

# CEFood Congress



Food Chain Integration

## BOOK OF ABSTRACTS

# EFFECT OF PRE-TREATMENT ON SOME PHYSICAL-CHEMICAL PROPERTIES OF DRIED CARROTS

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## Abstract

Carrot is the most commonly used vegetable for human nutrition and is an excellent source of  $\beta$ -carotene, vitamin A and potassium, and contains cholesterol-lowering pectin, vitamin C, vitamin B6, thiamine, folic acid, and magnesium. Carrots are highly seasonal and abundantly available at particular times of the year. For extending the availability of this root, several preservation processes can be used, but convective drying is one of the most important since it not only extends vegetable shelf life significantly but also diversifies the offer of foods for consumers. However, convective drying can also give rise to significant chemical changes (non-enzymatic browning, among others), which may affect the quality of the product. Pre-drying treatments of solid food products can be used as a way to augment product quality and to modify the structure of food products so as to improve mass transfer coefficients in drying. In this context, assessments of the physical and chemical properties were made in order to investigate the effects of sodium metabisulphite at different concentration/time combinations prior convective drying of carrots.

The carrots used in this study were purchased in a local market, and hand peeled and cut into slices with thickness of 10 mm. Before convective drying at 60 °C the slices of carrots were submitted to pre-treatments as follows: a) dipping in a water solution of 0.25% of sodium metabisulphite for 60 and 90 min. and 1% of sodium metabisulphite for the same times, at room temperature; b) dipping in an equal mass of plain water for 60 and 90 min at room temperature (as control sample). Some chemical properties of the fresh and dried samples were evaluated with classical methods, namely moisture content, fibre, ashes and sugars (reducing, total and non-reducing sugars). The physical properties evaluated were color and texture. Colour was evaluated with a Colorimeter in the Cielab colour space and texture was measured Colour was evaluated with a Colorimeter in the Cielab colour space and texture was measured by texture profile analysis with a texturometer.

The main results show that the different combinations concentration/time of sodium metabisulphite dipping has a similar effect on the chemical properties of the dried carrots. Furthermore, the dried slices of carrots with and without pre-treatment originated products