

1983

Curatorial Notes from the Cryptogamic Herbarium at the University of Central Arkansas

Jewel E. Moore
University of Central Arkansas

Follow this and additional works at: <https://scholarworks.uark.edu/jaas>



Part of the [Botany Commons](#)

Recommended Citation

Moore, Jewel E. (1983) "Curatorial Notes from the Cryptogamic Herbarium at the University of Central Arkansas," *Journal of the Arkansas Academy of Science*: Vol. 37, Article 37.

Available at: <https://scholarworks.uark.edu/jaas/vol37/iss1/37>

This article is available for use under the Creative Commons license: Attribution-NoDerivatives 4.0 International (CC BY-ND 4.0). Users are able to read, download, copy, print, distribute, search, link to the full texts of these articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author.

This General Note is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in Journal of the Arkansas Academy of Science by an authorized editor of ScholarWorks@UARK. For more information, please contact scholar@uark.edu, uarepos@uark.edu.

Arkansas Academy of Science

- SMALL, J. K. 1903. Flora of the southeastern United States. John Small, N. Y., p. 524.
- SMALL, J. K. 1933. Manual of the southeastern flora. Univ. of North Carolina Press, Chapel Hill, p. 625.
- ALICE A. LONG, *Departments of Geography and Biology, University of Central Arkansas, Conway, AR 72032.*
- STEYERMARK, J. A. 1975. Flora of Missouri. Iowa State Univ. Press, Ames, p. 841.

BRYOPHYTE-LICHEN COMMUNITIES WITHIN HOT SPRINGS NATIONAL PARK, ARKANSAS I.

The vegetation within Hot Springs National Park consists of varied forest communities (Dale, E. E., Jr., and M. R. Watts 1980. Vegetation of Hot Springs National Park, Arkansas. Prep. for S.W. Region National Park Service, U.S. Dept. Interior). These communities include mesic stands of upland hardwood, xeric pine-oak-hickory stands, oak-hickory-pine stands which are subtypes on the xeric side, and short-leaf pine-white oak stands which are subtypes on the mesic side. The most mesic types within the park, however, are the mixed forest types in the upland ravines. In this study, field work included variable-point sampling of these forest stands along the forest trails within the park so that the stands could be compared with the work done by Dale and Watts.

Sampling techniques for the microcommunities of lichens and bryophytes varied among sites, but always included collections from rocks, soil, fallen logs, and standing trees. A total of almost 1800 collections was made during the summer and fall of 1981. Identification of these samples is nearing completion.

The present study has identified 49 mosses and 66 lichens from within the boundaries of Hot Springs National Park. Previous studies within the park had included only species of mosses (Lowe, R. L. 1919. Collecting in Arkansas. The Bryologist 22[1]:14-15; Scully, F. J. 1941. The Mosses of Hot Springs National Park and Vicinity. The Bryologist 44[5]:125-128). New state records from this study include two liverworts: *Jamesoniella autumnalis* in the Jungermanniaceae and *Calypogeja muelleriana* in the Calypogejaceae; one moss: *Anacamptodon splachnoides* in the Fabroniaceae; and one lichen: *Coccocarpia palmicola* in the Coccocarpiaceae.

This research was supported by a grant from the Hot Springs National Park Service and was facilitated by a sabbatical semester for the senior author in the fall of 1981 from the University of Central Arkansas.

JEWEL E. MOORE, *Biology Department, University of Central Arkansas, Conway, AR 72032, and STEVE L. TIMME, Department of Botany and Bacteriology, University of Arkansas, Fayetteville, AR 72701.*

CURATORIAL NOTES FROM THE CRYPTOGAMIC HERBARIUM AT THE UNIVERSITY OF CENTRAL ARKANSAS

The Cryptogamic Herbarium at the University of Central Arkansas, Conway, is used for teaching and research and has been selected by officers of the Arkansas Mycological Society to house voucher specimens for Arkansas mushrooms collected by A M S members. These fungi are thoroughly dried and placed in clear plastic, zip-lock bags which can easily be sealed and reopened; complete labels for each are placed in/on the bags. These have been filed in the herbarium according to the checklist of mushrooms being published in Arkansas Biota, 1983 (No.37). It has been helpful to eliminate larvae and adult beetles found in some of the persistent fungi and fleshy mushrooms by a short treatment in the microwave oven before the drying is completed in the conventional laboratory oven. The microwave oven treatment usually kills the larvae and the adults will leave the specimen.

