

A Note on Cyst-Formation in *Protosiphon botryoides* (Kutz.) Klebs.

THIS alga was collected from Bodal, District Hoshiarpur, Panjab, where it appeared in great abundance in fields lying fallow after the rains in October 1929. Patches of soil, often many yards in diameter, appeared like bright green carpets from a distance. The alga has a globular aerial portion with

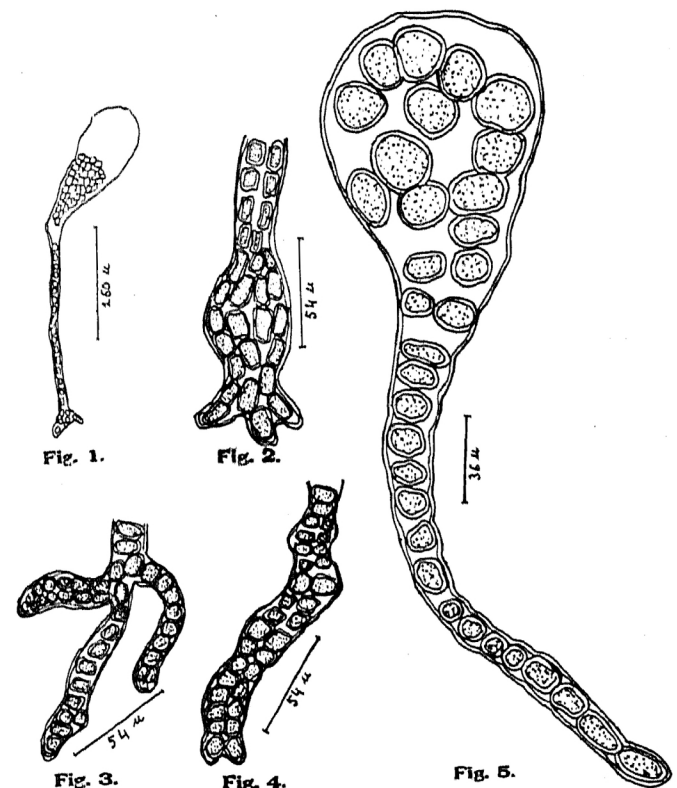


Fig. 1. An adult plant with cysts.

Fig. 2. A slightly branching rhizoid with swelling near the dichotomy.

Fig. 3. A clearly branching rhizoid.

Fig. 4. Biseriate cysts.

Fig. 5. A plant with mature cysts.

reticulate chloroplasts and numerous pyrenoids. The average size of the vesicle is about 130μ . The rhizoidal part is usually unbranched but in some cases it shows a clear dichotomy at the lower portion (Figs. 1-3).

A peculiar type of cyst-formation was observed in this alga. The process takes place simultaneously in the rhizoidal and aerial portions, the protoplasm being divided profusely into a number of rounded pieces and extensive wall-formation taking place. The result is the production of a number of red cysts, $18-20\mu$ in diameter and with granular contents and thick lamellated walls (Fig. 5) which are very different from those figured by Oltmanns (Oltmanns 1904, p. 178, fig. 110) and Brunnthaler (Brunnthaler 1915, p. 87, fig. 45). In some cases the whole of the globular aerial portion is filled with cysts, and usually the cysts occur in a single row in the rhizoidal portion (Fig. 5), but two or even three irregular rows of cysts

in this part are not uncommon (Figs. 2 & 4). The cysts are rounded in the aerial portion and rectangular in the rhizoidal portion due to compression of the rhizoidal walls. Very often the lower portion of certain rhizoids becomes distinctly swollen and has 3-4 series of cysts inside (Fig. 3). The peculiarity in cyst-formation, therefore, consists in the occasional multiseriate nature of the cysts, which is sometimes accompanied by a clear swelling near the dichotomy.

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