

***DESIGN OF HYBRID PLTS SYSTEM AND PERFORMANCE ANALYSIS  
OF BSF MAGDRY (Black Soldier Fly Maggot Smart Dryer) DEVICE IN  
MAGGOT DRYING***

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***ABSTRACT***

*This research aims to design a hybrid solar power system as a power source for the MAGDRY BSF device and analyze the system's performance and maggot drying process. The system consists of a 550 Wp solar panel, a 1000 W hybrid inverter, a 12V 100Ah VRLA AGM battery, and PLN as a backup power source. The research methods included system design, assembly, no-load testing, under-load testing, and drying parameter analysis. The results show that the hybrid solar power system is capable of adequately supplying the dryer's power requirements. Solar panel power output is affected by weather conditions and solar irradiation intensity. The hybrid system is also capable of switching power sources between the solar panel, battery, and PLN to maintain a continuous power supply. In the drying test, a 1 kg maggot mass with an 80 Hz frequency produced the highest drying rate of 2.62 grams/minute, while a 5 kg mass produced 1.88 grams/minute. The results indicate that the hybrid solar power-based MAGDRY BSF device is effective and can be an alternative renewable energy-based maggot drying system.*

***Keywords:*** *Drying Rate, Hybrid PLTS, MAGDRY BSF, Maggot Drying.*