

Title Quality of nectarine and peach nectars as affected by lye-peeling and storage
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Abstract

This study was focused on nectarine and peach nectars, with the aim to evaluate different quality indices at the time of production and to devise a predictive model for quality variation during storage at 23 and 37 °C. Nectars were produced from the Elegant Lady and Redhaven peach varieties and from the Stark Red Gold nectarine variety, from both peeled and unpeeled fruits. The effects of processing on antioxidant contents, antioxidant activity and colour were evaluated. At the time of production, β -carotene ranged from 0.52 to 0.79 mg/kg, hydroxycinnamic acids (chlorogenic and neochlorogenic) from 34 to 73 mg/kg, catechin from 0 to 24 mg/kg, quercetin 3-*O*-glycosides from 3.9 to 12.7 mg/kg, and cyanidin 3-*O*-glucoside from 0 to 9.4 mg/kg. Within the same variety, carotenoid and phenolic contents were lower in the nectars obtained from peeled fruits than in those obtained from unpeeled fruits. However, as ascorbic acid was adjusted to a level of 300 mg/kg during blending, which is far higher than the observed levels of phenolics and carotenoids, it mainly accounted for nectar radical-scavenging activity towards the 2,2-diphenyl-1-(2,4,6-trinitrophenyl) hydrazyl radical, which on average was 1.8 mmoles Trolox equivalents/kg. The colour of nectars was improved by processing lye-peeled fruits at room temperature, whatever the variety used; i.e., this process decreased the redness index, a^* , and increased the lightness index, L^* , and yellowness index, b^* , with respect to the traditional process. During storage, ascorbic acid degraded by following pseudo-first order kinetics, with the same rate constant for all nectars. The colorimetric parameters a^* , L^* , and b^* varied following pseudo-zero order kinetics, with the same rate constant in all the nectars. Therefore, the better the colour after processing, the better it remained during storage. These results were validated by an independent process carried out with the Springebelle peach variety. From the kinetic models defined, which can be applied to the nectars whatever the variety and process used, it was demonstrated that an increase in storage temperature from 23 to 37 °C caused a 3.5-fold increase in the rate constant for ascorbic acid degradation and a 4-fold increase in the rate constants for a^* and L^* variations.