Lichens and bryophytes are often packaged in clear, plastic packets and are fastened to herbarium sheets, with the label immediately under the plastic packet. Others are packaged in the traditional manner, with complete label on the outside of the paper packet. Packets are then glued to standard herbarium sheets and placed in folders for protection. Still other specimens are housed in the conventional small boxes. The Flora A. Haas liverwort-hornwort collection remains in the box in which she kept it. Her collection does not contain any Arkansas specimens but is still a valuable addition to the herbarium. Collections she had of Arkansas bryophytes were discarded (due to no identification label being placed on the large box in which it had been stored) in a clean-up of the department about 1955. The Haas collection includes specimens collected by L. W. Underwood, W. A. Evans, C. C. Hayes, and Nellie Fosdick dating from 1888 to 1919. However, the earliest collection was a leafy liverwort collected in Cuba in 1879. Places of collection include Puerto Rico, Hawaii, Cuba, Jamaica, California, Florida, New Hampshire, and several other states.

An important addition to the vascular cryptogam section of the herbarium is the collection of Pteridophyta made by the late Aileen McWilliam of Mena, Arkansas. Some of her specimen sheets of Arkansas ferns indicate sites where the ferns can no longer be found, because the habitats have been so thoroughly changed (Moore, J. E. 1982).

In addition to the storage of specimens for study, it is part of the function of the herbarium curator to publish checklists of plants for the region served. In this respect, checklists of Arkansas lichens (1981), hornworts and liverworts (1983), and mushrooms (1983) have been published in the Arkansas Biota under the auspices of the UCA Cryptogamic Herbarium (Nos. 30, 36, and 37). The checklist of Arkansas mosses will be published in 1984. The checklist of Arkansas Pteridophytes by Dwight M. Moore was published in the Arkansas Biota in 1977 (No. 1).

Distribution maps for specimens in the herbarium are placed within each folder. Reprints of articles dealing with the Arkansas plants are available in the herbarium library.

LITERATURE CITED

- JUSTICE, J., E. NELSON, and J. E. MOORE. 1983. Checklist of the Mushrooms of Arkansas. Ark. Acad. of Science. Ark. Biota Survey Checklist No. 37. 9 pp.
- MOORE, D. M. 1977. Checklist of Arkansas Pteridophytes. Ark. Acad. of Sci., Ark. Biota Survey Checklist No. 1. 3 pp.

General Notes

MOORE, J. E. 1981. Checklist of Lichens of Arkansas. Ark. Acad. of Sci., Ark. Biota Survey Checklist No. 30. 15 pp.

MOORE, J. E. 1981. Key to Arkansas Lichens. Available from Cryptogamic Herbarium, Univ. Central Ark., Conway.

MOORE, J. E. 1982. The Ferns of Arkansas. Available from Cryptogamic Herbarium, Univ. Central Ark., Conway.

MOORE, J. E., and E. B. WITTLAKE. 1983. Checklist of Hornworts and Liverworts of Arkansas. Ark. Acad. of Sci., Ark. Biota Survey Checklist No. 36. 7 pp.

JEWEL E. MOORE, *Biology Department, University of Central Arkansas, Conway, AR 72032.*

THE DEVELOPMENT OF TISSUE CULTURE SYSTEMS FOR THE EVALUATION OF CANCER CHEMOTHERAPEUTIC AGENTS

The use of tissue culture (TC), especially in tandem with *in vivo* systems, has certain potential advantages in the evaluation of cancer chemotherapeutic agents (CCA). First, much of the data produced by *in vivo* systems can be derived from TC. Second, TC is in the long run potentially less expensive than *in vivo* systems. Third, certain data derived from TC systems appear to point the way to more correct dosage regimens for 5-fluorouracil, which has apparently been used incorrectly for years (Calabro-Jones et al., *Cancer Res.* 42:4413-4420, 1982). Fourth, the potential exists that cultures of human tumors may in the future be useful in the determination of the sensitivity of these tumors to certain CCA or combinations thereof. Finally, TC techniques interphase with certain important current techniques; i.e., monoclonal antibody production, targeted cancer chemotherapy and genetic engineering. The material presented here is a preliminary study of the effects of Cisplatin and one of its isomers on the cell line 253-J, a human multiple transitional cell carcinoma derived from the urinary tract by Elliot (Elliot et al., *J. Natl. Cancer Inst.*, 53:1341-1349, 1974). Cells were obtained from Dr. Ralph Clayman, University of Minnesota; Department of Urologic Surgery, Minneapolis, Minnesota.

