



PHYTOPLANKTON COMPOSITION AND BIOMASS FLUCTUATIONS IN THE MALLATHAHALLI LAKE SYSTEM OF BANGALORE, KARNATAKA, INDIA

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ABSTRACT

The succession and phytoplankton composition of the Mallathahalli Lake in Bangalore, Karnataka, India, were investigated in a meta - analysis. Between May 2018 and April 2019, the analysis was carried at six stations at weekly intervals. Planktonic richness and biovolume were found to be low in the wintertime, while greater values were found in spring and early summer. The spring peak was $421.38 \times 10^5 \text{ ind.L}^{-1}$ and $7546.8 \text{ mm}^3 \text{ L}^{-1}$, both of which belonged to *Peridinium sp.* Low outflow at stations 1 and 2 in early summer favoured the most abundant diatom, *Cyclostephanos dubius* ($213.48 \times 10^5 \text{ ind. L}^{-1}$ and $10.02 \times 10^5 \text{ ind. L}^{-1}$, respectively). The values of chlorophyll-a ranged from 0.78 to 60.32 g L^{-1} . There were 149 taxa identified, including Bacillariophyta, Cyanophyta, Chlorophyta, Dinophyta, Euglenophyta, Streptophyta, Heterokontophyta, and Xanthophyta. Dinophyta dominated the total biomass at points 1 and 2, whereas Bacillariophyta dominated at the other points. Over 70% of the overall phytoplankton abundance was accounted for by five main genera (Peridinium, Ceratium, Phacus, Cyclostephanos, and Melosira). The abundance of phytoplankton was significantly associated to Chl-a and temperature ($r = 0.51$ and $r = 0.96$, respectively, $P < 0.05$).

Key words: Phytoplankton, abundance, biomass, seasonal fluctuations, Mallathahalli lake