

Abstract

DESIGN, FABRICATION and PERFORMANCE ANALYSIS OF A PARABOLIC SOLAR COLLECTOR WITH SOLAR TRACKING

Abstract: The sun is the source of the vast majority of the energy we use on earth. Most of the energy we use has undergone various transformations before it is finally utilized, but it is also possible to tap this source of solar energy as it arrives on the earth's surface. Solar stove is one of the methods of tapping the solar energy. The solar stove can be classified into two types with heat box type and concentrating type. The heat box type solar stove is featured with simple structure, low cost, convenient utilization but is limited in efficiency with moderate temperature which can only be suitable to braise and bake the food in a long time resulting in more utilization limit. Now the concentrating solar stove is broadly applied with the feature of high cooking efficiency, high temperature, short cooking time and strong applicability. This study describes the design, fabrication and performance testing of a parabolic concentrating solar stove. The concentrating collector was equipped with a solar tracking system using light dependant resistor to seek the maximum light of the sun. Using this design, the parabolic concentrating solar stove with the tracking system, up to 50% more energy was collected than the fixed collector. Such performance enhancement will pay back for the extra initial cost and increase the utilization property. Introduction: No