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# Biotic Study of Water at Hiran Minar, Sheikhupura (Pakistan)

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## ABSTRACT

Biotic study of water at Hiran Minar revealed that Phytoplanktons population was represented mainly by Euglena, Microcystis, Volvax, Spirogyra, Oedogonium and Oscillatoria. The distribution of Phytoplankton was irregular, maximum growth occurred during the summer months. Among the Zooplankton: Cyclops, Daphnia, Brachionus, Rotaria and Macrothrox were found.

**Key Words:** Biotic study; Water; Pakistan

## INTRODUCTION

Fish culture is considered today as one of the most promising source of animal protein for the future (Hepher, 1978). However, serious attention has not been given to develop fish cultivation on scientific lines. Pakistan has immense inland water resources but these are not adequately harvested so far due to lack of research and technical knowledge. To develop fisheries and to get maximum economical yield from a limited area of fresh water, it is essential to use fertilizers to obtain large masses of microscopic flora and fauna, which provide food for fish. This paper describes the biomass of water at Hiran Minar, Sheikhupura.

## MATERIALS AND METHODS

The Biotic study of Hiran Minar Water Tank, of Sheikhupura, was carried out for a period of one year. The tank was somewhat rectangular in shape with the length of 890 and 750 ft. at North–South and East–West sides, respectively. The tank was about 8 ft. deep and supplied with canal water on six month basis. Samples were collected by sweeping the sites with the help of Planktnic hand net and was transferred into collecting jars. The organisms were identified under the compounds microscope up to generic level. The identification was carried out with the help of Fresh water Biology by Ward and Whipple (1959). For permanent slides Zooplankton were first washed thoroughly in water and then dehydrated in various grades of alcohol and stained with Borax carmine. The specimens were finally cleared in clove oil.

## RESULTS AND DISCUSSION

The biotic components include the entire living community (producers, consumers, and decomposers etc.). It is expressed as standing crop or biomass. The over all range of biomass throughout the study period was 2.13 – 10.33 g/L. The maximum value 10.33 g/L during the second fortnight of June and minimum value 2.13 g/L during the second fortnight of October.

The dry weight of planktonic biomass per litre (mg/L) including the Phytoplankton and Zooplankton gave a vivid picture of productivity. The maximum value of biomass 10.33 mg/L was recorded during the second fortnight of June and minimum 2.13 mg/L was recorded during the second fortnight of October.

In this study, the Phytoplanktons population was represented mainly by Euglena, Microcystis, Volvax, Spirogyra, Oedogonium, and Oscillatoria. The distribution of Phytoplankton was irregular, maximum growth occurred during the summer months. Similar seasonal distribution pattern of Phytoplankton was reported by Campos *et al.* (1987), who reported maximum density and biomass in summer. Among the Zooplankton: Cyclops, Daphnia, Brachionus, Rotaria and Macrothrox were found. Phytoplankton were found during the months of June – October and February to April. During the months of November, December, and January Phytoplankton were completely absent. During the whole year Asplanchna and Daphnia were major inhabitants. The highest percentage of Phytoplankton was found during the months of June and July and Zooplankton in the month of October.

Among the Zooplankton population Protozoans, Rotifers and Crustaceans were observed. Only paramecium was observed in the months of December up to May; the most abundantly found Rotifers were Branchionus, Asplanchna and Crustanceans were Cyclops and Daphnia. Vilcerk and Fuzia (1981) documented that dominant groups of Zooplankton were Rotaria and Cladocera. The result corresponds with the result of above mentioned workers. Branchionus was completely absent from the samples in the months of July, November, December, and January and remained almost at the same level throughout the study period while Asplanchna was present in all samples except in August, such fluctuations in the distribution of these

genera is not explainable. However, the fauna, of Rotifers is closely related to changing parameter of temperature and pH (Turner, 1980). But it is evident from the results that the Rotaria diversity was highest. Vilcerk and Fuzia (1981) reported that maximum density of the Rotifer population was in January and of crustaceans in March. Our results are in conformity with the results of above mentioned reports.

Cyclops were found only in the last four months of the study period (from February to March). They started appearing with the rise of temperature and maximum growth was recorded in the month of April. The most important and abundant Crustaceans were Daphnia. This genus was recorded when the Cyclops started disappearing. Daphnia population increased with the decrease of temperature. This shows that temperature affects the species composition, diversity and abundance.

## REFERENCES

Campos, H., W. Steffen, O. Parra, P. Dominguez and G. Aguero, 1987. Limnological studies in Lake Caburgua (Chile). *Gayana. Bot.,* 44: 611–84.

Hepher, B., 1978. Ecological aspects of Warm Water Fish Pond Management. *In: Ecology and Fresh Water Production.* Blackwell Scientific Publications, Oxford, London, pp: 447–67.

Turner P.N., 1980. Seasonal distribution of Rotifers in Lake Maury Newport, New Virginia USA. *Biol. Abst.,* 71: 1981, 15753.

Vilcerk, F. and J. Fuzia, 1981. Network Zooplankton of 3 peat bags in Qrava (North Slovakia). *Czechoslovakia Biologia (Bratisl),* 30: 353–62.

Ward, H.B. and G.C. Whipple, 1959. *Fresh Water Biology*. John. Wiley and Sons, Inc. London, pp: 115–862.

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