DESIGN, FABRICATION, AND TESTING OF A PORTABLE CYLINDRICAL-TYPE CASSAVA PEELING MACHINE

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By

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ABSTRACT

The aim of the study was to design, fabricate and test the performance of a cassava peeling machine. Fabrication was done in Brgy. Poblacion, Banate, Iloilo from August 2021 to September 2021 followed by the conduct of pre-testing and evaluation at the same location on December 2021. The machine is composed of: (a) peeling chamber where peeling occurs, (b) hatch where cassava is loaded, (c) pulley system where the prime mover is installed, (d) outlet chute where peelings are discharged, (e) 7 Hp internal combustion engine which drives the machine, and (f) support frame where the peeling chamber is placed. The machine has an overall dimension of 1000 mm L x 1320 mm W x 1400 mm H. Results of the study showed that the optimal speed of peeling the cassava in the peeling chamber is 50 rpm to 56 rpm. The average operating time of the machine with an initial loading capacity of 50 kg is 4.02 min. The rated capacity of the machine is 12.46 kg/min or equivalent to 744.23 kg/hr. It has a peeling efficiency of 80.31% and an average flesh loss of 19.96%. The consumption rate of the machine is 116.67 mL of diesel and is calculated to be 29.12 mL/min. The machine can be fabricated using locally available materials and it has an investment cost of PHP40,000.00. Further computation revealed that the cost of operating the machine was PHP1.54/min. The cost of running the machine for 4 hours in a day was calculated to be PHP369.60.

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