

Removal of oil and reduction of bod from palm oil mill effluent (POME) using polyurethane nanofibers

ABSTRACT

The effluent of the palm oil mill is known as palm oil mill effluent (POME) constituting water, oil and solid. Upon discharge from the mill, POME goes into an anaerobic pond system which is not environmentally friendly. The threats, mainly come from the accumulated oil inside the pond. Therefore, this study attempt to find a solution for this problem by using polyurethane nanofiber to sorb the oil from the POME due to its oleophilic and hydrophobic properties. The nanofibers were characterized by scanning electron microscopy (SEM), oil sorption capacity, amount of extracted oil of POME and Biological Oxygen Demand (BOD) content after sorption. The result shows the nanofibers average diameter is 3.0 103 nm, about 31.40 g /g oil sorption capacity, 48 % oil extracted from the POME and the BOD content was reduced to 10 mg/l. This result shows that nanofiber sorbent is a viable method to not only protect the environment, but also has the potential for recovery the oil.