BIOSORPTION OF Pb(II) BY SULFURIC ACID TREATED SPENT GRATED COCONUT (Cocos nucifera) (SSGC) IN FIXED-BED COLUMN MODE

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Final Year Project Report Submitted in Partial Fulfilment of the Requirement for the Degree of Bachelor of Science (Hons.) Chemistry in the Faculty of Applied Sciences University Teknologi MARA

JULY 2016
ABSTRACT

BIOSORPTION OF Pb(II) ON CHEMICALLY MODIFIED SPENT GRATED (SGC) COCOS NUCIFERA COCONUT: COLUMN STUDY

Spent grated coconut (cocos nucifera) from food industry waste was developed as a new and efficient biosorbent. In this study, the treated spent grated coconut was chosen to be investigated for removing Pb(II) from wastewater. The fixed-bed column study mode was employed under fixed parameters and column condition. The adsorption of adsorbent was investigated by using 1 g of biosorbent at pH 4, and the flow rate of 12 mL/min. The inlet concentrations of 80 mg/L of Pb(II) was used as initial concentration. The breakthrough curve was establish and two kinetic model were used; Thomas model and Yoon-Nelson model. Both model were fitted to this study with coefficient of correlation value ($R^2$) of 0.871. The column capacity, $q_b$ determined from breakthrough curve plot was 67.97 mg/g which was of higher adsorption capacity recorded among plant wastes.
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