

ABSTRACT

This project work was done to study Turmeric (*Curcuma longa* L.) paste by Refractance Window drying technique with the water bath at different temperature sets 95°C, 90°C, 85°C, 80°C. The experiments were conducted with four temperatures of water bath and spreading fresh turmeric paste (thickness 1 mm and 2 mm) and using transparent PVC film. The shorter time of drying process to reduce the pulp moisture from 8.47 to 0.02 g water/ g dry solid was 45 minutes with the transparent film, 95 °C heating water and the thickness equivalent to 1mm. Drying data obtained from experiments carried out in RW dryer are fitted to Midilli-Kucuk model ($R^2>0.994$), the best fitted model among the common semi-theoretical models. Different physio-chemical analysis of powder obtained from RW dryer was analysed and was compared with tray dried powder and a commercial powder. Curcumin content in RW dried powder shows high retention than the conventional tray dryer and commercial sample. High colour retention was also observed in the RW dryer. The effective diffusivity for 95 degree centigrade was found to be 3.02×10^{-9} for 1mm sample and 1.57×10^{-9} for 2mm sample.

Keywords: Drying. Turmeric. Refractance Window. Diffusivity. Curcumin