



Study of Zooplanktons of Sambhar Salt Lake

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ABSTRACT

Zooplanktons which are found in Sambhar Salt Lake are studied in the present paper. A lake is the small body part of the water which is isolated from river or sea. A lake is bigger than ponds in size. There are 4 types of lakes.

1. Temporary lakes 2. Permanent lakes 3. Fresh water lakes 4. Saline lakes

Sambhar lake is a saline lake and also biggest lake among all salty lakes of India. Phylum Protozoa, Rotifera and Arthropoda's various species were found at here. Their numbers were effected with season and environmental changes. Maximum number of zooplanktons which were found related with phylum Arthropoda's class insecta and only one Water spider was found.

Keywords-Sambhar, salt Lake, Zooplanktons, Protozoa, Rotifera, Arthropoda.

INTRODUCTION

Sambhar Salt Lake is known as the biggest salt lake of India. Its catchment area is 5700 km². Length of the lake is 35.5 km. Mean depth of the lake is 60 km. Khari, Khandela, Samoad, Mantha and Rupangarh these five rivers are main source of water for lake. Sambhar Salt Lake connected with Nagaur, Jaipur and Ajmer districts. Total population of Sambhar is near about 22,327 according to 2011 census. Max length and max width are as 35.5 km and 3-11 km. Average depth of the lake is .6 to 3 meter.

MATERIAL & METHOD

Water sample were taken from two different sites of the lake in summer, monsoon and winter in april 2018-march 2019. Water sample were taken with the help of Patalas Schindler plankton trap. Filter it by plankton net mesh 65µmØ and than preserved it in 4 % formaldehyde. Zeiss inverted microscope was used for identify the species.

OBSERVATION & RESULT

Zooplanktons which were found in water samples of the lake were listed below in Table no.1.

S.NO.	Name of Zooplanktons	Site- I			Site- II			Total No.
		S	M	W	S	M	W	
I	<u>Phylum-Protozoa</u>							
	Sub phylum-Sarcomastigophora							
	Super Class-Mastigophora							
	Class-Phytomastigophora							
	Order-Volvocida							
	Family-Volvocaceae							
1.	Volvox	1	1	*	1	1	*	4
S.NO.	Name of Zooplanktons	Site - I			Site- II			Total No.
		S	M	W	S	M	W	
	Family-Nebelidae							
2.	Nebala sp.	2	1	1	1	*	1	6

	Family-Euglenidae							
3.	Euglena acur	*	*	1	*	1	1	3
	Class-rhizopodea, Order-Amoebida							
4.	Amoeba sp.	2	2	1	2	1	1	9
	Order-Arcellinida, Family-Difflugidae							
5.	Difflugia sp.	1	1	*	1	1	*	4
	Sub Phylum-Ciliophora							
	Class-Ciliata							
	Family- Paramecidae							
6.	Paramecium sp.	1	3	1	2	3	1	11
	Order-Peritricha, Family-Vorticellidae							
7.	Vorticella sp.	1	1	*	1	2	*	5
	Family-Peridiniaceae							
8.	Peridinium sp.	*	1	*	*	1	*	2
II	<u>Phylum-Rotifora</u>							
	Family- Brachionidae							
9.	Brachionus angularis	*	1	*	3	2	3	9
S.NO.	Name of Zooplanktons	Site- I			Site- II			Total No.
		S	M	W	S	M	W	
10.	Brachionus calyciflorus	2	4	3	1	5	3	18
11.	Brachionus calyciflorus with an eggs	*	1	*	*	1	*	2
12.	Brachionus longiceps	*	1	*	*	1	*	2
	Family-Lucanidae							
14.	Monostyla bulla	*	2	2	*	4	1	9
	Family-Synchaetidae							

15.	Polyarthra vulgaris	1	3	1	*	3	2	10		
	Family- Testudinellidae									
16	Filinia longiseta	1	1	1	*	3	1	7		
17.	Horella mira	1	2	1	*	3	*	7		
	Family-Hexarthridae									
18.	Hexarthra mira	1	3	1	3	5	2	15		
III	<u>Phylum-Arthropoda</u>									
19.	Ceriodaphnia rigaudi	10	15	13	11	17	15	81		
20.	Daphnia magna	2	5	3	1	6	1	18		
	Sub phylum-Crustacea									
	Class-Hexanauplia									
	Order-Calanoida									
	Family-diaptomidae									
S.NO.	Name of Zooplanktons	Site- I			Site- II			Total NO.		
		S	M	W	S	M	W			
21.	Heliodiaptomus viddus	1	4	1	2	4	*	12		
22.	Phyllodiaptomus	1	3	*	*	3	1	8		
	Order-Cyclopoida, Family-Cyclopidae									
23.	Cyclops leuckarti	4	6	3	4	8	2	27		
24.	Nauplii	4	9	6	8	13	10	50		
	Ostracoda	4	6	1	1	5	2	19		
25.	Heterocypris	2	5	1	1	7	2	18		
26.	Cyclocypris	1	2	*	*	1	*	4		
27.	Stenocypris	1	1	1	*	1	2	6		
28.	Eucypris	*	1	*	*	1	*	2		

