UTILIZATION AND EVALUATION OF CARBONIZED PEANUT HULL WASTE AS BRIQUETTES

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ABSTRACT

This study was conducted for the utilization and evaluation of carbonized peanut hull waste as briquettes. This was conducted at the Department of Agricultural Engineering and Environmental Management, College of Agriculture, Resources and Environmental Sciences in Central Philippine University, Jaro, Iloilo City from the month of September to November 2023. The briquettes produced were composed of carbonized peanut hull and cornstarch in different mixing ratios. The briquettes produced were cylindrical in shape with a hole at the center. Based on the results, it showed that the briquettes with different mixtures of biomass materials have an average bulk density of 0.346 g/cm^3 (345.517 kg/m$^{3)}$ and a heating value of 4206.5 kcal/kg. Further tests also showed that the briquettes produced has no significant difference ($P<0.05$) when tested to boil 2000 ml of water. In cooking of 750 grams of rice, results revealed with significant difference ($P<0.01$) among the briquettes produced. Briquette 1 which has a 90:10 combination of carbonized peanut hull and cornstarch has the fastest time to cook rice (750 g) in 27.48 minutes. Based on the performance tests conducted, Briquette 1 (CPH:C) with a 90:10 mixing ratio is recommended to be the better fuel when utilized cooking rice operations. In terms to the boiling of water, which has no significant difference as to the results, the four different types of briquettes are recommended to use as fuel.

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