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BIOLOGICAL TREATMENT OF WASTEWATER CONTAMINATED WITH Cu(II), Fe(II) AND Mn(II) USING *LUDWIGIA STOLONIFERA* AQUATIC PLANT

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Abstract

The release of metals from many industrial processes into aquatic ecosystems is currently a major environmental threat, especially in developing and emerging countries. Most traditional treatment approaches are not efficient in terms of removal yield and cost. Plants have the ability to stabilize metals in a fast and cost-efficient way. In this context, aquatic plants are successfully applied for remediation of hazardous elements from industrial wastewater. This study demonstrates the capability of the wetland macrophyte, *Ludwigia stolonifera*, in uptake and accumulation of three metal species (Cu, Fe and Mn) dissolved in artificial industrial wastewater. Four days treatment of artificial wastewater containing 100 ppm of Cu, Fe and Mn remove about 86%, 74%, 93%, respectively, of the individual metals. *L. stolonifera* displayed a considerable metal recovery potential after exposure to different environmental conditions regarding acidity, illumination and metal concentration. The data obtained in this study underline the high capability of *L. stolonifera* for phyto-mediated purification of wastewater contaminated by metals, which is widely independent from the cultivation conditions.

Key words: phytoremediation, *Ludwigia stolonifera*, metals, wastewater

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