

**PEMBUATAN DAN KARAKTERISASI ARANG AKTIF DARI CANGKANG
KEMIRI SEBAGAI ADSORBEN UNTUK MENURUNKAN KADAR AMONIA
(NH₃) TOTAL SUSPENDED SOLID (TSS) DAN POTENTIAL HYDROGEN (PH)
PADA LIMBAH CAIR INDUSTRI TAHU**

ABSTRAK

Telah dilakukan penelitian pembuatan dan karakterisasi arang aktif dari cangkang kemiri sebagai adsorben untuk menurunkan kadar amonia, totas suspended solid dan potensial hydrogen pada limbah cair industri tahu. Tahapan penelitian ini meliputi pembuatan arang aktif dari cangkang kemiri dengan proses pembakaran pada temperatur suhu 550 °C selama 2 jam dalam furnace, kemudian diayak menggunakan ayakan berukuran 100 mesh selanjutnya diaktivasi secara kimia dengan merendam arang tersebut dengan larutan asam fosfat (H₃PO₄) 4M selama 24 jam. Selanjutnya arang aktif dikarakterisasi berdasarkan SNI No. 06-2730-1995 yang meliputi : kadar air, kadar abu, kadar zat menguap, kadar karbon terikat dan daya serap iodin. Pada penelitian ini dapat diperoleh secara berturut turut hasil karakterisasi arang aktif dari cangkang kemiri yaitu : Kadar air (5,56%), kadar abu (4,96%), kadar zat menguap(3,2%), kadar karbon terikat (91,84%), dan daya serap iodin 224,94mg/g. Kadar bilangan Amonia (NH₃), Total Suspended Solid (TSS), dan potential Hydrogen (pH) pada sampel limbah cair industri tahu sebelum penambahan arang aktif berturut-turut 174 mg/L : 23 mg/L : dan 5. Sedangkan sesudah penambahan arang aktif terhadap limbah cair industri tahu kadar amonia menjadi 7,85 mg/L, kadar total suspended solid 145 mg/L dan pH menjadi 6,5 berdasarkan data yang diperoleh bahwa arang aktif yang telah saya buat berhasil dikarenakan dapat menurunkan parameter-parameter yang terdapat dalam limbah cair industri tersebut seperti yang ditetapkan oleh Peraturan Menteri Lingkungan Hidup R.I No. 5 Tahun 2014 tentang baku mutu air limbah.

Kata Kunci : Arang Aktif, Cangkang Kemiri, Adsorben, Amonia, TSS, pH, Limbah Cair Industri Tahu

**MANUFACTURE AND CHARACTERIZATION OF ACTIVATED CHARCOAL
FROM CANDLENUT SHELLS AS AN ADSORBENT TO REDUCE LEVELS
POTENTIAL SUSPENDED SOLID (TSS) AMMONIA (NH₃) AND POTENTIAL
HYDROGEN (PH) IN TOFU INDUSTRIAL WASTEWATER**

ABSTRACT

Research has been carried out on the manufacture and characterization of activated charcoal from candlenut shells as an adsorbent to reduce levels of ammonia, total suspended solids and potential hydrogen in tofu industrial wastewater. The stages of this research include making activated charcoal from candlenut shells by burning at a temperature of 550 0C for 2 hours in a furnace, then sieved using a 100 mesh sieve then chemically activated by soaking the charcoal in a solution of 4M phosphoric acid (H₃PO₄) for 24 hours. . Furthermore, the activated charcoal is characterized based on SNI No. 06-2730-1995 which includes: water content, ash content, volatile matter content, bound carbon content and iodine absorption. In this study, the results of the characterization of activated charcoal from candlenut shells were obtained successively, namely: water content (5.56%), ash content (4.96%), volatile matter content (3.2%), bound carbon content (91 ,84%), and the absorption of iodine is 224.94 mg/g. The levels of Ammonia (NH₃), Total Suspended Solid (TSS) and potential Hydrogen (pH) in tofu industrial wastewater samples before the addition of activated charcoal were 174 mg/L : 23 mg/L : and 5. While after the addition of activated charcoal to the tofu industrial liquid waste, the ammonia content became 7.85 mg/L, the total suspended solid content was 145 mg/L and the pH was 6.5 based on the data obtained that the activated charcoal that I made was successful because it can reduce parameters contained in the industrial liquid waste as stipulated by the Regulation of the Minister of the Environment of the Republic of Indonesia No. 5 of 2014 concerning waste water quality standards.

Keywords : *Activated Charcoal, Candlenut Shell, Adsorbent, Ammonia, TSS, pH, Tofu Industrial Liquid Waste*