



STUDY OF ALGAL DIVERSITY OF DAM TAL-AKOLE, DIST-AHMEDNAGER, MAHARASHTRA

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ABSTRACT

Ambit Dam is located at Ambit village in western part of the Ahmednagar district in Maharashtra. It build across the river Mula near the village Ambit. During the present study qualitative analysis of algal diversity of Ambit dam has been carried out in one year (June 2018-May 2019). Three sampling sites were selected for collection of water samples. In monsoon season the flow of water was quiet fast later on water become steady and stagnant. Many planktonic, benthic and epiphytic algae were enumerate during investigation period from two sampling sites. The algae were identified with the use of standard monograph. The systematic account of the algal taxa were made for four groups i.e. *Cyanophyceae*, *Bacillariophyceae*, *Chlorophyceae* and, *Xanthophyceae* and. In general there is good flora in Ambit dam.

Keywords: Diversity, Ambit Dam, Algal diversity

INTRODUCTION:

Ambit Dam is located at Ambit village in western part of the Ahmednagar district in Maharashtra. The Ahmednagar district is located between 18°26 and 19°59 North latitude and 73°40 and 75°43 East longitude. Ambit dam is built across the river Mula, near the village Ambit. This dam is build up with RCC technology. Height of dam above lowest foundation is 24 meter while length is 242 meter. The live storage is of water is 195 MCFT. The main sources of water for dam are streams, rivers, fountains etc. The annual rainfall up to Ghatghar is 5460 mm. and on dam 3225 mm. The total irrigated area under the dam is 68,63 Km².

MATERIALS AND METHODS:

Three sampling stations of Ambit dam were selected for the collection of algal samples during the one-year study.

Station - S1. Station - S2. Station - S3.

The water samples were collected monthly from the selected three stations over a period of one year June 2018 to May 2019. The monthly collection of the sample was in morning between 9 to 11 am. Throughout the investigation. The samples were collected with plankton net 25 meshes bolting silk of diameter of pore 60 micro meters (Trivedi and Goel, 1986). The samples were studied qualitatively. The collected algal samples were observed freshly and also preserved in 4% formaldehyde or Lugols iodine solution. Phytoplanktons were observed in fresh living condition as well as after boiling in nitric acid (Sinha 1997). They were micro photographed. The systematic accounts of the algal taxa were made for four groups as follow.

- 1) *Cyanophyceae* 2) *Chlorophyceae*
- 3) *Bacillariophyceae* 4) *Xanthophyceae*.

The algae collected from all sampling stations were identified with the use of standard monographs Desikacharya (1959), Randhawa (1959), Pal *et al.* (1962), Ramanathan (1964), Bourrelly (1972), Tapale and Kamble (2014) Philipose (1967), Anand (1998), Tarar and

Bodhe (1998a,1998b), Srinivasan (1969), Rajan (2000) Pal and Santra (1990), Tambe and Pingle (2014).

Tambe (2018), Tapale B.K. (2018) Identified algae have been enumerated systematically, monographs and available recent literature.

RESULTS AND DISCUSSION:

Total number of algal taxa observed during study period given in table-1. Dominance of Chlorophyceae was recorded at all the study sites. There are about 39 species of Chlorophyceae algae.

Maximum number of algae was observed from December to April and to some extent in May. During and after rainy season benthic and filamentous algae were seen. The seasonal percentage of algae was found more in winter. More seasonal percentage of blue green in monsoon and Bacillariophyceae in summer. Formations of blooms of *Microcystis*, *Oscillatoria*, were also observed during summer. Diatoms were observed throughout the year and found by minimum in summer.

The total number of algal taxa recorded at three sampling stations is shown in Table no- 1

1) Cyanophyceae - In the present study Cyanophyceae (Blue green) were compared to 17 species belonging to 11 genera and 3 orders as Chroococcales, Oscillatoriales and Nostocales. The class was represented by most of the species of *Chroococcus*, *Aphanocapsa*, *Merismopedia*, *Lyngbya*, *Anabaena*, *Nostoc*, *Gleocapsa*, *Scytonema*, *Dichothrix* and *Gloeotrichia*.

