



Review Of Research



INVESTIGATORY STUDY OF *CYANOBACTERIA* ALGAE FROM ISAPUR DAM OF YAVATMAL DISTRICT WITH REFERENCE TO MORPHOLOGICAL CHARACTERS

Kamble S. I.

Associate Professor and Head, Department Botany and Convener
Department of Seed Technology, Phulsing Naik Mahavidyalaya
Pusad, Dist. Yavatmal, Maharashtra State, INDIA.

ABSTRACT :

Isapur dam of Pusad taluka and Yavatmal district is well known for the storage of freshwater; day by day the soil level is increases at the bottom of the dam due to the soil and ingredients carrying by rain fall in the dam. These entire ingredients provide nutritive materials into dam which helps the unlimited growth of algal plants. In water also present chemical compounds like phosphorous, nitrogen etc. that helps to rapid growth of algal plants. Algae are economical important aquatic plants, its very common, widely spread and principal food of many aquatic animals.

Key words: *Algae, Cyanobacteria, morphological study and Isapur dam.*

INTRODUCTION

Isapur dam of taluka Pusad, district Yavatmal is situated near the geographical center of India in the Vidarbha

region of Maharashtra state on longitude 70, 7E and latitude 29, 9N, it is 307 meter high above the sea level. Climatically Yavatmal is tropical with summer season extending from March to June, rainy season from July to October and winter from November to February. The maximum temperature ranged from May to April up to 43 to 46°C and minimum 7 to 15°C during December to January.

Isapur damp district Yavatmal is situated

approximately 130 km away from the Yavatmal towards south by way to Pusad. For the enumeration of algae composite water and mud sample were collected from selected sites in dully sterilized labeled sampling bottles, for laboratory investigation the sample was preserved in 5 percent formalin and were identified using keys provided by Gonzalves and Joshi, 1946, Prescott, 1951; Tiffany and Britton, 1952 and Desikachary 1959.

For a detailed study of the algae and identification of the sample these preservation process is very important. Algae preserved in formalin solution (5% formaldehyde and 95% double distilled water). Just placed the algal material on the


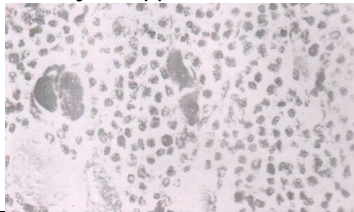

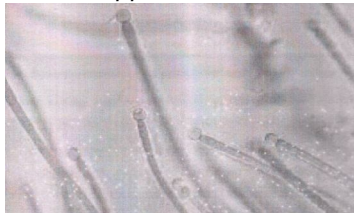


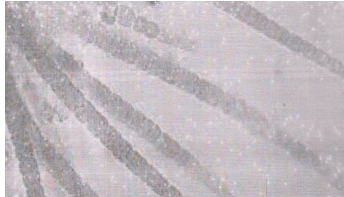


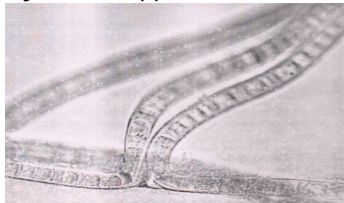



slides then mounted them with iodine solution and observed them under compound microscope at various magnifications and observations are recorded very carefully.

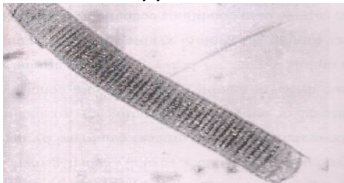
OBSERVATIONS AND DISCUSSION

In present investigatory study, algae collected from Isapur dam were observed under compound microscope. While observations total 42 genera are found which of 13 were belonged to class *Cyanobacteria* that are, *Gleocapsa*, *Micracystis*, *Nostoc*, *Anabena*, *Rivularia*, *Lyngbya*, *Phormidium*, *Scytonema*, *Stigonema*, *Cylindrospermum*, *Tolypotrix*, *Oscillatoria* etc. *Cyanophyceae (Cyanobacteria)*: *Cyanobacteria* are world wide distributed, spread over verities of habitats, that are, freshwater, soil, hot springs, eutropic lakes, paddy fields etc. *Cyanobacteria* constitute a fascinating group of photosynthetic organisms, may of which fix atmospheric nitrogen. They have gained special important in tropical rice cultivation as the rice fields provide ideal conditions for their growth. *Cyanobacteria* are also important in redacting soil erosion and increasing the organic content of the soil and probably in producing certain substance which enhance the growth of higher plants (Venkatarman *et al.* 1974). As cyanobacterial form a substantial from of the biomass in several important types of habitat. Collected algae were observed on the basis of their morphological characters following cyanobacterial members were observed.

