Analysis of nutraceutical properties of four peach cultivars grown in San Pedro and evaluation of the resultant dried slices

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Introduction

Peach [*Prunus persica* (L.) Batsch] is. on terms of production, the third most important temperature fruit crop around the world. It is a natural source of bioactive compounds such as antioxidants, phenolic compounds, flavonoids and anthocyanins. However, it is perishable. Thus, dehydration of fresh fruit is an option for the consumers and the industry. Given that the concern of consumers about additives in processed food products is constantly increasing, the decrease of fruit water activity by using conventional ovening is a suitable option. In this work, bioactive compounds and antioxidant capacity were analyzed in slices of four commercial peach cultivars (cvs) Gold Prince (GP), Elegant Lady (EL), Dixiland (DX) and Flordaking (FD) and compared to fresh fruit slices.

Materials and methods

Fresh mature fruit from San Pedro, Bs.As., Arg.

2 min wash with chlorinated water (200ppm), pH 6.8 + wash with tap water

Slicing with ceramic knife (2 mm)

2 min Anti-browning treatment (1% (w/v) ascorbic acid and 0.5% (w/v) citric acid) + 30 min drain on absorbent paper

Drying until 12-15% water content

Fresh fruit (F) **Dried fruit (D)**

Flavonoids[1], carotenoids[2], phenolic compounds[3], ascorbic acid[4], total proteins[5], antioxidant capacity[6], sorbitol, sucrose[8] and glucose[7] quantification. Colour measurement[9].

Conclusion

- There is variability in the content of bioactive compounds between cvs, but there are not differences in the content of sorbitol, glucose and sucrose.
- While FD is the richest cv. on the measured nutritional and nutraceutical parameters, it is the most susceptible cv. to the drying treatment with hot air.
- Dry heat diminishes the content of most of the metabolites analyzed.
- Dried slices are less luminous than fresh slices, irrespectively of the genotype, and show signs of browning.

Results

Colour

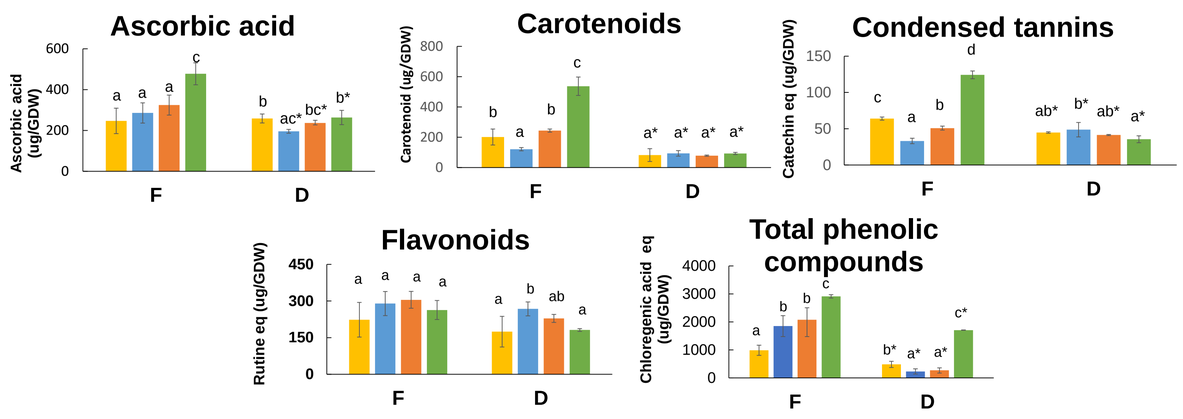
Color	GP F	GPD	EL F	EL D	DX F	DX D	FD F	FD D
(L*)	70.1±2.8 ^{b}	51.6±3.1^{a}	66.3±5.8 ^{b}	50.2±3.2^{a}	71.5±0.9 ^{b}	53.6±2.2^{a}	49.3±1.8 ^{b}	38.6±2.8^{a}
(a*)	3.1±0.9 ^{a}	2.3±0.3^{b}	11.4±1.7 ^{b}	8.4±1.6^{a}	2.5±1.9 ^{a}	2.1±0.6^{a}	5.8±0.4 ^{b}	4.6±0.5^{a}
(b*)	42.7±3.6 ^{a}	42.3±2.2^{a}	43.5±3.9 ^{a}	41.6±2.5^{a}	48.7±1.5 ^{a}	47.5±4.1^{a}	25.8±1.4 ^{a}	22.6±3.3^{a}

T-test was performed between F and D samples within each cultivar.
For each parameter, values with different letters are statistically significantly different (p <0.05).

Results

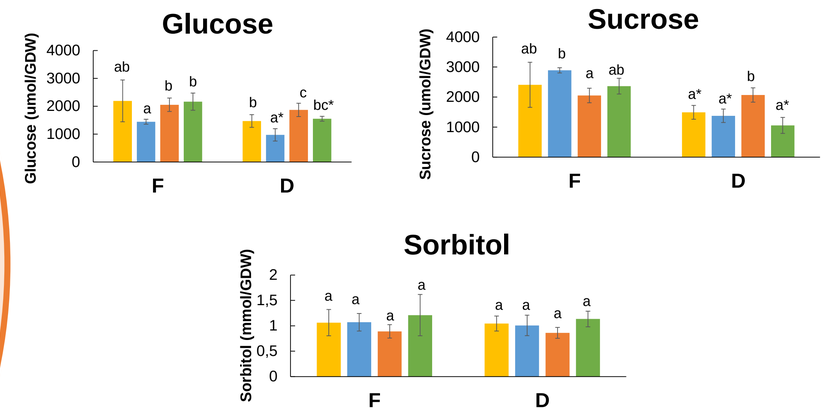
GP EL DX FD

Total bioactive compounds



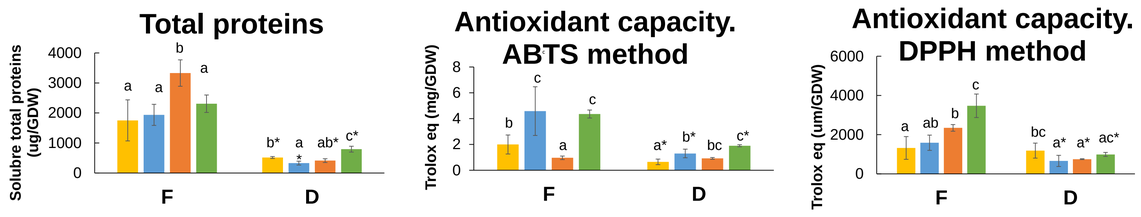
- Cultivars show different content of bioactive compound, with the exception of the flavonoids´ content.
- Besides flavonoids, bioactive compounds decrease upon drying under hot air.

Sugars



- There is no difference in the content of sorbitol. neither among cultivars nor between F and D slices.
- Glucose and sucrose slightly decrease after drying in some cvs.

Nutritional capacity



- Heat decreases the content of total soluble protein in all cultivars.
- The antioxidant capacity differs between cultivars, with FD exhibiting the greatest capacity. Heating decreases the antioxidant capacity in all cultivars.

Statistics: For each cultivar, ANOVA analysis followed by Tukey test was performed for each parameter to compare cultivars. Bars with at least one same letter are not significantly different (p <0.05). For each cultivar, T-tests were conducted to compare a parameter in F and D slices. Statistically significant differences between F and D are marked with an *.

References

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