

DESIGN AND CONSTRUCTION OF A HYBRID SOLAR CELL FISH DRYER

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ABSTRACT

The traditional fish drying process still depends on weather conditions, resulting in a relatively long drying time. This study aims to design and develop a fish dryer based on a hybrid solar cell system, with solar panels as the main energy source, batteries as energy storage, and a biomass furnace as an alternative energy source. The testing was conducted using Biang fish at temperatures of 40°C, 60°C, and 80°C by observing changes in weight and drying time. The results using solar panels showed drying times of 15 hours 20 minutes at 40°C, 12 hours 40 minutes at 60°C, and 10 hours at 80°C. Using the biomass furnace, the drying times were 14 hours, 12 hours 40 minutes, and 13 hours, respectively. The results indicate that increasing the drying temperature tends to accelerate the drying process, with the shortest drying time obtained at 80°C using solar panels for 10 hours.

Overall, the hybrid solar cell fish dryer can operate at temperatures ranging from 40°C to 80°C by utilizing a combination of solar energy, battery storage, and biomass energy.

Keywords: *fish dryer, hybrid solar cell, solar panel, biomass furnace.*