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Diversity of Oscillatoriaceae in some chours (water reservoirs) of Supaul district

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Abstract : pH value and organic waste increases in summer season in different chours which favour the luxuriant growth of different species of Oscillatoriaceae during summer pH was recorded in between 8 to 9.20 which is most suitable for *Oscillatoria*, *Lyngbya* and *Phormidium*. Altogether 7 Species of *Oscillatoria*, 2 Species of *Phormidium* and 6 Species of *Lyngbya* were recorded.

Key words: Chours, organic waste, pH.

INTRODUCTION

Oscillatoriaceae in a family of Blue-green Algae growing as slender unbranched filament often tangled masses in water, Members of this family commonly exhibit oscillating movements. They reproduce only asexually by hormogonia. They grow in polluted water in which organic waste is present. Genus *Oscillatoria* is considered as pollution indicator.

River Kosi and its several tributaries pass through several villages of Supaul district. During Flood River water is deposited in low lands. These water reservoirs are locally known as Chours Water remain logged around the year in these chours, local people use these chours for fishing, bathing, washing cloths and cleaning their domestic animals. Organic waste gradually increases in these Chours which favour the luxuriant growth of Blue-green Algae particularly members of family Oscillatoriaceae.

MATERIAL AND METHOD

Algal samples were collected at regular intervals in Polythene bags and brought to laboratory. Samples were identified microscopically with the help of standard monograph. Camera Lucida diagram were drawn.

RESULT

Oscillatoria acutissima Kufferath, 1994

Trichoemes are solitary and scattered or loosely entangled in the mucilage of other algae, gradually tapering to the apex, which is curved or bent slightly. Apical cell is acute-conical with a calyptra. Cells 1.2-2 μ in diameter, 1½ to 3 times longer than wide; not constricted at the cross walls, which are not granular.

Oscillatoria agardhii Gomont, 1992a

Trichomes interwoven to form a blue-green plant mass; occasionally found floating free; straight throughout their entire length, briefly tapering at the anterior end, which is usually capitate, but frequently smooth. Apical cell is truncate-conical with or without a calyptra. Cells (3.4)-

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5.5-6 μ in diameter and not constricted at the cross, walls, which are granular; their length from $\frac{1}{2}$ to approximately equal their width (sometimes 1% times their width in length).

This species shows a great deal of variation in the morphology of the apex of the trichome. The straight interwoven filaments, the cell proportions, and the granular cross walls help to identify it.

***Oscillatoria amoena* (Kuetz.) Gomont, 1892a**

Trichomes usually forming a thin, submerged, weft-like, blue green mass, or sometimes scattered among other algae; usually straight but not rigid, slightly tapering toward the apex. Apical cell is broad capitate with a cone-shaped calyptra. Cell (2.5)-4-5/A in diameter, 2.5-4.2 μ long; usually slightly constricted at the cross walls, which are granular.

***Oscillatoria amphibia* C.A. Agardh, 1827**

Trichomes are straight or curved and interwoven to form thin, blue-green plant in mass on submerged objects or in moist aerial habitats; not tapering toward the apex. Apical cell is broadly rounded, smooth, with a convex outer membrane. Cells (1.5)-2-2.8-(4) μ in diameter, 2-4 times their diameter in length (4-8 μ); not constricted at the cross walls, which have a single large granule on either, side, a series of paired granules showing throughout the length of the trichome.

***Oscillatoria limosa* (Roth) C A Agardh, 1812**

Trichomes are usually forming a very dark blue-green or brownish plant mass attached to submerged objects or forming films on sandy bottoms. Although, rarely solitary or loosely entangled among filamentous algae; straight, tapering little or not at all toward the apex Apical cell rotund, the outer membrane thickened but without a definite calyptra Cells 12-18-(20) μ in diameter, 3.7-5 μ , long, not constricted at the cross walls, which are usually granular. Trichomes not infrequently enclosed in a homogenous sheath.

***Oscillatoria princeps* Vaucher, 1808**

Trichomes were solitary or loosely entangled to form small floating plant masses; which are black green in colour; individual plants.

