

Exploration of algal flora from polluted sites of Rajura locality of Chandrapur District (M.S), India.

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ABSTRACT

Present investigation deals with the exploration of algal flora from Rajura locality of Chandrapur district. Rajura is very polluted Taluka due to Ballarpur paper mills and also coal mines in Rajura and also cement factories in Gadchandur. Due to this industries, the water is very polluted. As a result of this there is reduction in growth of different algal. So it is very essential tools to do exploration of different algal forms from different sites and comes in conclusion of water quality.

Keyword:- Exploration, water quality, Biomonitoring tools, Wardha River, Pollution, Rajura.

INTRODUCTION

Wardha river is very polluted and it is located in Chandrapur district of Maharashtra state at . The major river of the district is perennial and 10 kms away from Chandrapur city flows through Ballarpur. Present investigation includes the exploration of different algae from different polluted sites, in the periods of two years. The study was conducted in open freshwater ecosystem represented by the members of Chlorophyceae, Cyanophyceae, Bacillariophyceae, Euglenophyceae. The phytoplankton members comprised of 48 species of which belong to Bacillariophyceae, 12 species to Cyanophyceae, 16 species to Chlorophyceae and 5 species to Euglenophyceae recorded from experimental sites of Wardha Rive. The dominant algal species occurred at the two study area are pollution tolerant. The physico chemical parameters and characters of water get affected by pollution; Bansal [1].

Chemical quality of aquatic system do integrate ecological factor such as vegetation and reflect ecological state of system [2]. There is eutrophication of River and due to this water body increasingly enriched with organic matter [3].

METHODOLOGY

The collection was done in the morning time between 9:00 am to 10:00 am during 2010 to 2012 from Wardha river. Accurate sampling was carried out by correct handling. Presentation of samples that attain reliable result. Immediately after collection, the sample bottles and bags were clearly labeled with water proof ink and relevant details were recorded. Identification of taxa is based on monograph, and relevant research publication.

RESULTS AND DISCUSSION

In the present study phytoplankton community in fresh water was represented by the members of Chlorophyceae, Cyanophyceae, Bacillariophyceae, Euglenophyceae. Which is represented as follows. The dominant algal species at the study area or sites are pollution tolerant. Some of these are *Navicula cuspidate*, *Melosiragranulata*, *Gomphonemamagifica*, *Synedra ulna* of Bacillariophyceae, *Oscillatoria willei*, *Anabaena ambigua*, *Anabaena raciborskii*, *Oscillatoria amoema* of Cyanophyceae, *Oocystiselliptica*, *Spirullina* major and *Volvox aureus* of chlorophyceae, *Euglena acus* and *Euglena polymorpha* of Euglenophyceae.

Table 1: Some of the polluted tolerant genera of algal as follows..

Name of phytoplankton	Sites		
	1	2	3
Bacillariophyceae			
<i>Navicula cuspidate</i> Kuetz	+	-	-
<i>Naviculabicephala</i> Hustedt	+	+	+
<i>Naviculagracilis</i> Ehr	+	-	-
<i>Naviculapupula</i> Kuetz	+	-	+
<i>Nitzchiapalea (kuetz) w. Smith</i>	+	+	-
<i>Pinnulariaintermedia cleave</i>	-	+	+
<i>Synedra ulna (Nitzsch) Ehr</i>	-	-	+
Cyanophyceae	+	-	+
<i>Anabaena ambigua</i> Bharaduaaja (Kuetz)	+	-	+
<i>Chroococcusturgidus (Kuetz) Nag.</i>	+	-	+
<i>Chroococcusminimus (Keissler) Lemm</i>	-	+	-
<i>Merismopedia minima</i> Beck	+	-	+
<i>Merismopediatenuissima</i> Lemm	-	+	-
<i>Merismopedia glauca</i> Naeg	+	+	+
<i>Oscillatoria angustissima</i> West and West	-	-	-
<i>Oscillatoria chlorina</i> Kuetz	+	+	-
<i>Cosmariumcambricum</i> Archer	-	+	-
<i>Cosmariumgranantum</i> Nordst	+	-	+
<i>Cosmariumquadrilatum, Briihl and Biswas</i>	-	+	-
<i>Cosmariumscissum</i> Bruhl and Biswas	+	-	+
<i>Oocystiselliptica</i> W.West	-	+	-
<i>Pediastrum duplex (her) Stein</i>	+	-	+
<i>Scenedesmus bijugatus (Turpin) Kuetzing</i>	-	+	-
<i>Scenedesmus obiquus</i> Kuetz	+	-	+
<i>Spirogyra condensate (Voucher) Kuetz</i>	-	+	-
<i>Spirogyra tuwensis</i> Wood	-	+	-

<i>Spirogyra major</i> Kuetzin	+	-	+
<i>Stauastrumtetracerum</i> Meyen Var. <i>Validum</i> Ralf	+	-	-
<i>Stauastrumtetracerum</i> Ralfs	+	+	+
<i>Synedra ulna</i> (Nitzsch) Her. Var. <i>Contracta</i> qstr	-	+	-
<i>Euglenophyceae</i>	+	-	+
<i>Euglena acus</i> Ehr	-	+	-
<i>Euglena polymorpha</i> Dangeard	+	-	+
<i>Euglena polymorpha</i> Dangeard	-	+	+
<i>Euglena viridis</i> Ehr	+	+	+
<i>Phaculus longicauda</i> Swir	+	-	+
<i>Trachelomonas flaviatilis</i> Lemmermann	-	+	+

In the present study phytoplankton community in selected ecosystem was represented by Chlorophyceae, Cyanophyceae, Bacillariophyceae, Euglenophyceae. The cyanobacterial bloom *Oscillatoria earliei*, *Oscillatoria amoena*, *Anabaena raciborski* were responsible for the growth of water bloom. These species were pollution tolerant and were indicators of water pollution. These findings are in agreement of Carmichael [4]. In all of these Bacillariophyceae was dominant algal groups followed by Chlorophyceae, Cyanophyceae and Euglenophyceae. Many species of diatoms are used as indicators of eutrophication and pollution aspects of water quality [5]. The abundance and biodiversity of the algal forms indicates the eutrophic nature of the water body.

If the diversity is greater the river indicates the lesser pollution level [6]. Some members of Volvocales, reported by Jawale [7-8]. The present study agrees with Sakhare [9], who have reported high level of growth during winter.

CONCLUSION

Based on the present investigation organic matters are possible to grade water with reference to the degree of organic pollution by using synthetic approach i.e. a consideration of the number of pollution indicator organisms of the different categories. However as pointed out earlier the increasing urbanization and industrialization in this area is causing a very serious threat creating an ever increasing quantity of effluents of all types being added to study area's of water. That leads to degradation of water and aquatic community.

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