Table: Cyanobacteria members

S. No.	Algal forms	Diagnostic characters
1	<p><i>Gleocapsa spp.</i></p> 	<p>Colony is spherical, irregular or expanded mass of mucilage and remains surrounded by a homogeneous to lamellate sheath. Cells are spherical when matured, the protoplast may be colored varying between gray, green, blue-green, yellowing, orange, reddish or violet and its sheath is vascular.</p>
2	<p><i>Microcystis spp.</i></p> 	<p>The cells are spherical or elongated surrounded by gelatinous matrix all together, species are mainly occurs in fresh water. Spherical bolls are gelatinous matrix; it grows in water reservoir making the water non portable as they leave some toxic substances.</p>
3	<p><i>Nostoc spp.</i></p> 	<p>Young colonies are microscopic in size, spherical in shape, solid. Colony envelope encloses many flexible filaments. Heterocyst intercalary and single trichomes spiral or twisted colonies form small blue green mucilaginous balls.</p>
4	<p><i>Rivularia spp.</i></p> 	<p>Thallus is colonial, colony enveloped by mucilaginous sheath. The base is characterized by a single heterocyst with single polar nodule (basal heterocyst), thichomes are commonly false branching.</p>

5	<p><i>Gloeotricha spp.</i></p> 	<p>They are found in colonial form in gelatinous sheath, every trichome surrounded by mucilage. The akinete is arranged above the basal heterocyst, these species are found in fresh water ponds immediately after rains. Elongated akinetes present at the base of trichome.</p>
6	<p><i>Lyngbya spp.</i></p> 	<p>Filaments are usually in cluster may be solitary, unbranched, cells are broader than long and terminal cell is dome shaped.</p>
7	<p><i>Phormidium spp.</i></p> 	<p>The genus is free floating or attached to substratum by lower end of trichomes. Filament grow in abundance forming a gelatinous or leathery stratum, they may be sometimes constricted at cross walls. More or less form sometimes partly diffluent thin and colorless sheath present around the trichome.</p>
8	<p><i>Scytonema spp.</i></p> 	<p>Filaments show false branching, branching arising in pairs, heterocyst show two shining granules. Cell structure typically cyanophycean, central part known as centroplast enclosed by peripheral pigments chromoplast.</p>
9	<p><i>Stigonema spp.</i></p> 	<p>The plant body is branched thallus with true branching enveloped in mucilage. Cells are spherical or rectangular with chromoplast and centroplast, heterocyst are formed in some species.</p>
10	<p><i>Cylindrospermum spp.</i></p> 	<p>It is freshwater and terrestrial algae, its distinguish feature is the presence of basal heterocyst with a single large adjoining spores or akinetes. Some species have ability to fix atmospheric nitrogen.</p>
11	<p><i>Tolypothrix spp.</i></p> 	<p>The false branches arise singly and immediately adjacent to heterocysts, these are always intercalary and may be solitary or in series of two to six. Cell structure typical Cyanophycean type, false branches immediately adjacent to heterocyst; it is solitary or in chain of two to six and sheath are narrow.</p>

12	<i>Oscillatoria spp.</i>  A micrograph showing a single, long, cylindrical filament of the cyanobacterium Oscillatoria. The filament is composed of many small, individual cells joined together. The cells are arranged in a regular, repeating pattern along the length of the filament. The filament is slightly curved and appears to have a textured surface.	The plant body is filamentous, the filaments are unbranched, uniseriate, each filament consist of a trichomes covered by gelatinous sheath. The colorless separation discs are present various places of the filament.
----	--	--

REFERENCES

- Desikachary 1959. Report, New Delhi ICAR, pp. 1686-1959.
- Gonzalves, E. A. and Joshi, D. B. 1946. Freshwater algae in a tank in Bandra. Journak Bombay Historical Society. 46, 154-176.
- Prescott, 1951. Report, "Algae as western great lake area publication." Cranbook institute of science bulletin, 30, 1-496.
- Tiffany, L. H, and Britton, M. E. 1952. The algae of Illinois, University of Chicago press, Chicago, pp. 406.
- Venkatarman, G. S., Goyal, S. K., Kaushik, B. D. and Roy Chaudhary, P. 1974. Book, "Algae forum and functions" today and tomorrow's printers and publisher. New Delhi, pp.562.