

DESIGN AND PERFORMANCE EVALUATION OF DIRECT MODE SOLAR DRYER

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ABSTRACT

Now a day, drying becomes one of the important post harvest operation for fruits, to increase shelf life. Sun drying is one of the oldest, but the cheapest and widely used methods. So the Direct Mode Solar Dryer is constructed and investigated experimentally, for the drying efficiency at a geographic location of Talsande, in the city of Kolhapur. The highest daily solar radiation, obtained at 12:00 p.m. was 857 W/m². The highest ambient temperature was obtained at 12:00 p.m. i.e., 39.8°C as well as the highest inside temperature was obtained at 13:30 p.m. & 14:30 pm i.e., 74.5°C. The maximum temperature difference ΔT was observed, i.e., 40.5°C at 14:00 p.m. The time required to dry sapota from moisture content i.e., 52.38% to 2.22% is 9 hrs. The maximum efficiency of the dryer was obtained at 61.61%, for drying of sapota.

KEYWORDS: Direct Mode Solar Dryer, Drying, Ambient Temperature, Dryer Efficiency, Sapota etc