PENGARUH JUMLAH PROSES DESTILASI HASIL FERMENTASI LIMBAH KULIT UBI KAYU TERHADAP KANDUNGAN ENERGI DENGAN METODE DESTILASI

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ABSTRAK

Bahan bakar minyak di Indonesia semakin berkurang bahkan di beberapa tempat terpencil mengalami kelangkaan pasokan. Oleh karena itu, saatnya mencari alternatif lain seperti bioetanol yang merupakan limbah dari kulit ubi kayu yang diubah menjadi bahan bakar alternatif melalui proses fermentasi dan destilasi. Tujuan dari penelitian ini untuk mengetahui pengaruh jumlah proses destilasi hasil fermentasi limbah kulit ubi kayu terhadap kandungan nilai kalori, torsi engine motor scopy 2012, dan daya engine motor scopy 2012. Fermentasi berjangka dilakukan dalam waktu 10 hari untuk mendapatkan bahan bakar mentah sehingga dapat diproses menjadi bahan bakar alternatif, kemudian dilanjutkan dengan destilasi tiga tingkat untuk mendapatkan bahan bakar jenis bioetanol. Penelitian ini merupakan penelitian kuantitatif yaitu pengujian eksperimental terhadap bahan bakar alternatif hasil destilasi fermentasi limbah kulit ubi kayu.

Dari hasil penelitian, kalori yang dihasilkan pada pemurnian hasil bahan bakar alternatif bioetanol adalah nilai kalori pertama 2837,865 kal/g; kedua 3444,787 kal/g; ketiga 3621,911 kal/g; dan pertalite 44260,12 kal/g. Pada pengujian torsi dapat disimpulkan nilai rata rata bahan bakar alternatif sampel pertama sebesar 10,08 Nm; sampel kedua 10,34 Nm; dan sampel ketiga 10,40 Nm. Sedangkan nilai rata rata bahan bakar konvensional sebesar 10,63 Nm. Ini menunjukan bahwa torsi pada bahan bakar konvensional lebih bagus dibandingkan bahan bakar alternatif bioetanol. Daya rata-rata yang dihasilkan bioetanol sampel pertama adalah 8,1 HP; kedua 8,2 HP; dan ketiga 8,2 HP. Sedangkan daya rata rata yang dihasilkan oleh bahan bakar konvensional pertalite sebesar 8,2 HP. Ini menunjukan bahwa daya pada bahan bakar alternatif tidak berbanding jauh.

Kata kunci: nilai kalori, bioetanol, torsi, daya

The Effect of The Distillation Processes Numbers for The Fermentation Products from Cassava Skin Waste to The Energy Content Using Distilation Method

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ABSTRACT

The fuel in Indonesia is decreasing, even in some remote places there was lack of supply, therefore it was the time to find other alternatives such as bioethanol as the waste from cassava skin converted into alternative fermentation through fermentation process and distillation. The objectives of the research were to investigate the effects of distillations process numbers for the fermentation products form cassava skin to the calorie content, engine torque of motor Scopy 2012, and engine power of motor Scopy 2012. Fermentation was carried out for 10 days to get raw fuel so it could be processed into alternative fuel, then be processed with three-level distillation to get bioethanol fuel. This study was a quantitative study, namely experimental testing of alternative fuel resulting from the distillation of fermentation of cassava leather waste.

The results of the research with three-level distillation were the first calori was 2837,865 kal/g; the second was 3444,787 kal/g;the third was 3621,911 kal/g; and pertalite is 44260,12 kal/g. For the torque testing, it could be concluded that the average value of the first sample alternative fuel was 10.08 Nm; the second sample was 10.34 Nm; and the third sample was 10.40 Nm. While the average value of the conventional fuel is 10,63 Nm. This showed that the torque on conventional fuel is better compared to alternative bioethanol fuel. The average power produced by the first was 8,1HP; the second was 8,2H; and the third was 8,HP. While the average power generated by the conventional pertalite is 8,2 HP. This showed that the power on alternative was not really different.

Keywords: *calor, value, bioethanol, torque, power*

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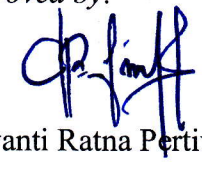

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