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"STUDY OF FORCED CONVECTION EVACUATEDTUBE SOLAR GRAPE DRYER"

Shantnu[1], Somvir Arya[2]

[1]Shantnu M.Tech. Scholar IIET Haryana India
[2]Somvir Arya HOD Mechnical Dept. IIET Haryana India

Abstract - Nano fluids show upgraded thermal conductivity because of expansive zone to volume proportion and high turbulence properties.

Because of its novel properties Nano liquid discover their applications in numerous fields of warmth exchange, including microelectronics, energy components, pharmaceutical procedures, and cross breed powered motors, , in pounding, machining, motor cooling/vehicle thermal administration, local fridge, chiller, warm exchanger and in heater pipe gas temperature diminishment. Information of the rheological conduct of Nano fluids is observed to be exceptionally basic in choosing their appropriateness for convective warmth exchange applications.

Key Words: **NANO FLUIDS, THERMAL CONDUCTIVITY, EXPANSIVE ZONE, TURBULENCE, WARMTH EXCHANGE, MICROELECTRONICS, WARM EXCHANGER.**

1. INTRODUCTION

On the basis of a sequence of engineering calculations for natural-convection solar dryers, specific design parameters were determined. This tailored model requires a range of variables into consideration, including physical characteristics and environmental circumstances. These characteristics served as feedback for the suggested model and supplied a preliminary standard to satisfy and/or exceed the real design in terms of effectiveness. From the mathematical calculations, specific characteristics of the solar dryer were determined and schematics were developed on the basis of this information. The solar dryer was then manufactured on the basis of the schematics. Consideration was provided to building materials that in developing communities were cheap and possibly accessible. Depending on the availability of materials, alternative materials are anticipated to substitute the present structure. Experiments were then carried out to assess the solar dryer's efficiency.

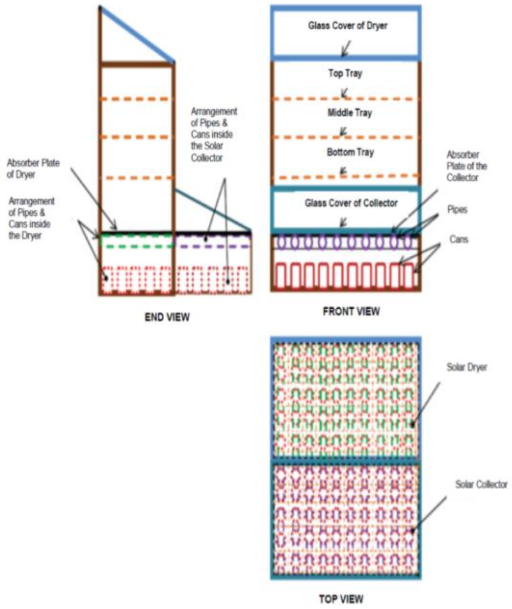

Figure 1: Dryer in Mixed Mode with Thermal Storage Unit

These evaluations were carried out to assess the dryer's operation and effectiveness. Although the literature contains a comprehensive list of solar dryers, this system has been intended with easy and inexpensive manufacturing methods in mind. Because construction materials and skilled labour in developing nations are often restricted, efforts have been created to maintain this design from becoming too advanced.

2. THE GREENHOUSE DRYER

The greenhouse dryer oriented in east-west direction had an effective floor area of 1.2 m×0.8 m. The cover of dryer was made by UV film. An air vent of 0.043 m2 areas was provided on the roof top to act as natural convection. Similarly, one fan was provided to produce force convection.

Jaggery drying in a greenhouse under natural and forced convection mode. The drying test was performed for 800 gm and 2000 gm of jaggery. It was finally observed that the drying of jaggery under Forced convection mode was faster than the drying in natural convection mode.

Figure:2. Jaggery drying in a greenhouse under -Natural convection mode

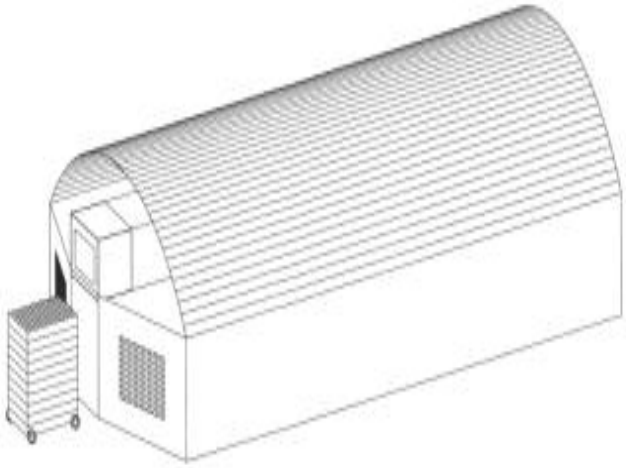

Figure 3: Face view of the tunnel greenhouse dryer.

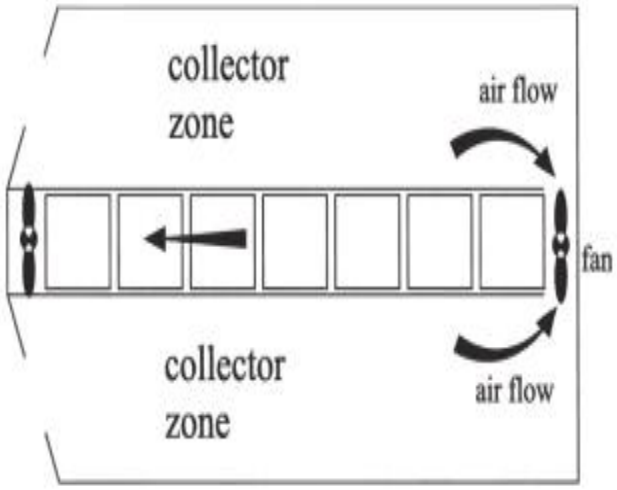

Figure 4. Plant view of the tunnel greenhouse dryer.

CONCLUSION:

This research work is conducted to study the solar grape action. This scheme shows the use of the entire non-conventional energy source. Here the drying efficiency under uncontrolled circumstances is researched, taking into account all the researchers ' prior results. The solar collector evacuated tube is intended and manufactured on the basis of analytical calculations. The grapes ' drying conduct is analytically and experimentally studied at the same time. The solar collector's thermal efficiency and the manufactured dryer's drying effectiveness were discovered more than previously accessible information. This model is more appropriate for practical implementation as it maintains the same drying circumstances as traditional schemes.

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