

Experimental Study Of Parabolic Solar Stoves Using Fresnel Lenses With Variations In Insulation Materials And Fresnel Lens Height

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ABSTRACT

Indonesia is a country that has high potential in developing renewable energy. One of the high renewable energy in Indonesia is solar energy. Utilization of solar energy can be done in cooking purposes, namely by using a solar stove. In general, solar stove are widely used using box types and parabolic types. The working principle of solar stove is to increase the temperature in the cooking room obtained from th reflection of sunlight. To reduce the use of fossil fuels have been widely developed solar stoves that use a variety of variations, one of which is the variation of absorber materials and the height of concentrators on parabolic solar stoves. This research was conducted in East Mastrip Complex, Summersari Subdrict, Jember Regency. Aim to determine the value of water temperature, cooking power, efficiency in the variety of absorber material and fresnel lens heigh. The results of the analysis showed the highest temperature value that can be achieved is 65.2 celcius occurred at 13.10 PM, the highest cooking value in the fifth variation worth 19,07 W, and the highest efficiency value occurred in the fifth variation worth 15.54%.

Keywords: solar stove, solar energy, fossil, glasswool, styrofoam, fresnel lens.