***Oscillatoria splendida* Greville, 1824**

Trichomes are solitary and scattered, rarely aggregated in small, flake-like masses; straight or curved, tapering for a long distance to a fine hair at the apex. Apical cell is conical and capitate. Cells 2.2-2.8 μ in diameter, 7.2-9 μ long, not constricted at the cross walls; cell contents finely granular or homogeneous, pale blue-green.

***Phormidium mucicola* Naumann & Huber - Pestalozzi, 1929**

Filaments short, clustered or scattered in the mucilage, Sheaths thin, Trichomes parallel or scattered; up to 50 μ long; Cells quadrate 1.3-2 μ in diameter, 1.8-3 μ long; constricted at cross walls.

***Phormidium ambiguum* Comont 1892a**

Filaments forming a blue-green, mucilaginous layer; straight or gracefully curved, either parallel or somewhat entwined; individual sheaths usually distinct and lamellate but becoming confluent with the mucilage of the plant mass; trichomes curved or rarely straight at the apices, which are not tapering; apical, cell broadly rounded, not capitate, but with a thickened outer membrane, which may give a slightly pointed appearance; cells short, disc-like constricted at, the cross walls, 4-6 μ in diameter, 1.2-2.7 μ long; cell contents finally granular.

***Lyngbya aestuarii* (Mert.) Liebmann 1841**

Plants aggregated, entangled, forming extensive layers on merged substrates, or upon moist earth and stones, sometimes becoming free-floating. Filaments varying greatly in diameter, 10-261 μ wide Trichomes 8-20-(28) μ in diameter, tapering a little at the apices, which vary, in shape, conical, truncate, or somewhat capitate. Cells 2.5-5 μ in length, not constricted at the cross walls. Sheaths firm, becoming thickened, lamellose, and discolored with age.

***Lyngbya birgei* G.M. Smith, 1916**

Plants solitary, planktonic, scattered among water bloom Organisms; filaments straight, (18)-24-(25) μ in diameter; with many horinogona when aged; sheaths thick and firm, not lamellated, extending, far beyond the apices of, the trichomes, which are broadly rounded; trichome 20-24 μ in diameter, not constricted, at the cross walls; cells very short and disciform, 3-7 μ long.

***Lyngbya heironymusii* Lemmermanu, 1905**

Plants solitary, scattered among other algae or in littoral plankton. Trichomes straight and not tapering at the apices, which are broadly convex; 11-13 μ in diameter. Cells 1/5-1/3 as long as wide (2.7-4 μ long); usually with pseudovacuoles; not constricted at the cross walls, which are granular. Sheath rather thick, but homogeneous, not lamellose. Filaments (12)-14-19 μ wide.

***Lyngbya latissima* Prescott, 1944**

Plants solitary, planktonic, entangled among other floating algae, trichomes straight, not tapering toward the

