositione Compositione Beta-Terpinene Beta-Terpinene Beta-Terpinene Compositione Compositione Compositione Beta-Terpinene Be	1359 1391 1397 1660 165 1454 1458 3 933 971 980 991 1011 1017 1004 1063 1065 1069 1118 1118 1118 1128 1220 1224 1226 1226 1226 1226 1226 1226 1226 1226 1257 1273 1273 1273 1273 1273 1273 1273 1273 1273 1275 12	- Floral Waxy Tonka Floral Floral Franty Woody Spicy Herbal Spicy Herbal Spicy Herbal Herbal Floral Citrus Floral Tepenic Woody Herbal Floral Tepenic Horal Tepenic Floral Tepenic Floral Floral Floral Tepenic Floral Floral Tepenic Herbal Spicy Floral Floral Floral Tepenic Herbal Spicy Floral Tepenic Herbal Spicy Floral Tepenic Herbal Floral Floral Tepenic Horal Tepenic Herbal Floral Floral Floral Tepenic Herbal Tepenic Herbal Floral Floral Tepenic Herbal Tepenic Herbal Tepenic Herbal Tepenic Herbal Tepenic Tepenic Herbal Tepenic Tepenic Herbal Tepenic Herbal Tepenic Herbal Tepenic Tepenic Herbal Tepenic Tepenic Tepenic Tepenic Tepenic Tepenic Tepenic Tepenic Tepenic Herbal He	adural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy behal coconut sweet counstrint tobacco fresh green fuity waxy rose woody magnolia tropical fresh green fuity waxy rose woody magnolia tropical fresh green to the state of the state of the state proper trapical set in the state of the state of the state proper trapical set in the state of the state of the state woody trepical corona thattery sweet sweet state of the state of the state of the state woody trepical corona thattery sweet trans herbal tenpeia green woody peper black pepper woody tenpein clemon herbal madicinal citrus minty tenpein terns herbal tenpeia green woody peper black pepper ward wood herbal wood ditus herbal appeal green towady peper black pepper woody tenpein clemon horbal modernal ditus herbal appeal green towady peper black pepper ward wood herbal wood ditus herbal appeal green towady peper black pepper woody tenpein clemon horbal peper black proper strapical system clower guide ditus herbal appeal green towady pepe black pepper woody tenpein clemon lime tropical herbal pagent cathy wood ditus herbal appear barbal tropical speet foral nut skin pepper herbal tropical peper woody carthy musty sweet frash final laverade citrus inter speet laverade time citrus herbal begrannet laverade time citrus herbal begrannet laverade time citrus inter speet final nut skin pepper herbal tropical herbal begrannet laverade time citrus inter speet final nut skin pepper herbal tropical herbal begrannet laverade time citrus inter speet final nut skin pepper herbal trapical herbal begrannet laverade time citrus inter speet final nut skin pepper herbal trapical herbal laverade trans y speet to clear state speet to best and transva spiet tropical affron herbal claar rose speet tobacco green finit prod wood marky rose waxy citrus spiet speet final rose speet tobacco green finit prod wood rule rose speet tobacco green finit prod wood rule rose speet tobacco green finit prod wood rule rose speet tobacco green finit prod wood	$\begin{array}{c} 