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Fay Kenoyer Daily

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Recommended Citation
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Butler University
Botanical Studies
(1929-1964)

Edited by

J. E. Potzger
The Butler University Botanical Studies journal was published by the Botany Department of Butler University, Indianapolis, Indiana, from 1929 to 1964. The scientific journal featured original papers primarily on plant ecology, taxonomy, and microbiology. The papers contain valuable historical studies, especially floristic surveys that document Indiana’s vegetation in past decades. Authors were Butler faculty, current and former master’s degree students and undergraduates, and other Indiana botanists. The journal was started by Stanley Cain, noted conservation biologist, and edited through most of its years of production by Ray C. Friesner, Butler’s first botanist and founder of the department in 1919. The journal was distributed to learned societies and libraries through exchange.

During the years of the journal’s publication, the Butler University Botany Department had an active program of research and student training. 201 bachelor’s degrees and 75 master’s degrees in Botany were conferred during this period. Thirty-five of these graduates went on to earn doctorates at other institutions.

The Botany Department attracted many notable faculty members and students. Distinguished faculty, in addition to Cain and Friesner, included John E. Potzger, a forest ecologist and palynologist, Willard Nelson Clute, co-founder of the American Fern Society, Marion T. Hall, former director of the Morton Arboretum, C. Mervin Palmer, Rex Webster, and John Pelton. Some of the former undergraduate and master’s students who made active contributions to the fields of botany and ecology include Dwight. W. Billings, Fay Kenoyer Daily, William A. Daily, Rexford Daudenmire, Francis Hueber, Frank McCormick, Scott McCoy, Robert Petty, Potzger, Helene Starcs, and Theodore Sperry. Cain, Daubenmire, Potzger, and Billings served as Presidents of the Ecological Society of America.

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A RARE TOLYPELLA NEW TO THE UNITED STATES OF AMERICA

By Fay Kenoyer Daily

In a small lake near Laramie, Wyoming, Dr. C. L. Porter of the University of Wyoming collected a variety of Tolypella hispanica Nordst., a rare dioecious species new to the United States of America. This is the only dioecious species of Tolypella reported so far, having been found in the north temperate region of Europe, Asia and North Africa.

The collection of Tolypella hispanica from Wyoming is considered sufficiently different from the holotype of the species and the var. microcephala to establish a new variety Tolypella hispanica var. Porteri named after Dr. C. L. Porter who found it. A characterization is given below:

Tolypella hispanica var. Porteri nov. var.
Plate I, Figs. 2-7; Plate II, Figs. 6-11

Varietas a typo potissimum habito miniore condenso; ultimis segmentis fertillium ramulatorum usualiter inflatioribus ad basis; ultimis cellulis ultimorum segmentorum allantoideis sed breviaribus et cum miniore diametro; nuclei cum 5-6 prominentibus gyratis, ca. 285-315 µ longis, ca. 210 µ crassis; antheridiis ad 1050 µ in diametro.

A variation from the type especially by the smaller, condensed habit; terminal rays of the fertile branchlets inflated at the bases; ultimate cells of the terminal rays allantoid but shorter and with smaller diameters; nuclei with 5-6 prominent spirals, about 285-315 µ long, about 210 µ wide; antheridia to 1050 µ in diameter.

A complementary diagnosis follows:

Dioecious. Male and female plants similar, variable, but male usually somewhat smaller and compact, up to 4 cm. in height. Stem ca. 633 µ in diameter. Fertile branchlets of varying size, once-divided with usually 3 lateral rays of ca. 3 cells and a terminal ray of ca. 3 cells. Sterile branchlets of varying size, simple, usually of ca. 3 or 4 cells. Oogonia clustered at the fundus of the verticil and
at the branchlet node, enveloping cells inflated at maturity. Coronulae of oogonia deciduous, upper cells 30 \( \mu \) high, lower cells 20 \( \mu \). Oospores red-brown. Outer colored oospore membrane with scattered large granules up to 5 \( \mu \) in diameter on a background of smaller granules, superficially spongy at maturity. Antheridia clustered at the fundus of the verticil and at the node of the fertile branchlet, stalked.

Type specimen: Wyoming: Albany County: Forming rounded, cushion-like tufts in ca. 2 ft. of alkaline water in a small lake, 7 miles southwest of Laramie, 7,200 ft. altitude, C. L. Porter 6191, Aug. 25, 1952. (In the Butler University Herbarium and a duplicate at the Rocky Mountain Herbarium, University of Wyoming).

The holotype of Tolypella hispanica Nordst. (Plate I, Figs. 8-11; Plate II, Figs. 2-5) collected by Nilsson (No. 27) in Spain may not be as mature as the Porter collection as the oospores are much more difficult to dissect from the enveloping cells. The oospores are brown with the membrane showing little sponginess, and the oogonia show less inflation of the enveloping cells. These differences could be due to lack of maturity. Some plants attain 10 cm. in height although other plants are smaller than this approaching the stature of Var. Porteri. The branchlets are somewhat more uniform in size at a verticil. The ultimate rays of the branchlets taper more gradually to the tip. To some extent, there is less crowding and condensing of the verticils although some differences in these respects are seen among plants of the holotype.

Tolypella hispanica var. microcephala Nordst. (Plate I, Fig. 1) seems similar to the type except for the small fruiting heads, and larger oospores (oospores up to ca. 250 \( \mu \) long in the type, but up to ca. 300 \( \mu \) long in var. microcephala). The oospores in this variety do not seem to reach the size for var. Porteri and the antheridia are not as large. The inflation of the basal cell of the ultimate ray is not seen in this variety either, as it is in variety Porteri.

Further collection of this species will undoubtedly show much intergradation between the type and the varieties now established, if one can judge from the diversity of individuals within a collection and from the difference of branchlets in a single whorl. However, the establishment of var. Porteri seems justified at this time upon the basis of the above observations and according to the present knowledge and arrangement of the species.
ACKNOWLEDGMENTS

The author wishes to acknowledge the kind cooperation of Dr. C. L. Porter, the Rocky Mountain Herbarium, University of Wyoming, Laramie; Dr. Henning Horn af Rantzien, Riksmuseets, Stockholm, Sweden; Dr. Tycho Norlindh, Universitets Botaniska Museum, Lund, Sweden; and Dr. L. Faurel, Laboratoire de Botanique de la Faculte des Sciences, Universite de Alger, Algeria.

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