World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:11, No:01, 2017

Synthesis and Application of Tamarind Hydroxypropane Sulphonic Acid Resin for Removal of Heavy Metal Ions from Industrial Wastewater

Authors : Aresh Vikram Singh, Sarika Nagar

Abstract : The tamarind based resin containing hydroxypropane sulphonic acid groups has been synthesized and their adsorption behavior for heavy metal ions has been investigated using batch and column experiments. The hydroxypropane sulphonic acid group has been incorporated onto tamarind by a modified Porath's method of functionalisation of polysaccharides. The tamarind hydroxypropane sulphonic acid (THPSA) resin can selectively remove of heavy metal ions, which are contained in industrial wastewater. The THPSA resin was characterized by FTIR and thermogravimetric analysis. The effects of various adsorption conditions, such as pH, treatment time and adsorbent dose were also investigated. The optimum adsorption condition was found at pH 6, 120 minutes of equilibrium time and 0.1 gram of resin dose. The orders of distribution coefficient values were determined.

Keywords : distribution coefficient, industrial wastewater, polysaccharides, tamarind hydroxypropane sulphonic acid resin, thermogravimetric analysis, THPSA
Conference Title : ICEESD 2017 : International Conference on Ecosystems, Environment and Sustainable Development
Conference Location : Sydney, Australia
Conference Dates : January 26-27, 2017