

## **Performance Evaluation of PV Ventilated Hybrid Greenhouse Dryer Under no Load Condition**

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### **ABSTRACT**

The PV ventilated hybrid greenhouse dryer was designed and fabricated for drying of food grains. The greenhouse dryer with 446.7 X 213.4 cm size and central height of 259 cm was constructed using 50.8X25.4 mm MS pipe and 19X30.2 mm MS angles. Clear twin wall polycarbonate sheet with 6 mm thick was used insulate the greenhouse dryer structure. Performance evaluation was conducted under no load test condition. It was observed that, the average temperature inside the dryer was 6.3-13.2 °C (22-43%) higher and average relative humidity was 23-40% lower than ambient temperature and relative humidity during the month of December. Exhaust air flow rate varied in the range of 28-63 m<sup>3</sup>/min. Elevated greenhouse dryer air temperature and reduced relative humidity would reduce the drying time considerably.

Key words: Greenhouse dryer, Forced ventilation, Performance Evaluation, Photovoltaic.