Diversity and abundance of phytoplankton in Diyawanna Lake, an urban wetland in the Western Province of Sri Lanka

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The abundance and diversity of phytoplankton in Diyawanna lake in the administrative capital of Sri Lanka, Sri Jayawardenepura Kotte was studied during the inter-monsoonal and southwest monsoonal periods of 2015. Phytoplankton were sampled using a 50µ plankton net in March, May, July, September and November 2015 in five sampling sites, two in the un-rehabilitated region and three in the rehabilitated region, with the objective of comparing their diversity and abundance in these two regions of the lake. Total of 31 species of green algae, 15 species of cyanobacteria, 11 species of diatoms and 4 species of flagellates were identified during the study. Abundance of these phytoplankton, which are >50µ in size ranged from 1490/L to 2547/L at different sampling sites. Species richness ranged from 34 to 44 while Shannon Weiner diversity index ranged from 2.60 to 2.80. Pielou'sevenness index was 0.71 - 0.77. The most abundant species was the green algae *Oedogonium* sp. (811/ L). The most abundant cyanobacteria and diatom species were *Microcystis aeruginosa* (121/L) and *Melosira granulata* (134/L) respectively. Mean abundance of cyanobacteria and diatoms was significantly higher in the rehabilitated region than in the un-rehabilitated region ($p<0.05$). Mean abundance of toxin producing cyanobacteria species *Microcystis aeruginosa* was also higher in the rehabilitated region than in the un-rehabilitated region ($p<0.05$). This may be due to nutrient enrichment of the rehabilitated area through urban runoff and domestic household wastes. Due to high abundance of *Microcystis aeruginosa*, consumption of fish living in this area of the wetland may cause health issues. In addition to removing aquatic macrophytes such as *Hydrilla verticillata* and *Eichhornia crassipes* at fortnightly intervals in the rehabilitated region by mechanical means, action may also be taken to reduce nutrient enrichment of this region of the wetland.