

Soil Algae from the Cultured Soil Samples of Manyad River, Maharashtra

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Abstract: The Manyad River is about 10 kms away from the Ahmadpur town. The water body has good number of fishes, aquatic animals and mostly consists of the members of Family Cyperaceae and Poaceae, there are also a good number of plants of Nymphaea, and they all give a beautiful view to river area. The present paper deals with the study of soil algae from the cultured soil samples of dam during March 2018 to February 2019. A total of 167 taxa under 51 genera were encountered.

Keywords: Isolation, soil algae, Manyad River

INTRODUCTION

Review of literature reveals that, studies on algal taxonomy in abroad and in India have been done extensively by many research workers. In Maharashtra tremendous work has been done on algal taxonomy by various workers. In Marathwada region of Maharashtra except few reports (Ashtekar 1980, Kamble 2008, Andhale 2008, Talekar 2009, Yadav 2010) very rare attention has been paid towards algal taxonomy, although the climatic conditions of Marathwada region are most suitable to grow algae luxuriantly and in diverse form. India has a very rich and diversified algal flora. In the present century great advances have been made in the investigation of fresh water algae, marine algae, atmospheric micro algae but very few workers Marathe (1967,1969), Patel (1973), Bhoge and Goyal (1985) and Ragothaman (2007) have paid attention on soil algae, to fulfill this lacuna present investigation was carried out.

MATERIALS AND METHODS

The soil samples were collected from the bank of the Manyad River area. The dried soil samples were collected in polythene bags in March 2018. The soil samples were taken from surface to the depth of 5cms. All the necessary precautions were taken while collecting the samples. Each soil sample was thoroughly mixed in the laboratory. Two grams of soil from each sample was used for preparing the cultures. Filtered dam water was used as culture media. Dam water was added to the cultures whenever it was necessary. The specimen bottles of 250-500cc capacity were used for the cultures. These cultures were maintained in a well-lighted window in the laboratory. The algae from these cultures were examined after three weeks and then preserved for the further study. The soil of the dam area is black clayey. The pH of the filtered river water (culture medium) was determined by B.D.H. universal indicator.

RESULTS AND DISCUSSION

The pH of the culture medium ranges between 8 to 9.5 (-10). It was found that algae appeared in all the cultures within 25-30 days after inoculation. After observations of these collections it was found that a total of 66 taxa under 24 genera were identified, of these 06 taxa under 04 genera were belonged to Chlorophyceae, 59 taxa under 19 genera were belonged to Cyanophyceae, and only 01 genera with a single species were belonged to Xanthophyceae. (Table 1). The members of Cyanophyceae were dominant and followed by Chlorophyceae.

CONCLUSION

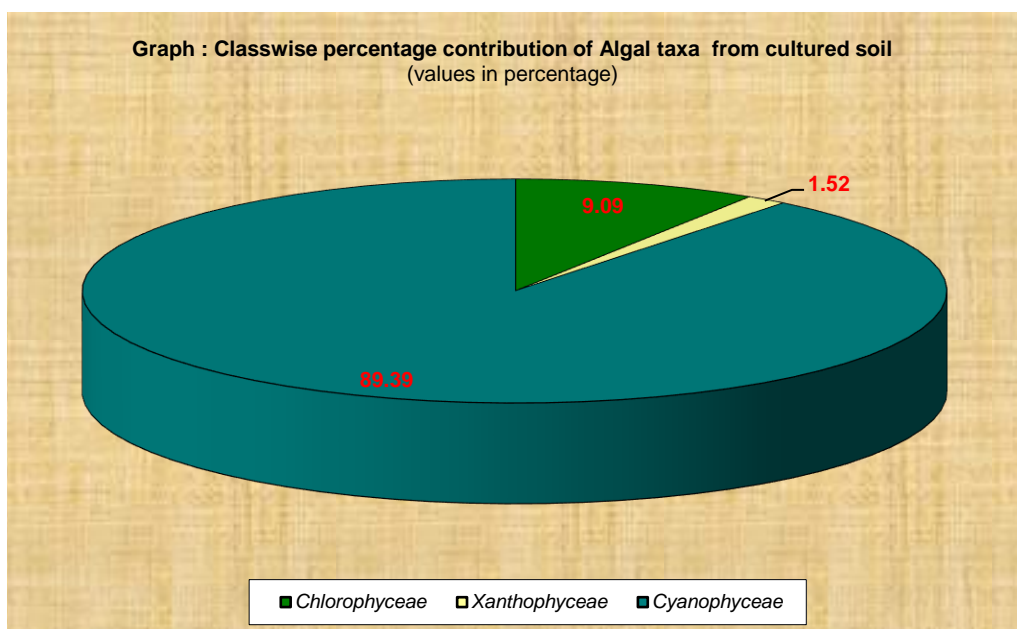
The laboratory temperature, sunlight, pH, and also as the filtered water from dam was added after a month or so, all these probably suited favorably for the better growth of algae in soil cultures. The algae growing in cultures have little competition in growth among themselves, it favors in the growth of algae. Due to limited area and noninterference of any external factors, so that a taxon may grow well in soil cultures. Soil samples represented only a very small part of the soil of the dam so that algae present in the soils grew well upon a certain period. Animals feeding on the algae were totally absent in the cultures as the water added to the cultures was filtered so that even microscopic animals were absent in the cultures. In this respect the algae in the cultures were more safe.

