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## PERFORMANCE OF A BIOMASS DRIER BASED ON EXERGY ANALYSIS

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### Abstract

*Most of the dryer systems developed based on solar energy are inefficient due to the intermittent nature of sunlight. Biomass dryer can be a substitute for agricultural drying because of its capability to dry products irrespective of time and weather conditions. The added advantage is the use of waste biomass as a fuel in such system. This paper discusses the thermodynamic, energy and exergy performance of biomass dryer system for the drying of cashew nut. Exergy analysis has been performed to make it efficient in terms of a) rate of energy consumption and b) the time required for drying. The biomass dryer is capable of generating an adequate and continuous flow of hot air temperature between 70 °C and 75 °C. The quantitative analysis showed that the average biomass combustion efficiency is 36 % and the average energy efficiency of the biomass drying process was 19%.*

### Author Keywords

Biomass dryer, Exergy efficiency and Energy efficiency

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