

Partly decomposed empty fruit bunch fiber as a potential adsorbent for ammonia-nitrogen from urban drainage water

Abstract

The removal of ammonia-nitrogen from aqueous solution by using partly decomposed oil palm empty fruit bunch (EFB) fibers has been investigated in this study. The unmodified EFB fiber was superior than highly concentrated sodium hydroxide (1.25 M) modified EFB for ammonia-nitrogen removal. The biosorption isotherm data for ammonia-nitrogen on unmodified EFB fibers were well fitted by Freundlich isotherm model that suggesting the heterogeneous adsorption behavior of the adsorption process ($R^2 = 0.991$). The adsorption kinetic modeling of the adsorption data indicated pseudo-second-order model is the better to describe the predicting a chemisorption process ($R^2 = 0.9875$).