# Experimental analysis on thermal performance of a solar air collector with longitudinal fins in a region of Biskra, Algeria

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**Abstract**

This paper presents a thermal performance of a single pass solar air heater with fins attached was investigated experimentally. Longitudinal fins were used inferior the absorber plate for an increase the heat exchange and uniform the flow fluid in the channel. The effects of mass flow rate of air on the outlet temperature, the heat transfer in a thickness of solar collector and thermal efficiency were studied. Experiments were performed for two air mass flow rates of 0.012 kg/s., Moreover; the maximum efficiency was obtained by using five longitudinal fins and without fins. The maximum efficiency obtained for the 0.012 kg/s with and without fins were 40.02 % and 34.92 %, respectively. Comparison of the results as an effect the solar collector's with and without fins shows a substantial enhancement in the thermal efficiency.

**Keywords :** Solar intensity, Solar air collector, Heat transfer, Design, Temperature.

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