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**A PRELIMINARY STUDY ON ADSORPTIBILITY OF DIFFERENT
MATERIALS ON WATER SOLUBLE FRACTION OF TAPIS BLENDED
CRUDE OIL**

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**This project report is submitted in partial fulfillment of the requirement of the
degree of Bachelor of Science in Agrotechnology (Aquaculture)**

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ABSTRACT

This study aims to investigate the effectiveness of four different local materials to remove water soluble fraction of crude oil in water. Four materials used in this study were coconut husk, activated carbon, chitosan and chitin. The adsorption rate for each testing material was determined. The maximum adsorption rate of coconut husks, chitosan, activated carbon and chitin were $0.11 \text{ mg.g}^{-1}.\text{min}^{-1}$, $0.05 \text{ mg.g}^{-1}.\text{min}^{-1}$, $0.05 \text{ mg.g}^{-1}.\text{min}^{-1}$ and $0.02 \text{ mg.g}^{-1}.\text{min}^{-1}$ respectively. Coconut husks exhibit the highest adsorption rate in removing water soluble fraction of crude oil from water. Then followed by chitosan, activated carbon and chitin. All materials used in this study had varies adsorption capacity in adsorbing water soluble fraction of crude oil. The adsorption capacity of coconut husks, chitosan, activated carbon and chitin were 3.03 mg.g^{-1} , 1.91 mg.g^{-1} , 1.87 mg.g^{-1} and 1.02 mg.g^{-1} respectively. Coconut husks once again exhibit the highest adsorption capacity followed by chitosan, activated carbon and chitin.

ABSTRAK

Kajian ini bertujuan untuk mengkaji keberkesanan empat bahan untuk menyerap hidrokarbon yang terlarut dalam air. Empat bahan yang dikaji adalah sabut kelapa, karbon teraktif, kitosan dan kitin. Kadar penyerapan bagi setiap bahan telah ditentukan. Kadar penyerapan maksima bagi sabut kelapa, kitosan, karbon teraktif dan kitin adalah $0.11 \text{ mg.g}^{-1}.\text{min}^{-1}$, $0.05 \text{ mg.g}^{-1}.\text{min}^{-1}$, $0.05 \text{ mg.g}^{-1}.\text{min}^{-1}$ dan $0.02 \text{ mg.g}^{-1}.\text{min}^{-1}$ mengikut turutan. Sabut kelapa menunjukkan kadar penyerapan bahagian minyak yang larut dalam air tertinggi dan diikuti oleh kitosan, karbon teraktif dan kitin. Semua bahan yang digunakan dalam kajian ini mempunyai kapasiti penyerapan yang berbeza-beza dalam menyerap hidrokarbon yang larut dalam air. Kapasiti penyerapan bagi sabut kelapa, kitosan, karbon teraktif dan kitin adalah 3.03 mg.g^{-1} , 1.91 mg.g^{-1} , 1.87 mg.g^{-1} dan 1.02 mg.g^{-1} mengikut turutan. Sabut kelapa sekali lagi menunjukkan kapasiti penyerapan yang tertinggi diikuti oleh kitosan, karbon teraktif dan kitin.