

## **UTILIZATION OF WASTE BIOMASS BRIQUETTES AS SUBSTITUTION OF KEROSENE IN STERILIZATION PROCESS OF AURICULARIA SP. PLANTING MEDIA**

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*This research aims to study the characteristics of biomass briquette of waste planting medium in the sterilization process of their as a substitute for kerosene. This research also to evaluate the utilization of biomass briquettes in the sterilization process, the performance of water vapor quality in the autoclaf and the combustion efficiency of biomass briquettes. The process of sterilization is one of the important stages in the cultivation process of ear mushroom (*Auricularia sp.*) in order to make inactive microbes, whether bacteria, fungi and viruses that can disrupt the growth of mushrooms. The process of sterilization required heat energy source to produce vapor temperature above 100 °C. Before the subsidized kerosene withdrawn from the market, mushroom farmers using kerosene fuel. But, currently mushroom farmers use firewood as a source of heat in the sterilization process of ear mushroom planting medium. The research was conducted by briquetting waste of mushroom planting medium with dimension diameter 5 cm and height 5 cm by using a hydraulic jack.*

*The adhesive material (binder) used molasses with concentration 5-10%. While the autoclaf model for sterilization process is cylinder type with diameter 80 cm and height 120 cm. The autoclaf used steel plate width 3 mm that can restrain high vapor pressure. The biomass briquettes of mushroom planting medium waste was used as fuel for sterilization process in the autoclaf model. The autoclaf model was equipped with pressure relief, pressure gauge and thermometer gauge.*

*The results of this research showed that the calorific value of biomass briquettes at 2224 kcal/kg. The caloric value of this biomass briquettes was lower than caloric value of kerosene at 9000 kcal/kg. Consider the Boiling Water Test method was obtained the rate of combustion of biomass waste briquettes at 40 gr/min. Measurement of flame temperature on the center of the fire produced flame temperatures above 1200 °C. The amount of biomass waste briquettes that needed in one work day (8 hours) reached 19,2 kg. The thermal efficiency of the burning process of biomass waste briquette on the furnace was 14%. The thermal efficiency of the burning process of biomass waste briquette on the furnace was 14%. The steam temperature in the model autoclaf reached 105 °C.*

**Keywords :** *biomass briquette, waste of planting medium, sterilization process, autoclaf*