



Full length Article

A Preliminary Study on Algal Biodiversity of Ujani Reservoir (MS) India

Bibhishan B. Mahadik¹ and Milind J. Jadhav²

¹Department of Botany, Arts, Science and Commerce College, Indapur Dist. Pune-413106 (M.S.) India.

²Department of Botany, Sir Sayyed College, Roshan Gate, Aurangbad – 431001(M.S.) India.
dr.mjjadhav@gmail.com

ABSTRACT

Ujani reservoir is one of the most important reservoirs of Maharashtra. It occupies a geographical area of Pune, Solapur and Nagar district of Maharashtra. In order to study the algal biodiversity of Ujani reservoir seven different sites of backwater located in Indapur Tehsil area of Pune district have been selected for algal collection. Algal samples were collected at monthly intervals from November 2012 to October 2013. Acid washed collection bottles were used for the collection of algal samples. Floating, planktonic, submerged and attached epiphytic algal samples were collected. In present study 75 species under 42 genera have been identified and recorded. Algal members belonged to Chlorophyceae, Charophyceae, Bacillariophyceae and Cyanophyceae were recorded. Chlorophyceae group was found dominant which is followed by Cyanophyceae, Bacillariophyceae and Charophyceae. Algal genera such as *Spirogyra*, *Scenedesmus*, *Cosmarium*, *Cladophora*, *Gloeocystis*, *Chlorella*, *Fragilaria*, *Nitzschia*, *Gyrosigma*, *Aphanothece*, *Phormidium*, *Oscillatoria*, *Microcoleus*, *Spirulina*, *Lyngbya*, *Gloeotheca* and *Synchococcus* were found dominant. Algal flora of seven different sites of Ujani reservoir is rich and it is found in diverse form.

Key words: Ujani reservoir, algal biodiversity.

INTRODUCTION

Algae is a diverse group of plant kingdom. Rivers, streams, pools, puddles, ponds, lakes and dams are the different types of fresh water habitats where algae grows abundantly and found in diverse form. Ujani reservoir is one of most important reservoirs of maharashtra. It occupies a area of Pune, Solapur and Nagar districts of maharashtra. Geographically it is situated at 18° 4' 26" N latitude and 75° 7' 12" E longitude. Review of literature reveals that, so far, this reservoir has not been explored as its biodiversity of algae is concerned. Therefore to fulfil this lacuna it has been decided to work on algal biodiversity of Ujani reservoir.

MATERIALS AND METHODS

To study algal biodiversity of Ujani reservoir, seven different sites of backwater located in Indapur tehsil area of Pune district have been selected. These sites are Taratgaon,

Kandalgaon, Malwadi, Kalthan, Palasdev, Dalaj and Takarwadi: Algal samples were collected from these sites at monthly intervals from November 2012 to October 2013. Acid washed collection bottles were used for collection of algal samples. Floating, Planktonic Submerged and attached epiphytic algal samples were collected separately in collection bottles. Collected samples preserved in 4% formalin for further taxonomic study. Fresh as well as preserved algal forms were observed thoroughly under research microscope and identified with the help of standard literature on algae.

RESULTS AND DISCUSSION

The biodiversity of algae from seven different sites of Ujani reservoir is remarkable. In present study a total of 75 species of algae under 42 genera have been identified and recorded. Of these 35 species under 20 genera belonged to

Chlorophyceae, 1 species under 1 genus belonged to Charophyceae, 11 species under 7 genera belonged to Bacillariophyceae and 28 species under 14 genera belonged to Cyanophyceae (Table 1). Ashtekar (1980) studied algal biodiversity of fresh water habitats of Aurangabad district. Pingle (1981) worked on ecobiodiversity of algae from Poona. Kumawat and Jawale (2004) extensively studied phytoplanktons of some fish ponds. Magar (2008) worked on diversity of algae of Girna reservoir of Maharashtra. Talekar (2009) Studied algal biodiversity of Manjara River and its reservoirs in Beed district of Maharashtra. During present study Chlorophycean algae were dominant followed by Cyanophyceae, Bacillariophyceae and Charophyceae. Among Chlorophyceae *Spirogyra*, *Scenedesmus*, *Cosmarium*, *Cladophora*, *Gloeocystis* and *Chlorella* were found dominant. Similar kind of results were obtained by Somani and Pejaver (2003), Mahajan and Nandan (2005) and Nandan and Mahajan (2007).

Charophyceae is represented by *Chara fragilis*. Ashtekar (1980) Talekar (2009) and yadav (2010) recorded different species of *Chara* from Marthwada region of Maharashtra. Diatoms such

as *Fragilaria*, *Nitzschia* and *Gyrosigma* were dominant. Talekar and Jadhav (2010) reported 21 species of pinnate diatoms from Manjara river of Beed district of Maharashtra. Among Cyanophyceae *Phormidium*, *Oscillatoria*, *Aphanothece*, *Microcoleus*, *Plectonema*, *Spirulina*, *Lyngbya*, *Gloeothece* and *Synechococcus* were found dominant similar kind of results were recorded by Whitton (1969), Sirasat et. al. Magar (2008) and Yadav (2010). Algal biodiversity study of Ujani reservoir shows interesting seasonal variations throughout the period of study. Chlorophyceae members were found dominant in winter and monsoon season. Cyanophyceae members were maximum in summer season. Bacillariophyceae members were found maximum in summer and winter seasons. Charophyte recorded in winter season.

Unicellular, colonial and filamentous algal forms were recorded throughout the period of study. The composition of Chlorophyceae was greater in species composition as compared to other groups of algae Biodiversity of algae in terms of quantity and quality were observed at all the selected sites of Ujani reservoir.

Table 1 : Algal taxa recorded from Ujani reservoir.

