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Thermal Efficiency of Natural Convection Solar Dryer

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This research is to study thermal efficiency of natural convection. Working principle of natural convection solar dryer is, once air in solar dryer is heated by solar energy, the air relative humidity will drop and floating up through the drying. This air will take moisture out of the product and flow out to ambient air. It was found from the experiment that, in the duration of 8.00 am –4.00 pm on a clear sky day, an all-day average ambient air and inside the chamber temperature was 37.01 °C and 62.24 °C respectively. At solar radiation intensity of 763.82 W/m², mass flow rate of air was 0.029 kg/s and thermal efficiency of the solar dryer was 2.54%.

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