

Design of Shelf Type Solar Dryer with Fresnel Lens Concentrator
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ABSTRACT

Solar dryer with fresnel lens concentrator is a solar dryer with work principle of solar thermal concentrator used to arrest solar radiation, in this case direct radiation from focused sunlight becomes heat for heating of air duct pipe that will entered in dryer room. In this research, used fresnel lens which have 13 cm x 9 cm arrest area. The purpose of this research was stived for performance increase of solar dryer with fresnel lens concentrator. The test result showed that the highest temperature change at the outlet of heating pipe is 17,29°C on research which is used 3 fresnel lenses. The test result in a dryer room was obtained the highest temperature is 44,03°C in testing used 3 fresnel lenses. And the average value of efficiency of the heating pipe about 0,59%-8,07% and in dryer room is 1,49%-2,45%.

Key words : solar dryer, solar thermal concentrator, fresnel lens, radiation