

**Title** Effects of cold storage on aroma compounds of white- and yellow-fleshed peaches  
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### Abstract

The stir bar sorptive extraction (SBSE) technique was used to determine volatile constituents in two peach cultivars, one yellow-fleshed (cv. Spring Lady) and one white-fleshed (cv. Regina Bianca). For both cultivars four distinct experimental samples were considered, each formed by fruits obtained with four different cultivation practices. In order to investigate the effects of cold storage on the volatile profile, on all peach experimental samples changes in aroma compounds after 1 and 2 weeks of storage at 1°C, plus 1 day at ambient temperature, were monitored; moreover, only on the four experimental samples from cv. Regina Bianca, the effect of a prestorage hot water treatment (46°C for 25 min) was also evaluated. On the isolate obtained by SBSE, 24 compounds were identified and quantified by GC-MS: saturated and unsaturated lactones, aldehydes, C<sub>13</sub> norisoprenoids, monoterpenes, alcohols and esters. The profile of the white-fleshed cultivar was characterised by a higher level of C<sub>13</sub> norisoprenoids, and, in particular, of 8,9-dehydrotheaspiron. In all experimental samples after 1 week of storage, plus 1 day at ambient temperature, a marked increase (on average by 89%) in total lactones was observed. This increase was due to a noticeable accumulation of saturated lactones with longer side chains ( $\gamma$ - and  $\delta$ -decalactone) and unsaturated lactones ((*Z*)-dec-7-en-5-olide and  $\gamma$ -jasmolactone). Peaches analysed after 2 weeks of storage showed total lactone levels close to those detected in the samples at harvest, suggesting that increasing storage times reduced fruit ability to accumulate these character impact compounds of peach aroma. A similar effect of cold storage, although less marked, was also observed on C<sub>13</sub> norisoprenoid fraction, but only on cv. Regina Bianca. On the other hand, we did not find univocal effects of cold storage on C<sub>6</sub> aldehydes, whereas linalool, detected only in samples of cv. Spring Lady at harvest, disappeared quickly during the first days of storage. In samples of cv. Regina Bianca peaches subjected to hot water treatment, after 1 week of storage, lactone level was significantly reduced in comparison with untreated fruits, denoting a possible inhibition effect on lactone accumulation and on aroma development.

<http://www.springerlink.com/content/a684263444058320/fulltext.pdf>