

Thermal Analysis of Photovoltaic Integrated Greenhouse Solar Dryer

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Abstract : Present study focused on the utilization of solar energy by the help of photovoltaic greenhouse solar dryer under forced mode. A single slope photovoltaic greenhouse solar dryer has been proposed and thermal modelling has been developed. Various parameters have been calculated by thermal modelling such as greenhouse room temperature, cell temperature, crop temperature and air temperature at exit of greenhouse. Further cell efficiency, thermal efficiency, and overall thermal efficiency have been calculated for a typical day of May and November. It was found that system can generate equivalent thermal energy up to 7.65 kW and 6.66 kW per day for clear day of May and November respectively.

Keywords : characteristics curve, photovoltaic, thermal modelling, thermal efficiency

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