

Drying of Agro-Industrial Wastes Using a Cabinet Type Solar Dryer

Authors : N. Metidji, O. Badaoui, A. Djebli, H. Bendjebbas, R. Sellami

Abstract : The agro-industry is considered as one of the most waste producing industrial fields as a result of food processing. Upgrading and reuse of these wastes as animal or poultry food seems to be a promising alternative. Combined with the use of clean energy resources, the recovery process would contribute more to the environment protection. It is in this framework that a new solar dryer has been designed in the Unit of Solar Equipment Development. Direct solar drying has, also, many advantages compared to natural sun drying. In fact, the first does not cause product degradation as it is protected by the drying chamber from direct sun, insects and exterior environment. The aim of this work is to study the drying kinetics of waste, generated during the processing of pepper, by using a direct natural convection solar dryer at 35°C and 55°C. The rate of moisture removal from the product to be dried has been found to be directly related to temperature, humidity and flow rate. The characterization of these parameters has allowed the determination of the appropriate drying time for this product namely peppers waste.

Keywords : solar energy, solar dryer, energy conversion, pepper drying, forced convection solar dryer

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020