ABSTRACT

In the complex arena of pollution studies, "bio-monitoring" is assuming great importance for the direct subjectivity of the test systems, simple yet cost-effective methodologies and reasonbly good reliability. Of the different toxicants, industrial effluents carrying heavy loads of metallic ions readily find their way to aquatic media and pose a real danger not only to the aqatic biota but to human beings as well through the food chain.

Within a short span of time, however, a number of methodologies have been developed to note the impact of toxicants at various levels; from community to molecular. In this respect huge arrays of aquatic flora can serve the purpose well on two counts : their direct subjectivity and sensitivity for 'monitoring' and remarkable bio-accumulation capacity for "scavenging".

During the present programme attempts have been made to utilize two commonly occuring aquatic macrophytes, <u>lemna minor</u> and <u>Hydrilla verticillata</u>, as test systems. Bio-monitoring possibilities of three metallic salts, viz. Mercuric chloride, Cadmium chloride and Copper sulphate, at different concentrations under different time periods, have been assessed. In the first phase an overview has been made, in the light of the present programme, of the state of the **see** knowledge of bioassay procedures, achievements and limitations.

Then the comparative bioaccumulation capacity of the two plants has been tested through their uptake and retention potential.

In the next phase, a number of standard physiological and biochemical parameters have been tested on a quantit_ative basis to note the differential potential of monitoring agents vis-a-vis test materials.

In the final phase the possibility of utilizing electrophoretic technique (PAGE) for the analysis of peroxidase isoenzyme system as pollution marker has been attempted.

All these studies have shown that both the plants can be profitably exploited for the purpose. The response of Lemna could be better resolved than <u>Hydrilla</u>.

Key Words? Aquatic macrophytes, <u>Lemna minor, Hydrilla</u> <u>verticillata</u>, Heavy metal pollution, Bio-monitoring, Bioaccumulation, Physiological and Biochemical parameters, Peroxidase isozymes, electrophoresis.