Table 1: List of algal forms isolated from the cultured soil samples:

Chlorophyceae		Xanthophyceae		Cyanophyceae	
Genus	species	Genus	species	Genus	species
04	06	01	01	19	59

Table 2: Total occurrence of Algal taxa from cultured soil samples:

Sr. No.	Class	Genera	Species
1	Chlorophyceae	04	06
2	Xanthophyceae	01	01
3	Cyanophyceae	19	59
	Total	24	66



Chlorophyceae: *Gloeocystis gigas*, *Gloeocystis vesiculosa*, *Elakatothrix gelatinosa*, *Elakatothrix viridis*, *Protococcus viridis*, *Closterium parvulum*.

Xanthophyceae: *Botrydium granulatum*

Cyanophyceae: *Chroococcus dispersus*, *Chroococcus giganteus*, *Chroococcus limneticus*, *Chroococcus limneticus v. distans*, *Chroococcus pallidus*, *Chroococcus tenax*, *Gloeocapsa compacta*, *Gloeocapsa polydermatica*, *Gloeocapsa punctata*, *Gloeocapsa quaternata*, *Gloeocapsa stegophila*, *Gloeotheca rupestris*, *Aphanocapsa bififormis*, *Aphanocapsa grevillei*, *Aphanothece bullosa*, *Aphanothece pallida*, *Aphanothece saxicola*, *Merismopedia tenuissima*, *Myxosarcina spectabilis*, *Hydrococcus rivularis*, *Oscillatoria animalis*, *Oscillatoria annae*, *Oscillatoria annae v. major*, *Oscillatoria amphibia*, *Oscillatoria amphigranulata*, *Oscillatoria chalybea*, *Oscillatoria curviceps*, *Oscillatoria margaritifera*, *Oscillatoria martini*, *Oscillatoria okeni*, *Oscillatoria princeps*, *Oscillatoria pseudogeminata, f. longa*, *Oscillatoria quadripunctulata*, *Oscillatoria quadripunctulata v. unigranulata*, *Oscillatoria subbrevis*, *Phormidium ambiguum*, *Phormidium ambiguum v. major*, *Phormidium corium*, *Phormidium microtomum*, *Phormidium molle*, *Phormidium molle f. tenuior*, *Phormidium retzii f. major*, *Phormidium tenue*, *Lyngbya bergii*, *Lyngbya dendrobia*, *Lyngbya lagerheimii*, *Lyngbya laxespiralis*, *Lyngbya semiplena*, *Lyngbya spiralis*, *Schizothrix friesii*, *Symploca cartilaginea*, *Microcoleus lacustris*, *Hydrocoleum cantharidosum*, *Cylindrospermum sphaerica f. Nostoc ellipso sporum*, *Nostoc piscinale*, *Anabaena torulosa*, *Calothrix clavata*, *Calothrix thermalis*.

REFERENCES

- [1]. Ashtekar, P.V. (1980). "Studies on fresh water algae of Aurangabad district". Ph.D. thesis, Marathwada University, Aurangabad. 1980.
- [2]. Bhoge, O.N. Narkhede, P.N. and Ragothaman, G. "Genus *Phormidium* and *Lyngbya* from the soil of Suki dam Jalgaon district", (M.S.). Proc. Nat. Symp. on recent trends in algal biotechnology and biodiversity, Ed. S.S. Patil, Dhanaji Nana Mahavidyalaya, Faizpur. P. 104-106. 2007.
- [3]. Bhoge, O.N. Narkhede, P.N. and Ragothaman, G. "Cyanophyceae from the Suki dam soil Jalgaon district" M.S.). Proc. Nat. Symp. on recent trends in algal biotechnology and biodiversity, Ed. S.S. Patil, Dhanaji Nana Mahavidyalaya, Faizpur. pp. 68-80.2007
- [4]. Desikachary, T.V. Cyanophyceae *I.C.A.R.* Monographs on Algae New Delhi. pp.680. 1959.
- [5]. Kamat, N.D. and Patel, M.I. "Soil algae of rice fields" *Botanique* 4(2):101.1973.
- [6]. Kolte, S.O. and Goyal, S.K. "Distributional pattern of blue green algae in rice field soils of Vidarbha region of Maharashtra". *Phycos*, 24(1 and 2):156-162.1985.
- [7]. Kottawar, S.T. and Panchpande, R.R. "Soil algae of banana fields of Jalgaon district" *Adv. Appl. Phycol.* 1:211-212.1983.
- [8]. Marathe, K.V. "Studied on soil algae of India-I. Soil algae from the cultivated fields of Dhule (Maharashtra State)". *J. Univ. Bombay*. **35**: 100-105.1967.
- [9]. Marathe, K.V. "Studied on soil algae of India-II. Soil algae from the cultivated fields of Jalgaon". *Ibid.* **38**: 69-72.1969.
- [10]. Phillipose, M.T. *Chlorococcales*. ICAR. Monograph, New Delhi. P. 365.1967
- [11]. Prescott G.W. "Algae of the Western great lakes area". Granbrook Institute of Science, Michigan. 1951.
- [12]. Sardeshpande, J.S. and Goyal, S.K. "Distribution pattern of BGA in Rice field soils of Maharashtra". *Phycos*, 20 (1 and 2):102-106.1981.
- [13]. Yadav, S.G. and Awasthi, R.S. "Distributional pattern of Cyanobacteria from the rice field soils of Latur district (MS) India." Proc. Nat. Conf. on Plant biotechnology for agricultural development and human welfare, Ed. S. Murumkar C.B. Khedgis Basveshwar Science, Raja Vijaysing Commerce and Arts College, Akkalkot. P. 69-71.2013.
- [14]. Yadav, S.G. Studies on Fresh water algae of Beed District. Ph.D. Thesis, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. 2010.