1.1440.12\\ 6.0025.2\\ 5.081.02\\ 0.524.08\\ 3034c202.78\\ \hline 37.22346.1\\ 1005.20\\ $	0.4d0.34 66.24±56.2 4.92±4.1 1.08±126 23398±176.74 40.82±25.31 3.08±25.31 0.66±0.12 0.66±0.12 0.66±0.12 0.66±0.12 0.45±6.34 2.90.66±6.94 51.28±4.72 10.06±9.34 8.38±6.3 2.90.65±6.94 51.28±4.72 10.24±6.34 0.24±0.34 1.18±0.9 1.68±1.48 0.45±7.85 1.18±0.9 1.68±1.48 0.45±7.85 1.18±0.9 1.68±1.48 0.45±7.85 1.18±1.95 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.37 1.58±3.52 2.54±3.52 2.54±3.52 2.54±3.52 2.54±3.52 2.54±3.52 3.24±5.56 1.9.76±1.98 0.56±0.44 5.54±4.84 0.60 0.60 0.55 0.56±0.44 0.55±3.52 2.8±1.52 3.24±5.56 1.9.76±1.98 0.56±0.44 0.55±3.52 2.8±3.56 0.56±0.44 0.55±3.52 3.24±5.56 1.9.76±1.98 0.56±0.44 0.55±3.52 3.24±5.56 1.9.76±1.98 0.56±0.44 0.55±3.52 2.8±3.52 0.56±0.44 0.55±3.52 2.8±3.52 0.56±0.44 0.55±3.52 2.8±4.56 0.56±0.44 0.55±3.52 0.56±0.44 0.55±3.52 0.56±0.44 0.55±3.52 0.56±0.44 0.55±3.52 0.56±0.44 0.55±3.52 0.56±0.44 0.55±3.52 0.56±0.44 0.55±3.52 0.56±0.44 0.55±3.52 0.56±0.44 0.55±3.54 0.	$\begin{array}{c} 324497.6\\ 111.22+61.74\\ 4.24+1.06\\ 0.26+0.06\\ \hline {\bf 07.44281.68}\\ 1.72-9.44\\ 0.92-9.10\\ 0.92-9.10\\ 1.72-9.44\\ 0.92-9.10\\ 1.72-9.44\\ 0.92-9.10\\ 1.72-9.44\\ 0.92-9.10\\ 1.72-9.44\\ 0.92-9.10\\ 1.72-9.44\\ 0.92-9.10\\ 1.72-9.44\\ 0.92-9.10\\ 1.72-9.44\\ 0.92-9.10\\ 1.72-9.45\\ 0.95-0.12\\ 0.92-2.10\\ 0.94-0.5\\ 0.94$	$\begin{array}{l} 1.24e0.4\\ 5.3.08\pm16.88\\ 7.58e2.36\\ 0.58e0.36\\ 312.12\pm185.72\\ 44.64e6.74\\ 3.94\pm1.12\\ 0.66\\ 312.12\pm185.72\\ 12.966.84\\ 51.7e66.84\\ 55.58e47.22\\ 12.966.86\\ 55.58e47.22\\ 12.966.86\\ 615.13\\ 0.265.56\\ 10.442.24\\ 6.285.34\\ 6.66\\ 6.285.34\\ 8.66\\ 6.66\pm11\\ 13.02\pm5.66\\ 10.442.24\\ 4.53.66\\ 0.420.74\\ 3.366.382\\ 2.3682.56\\ 10.442.24\\ 4.53.66\\ 6.285.36\\ 2.368.53\\ 2.368.53\\ 2.3682.56\\ 10.442.24\\ 4.53.66\\ 6.285.36\\ 2.3682.56\\ 2.3682.56\\ 10.442.24\\ 4.53.66\\ 2.3682.56\\ 2$	$\begin{array}{l} 0.82:00.66\\ 50.88;=21.9\\ 1.28:01.8\\ 0.016:0.14\\ \hline \textbf{253.8.6}\\ 255.8.6\\ 2.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.42:01.06\\ 0.43:01.06\\ 0.43:01.06\\ 0.43:01.06\\ 0.43:01.06\\ 0.44:01.06\\ 0.28:01.06\\ $	$\begin{array}{l} 1.4 \pm 0.64 \\ 156.5 \pm 120.82 \\ 1=0.88 \\ 0.01240.1 \\ 357.44 \pm 394.3 \\ 359.24 \pm 30.56 \\ 359.24 \pm 31.44 \\ 177.12 \pm 13.08 \\ 18.32 \pm 77.34 \\ 14.44 \\ 14.23 \\ 20.23 \pm 20.11 \\ 14.24 \\ 20.23 \\ 20.24 \pm 15.22 \\ 20.34 $	3 0440.4 52.5e17.84 1 3660.22 0.74e0.4 17.52e15.6 17.52e15.6 17.52e15.6 1.34e2.34 0e0 4.64e7.1 23.46e14.64 0e0 4.64e7.1 23.46e14.64 0e0 0.96e0.05 0.0660.12 0.0660.12 0.060 0.21e1.24 0.260.56 0.00	$\begin{array}{l} 0.2 + 0.2 \\ 39.6 + 27.8 \\ 4.42 + 1.84 \\ 0.38 + 0.16 \\ \hline \textbf{79.42457.46} \\ 18.42 + 16.26 \\ 3.52 + 27.28 \\ 2.24 + 16.26 \\ 3.52 + 27.28 \\ 2.24 + 10.68 \\ 3.22 + 2.38 \\ 2.24 + 1.96 \\ 8.02 + 4.58 \\ 5.1 + 8.02 \\ 2.24 + 1.96 \\ 8.02 + 4.58 \\ 5.1 + 1.06 \\ 8.1 + 22.7 \\ 1.08 + 1.32 \\ 4.1 + 2.5 \\ 1.08 + 1.32 \\ 4.1 + 2.5 \\ 1.1 + 1.02 \\ 1.3 + 2.1 \\ $	2:44:3:36 39.7412.1 6:1.28 0:40 151.64:55.48 82:24:22.66 