

**PEMBUATAN BRIKET ARANG DARI CAMPURAN KAYU,
BAMBU, SABUT KELAPA DAN TEMPURUNG KELAPA
SEBAGAI SUMBER ENERGI ALTERNATIF**

(The Manufacture of Charcoal Briquette from the Mixture of Wood, Bamboo,
Coconut Husks and Coconut Shell for Alternative Energy Source)

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ABSTRACT

This article looked into the research results of manufacturing charcoal briquette from the mixture of wood, bamboo, coconut husks and coconut shell. The carbonization of the wastes into charcoal took place in the modified drum kiln. The resulting charcoal was crushed into small sized particles, and then sieved with 30 –40 mesh screen. The particles passing through the screen was mixed with tapioca binder with 5% content. The mixture was subsequently pressed and shaped into briquette using a hydraulic manual system at 30 ton pressure. Afterwards, the resulting charcoal briquette was dried in an oven at 80 oC for 24 hours. The charcoal briquette in general revealed satisfactory physico-chemical properties with regard to its possible uses as alternative energy source, i.e. moisture content ranging about 2.59 – 9.31%, ash content 1.75 – 10.47%, volatile matter 13.45 – 19.89%, fixed carbon content 67.17 – 75.75%, density 0.32 – 0.71 gram/cm³, compressive strength 6.57 – 18.19 kg/cm², and calorific value 5,953 – 6,906 cal/gram.

Keywords : Charcoal briquette, municipal organic wastes, modified drum kiln, tapioca Binder, physico-chemical properties.3

ABSTRAK

Dalam tulisan ini dikemukakan hasil penelitian pembuatan briket arang dari campuran kayu, bambu, sabut kelapa dan tempurung kelapa. Proses peng-arangan dilakukan dengan menggunakan tungku drum hasil modifikasi. Arang yang diperoleh kemudian digiling sampai berbentuk serbuk kemudian disaring menggunakan saringan 30 - 40 mesh. Arang yang lolos saringan selanjutnya dicampur dengan perekat tapioka kadar 5%. Bahan baku dikempa menggunakan sistem hidrolik manual pada tekanan 30 ton sampai menjadi briket arang, selanjutnya dikeringkan di dalam oven pada suhu 80oC selama 24 jam. Briket arang yang dihasilkan pada umumnya dapat menghasilkan sifat fisis dan kimia yang lebih baik jika dibandingkan dengan kualitas bahan bakunya. Kadar air berkisar antara 2,59 - 9,31%, kadar abu 1,75 - 10,47%, kadar zat menguap 13,45 -19,89%, kadar karbon terikat 67,17 - 75,75%, kerapatan 0,32 - 0,71 g/cm², keteguhan tekan 6,57 - 18,19 kg/cm³, dan nilai kalor bakar berkisar antara 5.953 – 6.906 ka/g.

Kata kunci : Briket arang, sampah organik perkotaan, tungku drum hasil modifikasi, tepung tapioka, sifat fisik dan kimia