

ARANG AKTIF LIMBAH KULIT NANGKA SEBAGAI ADSORBEN MINYAK JELANTAH

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ABSTRACT

Activated charcoal from jackfruit peel waste can be used as an adsorbent for environmental pollutants, because it contains cellulose. This study aims to determine the characteristics of activated charcoal from jackfruit peel waste and its effectiveness in reducing water content and free fatty acid levels in used cooking oil. The process of making activated charcoal is carried out by drying jackfruit peel waste, carbonization, and activation with 0.5 M ZnCl₂. The parameters of activated charcoal tested were water content, ash content, volatile matter, fixed carbon and iodine absorption. The test results are 10%, 5%, 16%, 69%, and 4619 mg/g respectively. These results have met the quality standards of activated charcoal according to SNI 06-3730-1995. Activated charcoal, which was in accordance with quality standards, was then tested for its effectiveness in reducing water content and free fatty acid levels in used cooking oil with different weight and time variations. From the tests that have been carried out, it was found that the maximum weight and time of activated charcoal from jackfruit peel waste was 5 grams for 90 minutes. At the maximum weight and time, the effectiveness of activated charcoal in reducing water content and free fatty acid content was 84% and 74%, respectively. Keywords: adsorbent, activated charcoal, jackfruit peel waste, used cooking oil

ABSTRAK

Arang aktif limbah kulit nangka dapat digunakan sebagai adsorben zat pencemar lingkungan, karena mengandung zat selulosa. Penelitian ini bertujuan untuk mengetahui karakteristik arang aktif dari limbah kulit nangka dan keefektifitasannya dalam menurunkan kadar air dan kadar asam lemak bebas pada minyak jelantah. Proses pembuatan arang aktif dilakukan dengan mengeringkan limbah kulit nangka, karbonisasi, dan pengaktifasian dengan ZnCl₂ 0,5 M. Parameter arang aktif yang diuji yakni, kadar air, kadar abu, *volatile matter*, *fix carbon* dan daya serap iodine. Adapun hasil pengujian berturut-turut 10%, 5%, 16%, 69%, dan 4619 mg/g. Hasil tersebut telah memenuhi syarat baku mutu arang aktif menurut SNI 06-3730-1995. Arang aktif yang sudah sesuai baku mutu, kemudian diuji keefektifitasannya dalam menurunkan kadar air

dan kadar asam lemak bebas pada minyak jelantah dengan variasi bobot dan waktu yang berbeda. Dari pengujian yang telah dilakukan, didapatkan bobot dan waktu maksimum arang aktif limbah kulit nangka yakni sejumlah 5 gram selama 90 menit. Pada bobot dan waktu maksimum tersebut, efektifitas arang aktif dalam menurunkan kadar air dan kadar asam lemak bebas berturut-turut sebesar 84%, dan 74%.

Kata kunci: Adsorben, arang aktif, limbah kulit nangka, minyak jelantah.