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PHYTOPLANKTONSEASONALDIVERSITYOF SARNGPURI RESERVOIR, ARVIDISTRICT WARDHA

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Abstract:
Phytoplanktons which are present in natural water bodies are organized . They respond to the ecological factors. Phytoplankton, the floating inconspicuous plant plays a major pole in the food chain of aquatic ecosystem by biosynthesis of organic matter and thus act as the producer of food on which other life forms depend . This paper deals with phytoplankton seasonal diversity of sarangpuri reservoir, Arvi. District wardha. The samples were collected seasonally during year 2008-2009.The total No. of 30 species of phytoplankton were identified belonging to four groups. Chlorophyceae, were dominant by contributing 18 species folloed by cyanophyceae 5 species , Bacillariophyceae by 5 species and Euglenophyceae by 2 species .Among these maximum density was recorded under Chlorophyceae .

Keywords : Phytoplankton, Chlorophyceae, Cyanophyceae, Sarangpuri Reservoir.

Introduction-:

Phytoplanktons are the primary producers forming the first trophical level in the food chain. Diversity of planktonic organisms is quite high in fertile standing water bodies. Phytoplankton diversity responds rapidly to changes in the aquatic environment particularly in relation to nutrients. Phytoplankton, the passively floating or markly swimming plant life, found in the bottom of water is generally in conspicuous. But it is of basic importance of aquatic environments (pond, lakes and seas) as the primary producers of organic material on which other forms of life depend. The knowledge of phytoplankton in India is still fragmentary. Phyplankton play very important role in regulating dynamics of the aquatic food web and become a driving force in shopping community structure.

The present investigation deals with Seasional diversity of Phytoplanktonin Sarangpuri reservoir, Arvi. District-Wardha.

Material and Method-:

The samples were collected seasionally for a period of 1 year 2008-2009 from the sarangpuri reservoir.

During the period of investigation separate samples were collected by a plankton net made of silk bolting cloth No. 25, (Mesh size 56). Water sample (50 liter) was filtered through the net from littoral and open water zones and carefully transferred to 50 ml bottle and preserved in 4% formalin. Preserved samples were examined under a Binocular microscope with different magnification. Quantitative analysis and identification was done on a Sedgwick Rafter counter cell by taking 1 ml sample. Detailed taxonomic identification was carried out with Pennak (1978), Tonapi (1980) and Kodarkar (1992).

Result:

In the present investigation, total 30 species were identified belonging to four main groups Bacillariophyceae, Chlorophyceae, Cyanophyceae and Euglenophyceae. (Table-1). Yearly total plankton density was recorded 7993.00 ind/ltr during the year 2008-2009 During the year 2008-09, Bacillariophyceae (3209 ind/ltr) was dominant followed by Chlorophyceae (2770 ind/ltr), Cyanophyceae (1636 ind/ltr) and Euglenophyceae (378 ind/ltr)

Bacillariophyceae:

During the present investigation, 05 species of Bacillariophyceae were recorded. It was dominant in winter followed by summer and least appearance in monsoon during 2008-09 During the year 2008-09, Bacillariophyceae maximum during winter season 354 ± 54.43, moderate in summer season 287.75 ± 8.32 ind/ltr and least appearance during monsoon season160.5 ± 64.35 ind/ltr. During the present investigation, yearly the density of Bacillariophyceae was recorded 802.25 ± 127.1. ind/ltr during the year 2008-09

Cyanophyceae:

During the present investigation, 05 species of Cyanophyceae were recorded. It was dominant in summer followed by monsoon and least appearance in winter during the year 2008-09During the year 2008-09, Cyanophyceae was maximum during summer season 208.75 ± 32.59ind/ltr , moderate in monsoon season 150.00 ± 38.54ind/ltr and least appearance during winter season 53.25 ± 17.60ind/ltr. minimum 65.00 ± 20.83 ind/ltrind/ltr during the winter season of the

same year. During the present investigation, yearly the density of Cyanophyceae was recorded 409.00 ± 103.8ind/ltr during the year 2008-09**Chlorophyceae:**

During the present investigation, 18 species of Chlorophyceae were recorded. It was dominant in winter followed by summer and least appearance in monsoon during 2008-09 During the year 2008-09, Chlorophyceae was maximum during winter season 284.7± 49.28 ind/ltr, moderate in summer season 268.5 ± 22.69 ind/ltr and least appearance during monsoon season 139.25 ± 44.42 ind/ltr. Seasonally, minimum 139.25 ± 44.42 ind/ltr during the monsoon season of 2008-09. During the present investigation, yearly the density of Chlorophyceae was recorded 692.5± 116.7ind/ltr during the year 2008-09

Euglenophyceae:

During the present investigation, 02 species of Euglenophyceae were recorded. It was dominant in winter followed by summer and least appearance in monsoon during both the year 2008-09 During the year 2008-09, Euglenophyceae was maximum during winter season 42.00 ± 12.10 ind/ltr, moderate in summer season 34.25 ± 11.12 ind/ltr and least appearance during monsoon season 18.25 ± 7.60 ind/ltr. Seasonally, the maximum density of Euglenophyceae was recorded 42.00 ± 12.10 ind/ltr during the winter season of 2008-09 During the present investigation, yearly the density of Euglenophyceae was recorded 94.5 ± 30.8 ind/ltr during the year 2008-09

Discussion:

According to Kaushik *et al.,* (1991) phytoplankton forms the basic link of food chain in aquatic ecosystem. Plankton constitutes the vary basis of nutritional cycle of an ecosystem. They serve as food for fishes directly or indirectly.

