

Qualitative abundance of zooplankton of Bishleri stream of Banihal, Doda (Jammu & Kashmir state)

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ABSTRACT

The main drainage of the Distt. Doda is the river Chenab formed by the confluence of Chandra and Bhaga streams. The other tributaries of the river Chenab are Neeru stream, Kalnei streams, Chatroo stream, Bishleri stream with a number of their tributaries. The present study was carried for a period of two year from January, 2003 to December, 2004 on Bishleri stream by dividing the stream into different stations. A total of 16 genera of zooplankton were recorded from the stream, out of them, 08 belong to rotifera, 04 to protozoa, 02 each to copepoda and cladocera.

Key words: Zooplankton, Bishleri, Banihal.

The knowledge of plankton, available in an ecosystem, is of fundamental importance. Zooplankton are the microscopic free-swimming animal components of aquatic systems. They are represented by a wide array of taxonomic groups, of which the members belonging to protozoa, rotifera, cladocera and copepoda are most common and often dominate the entire consumer communities. In all the aquatic ecosystems, zooplankton plays an important role in the transfer of energy at the secondary trophic level. Studies have been made on the problems related to food chain, production of different trophic levels and relationship between phytoplankton and zooplankton (Qasim, 1970; Qasim, 1977 and Balachandran and Peter, 1987). Biotic factors that influence zooplankton communities include "bottom up" (producer or resources controllers) parameters such as phytoplankton biomass and productivity and "top down" (Consumers controllers) parameters such as vertebrate and invertebrate predation pressure (McQueen *et al.*, 1986). Studies on zooplankton in relation to the physico-chemical characteristics of water have been conducted by Ganapati (1943), Arora (1966), Gupta *et al.* (1985), Radheyshyam *et al.* (1985) and Expedith *et al.* (1989). Zooplankton standing crop in most of the north Indian waters, especially those of Kashmir, shows cyclical pattern in its seasonal fluctuations with two or more peaks (Vasist

and Dhir, 1970; Yousuf and Qadri, 1985; Balkhi *et al.* 1987). The peak populations have been recorded at different times of the years in different waters bodies. Despite of all this, the available literature revealed that the information on the phytoplankton of Bishleri stream are lacking. Therefore, the present study is an endeavour to elucidate the qualitative abundance of phytoplankton of Bishleri stream.

The present study was carried on Bishleri stream by dividing the stream into different stations. Zooplankton collection was made by filtering 100 litres of water through plankton net of bolting silk No 25 (0.06 mm mesh size) for a period of two years. It was preserved in 5% formalin and the identification was done with the guide lines given by Needham and Needham (1962), Pennak (1978), Battish (1992) and APHA (1995).

Sixteen genera of zooplankton were recorded from different sampling stations of the stream. They belonged to four groups viz. 4 to Protozoa, 8 to Rotifera, 2 each to Cladocera and Copepoda. The rotifera were represented by *Brachionus*, *Colurella*, *Euchlanis*, *Keratella*, *Lepadella*, *Monostyla*, *Notholca*, and *Trichocera*; protozoa by *Arcella*, *Centropyxis*, *Diffugia* and *Glucoma*; copepoda by *Cyclops* and *Naupilus* and cladocera by *Alona* and *Chydorus*. The *Diffugia*

and *Centropyxis* are the genera which were encountered commonly at all the sampling stations. The maximum zooplankton population was recorded during the month of December and the minimum in the month of August during both the years of study. Among zooplankton, the rotifers dominated all the groups. Protozoans stood 2nd in abundance, where as cladocerans and copepoda were poorly encountered in all the samples. The overall low density of zooplankton was probably due to occasional floods and fast current of the stream water. These observations are in agreement with those of Srivastava *et al.* (1990), who reported the low density of zooplankton in mid stream of river Ganga due to fast currents and floods. Raina *et al.* (1982) also found that zooplankton remains numerically low in Jehlum river.

Zooplankton standing crop in most of the North Indian waters, especially those of Kashmir, shows a cyclical pattern in its seasonal fluctuations with two or more peaks (Vasist and Dhir1970 and Balkhi, 1987). The inter-specific competition provides continuous seasonal succession of the planktonic community. The peak zooplankton population during the month of December, recorded by the present author, may be associated with the slight decline of phytoplankton during this period,, which may probably be due to the grazing effect of zooplankton over phytoplankton. When the zooplankton exhibited slight decline in its abundance, the phytoplankton maintained increasing trend. This finding gets support from the work of Radheshyam *et al.* (1985).

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