**Comparison of osmotic dehydration of peach slices from two cultivars in glucose and sucrose solutions**

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ABSTRACT

Peach (*Prunus persica*) is a stone fruit with a fleshy pulp and a delicate aroma. It is grown in warm temperate and subtropical regions. Peach provides vitamins, fiver and antioxidant compounds, among others. In San Pedro – Baradero region, the destination of the fruit is mainly for fresh consumption. Nevertheless, the commercialization of the dried fruit is a strategy to add value to the local production. Osmotic dehydration (OD) previous conventional drying is an emerging pre-treatment applied to fresh fruit in order to prevent browning and sugar caramelization during prolonged hot air exposure. Here, the effects of sugar type and cultivar on the organoleptic, nutritional and nutraceutical properties of OD were studied using slices of peach. Two commercial cultivars Dixiland (DX) and Elegant Lady (EL) were harvested at commercial maturity. Fruit were washed and disinfected, cut in slices and treated with ascorbic and citric acids to prevent browning. A fraction of the slices were used as fresh material (F) and the remaining was subjected to OD. The dehydration process was performed at 40°C using 47°Brix solutions of sucrose (ODSuc) or glucose (ODGlc) containing 2%(w/v) CaCl2 under stirring during 3 hours. After that, slices were dried at 58°C (OD+D) to reach an average water content of fifteen percent. In all samples total phenolics, total proteins, flavonoids, ascorbic acid, carotenoids, tannins and antioxidant activity measured by DPPH and ABTS methods, water content and color (L\*a\*b\*space) were measured.

Using glucose as osmotic agent, a water loss (WL) of 32% was achieved in both cultivars in OD slices. In contrast, the use of sucrose conducted to smaller WL values in both cultivars. In both cultivars, ODGlc+D slices exhibited an increase in glucose – in a DW basis- with respect to F fruit, while in ODSuc+D slices sucrose content was the same as in F, in a DW basis. In EL and DX, both ODGlc+D and ODSuc+D slices showed a decrease in total phenolics, total proteins, flavonoids, ascorbic acid, carotenoids, and antioxidant activity measured by DPPH method with respect to F in a DW basis. In addition, EL treated slices also exhibited a decrease in tannins and antioxidant activity measured by ABTS method with respect to F. Differences in the responses were observed depending on the cultivar and the sugar used. I.e., while in EL OD+D slices phenolics compound exhibited a lower decrease when glucose was used as osmotic agent with respect to sucrose, in DX, an opposite behavior was observed. With respect to the color of the pulp, when sucrose was used, OD+D slices were less luminous than F irrespectively of the genotype. While a\* and b\* parameters were increased in DX slices treated with sucrose, they were not affected in EL. When glucose was used, an increase in b\* component was observed in EL and DX. Collectively, based on our results there would not be a preference between the cultivars for OD process. Differences between sugars are mainly in WL and color of the slices.

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Key words: dried fruit, bioactive compounds, antioxidant capacity, phenolics, Prunus persica