

# Study and Experimental Investigation of Solar Dryer by using Concentric Dish Collector with Tracking Mechanism

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Among the various renewable energy resources solar energy potential is the highest in the country. The global solar radiation over India varies from 4-7 kWh/sq. m/day. The solar energy is also used for heating the air that solar air heater is applied to dry the clothes, food dehydration, natural rubber, etc. Solar dryer is used to remove moisture content from the product. Heated air is supplied to the product whose temperature is higher than ambient temperature. Solar dryers are used primarily by the agricultural industry. The purpose of drying an agricultural product is to reduce its moisture content to a level that prevents its deterioration. The most obvious ones are that the crops suffer the undesirable effects of dust, dirt, atmospheric pollution, and insect and rodent attacks. Because of these limitations, the quality of the resulting product can be degraded, sometimes beyond edibility. All these disadvantages can be eliminated by using a solar dryer. In this project concentric dish collector is used to get higher temperature of water for drying. Temperature of water at outlet of receiver is  $9300_c$ . Compact tube fin heat exchanger is used to supply heated air to the drying chamber. Our requirement is to supply the hot air to the room up to 500 C to 600 C temperatures during day as well as night time. Time require for this indirect drying is 48% less than open sun drying. Efficiency of collector obtained is 19%.

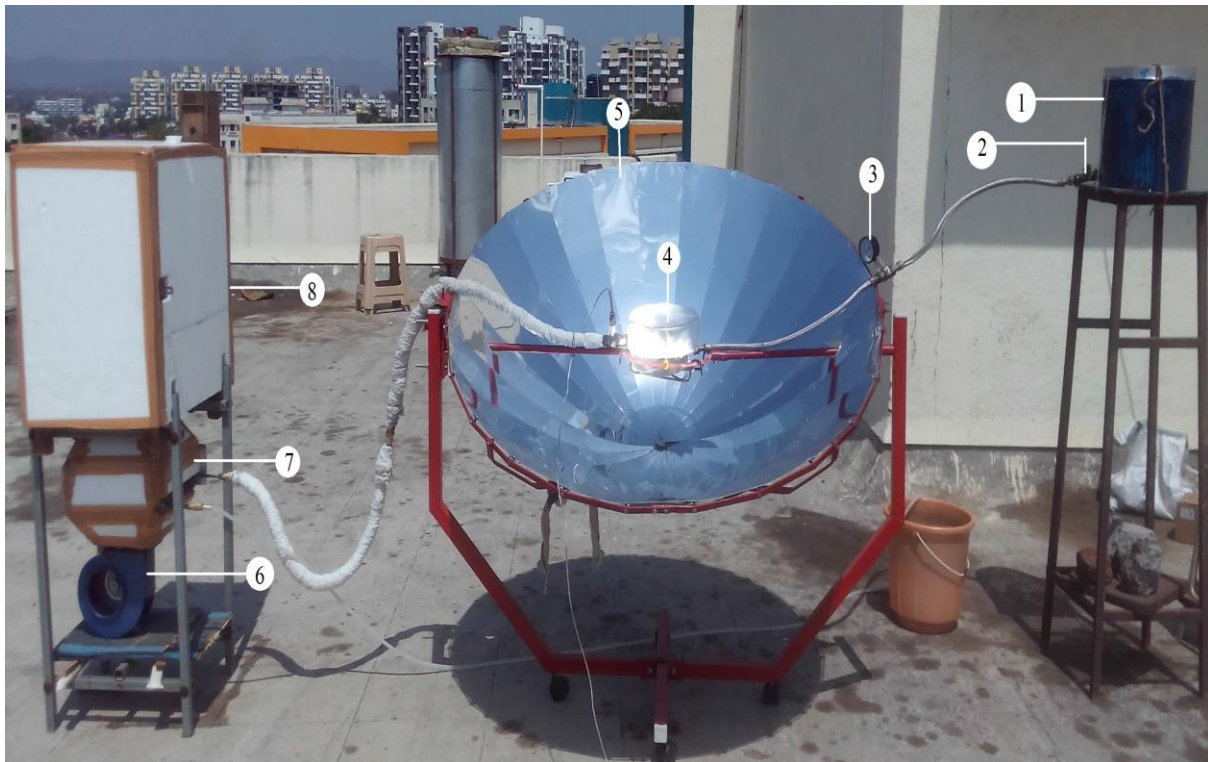


Fig. Photograph of experimental set up