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Hydrological studies of metal contaminated lakes of Bangalore city, Karnataka

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Water an essential requisite of an ecosystem for the sustainability of life on earth. Hydrological parameters, important components of water are essential for the analysis of water quality that provides information about the changes caused by anthropogenic activities and also by different seasons throughout the year. The two lakes, Vengaiiah lake (Lake A) and Yellamalappa Chetty lake (Lake B) taken for the study are located in Bangalore city, important for charging the groundwater and also are the source of livelihood for local fishing community. The aim of present investigation was to assess the water quality of the two selected lakes, by determining their physicochemical parameters, such as temperature, turbidity, acidity, alkalinity, TDS, TSS, DO, BOD, COD, nutrients (total phosphorus and nitrate) and trace metals. These parameters were assessed seasonally for their pollution and trophic status. The data revealed eutrophic condition of lake A due to the presence of high concentration of turbidity, conductivity, TDS, TSS, alkalinity, total phosphorus & BOD since it received domestic sewage from the adjacent storm water drain whereas lake B showed statistically significant variation in the levels of all physico-chemical parameters when compared to standard values. Presence of trace metals such as copper, zinc and iron and heavy metals such as aluminum, cadmium, lead and mercury due to contamination caused by human interference and discharge of partially treated and untreated industrial effluents from neighboring pharmaceutical industry into the lake B was recorded and such changes were prominent during the summer, rainy and winter season. Consequently, lake B showed a high level of pollution when compared to that of lake A, which may be due to the level of trace metals more than the standard BIS permissible limits and low levels of dissolved oxygen. Standard values for freshwater bodies given by BIS: 10500-1991 (revised 2003) were used for the comparison of water quality in general.

Biography

Bela Zutshi has completed her PhD in 1994 from Bangalore University. She has published more than 20 papers in reputed journals and has served as member in high profile State level Environment Assessment Committee, Govt. of India and other scientific bodies related to environment. She has published more than 25 papers in reputed journals and has been serving as an editorial board member of reputed.

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