

DIVERSITY AND SEASONAL VARIATION OF ALGAL FORMS IN LENTIC ENVIRONMENT OF AQUATIC ECOSYSTEM

M. SRINIVAS[1] , M. ARUNA[2*]

¹ Department of Botany, Govt. Degree College, Siddipet, Medak District, T.S .INDIA.

² Department of Botany, University College, Telangana University, Dichpally, Nizamabad ,T.S. INDIA.

ABSTRACT

In the present study an attempt has been made to screen the algal samples from Nallacheruvu located in Duddeda village of Medak district in Telangana state. The investigation was carried out for a period of one year . In order to identify the algal groups, samples were collected every month throughout the year during June,2013- July, 2014. The identified algal forms belonged to four groups-Chlorophyceae, Cyanophyceae, Bacillariophyceae and Euglenophyceae. Growth of Chlorophycean members was observed throughout the year, but luxuriant growth was recorded during monsoon season. Cyanophycean members were found to be abundant during summer season. Bacillariophycean members, the diatoms were dominant both during winter and summer seasons. Members of Euglenophyceae showed maximum growth during rainy season and Euglenophyceae was dominated by species of Euglena.

Key words: Algal groups, Algal forms, Aquatic Ecosystem, Lake waters, Lentic Environment.

INTRODUCTION

Knowledge of ecology of lentic water bodies like ponds, lakes and reservoirs provide an important tool for their scientific management

Considerable amount of work has been done in India about systematic survey, distribution, productivity and ecology of algae in different habitats.(Pandey,1973; kumar et.al 1974; Prasad and Suxena,1980; Mohan et.al 1989). A number of investigations were carried out on fresh water lakes of Peninsular and continental Antarctica. Hirano,1965; Heywood,1977; Longton,1973; Seaburg et.al1979; Iyengar and Venkatraman 1951 observed seasonal succession of the cover river of Madras with special reference to diatomaceae. Cyanophycean diversity has been extensively studied throughout India. (Tiwari et.al 2001; Pattnaik and Adhikary,2002; Chatterjee and Keshri, 2005).

Biodiversity of algae from various aquatic habitats of lentic environment has been studied extensively in India but only limited work was carried out in Telangana State. To fulfill the lacuna in this field, the present investigation was carried out by selecting Nallacheruvu in Medak District.

MATERIALS AND METHOD

Medak , one of the 10 districts of Telangana State lies between 17 ° 27' and 18° 18' Northern latitude and 77° 28' and 79° 10' of Eastern longitude.

Nallacheruvu is located in Duddeda village of kondapak mandal in Siddipet region of Medak District, which lies at 18.00°N,78.53°E coordinates. Hydrobiological studies of Nallacheruvu lake with respect to algal biodiversity was not reported earlier. As this is the first report monthly collection of algal samples were made for a period of one year from June, 2013 – July, 2014. Algal samples were collected in sterilized bottles and preserved in 4% formalin. All the preserved samples were examined under research microscope and further identified with the help of standard literature on algae. (Fritsch,1935; Smith,1950; Prescott,1951; Philipose,1959; Desikachary,1959 and Anand,1989.)

RESULTS AND DISCUSSION

List of algal forms collected from Nallacheruvu lake is depicted in Table : I. Microphotographs of the algal genera identified is shown in Fig-I,Plate-I.

In the present investigation algal taxa belonging to four groups i.e Chlorophyceae, Bacillariophyceae, Cyanophyceae and Euglenophyceae were identified. It was observed that chlorophycean members grow well throughout the investigation period. Luxuriant growth was recorded during the monsoon season. In the present study diatoms were recorded throughout the study period and maximum diatoms were obtained in the months of December,2013 and April, May 2014 (Winter and Summer season). It was observed that Cyanophycean members grow well throughout the year and better growth was recorded in summer season. Members of Euglenophyceae showed their maximum growth in the months of June and July. Euglena spp. was found to be most common .The results obtained confirm with the finding of earlier workers. Thirteen algal species under Cyanophyta, Chlorophyta and Euglenophyta were documented from a reservoir in Srinagar(Gharwal), Uttaranchal.(Chaturvedi and Habib,1990).

