A NEW SPECIES OF *CYLINDROCAPSA* FROM INDIA.

*Cylindrocapsa oedogonioides* sp. nov.

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Received September 4, 1935.

(Communicated by Dr. H. Chaudhuri, M.A., Ph.D.)

This very rare alga was found entangled in the filaments of a species of *Oedogonium*, which was growing epiphytically on the blades of *Typha* plants in Shahniwala Tank at Dasuya, Punjab, during the months of March and April, 1930 and 1931. During March only sterile filaments were seen, but by the last week of April, some filaments developed oogonia, antheridia, and oospores. So far as the author knows there has been no record of any species of the rather uncommon genus *Cylindrocapsa* from India. Possibly this is due to the habit of the alga, for even where it occurs it is found in such a scattered condition that after a long search under the microscope one may be lucky enough to spot a filament or so.

The filaments are unbranched and consist of a single row of more or less sub-rectangular cells, which are enclosed within a lamellose sheath, as in *Cylindrocapsa conferta* West. But the cells of this alga differ from those of *C. conferta* in having two small pyrenoids at the opposite ends of the cells (Figs. 1 and 2), instead of a single massive pyrenoid as in the former. There is a single massive chloroplast, which is parietal in position, and presents a more or less granular appearance. In most of the cells a dumb-bell shaped nucleus may be seen in the middle surrounded by two pyrenoids at the sides (Figs. 2 and 4). Vegetative cells are 18–20 µ broad, and 12–28 µ long, being considerably narrower than those of *C. conferta*.

Reproduction.

This alga is characterised by the presence of a well-developed oogamy. Of the species so far known, sexual reproduction has been worked out only in *C. involuta* Reinsch. In the present form the method of reproduction and the sex organs differ from that of *Cylindrocapsa involuta* in many details. The filaments may be monococious; the antheridia and oogonia developing in the same filament, or dioecious, in which case the male and female sex organs develop on different filaments.

*Antheridia.*—The antheridia are produced by division of certain cells, which may be distinguished from the normal vegetative cells by their much 408
smaller size (Figs. 2a and 5a). In one filament rows of empty cells were seen alternating with rows of enlarged cells (Fig. 4). Probably these represent antheridial cells out of which sperms have escaped.

**Oogonia.**—The oogonia develop from ordinary vegetative cells, which become oval in shape, and increase considerably in size. Sometimes whole rows of cells in some filaments become converted into oogonia (Fig. 3), and such filaments show constrictions in the sheath, which makes the alga look like an enlarged *Anabena*. The oogonia are 44–56 μ broad and 60–70 μ long. No lateral pore was observed in any of the oogonia. There is a single ovum in each oogonium, which is produced by the contraction of the protoplasm, and this results in a considerable empty space in the oogonia. The
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oospores are 28 μ in diameter, being considerably smaller as compared with those of *C. involuta*, and are surrounded by a thick hyaline wall (Figs. 6 and 7). In one instance the oospore was seen divided into two cells (Fig. 7, o). The filaments with mature oogonia, containing oospores, do not look very much different from the filaments of *Oedogonium*, and hence the specific name *cedogonioides*. The lateral sides of the mature oogonia do not show any lamellation as in *C. involuta*.

*Cylindrocapsa cedogonioides*, sp. nov.

Vegetative cells 18–20 μ broad, 12–28 μ long, rectangular or sub-rectangular in shape, enclosed in a lamellose sheath. A single massive chloroplast parietal in position, with two small pyrenoids in each. Oogonia 44–56 μ broad, 60–70 μ long, inflated, with no lamellae at the sides. Oospores 28 μ broad with a thick mucilaginous hyaline sheath.

Habit.—Found mixed with filaments of a species of *Oedogonium* growing epiphytically on *Typha* blades in Shahniwala Tank, Dasuya, district Hoshiarpore, Punjab, during March and April, 1930 and 1931.

LITERATURE CITED.


EXPLANATION OF FIGURES.

Figs. 1–7.—*Cylindrocapsa cedogonioides*, sp. nov.

Fig. 1.—A vegetative filament showing cells with two pyrenoids in each. × 660.

Fig. 2.—A filament showing active division of some cells developing later into antheridia (a), and enlargement of other cells developing into oogonia (o). × 660.

Fig. 3.—A filament showing a chain of female cells which later develop into oogonia.

Fig. 4.—A filament showing some empty cells. × 660.

Fig. 5.—A portion of a filament showing antheridial cells (a), and two oogonia. × 660.

Fig. 6.—A mature filament showing an oogonium with an oospore. × 660.

Fig. 7.—A filament showing three oogonia with oospores. × 660.