

ABSTRACT

In this study, *Diospyros malabarica*, *Terminalia arjuna* and *Putranjiva roxburghii* were evaluated as a novel biosorbent for the removal of Cu^{2+} and Cd^{2+} ions from the aqueous solution in single and binary metal system. Different process parameters such as adsorbent dose, contact time, pH and initial metal ion concentration were studied and found that maximum adsorption occurs in slightly acidic environment pH= 4. The biosorption efficiency values were > 92% for Cu^{2+} and > 90% for Cd^{2+} ions. The biosorption data perfectly fitted with Langmuir adsorption isotherm for both metal Cu^{2+} and Cd^{2+} ions by all three biosorbents as compared to Freundlich and Temkin adsorption isotherm. The results of study shows that all of these biosorbents can be efficiently used as low cost, alternative adsorbent for the removal of Cu^{2+} and Cd^{2+} ions from the polluted wastewater.