2) Chlorophyceae (Green algae) - Green algae were dominant throughout investigation. Identified species of *Ulothrix*, *Volvox*, *Chaetophora*, *Stigioclonium*, *Oedogonium*, *Closteridium*, *Pediastrum*, *Coelastrum*, *Oocystis*, *Scenedesmus*, *Zygnema*, *Spirogyra*, *Closterium*, *Cosmarium*, *Chlorella*, *Ankistrodesmus*, *Tetraedron*, *Euastrum* and *Staurastrum*, were

observed during study period. There are about 33 species belongs to 24 genera of 11 families and 5 orders (Volvocales, Ulotricales, Chaetophorales, Oedogonials, and Zygnemetales.)

3) Bacillariophyceae - Bacillariophyceae was represented by 16 species, 7 genera, 3 families and 2 orders as Centrales and Pennales. Other diatoms comprises by species of *Fragilaria*, *Navicula*, *Pinnularia*, *Cymbella*, *Cyclotella*, and *Gomphonema*.

4) Xanthophyceae - Xanthophyceae represents only 2 genera belongs to Order Heterosiphonales and Family Vaucheriaceae

Conclusion -

Following points have emerged out from the present investigation. In the present study 81 algal taxa belonging to 53 genera, representing 24 families and 13 orders were recorded from three sites of Ambit dam. Maximum number of algae was observed from December to April and some extent in May, from which Chlorophyceae were found dominant, during the period of investigation.

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Table No – 1. Enlisted Algae from Study Area

Sr. No.	Name of the alga	Study stations		
		S ₁	S ₂	S ₃
	Class- Cyanophyceae			
	Order- Chroococales			
	Family- Chroococaceae			
1.	<i>Chroococcus minor</i> (Kuetz) Naegeli	+	+	+
2.	<i>Gleocapsa violacea</i> (Corda) Rabenh	+	+	+
3.	<i>Gleocapsa atrata</i> (Turp.) Kuetz.	+	+	+
5.	<i>Aphanothece pallida</i> (Kuetz) Rabenh	+	+	+
7.	<i>Merismopedia tenuissima</i> Lemm	+	+	+
8	<i>Microcystis protocystis</i> (Crow)	+	+	+
	Order-Oscillatoriales			
	Family-Oscillatoriaceae			
9.	<i>Spirulina laxisima</i> West, G.S.	+	+	+
10.	<i>Spirulina subsalsa</i> Ornet. ex. Gomont	+		+

11.	<i>Oscillatoria subbrevis</i> Schmidle	+	+	+
	Order- Nostocales			
	Family-Nostocaceae			
12.	<i>Anabaena sphaerica</i> Bornet et Flash	+	+	+
13.	<i>Nostoc commune</i> vouchet ex Born et Flash	+		+
	Family- Scytonemataceae			
14.	<i>Scytonema malviyaensis</i> Bharadwaja	+		+
15.	<i>Scytonema tolypothrichoides</i> Kuetz.ex Born et Flash	+	+	+
16.	<i>Scytonema mirabile</i> (Dillw.) Born.		+	+
	Family-Rivularaceae	+		+
17.	<i>Dichothrix gybsophila</i> (Kuetz) Born.et.flash.	+	+	+
	Class-Chlorophyceae			
	Order-Volvocals			
	Family-Volvocaceae	+	+	+
1.	<i>Eudorina elegans</i> Ehrenberg	+	+	+
2.	<i>Pandorina cyclidricum</i> Iyenger	+	+	+
3.	<i>Volvox aureus</i> Ehrenberg	+	+	+
4.	<i>Volvox glabater</i> Linn.	+	+	+
	Family – Asterococcaceae			
5.	<i>Chlamydocapsa ampla</i> (Kuetz) Fott	+	+	+
6.	<i>Chlamydocapsa plactonia</i> (W.et.G.S.West) Fott	+	+	+
	Order-Ulotrichales			
	Family-Ulotrichaceae			
7.	<i>Ulothrix zonata</i> (weber&mohr) Kuetz.	+	+	+
8.	<i>Ulothrix cylindricum</i> Prescott	+	+	+
	Order –Chaetophorales			
	Family-Chaetophoraceae			
9.	<i>Chaetophoa elegans</i> (Roth.) C.A.Ag.	+	+	+
10.	<i>Stigeoclonium tenue</i> (C.A.Ag.)Kuetz	+	+	
	Order-Oedogonials			
	Family-Oedogoniaceae			
11.	<i>Oedogonium laticulum</i> Tiff	+	+	+
12.	<i>Chlorococcum humicola</i> Naegeli	+	+	+
13.	<i>Closteridium cynthica</i> De.Not		+	+
	Family- Hydrodictyaceae			
14.	<i>Hydrodictyon reticulatum</i> (L) Lagerbeim	+	+	+
15.	<i>Pediastrum simplex</i> vor. Duodenarium (Bailey)	+	+	+
16.	<i>Pediastrum ovatum</i> (Her.) A.Braun		+	+

