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BIODIVERSITY OF ZOOPLANKTON FROM SONHIRA LAKE OF KADEGAON TAHSIL, SANGLI DISTRICT, MAHARASHTRA, (INDIA)

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ABSTRACT

The present investigation deals with the study of zooplankton biodiversity from Sonhira lake, of Kadegaon Tahsil, Sangli District, Maharashtra. The study was carried out for a period of one year i.e. July 2015 to June 2016.Qualitative and quantitative study of zooplankton reveals that total 20 species belonging to 4 different groups were recorded and found abundant under different climatic conditions. It comprises 10 species of rotifer, 5 species of cladocera, 4 species of copepod and 1 species of protozoa. Zooplanktons were found rich in summer as compare to rainy and winter season.

KEYWORDS: Sonhira Lake, Biodiversity, Zooplankton.

Planktons are the groups of microscopic plants and animals which are minute and able to spend their whole life floating in the water. The quality and quantity of plankton population bear much influence on the production potential of an aquatic ecosystem. Planktons consisting of plant part called as phytoplanktons while planktons which are of animal origin are called as zooplanktons. Zooplanktons are microscopic floating and drifting planktonic animals with limited power of locomotion (Ahlstrom,E.H.,1936). They are primary consumer and intermediate link between phytoplankton and fish which conserve energy from primary to secondary trophic level (Kadam S.S., And Tiwari L.R.2012). The maintenance of a healthy aquatic ecosystem is dependent on the abiotic properties of water and the biological diversity of the ecosystem. Zooplankton is most important biotic component in food chain of aquatic ecosystem. They constribute significantly to biological productivity of aquatic ecosystem by influencing food chains, food webs, energy flow and cycling of organic matter (Sinha B. And Islam M. R., 2002). The zooplankton abundance and their diversity are used to determine the health of aquatic ecosystem(Marine Biology Organisation MBO 2007). Zooplankton acts as bioindicator of changes in water quality status, because it is quickly responded to changes in environmental conditions (Gannon and Stemberger, 1978). Study of zooplankton community have significant role for assessing biodiversity and health of aquatic ecosystem. So the present study was carried out to understand the biodiversity of zooplankton from Sonhira lake of Kadegaon Tahsil, Sangli District, Maharashtra. (India).

MATERIAL AND METHODS:

STUDY AREA: Sonhira lake is located inSonkire village of Kadegaon Tahsil, Sangli district, Maharashtra, India. Sonhira lake is a major water source for agriculture, domestic use, fisheries and for industrial purpose.Sonkire village is located in Kadegaon Tehsil of Sangli district in Maharashtra, India. It is situated 25km away from sub-district headquarter Kadegaon and 65km away from district headquarter Sangli. The total geographical area of village is 1161.65 hectares. Sonkire has a total population of 2,238 peoples. There are about 479 houses in Sonkire village. Vita is nearest town to Sonkire which is approximately 40km away.The climatic condition of the study area was hot summer and cool winter and temperature range a minimum 24ºC and a maximum of 42ºC. The study area gets most of its rainfall from June to September during the monsoon.

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Figure 1: Map of Study Area, Sonhira Lake of Kadegaon Tahsil, Sangli District, Maharashtra (India)

COLLECTION OF SAMPLE

Zooplankton samples were collected monthly from three different station of theSonhira lake from July 2015 to June 2016. Samplings were made early in the morning between 9.00 am to 10 am with the help of silk plankton net of mesh size 50µ . Samples were made by filtering 200 liters of water through it and filtrate was stored in plastic bottles and 4% formalin was added for preservation. These samples were then brought to laboratory for further quantitative and qualitative studies. Quantitative study were made with the help of Sedgwick-Rafter cell. Identification and enumeration of zooplankton were done by a light microscope. The systematic identification of zooplankton was made by using standard keys of Adoni A.D.(1985), Michael R.G. and Sharma B.K.(1998), Edmondson W.T.(1963), Pennak R.W.(1968), Dhanapathi M.V.(2000), Altaff K.(2004).

RESULTS AND DISCUSSION

In present investigation, total 20 species belonging to 4 different groups were found abundant under different climatic conditions. Out of 20 species,10 species of rotifer, 5 species of cladocera, 4 species of copepod and 1 species of protozoawere recorded during

the study period (Table-1). Zooplankton were found rich during summer as compare to rainy and winter season.

Mahor R.K.(2011), Krishnamoorthi, A. and Selvakumar S. (2012) were studied on protozoan diversity and abundance. They were found maximum density of Protozoa in summer and winter months and minimum in monsoon months. The rotifera were found in maximum numbers during the winter and summer season but minimum number were found during the monsoon.According to Adoni,(1985),the density of rotifera as well as their diversity increases due to increase in eutrophication. Gannon and Stemberger, (1978), Singh and et.al., (2002), studied on density and biomass of cladocerans and their finding was density of cladocerans correlates with food supply. According to Chauhan, R (1993), the average density of Copepods were reported maximum during summer season and minimum during monsoon season . Similar findings were observed by Thirupathaiah, M., and et. al.,(2012), and Patel. V.,and et.al.,(2013).

Table 1: Biodiversity of Zooplanktons Recorded in Sonhira Lake of Kadegaon Tahsil, During Study Periodjuly 2015 to June 2016.

Groups	Family	Species
Rotifera	Brachionidae	*Brachionusangularis*(Gosse,1851)
		Brachionuscalyciflorus(Pallas, 1766)
		Keratellacochlearis(Gosse,1851)
	Lecanidae	*Lecanelunaris*(Ehrenberg,1982)
	Gastropodidae	*Gastropus minor* (Rousselet 1892)
	Asplanchnidae	*Ascomorphaovalis*(Begendal, 1892)
	Synchaetidae	*Synchaetasp.*
		Polyarthra vulgaris (Carlin, 1943)
	Philodinidae	*Philodina citrine* (Ehrenberg)
	Testudinellidae	*Filinialongiseta*(Ehrenberg)
Cladocera	Daphnidae	*Daphaniapulex*
		Daphaniacarinata
		Moniabrachiata
	Bosminidae	*Bosmina*Sp.
		Alonapulchella(King)
Copepod	Diaptomidae	*Cyclopoidcopepodite*
		Diaptomuspallidus
	Cyclopidae	*Cyclops sp.*
		Mesocyclopssp.
Protozoa	Parameciidae	*Paramecium caudatum*

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