

## NEW FORMS OF OEDOGONIUM\*

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Some algal collections made from lakes in the vicinity of Akron, Ohio, in the summer of 1920 contained a species and a variety of *Oedogonium* apparently undescribed. In accordance with the rules of the Vienna Congress a Latin and an English diagnosis of each is given.

### *Oedogonium exocostatum* nov. sp.

*Oedogonium* dioicum; macrandrium; oogoniis singulis vel binis, ellipsoideis vel globoso-ellipsoideis, rarius terminalis; poro superiore apertis; oosporis eadem forma ac oogoniis, hæc plane complentibus, membrana duplici; episporio longitudinaliter costato (in sectione optica transversali undulato), costis integris, raro anastomosantibus, in medio oosporae circa 13-15, endosporio lævi; cellulis suffultoriis tumidis; plantis masculis paululo gracilioribus quam femineis; antheridiis 3-7 cellularibus; spermatozoidis binis, divisione horizontalis; cellula filii basali forma, ut vulgo elongata;

Crassit. cell. veg. plant. fem. (13-)	18-25 $\mu$ altit. 72-140 $\mu$
Crassit. cell. veg. plant. masc. (13-)	16-20 $\mu$ altit. 48-100 $\mu$
Crassit. cell. suff.	22-30 $\mu$ altit. 60-90 $\mu$
Crassit. oog.	40-52 $\mu$ altit. 68-96 $\mu$
Crassit. oos.	38-41 $\mu$ altit. 60-68 $\mu$
Crassit. cell. antherid.	12-16 $\mu$ altit. 7-12 $\mu$

Dioecious, macrandrous, oogonia single or often two, ellipsoid to ellipsoid-globose, occasionally terminal, pore superior; oospores of the same form as the oogonia which they very nearly completely fill, membrane double; the outer spore wall marked by 13-15 longitudinal ribs, inner wall smooth; suffultory cells swollen; male filaments a little more slender than the female, antheridia 3-7 celled, sperms two, division horizontal; basal cells elongate.

Diam. veg. cells, female plant (13-)	18-25 $\mu$ length 72-140 $\mu$
Diam. veg. cells, male plant (13-)	16-20 $\mu$ length 48-100 $\mu$
Diam. suffultory cells	22-30 $\mu$ length 60-90 $\mu$
Diam. oogonia	40-52 $\mu$ length 68-96 $\mu$
Diam. oospores	38-41 $\mu$ length 60-68 $\mu$
Diam. antheridial cells	12-16 $\mu$ length 7-12 $\mu$

\* Papers from the Department of Botany, Ohio State University, No. 128.

In appearance this species is near *Oedogonium cyathigerum* Wittr. It differs, however, in being macrandrous, in having a smaller number of ribs, and in having the ribs on the outer wall instead of the inner wall of the oospore. It is easily distinguished from *Oedogonium crenulato-costatum* Wittr. by its swollen suffultory cells, its spore markings, and its larger dimensions throughout. Among the operculate species it bears some resemblance to *Oedogonium pauco-costatum* Transeau.

Found rather abundant in Dollar Lake and Summit Lake, near Akron, Ohio, August, 1920. Type in L. H. T. collections, Nos. 196, 198. Plate I, Fig. A-F.

***Oedogonium pauco-costatum* Transeau var. *gracilis* nov. var.**

Var. omnibus partibus gracilior; oosporis ellipsoideis vel globoso-ellipsoideis, oogonia fere complentibus vel non complentibus; ceterum ut in typo;

Crassit. cell. veg.	15-20 $\mu$ altit. 66-120 $\mu$
Crassit. oog.	48-52 $\mu$ altit. 70-88 $\mu$
Crassit. oos.	44-48 $\mu$ altit. 60-70 $\mu$
Crassit. cell. antherid.	17-20 $\mu$ altit. 8-12 $\mu$

Somewhat smaller than the species; the oospore is ellipsoid or occasionally globose-ellipsoid, completely filling the oogonia or not filling the oogonia; otherwise similar to the type;

Diam. veg. cells	15-20 $\mu$ length 66-120 $\mu$
Diam. oogonia	48-52 $\mu$ length 70-88 $\mu$
Diam. oospore	44-48 $\mu$ length 60-70 $\mu$
Diam. antheridial cells	17-20 $\mu$ length 8-12 $\mu$

This variety bears some resemblance to *Oedogonium Australianum* Hirn. It differs, however, in having largely elliptical oospores, in the similarity of the vegetative cells of the male and female filaments, and in the smaller number of ribs on the median spore walls. It seems most closely related to *Oedogonium pauco-costatum* Transeau in its general habit of growth. It was found associated with *Oedogonium taphrosporium* Nordst. and Hirn.

Collected at Turkeyfoot Lake near Akron, Ohio, August, 1920. Type in L. H. T. collections Nos. 177, 182.

## EXPLANATION OF PLATE.

Figures A-F *Oedogonium exocostatum* nov. sp.

- A—Female filament with two oogonia and two oospores, one of the latter immature.
- B—Elongated basal cell, showing habit of attachment.
- C—Female filament, showing terminal oogonium with mature oospore.
- D—Female filament with oogonium, oospore mature.
- E—Male filament with antheridia containing sperms.
- F—Portion of vegetative filament showing variability in cell diameter and elongation. Camera lucida drawings.

