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Pistia stratiotes (L.) grown within a hydroponic system for the treatment of zinc in relation with water parameters

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ABSTRACT: A very promising environmental friendly and cost effective alternative is plant based bioremediation (phytoremediation). Phytoremediation refers to the natural ability of certain plants to bioaccumulate, degrade, or render harmless containments in soil, water, or air through the natural, biological, chemical or physical activities and processes of plants. To understand the effects of heavy metals upon plants and the resistant mechanisms, would make it possible to use plants for cleaning and remediating heavy metal polluted sites. The effects of increasing concentrations of zinc on growth characteristics of *Pistia stratiotes* including root length and leaf area was studied. pH of the solution tend to become neutral while increase in turbidity might be related with root exudates and dead organics by the plants growing in the pot whereas decrease in acidity was observed with increase in concentration. In this study increasing concentration of zinc showed higher accumulation capacities and may be better treatment option for zinc by means of phytoremediation. The present investigation also reveals that *Pistia stratiotes* can be effectively used to cleanup aquatic ecosystems. Estimation of Translocation factor is very much important. It indicates that the species is more favorable to tolerate higher concentrations of heavy metals and also helps a lot in decontamination of the land, water etc. In this study increasing concentration of zinc showed higher accumulation capacities and may be better treatment option for zinc by means of phytoremediation.

Key Words: Phytoremediation, physico-chemical parameters, heavy metal accumulation, *Pistia stratiotes* (L.), growth analysis, translocation factor.