17.	<i>Pediatrum duplex subgranulatum</i> Raciborski	+	+	
18.	<i>Pediatrum boryanum</i> (Turp) Meneghini	+	+	+
	Family – Coelastraceae			
19.	<i>Coelastrum reticulatum</i> (Dang) sen	+	+	+
	Family-Oocystaceae			
20.	<i>Tetraedron regulare</i> (kuetzing)	+	+	+
21.	<i>Oocystis elliptica</i> W.West	+	+	+
22.	<i>Chlorella ellipsoda</i>		+	+
23.	<i>Tetrahedron gracile</i> (Reinch) Hansgirg	+	+	+
	Family-Scenedesmaceae			
24.	<i>Scenedesmus bijugatus</i> var. <i>alternans</i> (reinsch)Hansgirg	+	+	
25.	<i>Scenedesmus dimorphus</i> (Turpin) Kuetzing		+	+
	Order- Zygnematales			
	Family-Zygnemataceae			
26.	<i>Spirogyra setiformis</i> (Roth)	+	+	+
27.	<i>Spirogyra condensate</i> (voucher)Kuetzing	+	+	+
28.	<i>Zygnema pectinatum</i> (Vauch) C.A Agardh.	+	+	+
39.	<i>Zygnema extenuae</i> Jao.	+	+	+
	Family-Desmidiaceae			
30.	<i>Closterium acutum</i> (Lyngb) Breb	+	+	+
31.	<i>Euastrum subintegrum</i> Norsted.	+	+	+
32.	<i>Staurastrum leptocladum</i> Norsted.		+	+
33.	<i>Cosmarium awadhense</i> Prasad & Mehrotra	+	+	+
	Class-Xanthophyceae			
	Order-Heterosiphonales			
	Family-Vaucheriaceae			
1.	<i>Vaucheria terrestris</i> Lyngbye em. Walz	+	+	+
2.	<i>Vaucheria pachyderma</i> Walz.	+	+	
	Class-Bacillariophyceae			
	Order-Centrales			
	Family- Coscinodiscaceae			
1.	<i>Melosira granulata</i> (Ehr) Ralf.	+	+	+
2.	<i>Melosira juergensii</i> Agardh	+	+	+
3.	<i>Cyclotella stelligera</i> Cleve et.Grüm	+	+	+
	Order-Pennales			
	Family-Naviculaceae			
4.	<i>Cymbella offinis</i> Kuetz	+	+	+
5.	<i>Cymbella bharatensis</i> (Sarode and Kamat)	+	+	+
6.	<i>Cymbella chandolensis</i> (Gandhi)	+	+	+

7.	<i>Cymbella cymbeliformis</i> (Kuetz)	+	+	+
8.	<i>Gomphonema tingulatum</i> Ehr.	+	+	+
9.	<i>Gomphonema vidharbhensis</i> (Sarode and Kamat)		+	+
10.	<i>Gomphonema clavatoides</i> Gandhi	+	+	
11.	<i>Navicula grimii</i> Krasske	+	+	+
12.	<i>Navicula sabyadrensis</i> Sarode and Kamat	+	+	+
13.	<i>Pinnularia acrosphaeria</i> (Breb) W.Smith	+	+	+
14.	<i>Pinnularia palea</i> (Kuetz) W.Smith	+	+	+
	Family – Fragilariaceae	+	+	+
15.	<i>Fragilaria brevistriata</i> Grun	+	+	+
16.	<i>Fragilaria virescens</i> var. Capitata. Krasske	+	+	+



Figure 1. Showing Ambit Dam and its water.