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Determination of Drying Kinetics and Quality Parameters of Grape Pomace Dried with a Heat Pump Dryer

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Abstract

Pomace of Hamburg Muscat was dried at temperature of drying air 45 °C and different air velocity (1.5, 2.0 and 2.5 m/s) in open-loop heat pump (HP) and laboratory-type closed-loop dryer (as a control). In the HP dryer, it was concluded that drying air velocity was slightly effective on drying time however there is no significant effect on the power consumption of the change in the drying air velocity at the same temperature. When comparing the energy consumption of the HP dryer and convective dryer, the energy consumption was reduced by up to 51%. In HP drying, the increase of air velocity from 1.5 m/s to 2.5 m/s caused a reduction in drying time by 69%. It was observed that part of the bioactive properties were lost in pomace samples but there were fewer losses in all bioactive properties than the others except the total anthocyanin at 2 m/s.

Keywords: Grape pomace, heat pump drying, quality parameters, drying kinetics

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