

# Solar Dehydration System

Ahire Rohit Gulabrao<sup>1</sup>, Borse Sagar Kadu<sup>2</sup>, Davkhar Pratik Babaji<sup>3</sup>,

Gajare Arjun Bhaskar<sup>4</sup>, Mr. Tushar T. Kapade<sup>5</sup>

Student, Department Of Mechanical Engineering<sup>1,2,3,4</sup>

Assistant Professor, Department of Mechanical Engineering<sup>5</sup>

Matoshri College of Engineering and Reserch Centre, Eklahare, Nashik

**Abstract:** A solar dryer was developed to account the limitations encountered in traditional open sun drying. With loading capacity and incorporated with a heating control system, this dryer is suitable for agricultural drying that requires drying capacity and products with high moisture content. In addition, this drying system offers flexibility in switching between different combinations of air vents based on the drying purpose required. Chaotic air flows produced in the drying chamber ensure uniform temperature distribution across the drying trays in an updraft air movement. Potential application of the drying system for potato chips, onion slices and chili drying will be test. Based on the performance evaluation, a maximum temperature and maximum average temperature of will attain in the drying chamber will measure. The drying of chips, onion slices and chili with the set drying temperature and operating condition of using the ventilation fan and opening the air vent achieved the drying time will measure. The Solar food dryer describes how to efficiently harness solar energy to preserve food quickly and easily. With the use of solar-powered food dehydrator, we can conveniently make all the high-quality dried foods - with free sunshine! Eat local and eat healthier by preserving the goodness of your favorite seasonal foods, garden veggies, fruits and herbs to enjoy all year long.

**Keywords:** Solar Dryer, Direct Type, Solar-Powered, Food Dehydrator.

## REFERENCES

- [1]. Jaivindra Singh, Mayur Pratap Singh, Modassir Akhtar, Akhil Khajuria, Design And Performance Analysis Of An Indirect Type Solar Dryer, IAETSD Journal For Advanced Research In Applied Sciences, Volume 5, Issue 2, Feb/2018, ISSN NO: 2394-8442, pp.553-568.
- [2]. Janak Valaki, Vishal Patel & Jayesh Lakhani, Design And Development Of Solar Dryer For Fruit Chips, researchgate, Technical Report • May 2013, pp.1-47.
- [3]. Vinay Narayan Hegde, Viraj Shrikanth Hosur, Samyukthkumar K Rathod, Puneet A Harsoor and K Badari Narayana, Design, fabrication and performance evaluation of solar dryer for banana, Hegde et al. Energy, Sustainability and Society (2015), pp.1-12.
- [4]. Mamadou Lamine Coly, Bou Counta Mbaye, Mamadou Seck Gueye, Babacar Ndiaye, Joseph Sarr, A Tunnel mixed solar dryer for the drying of fishery products: design and experimentation, Journal of Scientific and Engineering Research, 2021, 8(2), pp.87-101.
- [5]. Vikrant M. Tandel, Prasad M. Navgire, Rahul J. Mugutmal, Akshay B. Lahane, Sumeet S. Ingale, design and fabrication of solar Dryer, JARIIE-ISSN(O)-2395-4396, Vol-3 Issue-3 2017, pp.2045-2051.
- [6]. Debashree Debadatta Behera, Biswajit Nayak, Shiv Sankar Das, Design and Fabrication of Solar Dryer for Sustainable Livelihoods of Fisher Women, International Journal of Engineering and Management Research, Volume-7, Issue-5, September-October 2017, pp.125-139.
- [7]. Aremu, O. A., Odepidan, K.O., Adejuwon, S.O., Ajala, A.L., Design, Fabrication and Performance Evaluation of Hybrid Solar Dryer, International Journal of Research and Innovation in Applied Science (IJRIAS) | Volume V, Issue III, March 2020, pp. 159-164.