85:24:22.66 85:02:24:26 85:02:24:26 85:02:24:26 85:02:24:26 85:02:24:26 85:02:24:26 85:02:24:26 85:02:24:26 0:40 1 .06:1.84 1 .25:22:302 0:40 1 .06:1.84 1 .25:22:302 0:40 1 .06:1.84 1 .25:22:302 0:40 1 .06:1.84 1 .25:22:302 0:40 1 .06:1.84 1 .25:22:302 0:40 1 .06:1.84 1 .25:22:302 0:40 1 .25:42:52 0:40 0:50.55 1 .44:40.65 3:0.12:40.25 0:40 0:50.55 1.44:40.24 3:51.22:11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.22:11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.11.112 3:70:44:13 3:51.22.11.112 3:70:44:13 3:51.22.113 3:51.22.12 3:51.22.22 3:54.40.23 3:51.22.22 3:54.40.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.24.23 3:52.25 3:52.	0.66:01.4 22.16:17.36 3.14:0.96 0.52:0.16 193.34:80.28 0.4 0.53:0.08 3.64:0.44 10.58:14.7 2.14:3.7 15.4:23.02 3.64:4:50 0:50
2-3-Nonadecanone Danas econor Entyl decanoate (2)-6-Pentadecano-2-one (2)-6-Pentadecano-2-one (2)-6-Pentadecano-2-one (3)-6-Pe	1359 1391 1391 1397 1660 16 1454 1488 3 933 931 941 1488 3 931 941 1017 1019 1024 1037 1045 1037 1045 1033 1045 1033 1045 1053 1053 1045 1053 1055 1116 1115 1116 1115 1118 1185 1118 1185 1118 1196 1196 1196 1196 1196 1196 1196	- Floral Waxy Floral Floral Floral Spicy Herbal Spicy Herbal Spicy Hordy Woody Minty Herbal Floral F	natural sweet fuity rose plum grape raspberry sugar sweet waxy fuity apple grape oily brandy berbal cocourt sweet counsarinic tobacco frash oily waxy posed woody magnolia tropical frash oily waxy peach cocount buttery sweet woody green herbal preper terpenic spicy blasmic plastic dy woody resoinces finh hay green eacdplast samporeous priper terpenic spicy blasmic plastic dy woody respective plastic blast dy poper woody terpenic lemon that green basil titus schedl prepenic green woody op perpet tack poper words y terpenic fermo woody op perpet tack, poper words y terpenic green woody op perpet tack, poper wards final sweet itsus schedl green terpenic woody green finats urbal tagen terpenic woody green dists torbal green terpenic woody green berbal green terpenic woody green berbal sweet for do rose green blackers pagent entry woody eitsus fonal arbers box de rose green blackers pagent entry woody eitsus fonal arbers box de rose green blackers pagent entry woody eitsus fonal arbers box de rose green blackers pagent entry woody fonal berbal breamd tawade time citrus wood yne blasmic sweet minus medicinal sweet fonal nut skin perper herbal torpical sweet fonal nut skin perper herbal torpical sweet fonal nut y awar rose citrus grappin menthol celors moody predisamic sweet minus medicinal sweet fonal fury rose way citrus endpine menthol celors final safety awar rose citrus mot perpenite tabal can cross weet tobacco green furto torpical althout babla clan cross weet tobacco green furto torpical althout babla clan cross weet tobacco green furto torpical barban columna tabal clan cross weet tobacco green furto torpical althout perpenite spice	$\begin{array}{c} 1.14\pm0.12\\ 6.0025.5\\ 5.085.102\\ 0.0254.02\\ 8.0952002, 78\\ \hline 30395202, 78\\ \hline 30395202, 78\\ \hline 