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Microwave Drying of Carrot

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Abstract

Dried vegetable is currently used by the food industry as instant vegetable packaged with instant noodle. One of the instant vegetables is carrot. In order to produce a good quality of dry carrot some drying methods were studied. One of the methods is using microwave energy, which the result will be described and discussed in this paper.

An experiment on microwave drying of carrot has been carried out to produce dried carrot with the final moisture content of 13% wet basis. The results of drying rate, re-hydration rate, color, total soluble solid, hardness and bulk density are then compared with conventional tray drying and vacuum drying. The result shows that the microwave drying is double faster compared to the conventional and vacuum drying. The re-hydration value of microwave dried carrot of 10,87 g/g is higher than that of conventional drying (9.27 g/g) and vacuum drying (10.13 g/g). The color brightness of microwave-dried product (31.4) is higher than that of conventional (31) but lower than that of vacuum (34.5). Total soluble solid, which represents the sugar content of microwave-dried carrot, is 1.07°Brix, lower than that of conventional (1.68°Brix) and vacuum (1.42°Brix). The microwave-dried carrot has moderate hardness of 0.033 kg comparing to other two methods, whereas the bulk density has a lowest value of 1.041 g/cm³. Even though some drying parameters show the lower value, but in general the quality of microwave dried of carrot is acceptable and relatively better than other two-compared method, especially when dealing with the drying time.

Keywords: Carrot, microwave drying, quality