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CHANGES IN LOW MOLECULAR WEIGHT ORGANIC ACIDS AND ANTIOXIDATIVE ENZYME ACTIVITIES OF WETLAND PLANTS UNDER METAL STRESSES

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Abstract

The release of low molecular weight (LMW) organic acids under lead (Pb) and zinc (Zn) stresses in *Typha latifolia* (*T. Latifolia*) and *Vetiver zizanioides* (*V. zizanioides*) were investigated. In addition, changes in antioxidative enzymes: superoxide dismutase (SOD) and peroxidase (POD) in the leaves of *T. Latifolia* under Pb stress were also examined. Amongst the eight types of LMW organic acids detected in the present study, oxalic acid was found to be the most dominant during Pb and Zn treatments. In *T. Latifolia*, the release of organic acids was assumed to have been complexed by Pb and Zn, with oxalic acid was the only organic detected. A mild antioxidative response was observed in *T. latifolia* when grown in Pb toxicity, where lipid peroxidation, SOD and POD increased with increasing Pb concentration. Based on the present results, it can be concluded that heavy metals may be complexed by the release of LMW organic acids and detoxified antioxidative enzymes from plant.

Key words: Cattail, MDA, POD, root exudates, SOD, Vetiver

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