

# ABSTRACT

## DESIGN AND CONSTRUCTION OF A PARABOLIC DISH SOLAR COOKER

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The use of renewable energy, particularly solar energy, is increasing day by day to promote its contribution to national economy. Solar energy can be used in heating, drying, cooking and also for generating electricity. In this paper the design, construction and performance test of a parabolic dish solar (PDS) cooker is discussed. The cooker having an aperture diameter of 106 cm and focal length of 54 cm was designed, constructed and the performance was tested. Plane mirror was used as reflecting material in the cooker. The maximum temperature inside the cooking pot was found to be 97°C. As performance test rice and dal were cooked in various amounts at different days and times. Experiments showed that the temperature inside the cooker varies with the available solar radiation. The cooker could cook 300 gm rice and 100 gm dal within 40 minutes at an available radiation level of 320 -390 W/m<sup>2</sup>. An economic analysis of the cooker was performed and it showed a payback of 16 months, which is realistic and very promising.

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