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Record of *Myxosarcina concinna (Cyanophyceae)* from a New Habitat

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Morphology and reproduction of *Myxosarcina concinna* Printz. collected from fresh water habitat are presented. Its successive stages of growth and life history were investigated in culture under laboratory conditions.

Key Words - Life history Morphology Nannocyte Reproduction Water

Myxosarcina concinna Printz. was for the first time described by Printz (Desikachary 1959). Later its occurrence was reported from Kanyakumari in India by Venkataram (1957). We collected the alga in October 1983 from a calcarous stone near the statue of Shiva in Anand Bhawan, Allahabad. This epilithic alga grew and formed a crustaceous mass (Fig.1,P1.1). The following description of the alga incorporates the structure and stages of the life-cycle. Under high magnifications, cells of the alga are disposed one over the other in a three dimensioned plane. Usually cells present a filamentous appearance but less commonly they are found invertical and transverse direction (P1.1 2.). Thalli are spherical or rounded 2-3 pm in diameter without sheath , 3-5-4 μm in diameter with sheath. Sheath is thin hyaline and indistinct. Content of the cells is homogeneous and blue-green. The alga reproduces either by vegetative division or by formation of endospores.

Cells divide vegetatively in one or more planes i.e. (Fig.2; P1.1-3). When a single cell divides at one plane it results in two cells. The next division is either vertical or transverse giving rise to four cells (Fig.3-8). Later, due to a series of three dimensional divisions a cubical blastoparenchymatous colony is formed (p1.1 4). Colonies consist of 8-12-64 (or more) cells with cells compactly arranged in a linear or radical direction (Figs.9-19). The size of colonies varies from 10-20 μm in diameter which become oval or rounded and are surrounded by an indistinct common mucilage sheath. Segments of colonies also acquire the size and characteristic shapes and develop sheath around them.

Thalli also reproduce asexually by formation of endospores in two ways. Any vegetative cell could produce either a single endospore or a number of endospores i.e. nannocytes. Usually a single endospore is produced within a cell and such a cell behaves like an endosporangium. Protoplast of endosporangia gets transformed into naked protoplasmic mass which gets discharged by rupture of the endosporangial wall at one or two points (P1.1.5). Endospore at the time of liberation is devoid of a sheath but acquires its own sheath during further development of thallus.

Formation of nannocytes takes place by repeated divisions of a normal cell. The endosporangium becomes enlarged and the protoplasmic mass divides successively to form 6-8 (or more) nannocytes and nanno spores (Text-Fig.20). A single nannospore is a small spherical and naked body of protoplast, 1-1.5 μ in diameter and pale blue-green in colour. It may germinate 'in situ' and develop a new thallus.

DISCUSSION *M.concinna* agrees well with the type species in diameter and in all essential morphological characters. Species *M.concinna* is distinguished from its allied species i.e. *M.burmensis* Skuja because of the large diameter of cells and their dense packing in cubical colonies. *M.concinna* was earlier recorded from a marine habitat by Printz (Geitler 1932) and Venkataram (1957). We have collected the alga from a fresh water habitat.

Our study confirms its taxonomic status and supports the view of Printz (1921) that it is a distinct and valid species.