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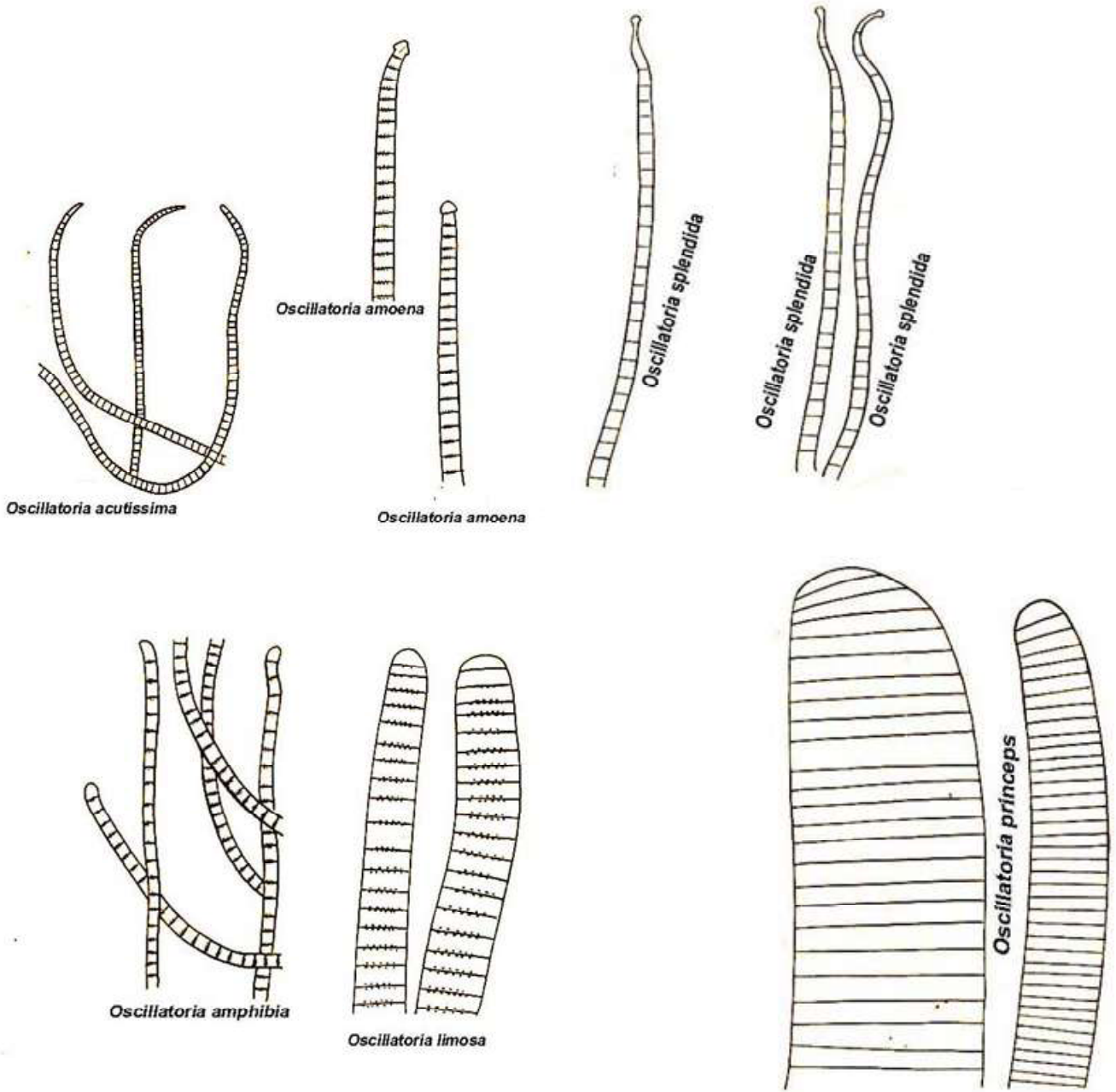
apices, cells disc-like, with contents finally and evenly granular (sometimes with coarse granules in old plants), 37-40.7 μ in diameter, 3.7-7.4 μ long; sheaths thick, 3.7-51 μ wide, lamellated, with outer layers wrinkled and roughened in age; filaments 44-58 μ in diameter.