30395202, 78\\ \hline 3032520, 40\\ -108602\\ \hline 40.7216.64\\ \hline 3032520, 10\\ -108602\\ \hline 40.7216.64\\ \hline 40.7216.64\\ \hline 503222, 11\\ -108602\\ \hline 503222, 11\\ -108602\\ \hline 503222, 11\\ -108602\\ \hline 503222, 11\\ -108602\\ \hline 50322, $	$\begin{array}{c} 0.4 = 0.34 \\ 66.24 \pm 56.2 \\ 4.92 \pm 4.1 \\ 1.08 \pm 1.26 \\ 1.08 \pm 1.26 \\ 3.98 \pm 76.76 \\ 4.93 \pm 75.44 \\ 3.83 \pm 2.52 \\ 0.66 \pm 0.12 \\ 4.53 \pm 6.37.98 \\ 0.60 \\ 0.00 \\ 1.12 \pm 8.05 \\ 2.00 \pm 6.05 \\ 2.00 $	$\begin{array}{c} 324497.6\\ 111.22\times61.74\\ 4.24\times10.6\\ 0.26\times0.06\\ 617.442381.68\\ 0.22\times0.9\\ 0.92\times0.12\\ 11.72\times9.44\\ 2.92\times0.9\\ 0.92\times0.12\\ 15.56\pm0.46\\ 0.92\\ 0.92\times0.12\\ 15.9.6\pm7.02\\ 1.9.46\times58\\ 0.94\times0.36\\ 1.9.46\times58\\ 0.94\times0.36\\ 0.95\times0.36\\ 0$	$\begin{array}{c} 1.24e0.4\\ 5.30&16.88\\ 7.58&2.36\\ 0.58&0.36\\ 31.212e185.72\\ 41.64e5.72\\ 84.64e5.72\\ 12.9e6.84\\ 94.12\\ 0.e0\\ 48.54e7.86\\ 13.55&84.72\\ 12.9e6.86\\ 13.55&84.72\\ 12.9e6.86\\ 13.55&84.72\\ 12.9e6.86\\ 13.55&84.72\\ 12.9e6.86\\ 13.55&84.72\\ 13.8e7.76\\ 0.328&55\\ 10.44e2.44\\ 6.28e4.54\\ 8.60&24.46\\ 0.42e4.74\\ 6.28e4.54\\ 8.60&24.46\\ 0.42e4.74\\ 10.42e2.46\\ 0.42e4.74\\ 2.36e4.92\\ 2.38e3.30\\ 2.38e3.32\\ 2.38$	$\begin{array}{l} 0.82:00\ 66\\ 0.82:01\ 66\\ 0.16:01\ 12\\ 0.16:01\ 14\\ \hline \textbf{283,24=88.4}\\ \hline \textbf{253,86}\\ 1.28:01\ 86\\ 0.16:01\ 14\\ \hline \textbf{253,86}\\ 1.28:01\ 48\\ 0.14:01\ 16\\ 0.14:01\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\\ 5.5:59\ 12\\ 1.16:101\ 14\ 14\ 14\ 14\ 14\ 14\ 14\ 14\ 14\ 1$	1.4±0.64 155.5±120.82 1±0.88 0.12±0.1 357.4±393.43 352.4±7.68 352.4±7.68 352.4±7.68 352.4±7.68 353.4±8.41 353.4±8.41 353.4±8.41 353.4±8.41 353.4±8.41 353.4±8.41 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 353.4±8.44 	$\begin{array}{c} 3.940.4\\ 3.52.5+17.84\\ 1.86+0.22\\ 0.74+0.4\\ 175.64+119.22\\ 175.26+15.92\\ 1.228+0.26\\ 1.238+0.26$	$\begin{array}{l} 0.2 \pm 0.24\\ 39.6 \pm 27.8\\ 4.42 \pm 1.84\\ 0.58 \pm 0.16\\ 33.52 \pm 1.84\\ 0.58 \pm 0.16\\ 33.52 \pm 25.74\\ 63.52 \pm 25.54\\ 23.52 \pm 25.84\\ 23.52 \pm 3.84\\ 0.60\\ 33.52 \pm 2.38\\ 33.52 \pm 2.38\\ 23.54 \pm 1.96\\ 33.52 \pm 2.38\\ 33.54 \pm 2.38\\ 33.54 \pm 2.22\\ 33.54 \pm 1.38\\ 33.56 \pm 1.27\\ 33.56 \pm 1.47\\ 33.54 \pm 1.56\\ 34.55 \pm 1.56\\ 34.55 \pm 1.56\\ 34.55 \pm 1.56\\ 34.55 $	$\begin{array}{c} 2.544.3.66\\ 39.7i12.1\\ 60.1\\ 80.7i12.1\\ 61.128\\ 0.40\\ \textbf{15.1}\\ 39.7i12.1\\ 64.128\\ 0.40\\ \textbf{15.1}\\ 39.242.46\\ 39.641.52\\ 20.640.88\\ \textbf{8.622.3.86\\ \textbf{8.622.3.86\\ \textbf{8.622.3.86\\ \textbf{8.622.3.86\\ \textbf{6.622.1}\\ 12.522.3.02\\ 0.40\\ 0.40\\ 12.522.18\\ 22.582.7.44\\ 0.40\\ 22.484.0.46\\ 3.40.36\\ 0.140.0.6\\ 0.14$	0.66:01.4 22.16:17.36 3.14:0.96 0.52:0.16 193.34:50.28 0:0 0:0 3.44:0.36 0:50.08 3.64:0.44 10.58:14.7 15.4:23.02 3.6:04:50 0.5:0.08 3.6:04:50 0.5:0.08 3.6:04:50 0.5:0.278 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.06:2.78 21.74:1.9 4.22:47 3.36:2.52 0:40 0:50 0

