

## عنوان مقاله:

Determination of the Bioenergy Potential of Melon Shell and Corn Cob Briquette

## محل انتشار:

فصلنامه انرژی و محیط زیست ایران، دوره 6، شماره 3 (سال: 1393)

تعداد صفحات اصل مقاله: 6

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## خلاصه مقاله:

In this work, research were carried out on properties of biocoal briquettes produced from Okaba coal in Nigeria, melon shell on one hand and corn cob on the other hand with a view to find out their effect on coal briquette. The research involves the production of briquettes from coal and the biomass at the following ratios of 100:0, 90:10, 80:20, 70:30, 60:40, 50:50, 40:60 and 0:100, coal to biomass, using cassava starch as binder and calcium hydroxide as desulphurizing agent. The briquettes were produced mechanically using a manual briquetting machine with pressure maintained at 5MPa. It was found that the burning rate and reduction in smoke emission revealed improvement with increase in biomass concentration. The findings also show that sulphur content in the biocoal briquette reduces with increase in the biomass. The biobriquette with 10% corn cob had the highest calorific value of 22.05 MJ/kg while the 60% melon shell composition had the least value of 21.14 MJ/kg, the 40% corn cob composition had the lowest burning time of 30.1seconds and high combustion rate of 0.076 g/min; while the 10% melon shell composition had the highest burning time and lowest combustion rate. The biocoal briquette sample with 40% corn cob gave the best combustible values, but for industrial heating that requires a long simmering phase, biobriquettes containing 10% corn cob may be preferred due to its high calorific value.

## کلمات کلیدی:

Melon shell, Corn cob, Biocoal, Briquette, Desulphurizing agent, Combustion rate

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