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“CLEANER PRODUCTION FOR ACHIEVING SUSTAINABLE DEVELOPMENT GOALS”

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## Solid Fuel Produced from Mandarin Peels and Rice Husks

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### Abstract

Biomasses like tangerine peels and rice husks are seen among the most abundant and accessible sources for conversion into products with a higher added value. One possibility is the production of solid fuels for the decentralization of energy production and utilization of agricultural residue. It is important to highlight that sustainable bioenergy must have high efficiency, therefore we have evaluated the higher and lower heating values of the specimens produced from rice shells husks, mandarin peels, cornstarch, glycerol, citric acid, and acetic acid. We have determined the total moisture content, ash content, and higher and lower heating value of the sixteen collected specimens. We have also determined the compressive strength, in which all samples presented a maximum resistance appropriate for the storage and handling of the developed solid fuels. The composites with a higher quantity of mandarin peels showed greater higher and lower heating values, of 19.18 MJ/kg and of 17.92 MJ/Kg, respectively. All developed samples have shown to be capable of replacing traditional heat sources like firewood (7.12-10.47 MJ/kg) with a better energy performance.

*Keywords: Solid Fuel, Rice husks, Ponkan peels*

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