PENGARUH TEKANAN KEMPA DAN KOMPOSISI CAMPURAN SEKAM PADI DAN SERBUK GERGAJIAN KAYU DAMAR (*Agathis* spp) TERHADAP KUALITAS ARANG BRIKET

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INTISARI

Penelitian pembuatan arang briket ini dilakukan untuk mengetahui kualitas arang briket yang berupa rendemen, sifat fisik arang briket yaitu kadar air, berat jenis, nilai kalor dan sifat kimia arang briket yaitu kadar abu, kadar zat mudah menguap dan kadar karbon terikat. Penelitian ini memanfaatkan bahan limbah pertanian yang banyak dihasilkan di negara agraris seperti Indonesia yaitu sekam padi dan limbah gergajian kayu damar. Produk arang briket ini diharapkan bisa menjadi bahan bakar alternatif untuk mengurangi pemakaian bahan bakar fosil dan mengurangi pemakaian kayu sebagai bahan bakar.

Penelitian ini menggunakan rancangan acak lengkap yang disusun secara faktorial dengan dua faktor, yaitu tekanan kempa 815, 1087, dan 1359 psi dan komposisi bahan ([100% sekam padi], [75% sekam padi dan 25 % serbuk kayu damar], [50% sekam padi dan 50 % serbuk kayu damar], [25% sekam padi dan 75 % serbuk kayu damar] dan [100% serbuk kayu damar]).

Hasil penelitian diperoleh informasi rendemen arang briket berkisar antara 29,54-50,32%. Sifat fisik arang briket diperoleh hasil yaitu kadar air 0,93-4,37% , berat jenis 0,585–0,771 dan nilai kalor 3849,41-7302,92 kal/gram, sedangkan sifat kimia arang briket diperoleh hasil berupa kadar zat menguap 14,36–47,17%, kadar abu 3,76–46,41% dan kadar karbon terikat 5,08-76,98%. Hasil penelitian ini belum seluruhnya memenuhi Standar Jepang dan Standar Inggris.

Kata kunci : arang briket, sekam padi, serbuk gergajian kayu damar, tekanan kempa, komposisi bahan.

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THE EFFECT OF PRESSURE AND COMPOSITION OF RICE HUSK AND DAMAR SAWDUST (*Agathis* spp) ON CHARCOAL QUALITY

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ABSTRACT

This research was conducted to search charcoal quality i.e. yield, charcoal physical characteristics : moisture content, spesific gravity and calorific value and also its chemical characteristics : dust value, volatile matter and fixed carbon. This research used farming waste such as rice husk and damar wood. The charcoal was hopefully expected to be an alternative fuel in the future to decrease the use of fossil-based fuel and also decrease the use of forest wood as fuel.

The research used Completely Randomized Design (CRD) and it was arranged in factorial way with two factors : Pressure factor 815, 1087, and 1359 psi and composition ([100% rice husk], [75% rice husk and 25% damar wood],[50% rice husk and 50% damar wood],[25% rice husk and 75% damar wood], and [100% damar wood]).

The result of the research were : Yield was 29.54-52.32%. Physical characteristics : moisture content was 0.93-4.37%, spesific gravity was 0.585-0.771 and calorific value was 3849.41-7302.92 cal/gram. The chemical characteristics of the charcoal were : dust value was 3.76-46.41%, volatile matter was 14.36-47.17% and fixed carbon was 5.08-76.98%. The result were not fulfil the Japanese and British standard.

Keywords : charcoal, rice husk, damar sawdust, pressure, composition

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