Totals	38			1551.8±469.98	837.02±992.36	2841.46±1304.2 8	603.34±477.74	2214.34±516.1 8	1013.16±911.52	721.06±445.28	531.22±395.04	467.28±158.98	1427.66±778.22
Sesquiterpenes													
gamma-Elemene	1308	-	-	2.6±0.46	1.94±2.36	1.16±0.38	1.66±0.68	0.88±0.28	2.26±2.16	2.52±0.96	2.06±1.48	2.16±0.44	1.84±0.38
Cedrene	1368	Woody	woody cedar sweet fresh	10.84±6	10.76±13	4.84±1.12	3.18±0.7	3.12±0.9	2.86±0.78	20.34±4.86	16.94±3.84	25.7±9.78	11.5±3.52
alpha-Cubebene	1378	Herbal	herbal waxy	2.32±0.88	0.1±0.2	23.02±13.24	1.32±0.64	11.62±3.14	9.2±5.74	0.24±0.42	0.16±0.14	0±0	0±0
Longifolene	1401	Woody	sweet woody rose medicinal fir needle	3.18±0.32	3.56±1.9	0.68±1.18	2.64±1.44	1.92±0.62	1.38±0.48	1.74±0.5	1.32±0.56	2.44±0.32	1.36±0.18
Ylangene	1405	-	-	0±0	0±0	2.9±0.1	0.34±0.6	0±0	1.4±2.06	0±0	0±0	0.42±0.2	0.4±0.06
Copaene	1408	Woody	woody spicy honey	0.86±0.12	0.78±0.42	0.18±0.3	0.24±0.2	0.28±0.24	0±0	1.34±0.7	1.1±0.74	1.02±1.08	0.4±0.12
gamma-Caryophyllene	1414	Spicy	sweet woody spicy clove dry	0±0	0.12±0.2	0±0	0.36±0.12	0±0	0±0	0±0	0.12±0.12	0.68±0.64	0.18±0.04
epsilon-Muurolene	1423	-	-	0.26±0.02	0.56±0.56	0.44±0.12	0.5±0.08	0±0	0.14 ± 0.14	0±0	0.08±0.06	0±0	0.06±0.06
gamma-Muurolene	1430	Woody	herbal woody spicy	0.6±0.12	0.44±0.48	0.64±0.24	0.38±0.12	0.16±0.22	1.48±1	1.46±0.78	0.7±0.16	1.64±0.1	0.64±1.14
beta-Panasinsene	1439	-	-	0.6±0.18	0.68±0.88	0.24±0.06	0.16±0	0.26±0.24	0.3±0.1	0.1±0.08	0.36±0.32	0±0	0±0
beta-Copaene	1440	-	-	0.58±0.1	0.96±0.94	0.14±0.04	0.46±0.14	0.34±0.08	0.44±0.26	0.6±0.12	0.46±0.36	0.4±0.06	0.2±0
Caryophyllene	1451	Spicy	sweet woody spicy clove dry	1.14±0.06	2.42±1.38	1.7±0.42	1.54±1.12	0.96±0.38	1.06±0.46	1.06±0.1	0.94±0.48	1.88±0.62	1.08±0.46
alpha-Elemene	1458	-	-	0±0	0.24±0.2	0±0	0.46±0.16	0±0	0±0	0.38±0.34	0±0	0±0	0±0
transbetaFamesene	1462	Woody	woody citrus herbal sweet	0.72±0.04	0.04±0.08	0.62±0.1	0.24±0.02	0.18±0.04	0.4±0.42	0±0	0±0	1.56±1.76	0.3±0.02
beta-Farnesene	1469	Woody	woody citrus herbal sweet	1.36±0.14	3.28±3.5	1.26±0.2	1.3±0.28	0.74±0.14	0.56±0.54	6.24±3.08	3.38±1.12	1.9±0.44	1.04±0.26
gamma-Muurolene	1483	Woody	herbal woody spicy	3.78±1.8	3.64±3.26	3.32±2.2	2.98±1.04	2.84±1.06	2.38±0.6	5.6±0.82	3.4±1.44	3.68±1	2.42±0.76
beta-Selinene	1501	Herbal	-	0.66±0.12	1.48±1	0.84±0.14	1.82±1.7	0.9±0.22	2.9±3.54	0.42±0.06	0.6±0.68	1.34±0.54	0.9±0.16
alpha-Selinene	1505	-	amber	0.48±0.22	0.52±0.3	0.56±0.2	1.62±0.56	0.04±0.08	0.18±0.18	1.14±0.1	0.88±0.56	0±0	0±0
gamma-Cadinene	1520	-	-	1.14±0.3	1±0.86	0.72±0.14	0.52±0.18	0.38±0.2	1.34±1.56	1.14±0.22	0.56±0.42	0.86±0.44	0.94±0.74
Guaiol	1534	-		0.98±0.12	1.66±2.08	1.12±0.24	0.78±0.16	0.68±0.18	1.36±0.48	1.5±0.14	2.12±0.32	1.18±0.36	1.28±0.32
.alphaMuurolene	1539	-	-	1.14±0.06	0±0	0±0	1.3±0.28	0±0	0±0	0.84±0.26	1.78±0.84	1.4 ± 0.08	1.06±0.06
Cubenene	1541	Spicy	spicy fruity mango	0±0	1.94±1.28	1.46±0.38	0±0	0.88±0.12	1.72±1.3	0.28±0.24	0±0	0±0	0±0
beta-Cadinene	1547	Woody	green woody	2.1±0.42	8.78±7.96	2.56±0.4	1.64±0.36	0.64±0.12	0.92±0.38	2.42±0.06	1.68±0.3	1.26±0.38	1.1±0.3
alpha-Cadinene	1563	Woody	woody dry	0.4±0.1	0.16±0.16	0.42±0.02	0±0	0.22±0.02	1.02±0.94	0.24±0.06	0±0	0.48±0.24	0.26±0.02
trans-Calamenene	1569	-	-	0.3±0.04	1.64±2.84	0.52±0.3	0±0	0.22±0.24	0±0	0±0	0±0	0.5±0.1	0.3±0.06
Cadina-1,4-diene	1572	Spicy	spicy fruity mango	0.44±0.08	1.14±0.9	0.6±0.14	0.5±0.24	0.34±0.08	1.02±0.74	1.46±0.62	0.96±0.3	0±0	0±0
alpha-Calacorene	1573	-	woody	0.54±0.04	1.7±2.04	0.88±0.34	0.64±0.36	0.66±0.48	0.58±0.22	0.8±0.74	0.36±0.22	0.34±0.14	0.38±0.22
Caryophyllene oxide	1606	Woody	sweet fresh dry woody spicy	1.64±0.62	1.58±2.14	1.52±1.24	0.36±0.12	0.96±0.28	1.04±0.5	0±0	4.6±1.24	6.1±2.18	1.64±0.4
Humulenol-II	1651	-	-	0.38±0.04	0.98±0.72	0±0	0.56±0.26	0±0	0±0	0±0	0±0	2.64±1.36	1.16±0.2
T-Muurolol	1669	Herbal	herbal spicy honey	1.24±0.18	2.94±4.98	0.5±0	1.3±0.9	0.62±0.16	1.62±0.86	0.82±0.28	0.54±0.1	0.98±0.5	0.58±0.16
Cadalene	1690	-	•	2.24±0.2	2.36±1.86	2.5±0.48	1.86±0.78	1.56±0.56	2.6±1.14	2.46±0.28	1.46±0.46	2±0.42	1.86±0.56
Totals	31			42.52±12.78	57.4±58.48	55.34±23.72	30.66±13.24	31.4±10.08	40.16±26.58	55.14±15.82	46.56±16.26	62.56±23.18	32.88±10.2

