PEMANFAATAN LIMBAH BUAH KELAPA *(Cocos* sp.*)* MUDA UNTUK PEMBUATAN ARANG AKTIF SEBAGAI BAHAN PENJERNIH AIR

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INTISARI

Pemanfaatan limbah buah kelapa (*Cocos* sp.) muda yang ada selama ini kurang maksimal. Selama ini pemanfaatan limbah buah kelapa (*Cocos* sp.) muda digunakan untuk bahan bakar saja. Penelitian ini ditujukan untuk menambah nilai jual dari limbah buah kelapa (*Cocos* sp.) muda. Pemanfaatan limbah buah kelapa (*Cocos* sp.) muda untuk arang aktif yang akan digunakan aplikasinya sebagai bahan penjernih air.

Penelitian dilakukan dengan mengarangkan limbah buah kelapa (*Cocos* sp.) muda dengan suhu 450^{o}C selama 3 jam. Arang yang didapatkan dihaluskan hingga lolos 20 mesh lalu di aktivasi secara *thermal* dengan variasi suhu 750^{o}C, 800^{o}C dan 850^{o}C. Aktivasi *thermal* juga memakai variasi waktu selama 30 menit, 60 menit dan 90 menit. Nilai rata-rata dianalisis dengan analisis varians dan apabila berbeda akan di uji lanjut HSD.

Penelitian arang aktif limbah buah kelapa (*Cocos* sp.) muda menghasilkan kisaran rendemen 59,138% - 71,538%, kadar air 1,405% - 2,581%, kadar abu 9,885% - 18,126%, kadar zat mudah menguap 13,501% - 15,115%, kadar karbon terikat 67,480% - 76,196%, daya serap terhadap uap benzena 4,625% - 10,665%, daya serap terhadap iodium 856,321 mg/g - 1342,856 mg/g dan daya serap terhadap metilen biru 143,650 mg/g – 143,730 mg/g. Dari berbagai uji kualitas ada beberapa yang memenuhi SNI 06-37330-1995 yaitu kadar air, kadar zat mudah menguap, kadar karbon terikat, daya serap terhadap iodium dan daya serap terhadap metilen biru. Hasil arang aktif terbaik diperoleh dari suhu aktivasi 750^{o}C dengan lama aktivasi 90 menit. Dari aplikasi pada air sumur yang tercemar arang aktif didapat penurunan tingkat warna sebesar 78%, kekeruhan sebesar 70%, kadar besi (Fe) sebesar 96%, kadar mangan (Mn) sebesar 96%, dan kesadahan $CaCO_3$ sebesar 62%. %. Kualitas air sumur setelah diberi perlakuan arang aktif telah memenuhi standar air bersih sesuai dengan anjuran Menteri Kesehatan RI No. 416/Menkes/Per/IX/1990.

Kata kunci : arang aktif, limbah buah kelapa (*Cocos* sp.) muda dan penjernih air

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WASTE UTILIZATION OF YOUNG FRUIT COCONUT (*Cocos* sp.) FOR ACTIVATED CARBON AS WATER PURIFIER

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ABSTRACT

Utilization of waste coconut (*Cocos* sp.) That there has been less than the maximum. So far, the utilization of waste coconut (*Cocos* sp.) only use for fuel alone. This study aimed to increase the selling value of the waste of young coconut (*Cocos* sp.). Utilization of waste coconut (*Cocos* sp.) For activated carbon to be used as a water purification applications.

Research conducted with young coconut waste char (*Cocos* sp.) With a temperature of 450^{o}C for 3 hours. Carbon obtained mashed up to pass 20 mesh and then in the thermal activation variations 750^{o}C, 800^{o}C and 850^{o}C. Thermal activation also use variations of time for 30 minutes, 60 minutes and 90 minutes. The average value was analyzed by analysis of variance and, if different from HSD will be tested further.

The research activated carbon from waste of coconut (*Cocos* sp.) Produces a range of yield 59.138% - 71.538%, moisture content 1.405% - 2.581%, ash content of 9.885% - 18.126%, volatile matter content of 13.501% - 15.115%, 67.480 bonded carbon content % - 76.196%, the absorption of benzene vapor 4.625% - 10.665%, the absorption of iodine 856.321 mg / g - 1342.856 mg / g and methylene blue absorption of 143.650 mg / g - 143.730 mg / g . the quality parameter evaluation indicated activated charcoal comply the SNI 06-37330-1995 namely water content, volatile matter content, carbon content is bound, the absorptive capacity of absorption of iodine and methylene blue. The best activated carbon results obtained from combnation the temperature activation of 750^{o}C with time activation 90 minutes . From the application on well water contaminated activated carbon color obtained decreased levels by 78%, turbidity by 70%, levels of ferro (Fe) 96%, levels of manganese (Mn) of 96%, and CaCO3 hardness by 62%. The quality of well water after treated activated carbon comply the standards in accordance with the recommendation of the Minister of Health RI. 416/Menkes/Per/IX/1990.

Keyword: activated carbon, waste of young coconut (*Cocos* sp.) and water purifier

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