Title Physical and chemical characterization of dehydrated Roma type tomatoes in response to temperature and air flow.

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Abstract

Dehydration of tomatoes is a preservation technique commonly used to extend shelf-life. Nevertheless, the physical and chemical properties of the dehydrated product is frequently deteriorated. The objective of this investigation was to evaluate the interactive effects of hybrid, temperature and air flow on physical and chemical properties of dehydrated tomatoes. Fresh and ripe Roma type tomato fruits 'SXT 7705' and 'Maya' cultivars were used. Tomatoes samples were cut in halves, blanched and pretreated with sodium metabisulphite at 500 ppm. Tomato samples were dehydrated in a closed loop tunnel drier at 60°C, 70°C and 80°C and two air flow rates: 1 and 2 m/s. A completely randomized design was used with two replications.

The lowest water activity was obtained in tomato samples dehydrated at 80°C. Tomato fruits cv. 'Maya' had lower moisture content than those of cultivar 'SXT 7705'. The lowest moisture content was obtained in tomato samples dehydrated at 70°C. Tomato fruits cv. 'SXT 7705' dehydrated at 70°C and an air flow of 1 m/s had the highest percentage of rehydratation at 5 minutes, while fruit samples cv. 'Maya' dehydrated at 80°C and an air flow of 1 m/s, had the highest percentage of rehydratation at 10 minutes. Acceptable values of pH, titratable acidity and soluble solids were obtained in tomato samples cv. 'SXT 7705' dehydrated at 80°C and an air flow of 1 m/s. Tomato fruits cv. 'SXT 7705' accumulated greater quantities of nutrients (N, P, K, Ca, Mg, Na, Fe and Mn) than those fruits from cv. 'Maya'.