Planktonic diversity of Sawkhed Bhoi Dam Tq. Deulgaon Raja District. Buldhana (M.S.)

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ABSTRACT

Buldhana district consists of many fresh water bodies; one of them is Sawkhed Bhoi Dam , situated in the in Aamna River. Sawkhed Bhoi dam is Multipurpose dam in Buldhana district which providing water to agriculture and drinking to know about more details about this dam and its link of food chain. In this research study phytoplankton study was carried out for period i.e. from 2019. In this research study a total of 9 algal genera were recorded belonging from class Chlorophyceae, Cyanophyceae and Bacillariophyceae along with 3 families. Extensive growth of phytoplankton shows the increased amount of nutrients in water body. In this research study phytoplankton belonging to Cyanophyceae , Chlorophyceae and Bacillariophyceae group are study.

Keywords:- *Cyanophyceae, fresh water, phytoplankton, Sawkhed Bhoi dam*

Introduction :-

Fresh water ecosystems vary in size and composition and contain a large variety of organism. Microalgae are vast group of prokaryotic and eukaryotic photosynthetic organisms found in many different forms viz. individual cells, colonies or extended filaments and exhibit vast diversity in the ecosystem [1]. They are cosmopolitan in nature found everywhere like oceans, lakes, rivers, ponds, puddles, moist surfaces and fresh water etc. [2]. The maintenance of a healthy aquatic ecosystem depends on the abiotic properties of water and the biological diversity of the ecosystem (3).

Materials and Methods:-

The present investigation was conducted during 2019 on Sawkhed Bhoi dam on Amna River near the Deulgaon Raja district Buldhana in Maharashtra. During this research study total three sites were selected for the study i.e. 1st side near waterfall of dam, 2nd side is one and half kilometer away from water fall and 3rd side is back side water storage area of dam. In present study microalgal samples and water samples were collected that is rainy, winter, and monsoon season based on the different algal forms i.e. in stagnant water, in flowing water, attached with aquatic plants, on rocky surfaces etc. Micro algal samples were collected with the help of spoon forceps, micro sieve and water samples were also collected in floating water directly in plastic bottles. The larger samples were collected in polybags. The polybags and plastics bottles were labeled and brought to the laboratory for further investigation. Collected samples were preserved in 4% formalin solution on the spot. The plankton identification was done with the aid of plankton identification key and monographs [4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14].

Sr. No.	Phytoplankton	Species	**Site 01**	**Site 02**	**Site 03**
1.	Chlorophyceae	Closterium	+	+	+
2.	Bacilloriphyceae	Cosmerium	+	+	+
3.	Cynophyceae	P. Duplex	+	+	+
		Oedogonium patulum	+	+	+
		P. tetras	+	+	+
		P. simplex	+	+	+
		N. subtilis	+	+	+
		E. acus	+	+	+
		Nitzshia	+	+	+
		Navicula accomoda	+	+	+
		O. chlorine	+	+	+
		O. cortiana	+	+	+
		Spirulina	+	+	+
		E. granulate	+	+	+

Results:-

In the present study among the group of phytoplankton's the Chlorophyceae were recorded maximum flowed by Bacilloriophyceae, Cynophyceae and Euglenophyceae In the present planktonic diversity survey of Sawkhed Bhoi dam class Cyanophyceae members were most dominant with 12 genera to all three sites as compared to Chlorophyceae (01) and Bacillariophyceae (01) as shown in table . As per the site wise study first site with 10, second 13 and from third site 15 algal members were recorded. Total 14 algal genera were recorded out of that 12 genera from Cyanophyceae, 01 genera from Chlorophyceae and 01 genera belongs to Bacillariophyceae. The algal genera belonging from class Chlorophyceae Closterium. Cyanophyceae P. Duplex, Oedogonium patulum, P. tetras, P. simplex, N. subtilis, E. acus, Nitzshia, Navicula,, accomoda, O. chlorine, O. cortiana, Spirulina, E. granulate etc. and from class Bacillariophyceae Cosmerium were recorded. In this over all study were most dominant which shows highest percentage in this research survey. Some plankton population disappeared at a specified period and reappeared during other period. This disappearance may be due to the fact that some species occur in spores, under favorable conditions spore germinate and appear as plankton (15). In the present study it is observed those 1 genera of Chlorophyceae, 1 genera of Bacilloriophyceae, 12 genera of Cynophyceae . Chlamydomonas, Cladophora, Oedogenium and Pediastream species were dominant from Chlorophyceae probably due to favourable environmental conditions (16; 17; 18) Low phytoplankton's especially Euglenophyceae was observed to be less in quantity in almost all the stations during all the seasons (19) The production of phytoplankton is directly correlated with phosphate, silicates as well as nitrogen (20). Cynophyceae are found generally on rocks or soil forming a blackish crust when dried out. It contains Chlorophyll a Phycobicyanin and other pigments help the algae to synthesize their own food from carbon dioxide and water in presence of sunlight (21). In the present study, Euglenophyceae was found to be maximum in summer and minimum in winter water in almost all stations due to sufficient amount of dissolved oxygen and good amount of nutrients (22). The temperature ranged 28-350 C, low pH and high iron content are also favorable factors for the growth of Euglenophyceae (23). The conservation of Godavari river water is in interest of man as it's ecological, cultural and tourist value is immense. This study will help in understanding the amount of toxic compounds being received in river and its biological magnification in animals particularly those at the lower level of food chain. This study will also help to make aware the local peoples for proper management of waste disposal and also to minimize the waste land and its biological magnification of toxic metals due to toxic compounds in food chain, which is a challenge to scientists, policy makers, administrators and all those involved in the conservation of the environment. Thus there is need to stop these ecologically destructive developments in the river and its environment. Conservation of the fresh water bodies including all rivers must be considered as pious duty of the State and the citizens of the Country. The river must be conserved at any

cost for the benefit of the present and future generations. No commercial and selfish interests should be allowed to play their diabolical role and the State should achieve the national goal of the potable water to all free of cost.

