RINGKASAN

Sumber energi tidak terbarukan khususnya fosil(minyak dan (gas) mempunyai peran penting dalamkehidupan manusia sehari-hari. Dengan semakin bertambahnya populasi penduduk menyebabkan kebutuhan akan bahan bakarpun meningkat sehingga dibutuhkan sumber energi alternatif yang lain.Salah satu energi terbarukan yang perlu mendapatkan perhatian untuk dikembangkan adalah biomassa. Briket arang merupakan arang yang diubah bentuk, ukuran dan kerapatan dengan mengepres campuran serbuk arang dan bahan perekat.

Tujuan dari penelitian ini meliputi: (1) Mengetehui kualitas briket arang dari limbah kulit pisang. (2) Mengetahui pengaruh ukuran serbuk terhadap kualitas briket bioarang dari limbah kulit pisang.

Metode penelitian yang digunakan adalah eksperimental dengan rancangan percobaan yang digunakan adalah Rancangan Acak Kelompok (RAK). Penelitian ini menggunakan 2 faktor perlakuan yaitu jumlah perekat dan ukuran serbuk. Faktor perlakuan jumlah perekat ada 2 taraf yaitu: perekat 4%, perekat 6% sedangkan faktor ukuran serbuk arang lolos mesh 18, 30 dan kombinasi antara ukuran serbuk yang tidak lolos *mesh* 18 dan 30 dengan perbandingan 50% : 50%.

Data yang diperoleh diuji dengan analisis keragaman dan uji lanjut DMRT. Variabel yang diamati pada penelitian ini meliputi kadar air, kadar abu, kadar zat mudah menguap (*volatile matter*), karbon terikat (*fixed carbon*) dan nilai kalor.

Nilai rata-rata hasil pengujian kualitas briket arang kulit pisang kepok adalah kadar air 2,981% - 4,617%, kadar abu 4,732% - 4,861%, kadar zat mudah menguap 3,355% - 3,461%, fixed carbon 88,279% - 88,549% dan nilai kalor 4054,532 kal/g – 5006,625 kal/g. Hasil analisis keragaman menunjukkan faktor jumlah perekat, ukuran serbuk dan interaksinya berpengaruh nyata terhadap kadar air dan nilai kalor, sedangkan jumlah perekat interaksi antara jumlah perekat dan ukuran serbuk tidak berpengaruh nyata terhadap kadar zat mudah menguap. Faktor ukuran serbuk, interaksi antara jumlah perekat dan ukuran serbuk tidak berpengaruh nyata terhadap *fixed carbon.*

SUMMARY

Non-renewable energy sources, especially fossil (oil and gas) have an important role in human's dail. The increasing of human population causes the demand of fuel increasing, so it is needed to get alternative energy sources. One of the renewable energy which must be addressed to develop is biomass. Charcoal briquette is charcoal that is changed in its shape, size and density by pressing a mixture of charcoal powder and adhesive. This study aims to determine the quality of briquette from Kepok banana peels and to find out the powder size effect on the quality of biocarbon briquette.

The purpose of this study are: (1) Determine quality charcoal briquettes from banana peels waste. (2) Determine the influence of powder size on the quality briquettes from waste biocarbon banana skin.

The method which is used in this study is experimental study and randomized design group (RBD) is used as a test plan. This study uses two treatment factors, namely the amount of adhesive and powder size. Thereare two levels of treatment factor the amount of adhesive: adhesive 4%, adhesive 6%, while charcoal powder size factor of qualify mesh 18, 30 and the combination of the size of the powders that do not qualify mesh 18 and 30 with a ratio of 50%: 50%.

The obtained data will be tested by variety analysis and a further test of DMRT. The variables which will be observed in this study include water content, ash content, volatile matterial content, fixed carbon and calorific value.

The average value of testing the quality of Kepok banana peel charcoal briquette is as following: water content 2.981% - 4.617%, ash content 4.732% - 4.861%, levels of volatile substances 3.355% - 3.461%, fixed carbon 88.279% - 88.549% and 4054.532 calorific value cal / g - 5006.625 cal / g. The results of variety analysis showed that the amount of adhesive, the size of the powders and their interaction significantly affected the water content and calorific value. While the amount of adhesive factor, the interaction between the adhesive and the size of the powder did not significantly affect the levels of volatile substances. Powde rsize factor, interaction of the amount of adhesive and powder size did not significantly affect the fixed carbon.