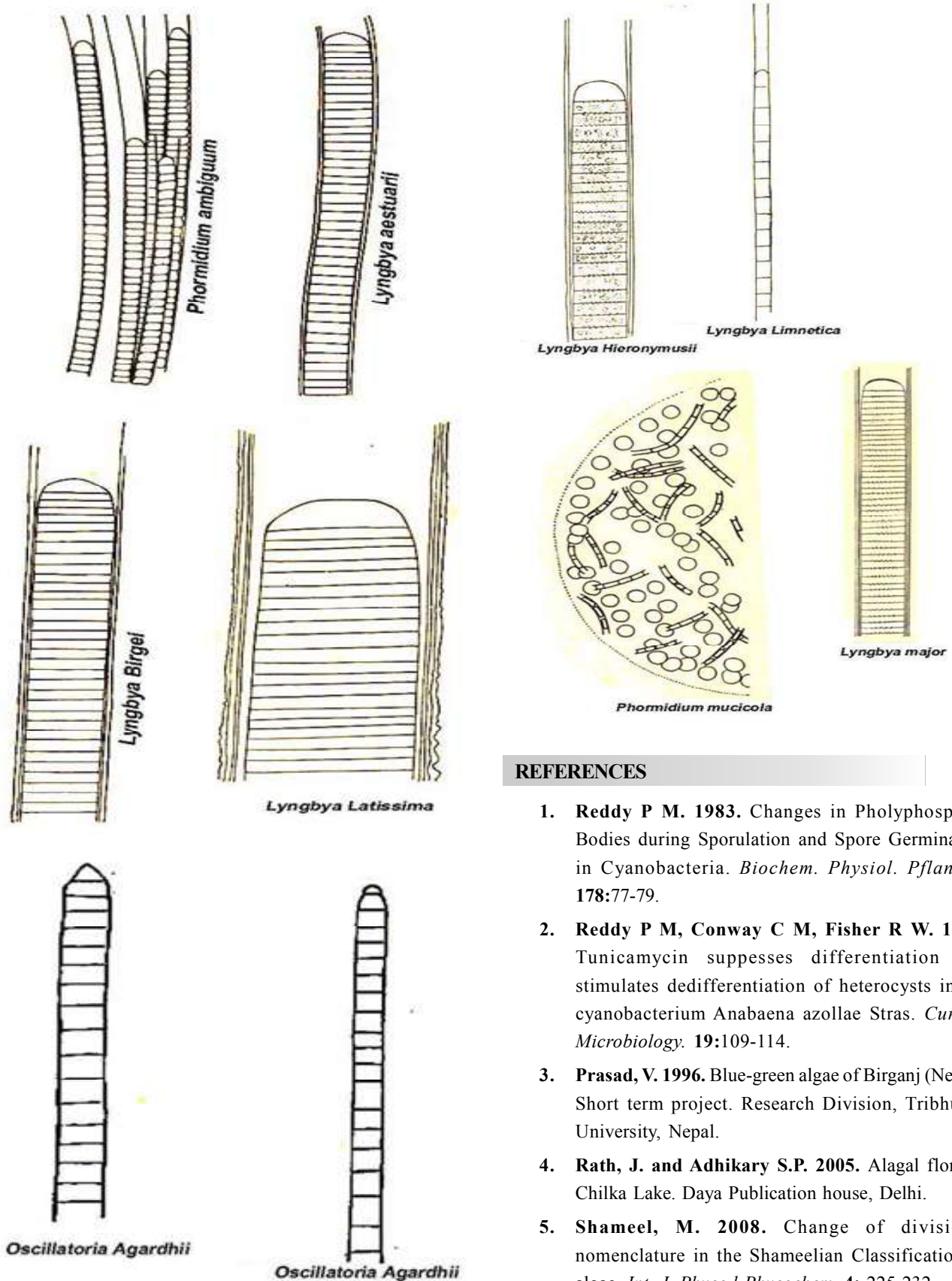
***Lyngbya limnetica* Lemmermann, 1898d**

Plants straight, solitary, planktonic; trichomes 1-2(2.5) μ in diameter, not tapering at the apices; cells 6-12 μ long, not constricted at the cross walls; cell contents coarsely granular; sheaths thin and colorless; filaments 2-2.2 μ wide.

***Lyngbya major* Meneghini, 1837**

Plants solitary among other algae, or somewhat gregarious, but not forming expansions or plant masses; filaments straight; trichomes not or but very slightly tapering to the apices, which are indistinctly capitate in older plants, 11-17 μ in diameter; cells 1/5-1/4 as long as wide, (2)-3.5-4 μ in length, not constricted at the cross walls, which are definitely granulose; cell contents homogeneously granular; sheaths; thick (3-3.7 μ), firm, and usually lamellated, becoming roughened in age; filament 22-26 μ in diameter.





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