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Species Composition, Abundance and Distribution of Aquatic Oligochaetes in Colombo (Beira) Lake, Sri Lanka

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Abstract

Species composition, abundance and distribution of aquatic oligochaetes in Colombo (Beira) Lake were investigated from May 1993 to April 1994. Twenty two species of oligochaetes were identified representing 3 species of Aeolosomatidae, 17 species of Naididae and 2 species of Tubificidae. Seven species were recorded for the first time from Sri Lanka. These species are *Aeolosoma travancorense*, *Aeolosoma viridae*, *Allonais gwaliorensis*, *Dero dorsalis*, *Dero indica*, *Pristina synclites* and *Stephensiniana trivandrana*. The populations of aquatic oligochaetes fluctuated considerably in size throughout the study period. *Aulophorus michaelsoni*, *Branchiodrilus semperi*, *Pristina longiseta* and *Aulodrilus pigueti* were the most abundant species. Abundance of some species of oligochaetes was positively correlated with rainfall, organic matter content in the bottom sediment, pH, dissolved oxygen content, biochemical oxygen demand, nitrate and phosphate content in the bottom water whereas negative correlations were observed with salinity and conductivity in the bottom water ($P < 0.05$). The number of species and the density of worms in the saline areas of the lake were comparatively low. *Aulophorus michaelsoni* and *Aulodrilus pigueti* were the most abundant species in these areas.

Introduction

Aquatic oligochaetes constitute one of the most abundant groups of benthic invertebrates in aquatic environments. These worms are very important as a food resource for a large number of predators such as benthic feeding fish and some insects, and as primary material exchangers across sediment-water interface (Darby 1962; Popchenko 1971; Bouguenec & Gaini 1989). The composition and abundance of benthic organisms are closely related to quality of waters in waterbodies (Mackenthum 1966). Aquatic Oligochaetes are dominant organisms in organically polluted aquatic environments and can be used successfully as biological indicators for the determination of water quality (Bruse et al. 1975; Lobe & Space 1993; Sarkka 1994).

Taxonomy, biology and ecology of aquatic oligochaetes in Sri Lanka are poorly known. Studies on aquatic oligochaetes have been mainly taxonomic and have been restricted to few localities in Sri Lanka (Weerakoon & Samarasinghe 1958; Mendis & Fernando 1962; Costa 1967; Costa & De Silva 1978c, Costa & De Silva 1978d). Colombo (Beira) Lake is a perennial inland waterbody, slightly saline in parts, situated close to the Colombo harbour. It has been considered as an eutrophic (Weninger 1972) and highly polluted waterbody in Sri Lanka. Although limnological and some biological aspects of the lake have been studied extensively, no detailed study has yet been carried out on aquatic oligochaetes in this lake. The present study was carried out to determine the species composition, abundance and distribution of aquatic oligochaetes in the lake. In addition, an attempt was made to correlate the abundance of oligochaetes to environmental characteristics of the lake.

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Beira lake

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