

**AN EMPTY FRUIT BUNCHES BASED SORBENT FOR OIL SORPTION BY
USING HOT WATER TREATMENT**

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ABSTRACT

Oil spills in the sea have caused marine life and species of life in the sea to slow down and have lost their habitat. Due to this, there is an increase in interest in using natural fiber, especially from the agricultural side, as an absorbent for organic oil spills. In the palm oil industry, the disposal of palm oil bunches has caused the environment to become unsanitary. Firstly, the purpose of the research is to study the adsorption properties of EFB samples. Next, to study the effect of treated EFB for oil adsorption when conducted in the hot water treatment. Untreated and treated EFBs were investigated using FTIR. A non-hazardous method used to change the structure and chemical content of EFB is the hot water treatment. The hot water treatment was chosen to change the hydrophilic nature of EFB to hydrophobic where the cellulose content is changed to absorb oil as much as possible. By using EFB as a fiber to absorb oil, oil pollution can be controlled and reduced. From FTIR result, the predominant functional group in the EFB were at 3350 cm^{-1} , 2850 cm^{-1} and 1032 cm^{-1} indicate for important functional group of EFB which is alcohol, aldehyde and aromatic ring. The result shows that the modified EFB has highest adsorption oil compared to unmodified EFB. Lastly, the unmodified EFB which their properties are hydrophilic has modified into hydrophobic.

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