² Relative peak area percent compounds were identified by comparison of mass spectra with NIST14 (National Institute of Standards and Technology, Gaithersburg, MD, USA), Flavors and Fragrances of Natural and Synthetic Compounds (FFNSC3, John Wiley & Sons, Inc., Hoboken, NJ, USA), and Adams Essential Oils (Adams 2007) mass spectral libraries and comparison of calculated Kovats retention indices (Kováts 1958) with previously reported values.

Table 5. Principal components (PC)^{zy} analysis of volatile aroma compounds in fresh-market muscadines grown and evaluated at the University of Arkansas System Division of Agriculture (2021).

		Principal Component 1 (52.56%)	Principal Component 2 (27.37%)
		$AM-148 \rightarrow AM 70$	$AM-154 \rightarrow Lactones$
	Compound classifications	Lactones	Alcohols
		Alcohols	Ketones
		Monoterpenes	Lactones
		Aldehydes	
		Ketones	
		Sesquiterpenes	
ositive loadings		Epoxides	
	Genotype	AM-135	AM-148
		AM-26	AM-26
		AM-154	AM-77
		AM-70	AM-135
			AM-70
	Compound classifications	Esters	Aromatic hydrocarbons
		Aromatic hydrocarbons	Sesquiterpenes
			Epoxides
NT (*			Esters
Negative loadings			Monoterpenes
loaungs			Aldehydes
	Genotype	AM-77	AM-154
		AM-148	

