

**KARAKTERISTIK ARANG AKTIF TEMPURUNG BIJI  
NYAMPLUNG (*Calophyllum inophyllum* Linn)  
(*The Properties of Activated Charcoal from Nyamplung Shell (Calophyllum inophyllum  
Linn)*)**

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**ABSTRACT**

The waste of nyamplung shell could be converted to activated charcoal, it is a gaseous and liquid adsorbent. The purpose of this experiment was to investigate the characteristic of activated charcoal made from nyamplung shell. First, nyamplung shell was carbonized into charcoal, then activated by immersing in H<sub>3</sub>PO<sub>4</sub> solution of 0%, 5% and 10%, for 24 hours, and heated in retort at two level of temperatures (700 and 800 C) and two level of duration time (60 and 120 minutes). The quality of activated charcoal were tested using SNI 06-3730-1995.

The optimum condition producing activated charcoal was soaking in H<sub>3</sub>PO<sub>4</sub> 10% at temperature 700 O C for 120 minutes. The yield of activated charcoal at this condition was 52%, water content 8,25%, volatile matter 7,41%, ash content 4,27%, fixed carbon 88,32%, adsorptive capacity of iodine 839,11 mg/g and adsorptive capacity of benzene 13,65%.

Keywords: Nyamplung shell, activated charcoal, optimum condition

**ABSTRAK**

Limbah tempurung nyamplung dapat dimanfaatkan sebagai arang aktif untuk bahan penyerap gas dan cairan. Tujuan penelitian ini adalah untuk mengetahui karakteristik arang aktif tempurung biji nyamplung. Tempurung nyamplung diarangkan, kemudian direndam dalam larutan H<sub>3</sub>PO<sub>4</sub> pada konsentrasi 0%, 5% dan 10% selama 24 jam. Selanjutnya diaktivasi dalam retort pada suhu 700 oC dan 800oC selama 60 dan 120 menit. Kualitas arang aktif tempurung nyamplung diuji menggunakan SNI 06-3730-1995.

Hasil penelitian menunjukkan bahwa kualitas arang aktif tempurung nyamplung terbaik diperoleh pada aktivasi perendaman H<sub>3</sub>PO<sub>4</sub> 10% pada temperatur 700oC selama 120 menit. Pada kondisi tersebut

diperoleh rendemen sebesar 52%, kadar air 8,25%, kadar zat terbang 7,41%, kadar abu 4,27%, kadar karbon terikat 88,32%, daya serap iod 839,11 mg/g dan daya serap benzena 13,65%.

Kata kunci : Tempurung nyamplung, arang aktif, kondisi optimum