Algal diversity is an excellent indicator of water quality. When quality of water is good the species of algae that live in it will be diverse (Anonymous, 2006). Algae is an essential constituent of an aquatic ecosystem. The number and diversity of algae that occurred in the site of present investigation also give us an indication of unpolluted water in this region.

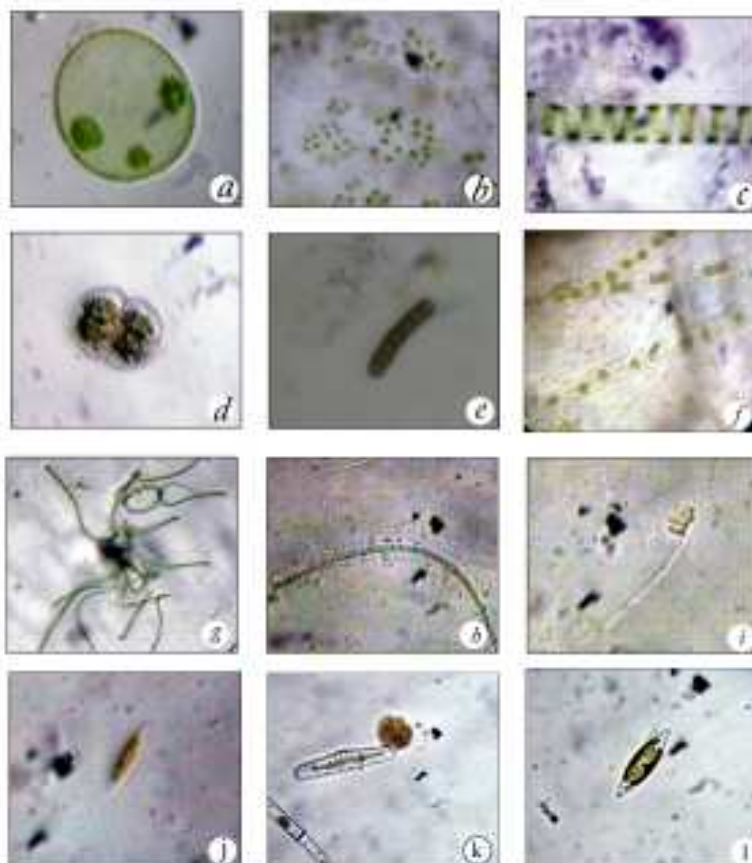
TABLE : I LIST OF ALGAL FORMS COLLECTED FROM NALLACHERUVU LAKE

Algal Group	Algal forms
Chlorophyceae	<i>Pediastrum simplex</i> , <i>Hydrodictyon reticulatum</i> , <i>Spirogyra bijugatus</i> , <i>Zygnema spp</i> , <i>oedogonium crassum</i> , <i>Rhizoclonium hieroglyphicum</i> , <i>Cladophora crispata</i> , <i>Pithophora spp</i> , <i>Closterium acutum</i> <i>Cosmarium spp</i> . <i>Scenedesmus spp</i> .
Cyanophyceae	<i>Oscillatoria princeps</i> , <i>Lyngbya spp</i> , <i>Anabeana laxa</i> , <i>Nostoc spp</i> , <i>Microcystis spp</i> , <i>Cylindrospermum spp</i> , <i>Gleocapsa spp</i> <i>Rivularia</i> .

Bacillariophyceae	<i>Navicula spp, Pinnularia spp, Cyclotella spp, Synedra ulna Nitzschia spp.</i>

FIG -1 :SHOWING FEW OF THE ALGAL FORMS COLLECTED FROM NALLACHERUVU

PLATE-1 NALLA CHERUVU(DUDDEDA VILLAGE)



*a. Volvox b. Gloeocapsa c. Spirigyra
d. Cosmarium e. Oscillatoria f. Zygnema
g. Rivularia h. Anabaena i. Scenedesmus
j. Closterium K. Pinnularia l. Navicula*

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