

Title Production of Dried Carrot Pulp Using Microwave Vacuum Drying Process

Author Atis kanlapong, Aluck Thipayarat

Citation Proceedings: Abstract Summary, International Conference on Agricultural, Food and Biological Engineering & Post Harvest/Production Technology, Sofitel Raja Orchid Hotel, Khon Kaen, Thailand, 21-24 January 2007. 204 p.

Keywords Carrot pulp; Microwave vacuum drying; Swelling

Abstract

This study aims to investigate the application of microwave vacuum to accelerate the drying process and preserve the physiological and nutritional properties of the carrot pulp samples. The effects of different microwave powers (i.e., 660, 450 and 350 Watt) and vacuum pressures (i.e., 2, 4 and 6 kPa) on the external and nutritional attributes of dried carrot pulp were explored. The prototype equipment enabling performance of microwave vacuum drying in the same experimental setting was constructed. The carrot pulp representing by-product from industrial use was prepared from a commercial juice. The drying rate was monitored as well as other physiochemical and nutritional qualities including color and swelling capacity. The prototype of microwave vacuum drying was able to remove moisture from the carrot pulp to achieve the final moisture content less than 10 % wet basis. In experiment, the drying time was significantly improved by applying dielectric heating, although sample size and weight must be carefully prepared to ensure maximum uniformity of the dried sample. The microwave vacuum drying gave the final product fairly similar to the freeze-dried product but the vacuum drying was faster in term of processing time and less complicated for sizing up into industrial scale.