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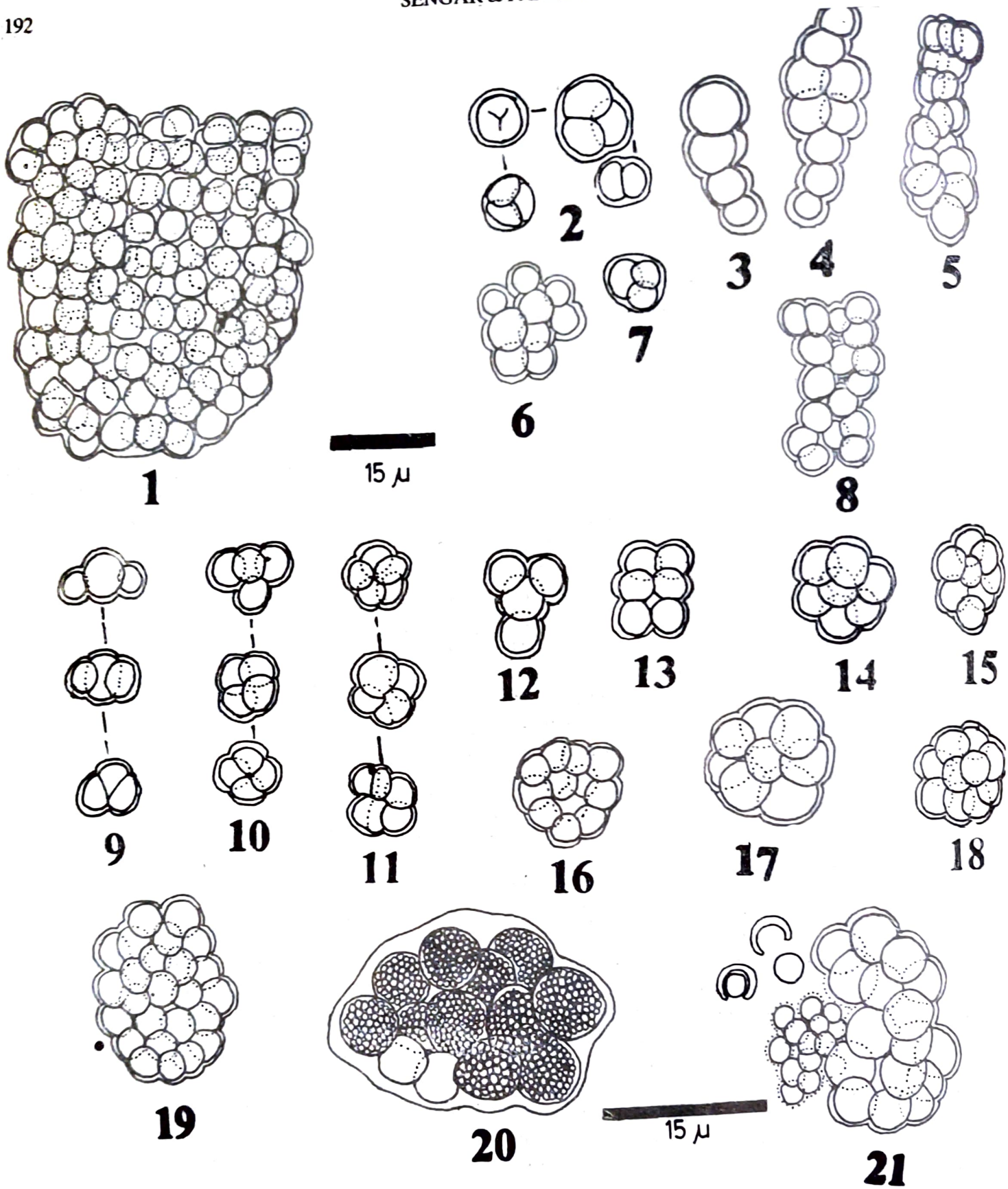

Fig.1 Transverse and vertical arrangement of cells.
Fig.2 Vegetative cell division.
Figs3-8. Transverse division forming pseudofilaments.
Figs.9-19. Divisions in different planes forming rounded colonies.
Fig. 20. Formation and development of nannocytes.
Fig. 21. Formation and liberation of spores.

Plate.1.1. A crustaceous mass of the cells of *M.concinna* .X 250

1.2. Transverse and vertical arrangement of cells x 750.

1.3. Pseudoparenchymatous habit forming pseudofilaments x 1250.

1·4. Three dimensional compact cubical colonies x 1000.

1·5. Liberation of endospores from endosporangium x 1400.