

## **Design and development of solar dryer for kenaf fiber at chuping Malaysia**

### **ABSTRACT**

The use of solar dryers in agriculture is a technological revolution towards the modern world. In addition to being a clean source of energy, the use of this dryer produce better product than conventional method. The objective of this study is to identify the main component and their size in a special solar dryer system for kenaf fiber in Chuping. Then a effectiveness of drying. The methodology used is the determination of the main component, the size of each component and the performance of the solar dryer based on the relevant parameters. The main features and components identified are load, drying chamber dimensions (area-height), tank capacity and solar collector area. In addition, other components are needed for the drying to run smoothly such as pumps, heat exchanger, expansion tank and water heater. The calculation result found that the load, chamber dimension (area-height), tank capacity and collector area values were 1400kg, 58.73m<sup>2</sup>-2.5m, 1200L and 48.45m<sup>2</sup>, respectively. The drying test was successfully performed within 3 days with weight and moisture content reduction of 1004.2kg and 57.96%, respectively. The drying performance assessed was the estimated drying rate from the weight reduction and drying period, which was around 68.58kg/h.