Stock cell cultures were grown at 37°C as monolayers in 75cm² tissue culture flasks containing RPMI 1640 medium (Grand Island Biological Co., Grand Island, New York), supplemented with 15% newborn calf serum, 10% tryptose phosphate broth, 0.3 units/ml of bovine insulin, 5 μM glutamine, and 100 units/ml each of penicillin and streptomycin. For experiments, 2.0-5.0 x 10⁶ cells/25 sq cm flask were seeded into the completed growth medium and incubated at 37°C for 16-24 hrs before the start of an experiment.

In drug experiments, stock solutions (500 mM) of the platinum compounds obtained from the National Cancer Institute, were prepared in complete growth medium by stirring the mixture at 37°C for 30 min. The culture medium was removed from the flasks before treatment and the cells were treated at 37°C for 2 hrs by adding the appropriate concentration of drug in 5.0 ml of complete growth medium. The drug treatment was terminated by the removal of the drug containing medium. The cells were washed once with Puck's Saline A followed by the addition of fresh medium to the cultures.

Growth studies were carried out in the following manner: Asynchronous cells were treated with the platinum compounds during the exponential phase of growth and were allowed to proliferate for at least 3 population doublings after drug treatment. Cells were harvested by trypsinization with a solution of 0.25% trypsin and 0.02% sodium EDTA in calcium and magnesium free Puck's Saline A, and counted in a Model ZBI Coulter Counter (Coulter Electronics, Hialeah, Florida). The inhibition of growth was measured by calculating the ratio between the number of cells in treated cultures and those in the untreated cultures run in parallel.

The cell doubling time was determined beginning 16-24 hrs after plating. An initial count was taken to determine the zero time point. Thereafter, cell counts were taken at 24 hr intervals over a period of 5-6 days.

The growth kinetics of 253-J cells are presented in Figure 1. The effect of the addition of increasing concentrations of Cisplatin isomers is presented in Figure 2. The effects of the Cisplatin isomers are similar to those obtained by other researchers with different cell lines (Drewinko, et al., *Cancer Res.*, 33:3091, 1973; Zwelling, et al., *Cancer Res.*, 39:365-369, 1979). These curves appear to be simple exponential types which

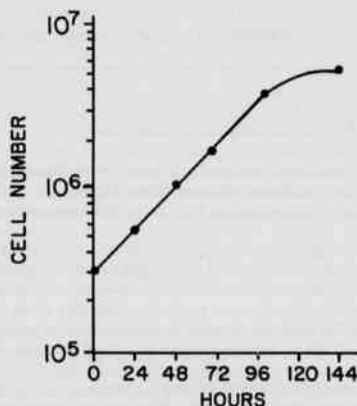


Figure 1. Growth of 253-J cells. Cells seeded into complete growth medium 16-24 hrs before the initiation of experiment. Counts were determined at 24-hr intervals over a period of six days. Each measurement was in duplicate. This figure is the result of three experiments.

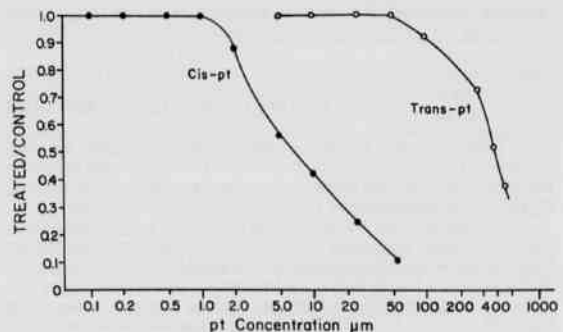


Figure 2. The effect of Cis- and Trans-Dichloroammineplatinum II upon the proliferation of 253-J cells. Asynchronous cells in the exponential growth phase were treated for 2 hrs at 37°C with increasing drug concentrations. The rest of the protocol is found under methods. Each measurement was done in triplicate and the results are the mean of three experiments.