Chlorophyceae
<i>Gloeocystis gigas</i> , <i>Gloeocystis major</i> , <i>Tetraspora lamellosa</i> , <i>Ulothrix tenuissima</i> , <i>Coleochete scutata</i> , <i>Cladophora callicoma</i> , <i>Cladophora crispata</i> , <i>Oedogonium formosum</i> , <i>Chlorococcum humicola</i> , <i>Trebouxia Sp</i> , <i>Trochiscia aspera</i> , <i>Trochiscia obtusa</i> , <i>Pediastrum boryanum</i> , <i>Pediastrum duplex</i> , <i>Htydrodictyon reticulatum</i> , <i>Chlorella vulgaris</i> , <i>Crucigenia tetrapedia</i> , <i>Scenedesmus bijugatus</i> , <i>Scenedesmus longus</i> , <i>Scenedesmus quadricauda var. longispina</i> , <i>Mougeotia varians</i> , <i>Zygnema gangeticum</i> , <i>Zygnema melanosporum</i> , <i>Zygnema mucigenum</i> , <i>Spirogyra aequinoctialis</i> , <i>Spirogyro</i> , <i>inconstans</i> , <i>Spirogyra jugdis</i> , <i>Spirogyra subsalsa</i> , <i>Spirogyra triplicata</i> , <i>Closterium leiblenni</i> <i>Euastrum irregulare</i> , <i>Euastrum Spinulosum</i> , <i>Cosmarium moniliforme</i> , <i>Cosmarium periffissum</i> , <i>Cosmarium Subtumidum var. minutum</i>
Charophyceae <i>Chara fragilis</i>
Bacillariophyceae
<i>Fragilaria brevistriata</i> , <i>Fragilaria construens</i> , <i>Mastigloia sp.</i> <i>Gyrosigma baikalensis</i> , <i>Gyrosigma bhusavalensis</i> , <i>Pinnularia sp.</i> <i>Cymbella aspera</i> , <i>Rhopalodia gibba</i> , <i>Nitzschia closterium</i> , <i>Nitzschia intermedia</i> , <i>Nitzschia Palea</i> .
Cyanophyceae
<i>Gloeothece palea</i> , <i>Aphanocapsa pulchra</i> , <i>Aphanothece nidulans</i> , <i>Aphanothece saxicola</i> , <i>Synechococcus aeruginosus</i> , <i>Merismopedia punctata</i> , <i>Spirulina gigantea</i> , <i>Spirulina labyrinthiformis</i> , <i>Spirulina major</i> , <i>Oscillatoria animalis</i> , <i>Oscillatoria chlorina</i> , <i>Oscillatoria principes</i> , <i>Lyngbya birgei</i> , <i>Lyngbya magnifica</i> , <i>Lyngbya major</i> , <i>Microcoleus acutissimus</i> , <i>Microcoleus subtorulosus</i> , <i>Nostoc microscopicum</i> , <i>Nostoc pareliodes</i> , <i>Plectonema gracillimum</i> , <i>Plectonema nostocorum</i> , <i>Scytonema cincinnatum</i> , <i>Calothrix sp.</i> <i>Phormidium beseri</i> , <i>Phormidium bohneri</i> , <i>Phormidium jenkelianum</i> , <i>Phormidium molle</i> , <i>Phorimidium Subincrustedatum</i> .

LITERATURE CITED

- Ashtekar PV, 1980.** Studies on fresh water algae of Aurangbad district. Ph. D. thesis, Marthwada University, Aurangabad.
- Kumawat DA and Jawale AK, 2004.** An ecological Behaviour Euglenoids in a fish pond, perodicity and abundance. *J. Aqua. Bio* **19**(1): 7-10.
- Magar UR, 2008.** Biodiversity of algal flora and limnological studies of Girna dam of Nashik district. Ph. D. thesis North Maharashtra University, Jaleaon.
- Mahajan SR and Nandan SN, 2005.** Studies on algae of polluted lakes of North Maharashtra (India). *Plant diversity and Biotechnology* : 67-71.
- Nandan SN and Mahajan SR, 2007.** Green algae of Hartala lake of Jalgaon, Maharashtra, Proc. Nat. Symp. on recent trends in algal biotechnology and biodiversity Ed. Patil S S : 51-54.
- Pingle SD, 1981.** Studies on algae of impoundments and streams in Maharashtra Ph. D. thesis, University of Poona, Pune.
- Sirsat DB, Ambhore NE and Pulle JS, 2004.** Study of phytoplankton of fresh water pond at Dharmapuri in Beed district (M.S.) *J. Aqua. Bio* **19**(1): 7-10.
- Somani V and Pejaver Madhuri, 2003.** Dynamics of Chlorophyceae in Phytoplankton of lake Masunda, Thane (M.S.) *J. Aqua. Bio* **18**(2):21-25
- Talekar Santosh M, 2009.** Studies on algal biodiversity of Manjara river and its reservoirs in Beed district of Maharashtra. Ph. D. thesis, Dr. Babasaheb Ambedkar Marthwada University, Aurangabad.
- Talekar Santosh and Jadhav Milind, 2010.** Studies on the Diatoms from Manjara river of Beed district in Maharashtra, *BioSci. Disc.* **1**(1):13-14
- Whitton B A, 1969.** Seasonal changes in the phytoplankton of St. James Park lake, London, *London Nat.* **48**: 14-39
- Yadav SG, 2010.** *Studies on taxonomy of algae of Beed district.* Ph. D. thesis, Dr. Babasaheb Ambedkar Marthwada University, Aurangabad.

How to Cite this Article:

- Bibhishan B. Mahadik and Milind J. Jadhav, 2014.** A Preliminary Study on Algal Biodiversity of Ujani Reservoir (MS) India. *Biosci. Disc.*, **5**(1):123-125.