In the present investigation, Chlorophyceae appeared as dominant group and represented by 18 species among which *Microspora spp., Spirogyra spp. Micrasteriasspp, Oedogoniumspp, Pediastrumspp, Ulothrixspp, Vaucheriaspp, Volvaxspp and Chlorella spp.* were dominant. Maximum density of Chlorophyceae was observed during winter season and minimum during monsoon season.

In the present investigation, Cyanophyceae appeared as dominant group and represented by 05 species among which *Anabenaspp, Rivaluria spp., Microcystisspp, Nostocspp and Spirulinaspp* were dominant. Maximum density of Cyanophyceae was observed during summer season and minimum during winter season. Jawale and Patil (2009) observed that members of Myxophyceae were highest in summer months and lowest winter month at Manglurdam. Pradhan *et al.,* (2012) observed Cyanophyceae were more dominant in summer season and lower in winter season in fresh water lakes.

In the present investigation, Bacillariophyceae appeared as dominant group and represented by 05 species among which *Diatomaspp, Fragillariaspp, Naviculaspp, Nitzchiaspp and Pinnulariaspp* were dominant. Maximum density of Bacillariophyceae was observed during winter season and minimum during monsoon season. Pendse*et al.,* (2000) observed the maximum density of diatoms during winter months from percolation tank of village Dasona. Pandey *et al.,* (2007) also shown highest phytoplankton in winter when water temp was low, he also stated that there was decline in number with increase in temperature suggesting that phytoplankton preferred moderate temperature.

Euglenophyceae

In the present investigation, Euglenophyceae is represented by two species *Euglena spp.* and *Phacusspp*, showed its dominance during winter and summer season and minimum in monsoon. Jawale and Patil (2009) observed that members of Euglenophyceae were highest in winter months and lowest monsoon month at Manglur dam. Kumar (1990) reported the higher density of Euglenophyceae during winter season. The present investigation also showed similar results. Palmer (1969) showed that the Euglenophyceae are the biological indicates of organic pollution. Kumar (1990) reported the higher density of Euglenophyceae during winter season. During the present study, it has been observed that the Chlorophyceae and Bacillariophyceae were wide spread and the most dominant class among the phytoplankton.

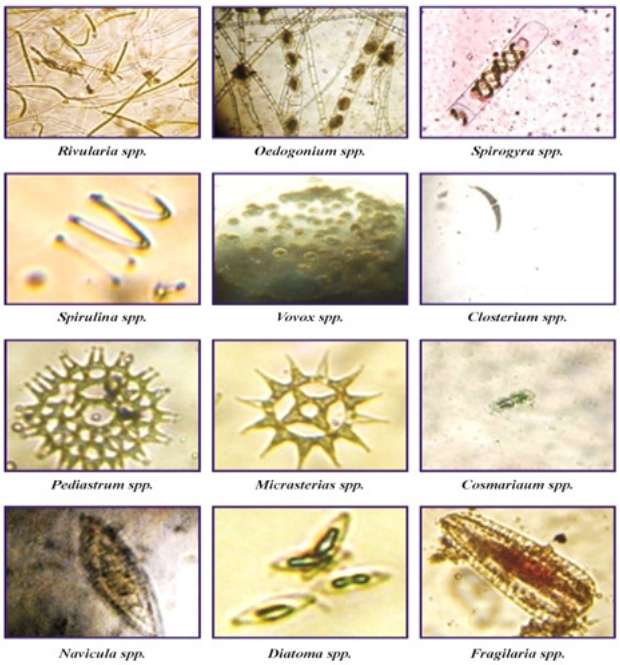
Conclusion-:

From the study of phytoplankton it may be concluded that the reservoir water is not polluted and free from sewage contamination with rich diversity of flora, fauna and wildlife.Looking at the utility of the reservoir and a varied rich biodiversity,proper measures are essential to avoid the degradation of reservoir in future.

Table: 1 Seasonalvariations of groupwisephytoplankton Diversity during year 2008-09

Sr. No.	Parameters	Monsoon 2008	Winter 2008	Summer 2009
A	**Chlorophyceae**	139.25±44.42	284.75±49.28	268.50± 22.96
B	**Cyanophyceae**	148.00±48.56	51.50±16.09	209.50± 39.16
C	**Bacillariophyceae**	160.50±64.35	354.00±54.43	287.75± 8.32
D	**Euglenophyceae**	18.25±7.60	42.00±12.10	34.25± 11.12
	Total	**466.00±164.93**	**732.25±131.90**	**800.00± 81.56**

Fig. 1 Phytoplankton Diversity of Sarangpuri Reservior, Arvi



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