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Study of selected aquatic plants as bio-indicator of Arsenic

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Abstract: *In this study species of Eichhornia, Hydrilla, Marsilea and Pistea were exposed to three Arsenic concentrations (1mg/L, 2mg/L and 3mg/L). The selected aquatic plants were screened for potential bio-indicator of Arsenic, by observing the morphological changes and analyzing the effect of Arsenic on chlorophyll (Chl a) content of the leaves and COD of water enriched by Arsenic. Changes were observed in the morphological character of the plant samples as the colour of the plant changed from green to yellow, to brown and death at the end of retention period. Among all the samples lowest chlorophyll content at concentration 3mg/L was estimated as 3.05 mg/L in Eichhornia spp. Highest COD was also observed in Eichhornia as 2.86 mg/L at concentration 3mg/L. Marked changes were also observed in all the species selected. Hence, the selected aquatic plants are effective bio-indicator of Arsenic.*

Keywords*: Phytoremediation, Chemical Oxygen Demand, Total chlorophyll concentration, UV-VIS Spectrophotometer.*

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Introduction:

Arsenic is a chemical element which belongs to nitrogen group. In drinking water 50 ppb is considered as the accepted level for Arsenic. In aquatic plants the accepted level for concentration of Arsenic is reported as 0.002-0.25mgml^{-1} (Zhao et al 2010). Plants may indicate the quality of water in a wide variety of ways. Their distribution in morphological character, COD and chlorophyll pigments may be used to detect important feature of the aquatic plants. Aquatic plants have been suggested as bio-indicator to monitor changes in Arsenic level in the aquatic environment. This ability of the plants can be monitored in the laboratory. Aquatic plants must be representative of the area where Arsenic is collected and allow for identification.