^zPercent of variation in data explained by each component, total 79.93%.

^yCompound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified

 $\overline{\mathfrak{G}}$ compounds within each compound class (Table 3)

	Principal Component 1 (28.42%) Alcohols \rightarrow Oh My!®	Principal Component 2 (21.24%) Lane → Esters	Principal Component 3 (16.73%) JB-06-30-2-20 → Ketones	
Compound				
classification	s Aldehydes			
	Epoxides	Alcohols	Aromatic hydrocarbons	Esters
	Esters	Aromatic hydrocarbons	Monoterpenes	Alcohols
	Lactones	Esters	Epoxides	Aldehydes
	Sesquiterpenes	Lactones	Ketones	Lactones
Genotype	Paulk	Summit	Paulk	
	Supreme	Hall	Lane	
	JB 08-38-1-10	Supreme	Hall	
	JB-06-30-2-20	JB-09-15-3-09	Supreme	
	JB-09-15-3-09	RazzMatazz®	JB-09-15-3-09	
	Oh My!®		Oh My!®	
Compound	e e		<i></i>	
classification	as Alcohols	Aldehydes	Sesquiterpenes	
	Aromatic hydrocarbons	Epoxides		
	Ketones	Ketones		
	Monoterpenes	Monoterpenes		
	Ĩ	Sesquiterpenes		
Genotype	Summit	Paulk	Summit	
_	Lane	Lane	JB 08-38-1-10	
	Hall	JB 08-38-1-10	JB-06-30-2-20	
	RazzMatazz®	JB-06-30-2-20	RazzMatazz®	
		Oh My!®		

Table 6. Principal components (PC)^{zy} analysis of volatile aroma compounds in fresh-market muscadines grown in North Carolina (Kings Mountain, NC) and evaluated at the University of Arkansas System Division of Agriculture (2021).

^zPercent of variation in data explained by each component, total 66.39%.

^yCompound class variables represent the sum of the total ion chromatogram (TIC) relative peak areas (%) of positively identified

 $\frac{1}{20}$ compounds within each compound class (Table 4)

A. Arkansas



AM-26



AM-70



AM-77



AM-135



AM-148



AM-154





Hall

0 1-2 3 4 5 0 7 5 9 10 11 1

Oh My!®



Paulk



JB-08-38-1-10



Summit

Supreme

Lane

Fig. 1. Photo at harvest (day 0) of clamshells of muscadine grapes grown in Arkansas (A) and North Carolina (B) and evaluated at the University of Arkansas System Division of Agriculture (2021).

