

**ANALISIS MUTU PENGARUH METODE AKTIVASI *HYBRID*  
BERBASIS LARUTAN KALIUM HIDROKSIDA (KOH) SERTA  
*MICROWAVE HEATING* TERHADAP ARANG AKTIF BERBAHAN  
TEMPURUNG KELAPA (*Cocos nucifera*)**

**INTISARI**

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Tempurung kelapa merupakan salah satu limbah industri dalam pengolahan kelapa, tetapi tempurung kelapa ini bersifat *renewable* dan murah serta tempurung kelapa memiliki karbon yang baik, sehingga tempurung kelapa ini masih dapat diolah kembali menjadi produk yang mempunyai nilai ekonomis tinggi yaitu sebagai arang aktif. Tujuan penelitian ini adalah untuk memproduksi karbon aktif dari tempurung kelapa dengan metode aktivasi *physiochemical* dengan aktivasi *Kalium Hidroksida* ditambah aktivasi menggunakan *microwave heating* dan menganalisa mutunya.. Tempurung kelapa pertama-tama diarangkan selanjutnya direndam dalam larutan KOH dengan variasi konsentrsai 1M dan 5M selama 24 jam. Selanjutnya diaktivasi menggunakan *microwave furnace* pada suhu 600°C dan 800°C selama 20, 40, dan 60 menit. Kualitas mutu karbon aktif diuji berdasarkan SNI 06-3730-1995. Hasil dari penelitian ini menunjukkan bahwa kualitas karbon aktif tempurung kelapa terbaik didapatkan pada aktivasi perendaman KOH 5M pada temperature 800°C selama 60 menit. Pada kondisi tersebut didapatkan kadar air 1,69%, kadar abu 5,01%, kadar zat terbang 12,82%, kadar karbon 80,49%, dan luas permukaan sebesar 879,9 m<sup>2</sup>/g.

Kata kunci : Tempurung Kelapa, Karbon Aktif,, Daya Serap Iodin.

**QUALITY ANALISYS OF THE EFFECT OF HYBRID ACTIVATION  
BASED ON POTASSIUM HYDROXIDE (KOH) AND MICROWAVE  
HEATING ON ACTIVATED CHARCOAL FROM COCONUT SHELL  
(*Cocos nucifera*)**

**ABSTRACT**

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Coconut shell is one of the industrial wastes produced during the industrial processing of coconuts. Due to its abundance in quantity, it become an environmental problem. On the other side, besides its inexpensive price, coconut shells contain numerous amounts of carbon so there is a large opportunity to be processed into products with great economic value, such as activated charcoal. This study set out to make activated carbon from coconut shells using a physiochemical activation method that was conducted with potassium hydroxide and additional activation with microwave heating and analysing the quality by comparing the quality of that carbon to activated carbon that already exists on the market. At first coconut shells is being carbonated, and after being burned, coconut shells were immersed in potassium hydroxide (KOH) at various concentrations, 1M and 5M, for 24 hours. Then, for 20, 40, and 60 minutes, it was activated in a microwave furnace at 600C and 800C. The quality of activated carbon is evaluated according to SNI 06-3730-1995. This study shows that soaking KOH 5M at a temperature of 800C for 60 minutes yields coconut shell-activated carbon of the highest grade. In these circumstances, the moisture content was 1.69%, the ash content was 5.01%, the volatile matter content was 12.82%, the carbon content was 80.49%, and the surface area was 879.9 m<sup>2</sup>/g.

**Keywords:** Coconut Shell, Activated Carbon, Iodine Absorption.