

SOME RESULTS OF DESIGN, MANUFACTURING AND TESTING OF RICE PAPER DRYING USING MIXED MODE NATURAL CONVECTION SOLAR DRYER

Do Minh Cuong, Nguyen Dat, Nguyen Thi Ngoc

Summary

This article presents some results of design, manufacturing and testing solar dryer system for drying wet rice paper with yield of 25 kgs per batch. Three treatments including open sun drying, direct natural convection and mixed mode natural convection solar drying systems are conducted; Temperature and moisture content are determined during drying process. The results showed that the temperature in the drying chamber is always higher than of natural air temperature, it is up to 65°C for mixed mode natural convection solar dryer while the max temperature of natural air of 36°C and temperature in the drying chamber of direct natural convection solar dryer of 53°C. The temperature in positions in the drying chamber is not significantly different (1-3°C); The results also showed that the drying time when using mixed mode natural convection solar drying dryer is 02 hours, compared with direct natural convection system is 03 hours and open sun drying of 04 hours, It is evident that the mixed mode natural convection solar drying system can reduce drying time to ½ times compared the open sun drying method. These results confirm that the use of natural convection solar system can shorten drying time of rice paper, improve product quality, simple to used, independ on external energy sources, manufacturing materials are available.

Keywords: *Rice paper, open sun drying, drying, solar energy, natural convection, air collector.*