RazzMatazz®

1-2 3 4 5 6 7 8 9 10

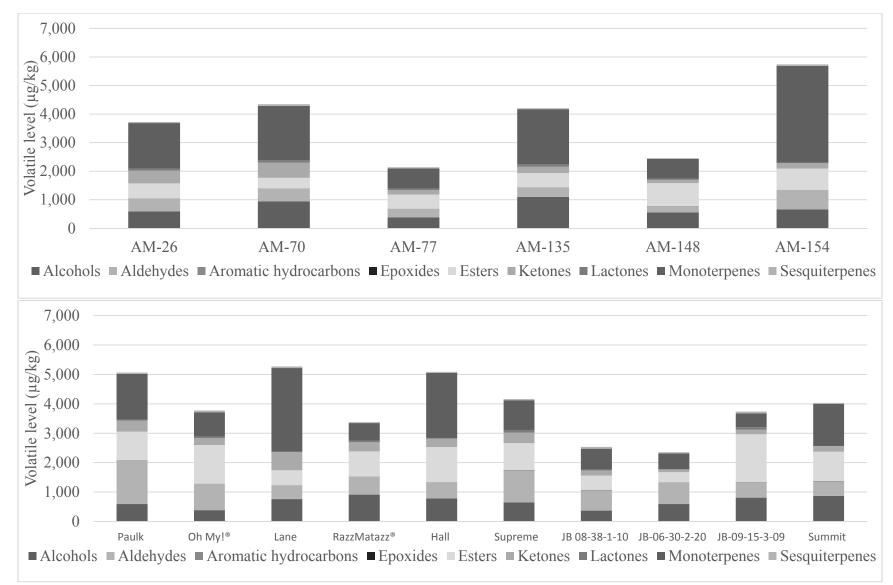


Fig 2. Total concentrations of volatile aroma compounds identified in muscadine grapes grown in Arkansas (top, Clarksville, AR) and $\overline{5}$ North Carolina (bottom, Kings Mountain, NC) and evaluated at the University of Arkansas System Division of Agriculture (2021)

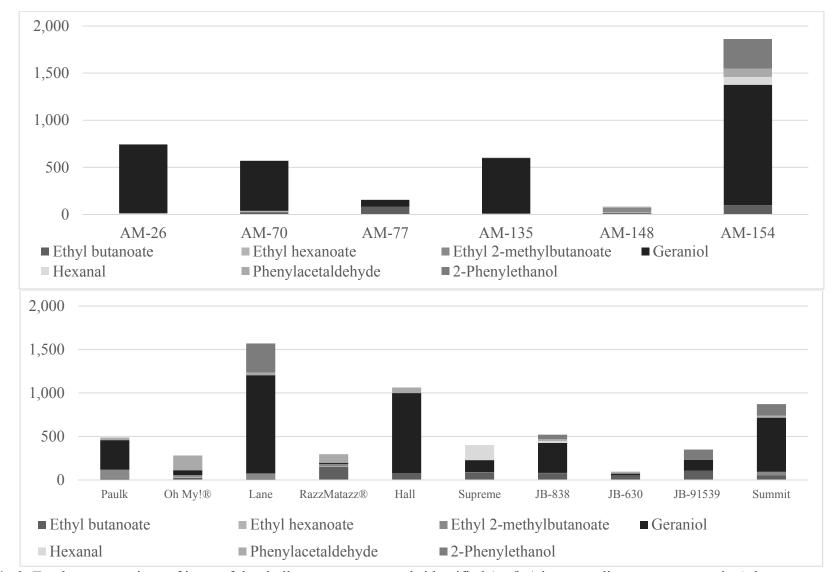


Fig 3. Total concentrations of impactful volatile aroma compounds identified (µg/kg) in muscadine grapes grown in Arkansas (Clarksville, AR, top) and North Carolina (Kings Mountain, NC, bottom) and evaluated at the University of Arkansas System Division

 \Box (Clarksvine, AK, top) \Box of Agriculture (2021).

Overall Conclusions

The evaluation of Arkansas-grown hops, Arkansas-grown fresh-market blackberries, and Arkansas and North Carolina-grown muscadines provided insight into both quality and volatile profiles for these specialty horticultural crops. Regardless of crop, genotype (cultivar and breeding selection) had a strong influence on quality and volatile attributes. In hops, both the volatile and quality attributes were strongly tied to cultivar in both years (2020 and 2021). In blackberries, there was an interaction effect between the cultivar and harvest date in both 2020 and 2021 for the composition attributes. Muscadine grape attributes also varied by genotype, showing potential for some of the genotypes for fresh-market. Examining impactful volatiles (attributes that have high levels of aromatic impact) can provide a more complete aroma profile than the total volatile levels, and different impactful volatiles were identified in each crop. Overall this research showed the potential economic impact of these specialty crops and provided important profiles for crops that can be grown in Arkansas.

Appendix



То:	Renee Terrell Threlfall FDSC B-3
From:	Douglas James Adams, Chair IRB Committee
Date:	06/11/2019
Action:	Exemption Granted
	Exemption Granteu
Action Date:	06/11/2019
	•

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB coordinator at 109 MLKG Building, 5/2208, or irb@uark.edu

cc: Amanda L McWhirt, Key Personnel