29.	Centroypris	*	1	1	1	4	*	7
	Class- Insecta							
30.	Insects	11	20	10	11	25	15	92
31.	Insects larva	2	10	10	5	10	10	47
	Order-Hemiptera							
	Family-Corixidae							
32.	Corixa	*	1	*	*	1	*	2
33.	Water mites	*	*	*	*	*	*	
34.	Choaborus larvae	*	*	*	*	*	*	
	Family-Natonectidae							
S.NO.	Name of Zooplanktons	Site- I			Site- II			Total NO.
		S	M	W	S	M	W	
35.	Notonecta	*	*	*	*	*	*	
36.	Dragon Fly nymph	*	1	*	*	1	*	2
37.	Archnids water spiders	*	1	*	*	*	*	1

S= Summer

M= Monsoon

W= Winter

*= Nil

Table no.-1.

Mainly phylum Protozoa, Rotifera and Arthropoda fauna were present in different seasons in the lake.

CONCLUSION

Based on the all survey this is found out that total 37 species of 3 phylum were present. Insects were maximum in number and water spiders were minimum in number. Only one water spider was seen. Water mites were absent. Ceriodaphnia rigaudi were maximum and Brachionus calyciflorus were second maximum species which were found. Phylum Arthropoda's class insecta, 92 insects were seen which was highest fauna recorded during investigation.

REFERENCE

1. Alikunhi, K.H.; Chaudhari, H.; and Ramachandran, V. (1995): On the mortality of carp fry in nursery ponds and the role of plankton in their survival and growth. *Indian J. fisheries*. 3 (2): 257-313.
2. Ali, M., Khan, AA, Haque, N. (1990): Population dynamics of rotifer fauna from two tropical ponds of aligarh. India. *Proc. Nat. Acad. Sci.*
3. Bamakanta, G., Sunakar, P., Satyabhama, T. & Prasad, T.U. (2013). Seasonal variation of Nagavali River water Quality at the Vicinity of Paper Mill near Jaykaypur, Odisha, India. *International Research Journal of Environmental Science*, 2(5), 46-52.
4. Bulgareanu VAC. Protection and management of anthroposaline lakes in Romania. *Lakes and Reservoirs: Research and Management*. Bucharest. 1996; 2:211-229.
5. Chatterji, k. and Gopal, B. (1998): Experimental study of Emergence of Zooplankton in Temporary waterbodies in relation to dry periods. *Verh. Int. Ver. Limnol.* 26: in Proofs.
6. Hammer T. Saline lake ecosystems of the worlds. *Monographiae biologicae*. Junk Publishers. Dordrecht. 1986; 59:616.
7. Javor B. Planktonic standing crop and nutrients in a saltern ecosystem. *Limnology and Oceanography*. Elsevier. Stuttgart. 1983; 28:153-159.
8. Minegishi H. Halophilic, acidophilic, and haloacidophilic prokaryotes. In: Seckbach J. Oren A., Stan-Lotter H. (Eds.). *Polyextremophiles, Life under multiple forms of stress*. Springer. Dordrecht, Heidelberg, New York, London, 2013, 201-213.
9. Shukal, D and A.A. Rahaman (2006): Sambhar Lake A wetland- An Assessment. Ist International conference on the Ecological Importance of Solar saltworks (CEISSA 06). Santorini Island, Greece. 38-43.
10. Upasani, V.N. 2008. Microbiological studies on Sambhar Lake (Salt of Earth) Rajasthan, India. In *Proceedings of TAAL 2007- The 12th world Lake conference*, 448-450.
11. Vivek Upasani and Suresh Desai (1990): Sambhar Salt lake- Chemical Composition of the brines and studies on haloalkaliphilic archaeobacteria. *Arch Microbiol*, 154: 589-593.
12. Tewari, D.N. 1994. *Mangroves and wetlands for conserving Environment*. International Book Distributors, Dehradun. pp. 78-99.