



Effects of rhamnolipid on the adsorption of Pb^{2+} onto compost humic acid

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ABSTRACT

Biosurfactants can be applied to improve the micro-environment and efficiency of composting, but their biosurfactant effects on the adsorption of heavy metals and humic acid (HA) remain undefined. This study aims to deal with the effects of biosurfactant rhamnolipid (RL) on the adsorption of Pb^{2+} onto compost HA at various concentrations, temperatures, and pH values. Adding RL solution influenced the adsorption of Pb^{2+} onto compost HA without fitting the Langmuir or the Freundlich isotherm. Moreover, Pb^{2+} adsorption onto compost HA was accelerated by RL at low concentrations until maximum at 40 mg L^{-1} . However, the adsorption was weakened at sufficiently high RL concentration. Furthermore, Pb^{2+} adsorption was enhanced with increasing pH values and was weakened with rising temperature. This study provides reference for applying biosurfactants in compost.

Keywords: Rhamnolipid; Compost; Humic acid; Pb^{2+} ; Adsorption

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