Species richness and density of Rotifers from Malpur reservoir in rain deficient Area of North Maharashtra, India and their seasonal changes as well as correlation with Physico-Chemical Parameters

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Abstract

Density and diversity of rotifers studied from Malpur Reservoir, in the rain deficient area of Dist-Dhulein North Maharashtra for two years revealed presence of 25 species of 11 genera. Genus *Brachionous* of family Brachionidae was found to be the most represented genus with 10 species while other 10 genera were represented by one, two or three species each only.Seasonal fluctuation in both density and diversity were found to be maximum in summer, while minimum in winter. Variety of environmental factors that include biological parameters, such as predation or competition, as well as various physico-chemical factors are known to influence rotifer community structure. The Pearson Correlation calculated by keeping rotifer as dependent variable and other abiotic factors as independent variables indicated the influence of various physicochemical parameters on their density as well diversity. In present study rotifer density was found to be positively correlated at $P< 0.01$ (**) with Ambient temperature, water temperature, TDS, TS, pH, CO_2 , Total Hardness, Magnesium, Chlorides and Sulphates while negatively at same level with Water Cover, DO and Phosphates. The influence of physicochemical parameters on density and species richness of rotifers in this monsoon deficit region is discussed. Records of taxa from different areas are expected to help in generalizing and plotting geographical distribution patterns of the group. This paper deals with documenting rotifers from North Maharashtra, a comparatively less represented area as far as rotifer distribution is concerned. The present study is attempted to find out diversity and density of rotifers at Malpur reservior in Dhule and Nandurbar districts of North Maharashtra, India.

Key Words: Malpur Dam, rotifers, Pearson Correlation, Seasonal variation.

Introduction

Zooplankton, the free swimming microscopic heterogeneous assemblage of minute floating animal forms, found in aquatic systems are represented by wide assortment of taxonomic groups (Rotifera, Cladocera,

Molluscs and Their Correlation with Physico-Chemical Parameters of Three Wetlands of North Maharashtra, India.

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Abstract

Three wetlands, Malpur dam, Baldane reservoir and Krishna Park, situated in North-West Maharashtra (India) have been studied from Oct 2011-Sept. 2013 for molluscan diversity and physicochemical characteristics of the water. A correlation between Molluscs collected by using unit cover method and water samples collected from three points each from each wetland have been attempted. The biotic samples and water samples carried to the laboratory for qualitative and quantitative evaluation with respect to molluscan density and species richness while abiotic components of water have been analysed over three seasons winter, summer and monsoon. The values thus obtained have been used to find out correlation between water parameters and density and species richness of mollusc by keeping molluscs as dependent variable and abiotic factors as independent variables. Total fifteen species of molluscs belonging to ten genera and six families were recorded. Maximum density and species richness were recorded in monsoon and minimum in winter. The positive or negative, significant or non-significan correlation of molluscan density and species richness with physiscochemical parameters of water that produce cumulative effects are discussed.

Keywords: Mollusc, Density, Species richness, Amrawati dam, Baldane reservoir, Krishna Park,

Physicochemical parameters.

Introduction

Molluscs are highly successful invertebrates in terms of ecology and adaptation and are found nearly in all habitats ranging from deepest ocean trances to the intertidal zone, and freshwater to moist land occupying a wide range of habitats (Dillon and Robert, 2004; Strong *et al*., 2008). The first molluscs appeared as early as Cambrian period, approximately 500 million years ago. Among the faunal diversity, mollusca are second largest group, which follows arthropods (1,113,000 numbers), and is followed by chordates (52,000) (Ruppert *et al*., 2004). Around 2,00,000 living species of molluscs are known to occur (Strong *et al*., 2008) with fossil species estimated to be around 70,000 (Brusca and Brusca, 2003). According to Venkataraman and Wafer (2005), in India about 5070 molluscan species have been recorded of which 3370 are Marine. The later have received more attention because of their aesthetic and gastronomic appeals while less attention is received by freshwater molluscs probably due to their drab colours (SubbaRao, 1989). Globally, approximately 4,000