Conclusion:-

The present investigation deals with the phycological study of algal flora vicinity along the Sawkhed Bhoi dam three sites. In this investigation total 14 species were recorded which belongs from three classes Cyanophyceae (12 species), Chlorophyceae (1 species) and Bacillariophyceae (01 species). In this research study class Cyanophyceae algal species were most dominant as compare to other i.e. thirty four in number. Out of three selected sites there was rich algal growth recorded from 1st site as compared to second and third and most dominant genus was recorded. From first site 10 species, second 13 species and from third site 15 species was recorded..

References :-

1. Chaterjee G and Raziuddin M. Status of water body in relation to some physico-chemical parameters in Asansol Town, West Bengal. *Proc. Zool. Soc. India,* 2006: 5(2) 41-48.

2. Desikachary TV. *Cyanophyta*. *Monograph on Blue Green Algae*. Indian Council of Agricultural Research, New Delhi, India, 1959.

3. Harikrishnan K., Thomas Sabu, George Sanil, R.Paul Murugan, Mandyayoor Satish., M.R.Das.A study on the distribution and ecology of phytoplankton in the Kutt and Wetland ecosystem, Kerala.Poll. Res. 1999; 18(3).261-269.

4. Anand N. Handbook of Blue Green Algae (Of Rice Fields of South India). 1989; 1-79.

5. Desikachary TV. Cyanophyta Indian Council of Agriculture Research New Delhi, India. 1959, 5-616.

6. Jain N. Diversity of blue-green algae and study on related physico-chemical parameters of paddy fields of Chhatarpur District of Madhya Pradesh. International Journal of Research and Development in Pharmacy and Life Sciences. 2015; 4(2):1456-1462.

7. Mahajan KD, Pawar NN, Nandan SN. The diatom flora of the: North Maharashtra region: Navicula. Journal Indian Botanical Society. 2008; 87(3&4):185-199.

8. Mulani RM, Sonule MD. Fresh Water Cyanophycean Algae from Yeldari Dam Parbhani District (M. S.), India. International Journal of Science and Research. 2015; 4(1):740-742.

9. Naskar NM, Naskar KR, Talai S. Addition to the List of Brackish Water Zygnemaceae of Sundarbans and its Adjoining Areas, India Genus Spirogyra Link. Our Nature. 2009; 7:187-192.

10. Patil AA. Biodiversity of Bhambarde Reservoir of Sangli, Maharashtra, India. Research Journal of Recent Sciences. 2015; 4:209-215.

11. Prescott GM. Algae of the Western Great Lakes Area WM. C. Brown Company Publishers. Dubuqua, Lowa, 1951; 1- 977.

12. Ragland A, Kumaresan V and Arumugam N. Algae. Saras Publication. 2014; 1-712.

13. Shrestha S, Rai SK, Dhakal MN. Algae of Itahari Municipality and its adjoining area, Eastern Nepal. International Journal Applied Sciences and Biotechnology. 2013; 1(1):5-10.

14. Tippawan P, Yuwadee P. Diversity of *Pediastrum* sp. in some water resources of Thailand. Journal of the Microscopy Society of Thailand. 2012; 5(1-12):33-37.

15. Dahiwale B.J. (2008): Diversity of Benthic macro invertebrates with respect to hydrobiological Characteristics of Sukhana Dam near Aurangabad. Ph.D. Thesis, BAMU,Aurangabad.
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16 Kumawat, D.A. and Jawale, A.K. (2003): Phytoplankters of a fish pond at Anjale, Maharashtra. Eco-Env. and Cons. 9 (3):411-415.

17 Yeole S.M. and Patil G.P. (2005): Physico-chemical status of Yedshi lake in relation to water poll ution, J. Aqua. Biol. Vol. 20 (1): 41-44.

18 Pawar, B.A. and Mane, U.H. (2006): Hydrography of sadatpur lake near Pravaranagar, Ahmednagar district, Maharashtra. J. Aqua. Biol. Vol. 21 (1): 101-104.

19 Somani V.U. and Pejaver M.K. (2003): Dynamics of chlorophyceae in phytoplankton of lake Masunda, Thane (M.S.). J. Aqua. Biol. 18 (2): 21-25.

20 Borse S.K. and Bhave (2000): Seasonal temperature variation and its influence on the level of dissolved oxygen and pH in Aner River, Jalgaon, Asia J. Micr. Birotech & Env. Sc. 2 (3-4): 159-163. |

21 Bhadran, G. (2001): The plankton population of Asramam Creek of Ashtamudi Lake in Kerla, south India. J. Aqua. Biol 19 (1):13.

22 Pendse D.C., Yogesh Shastry and Barhate (2000): Hydrobiological study of percolation tank of village Dasane. Ecol. Env. And Cons. 6 (1): 93-97.

23 Bhadran, G. (2001): The plankton population of Asramam Creek of Ashtamudi Lake in Kerla, south India. J. Aqua. Biol 19 (1):13.