

ABSTRACT

The aim of this research was study the efficiency of agricultural residue balls for metal removal by using chemical laboratory wastewater, faculty of Biotechnology. There was one type of absorbent which was coconut husk mixed with cassava starch by the ratio 1:1 (W/W). Cassava starch acted as the glue when contact with hot water in order to form the agricultural residue balls. In this experiment, this project was to study the potential of metal absorption from chemical laboratory wastewater by using coconut husk residue and extracted cellulose from coconut husk, investigated the percentage of metal removal and analyzed chemical properties before and after treatment. The percentage of metal removal was done by nine treatments of coconut husk balls absorption which were conducted by using chemical laboratory wastewater. The absorption times were varied; 0, 30, 60, 90, 120, 150, 180, 210 and 240 minutes in each separate beaker. The treated wastewaters were analyzed for COD, lead, cadmium and ferric contents. The results showed that coconut husk could potentially absorb metals. Furthermore, time influenced the absorption rate of the metals. At 210 minutes, COD was increased 26.23 %. With 240 minutes of absorption time of the coconut husk ball percent removal of ferric, lead, and cadmium were removed by 97.10%, 71.30% and 64.95%, respectively. Ferric was the highest metal removal by coconut husk residue balls due to the highest pH during analysis. In recommendation, metal removal in real field wastewater should be conducted by large scale.

Keyword: COD, cellulose, wastewater, coconut husk, metal removal