

Shelf Life Predictions for Packaged Olive Oil Using Flavor Compounds as Markers

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The flavour profile of virgin olive oil and its sensory notes has been broadly related to the quality of the product. Changes in the olive oil's unique flavour during oxidation can be directly related to the decomposition of the hydroperoxides formed and consequently the formation of novel volatile compounds. This may help our understanding of the oxidative alterations of the lipids. The volatile aldehydes and vinyl ketones are mainly responsible for potent off-flavours, because their odour threshold levels are very low. Other volatile oxidation products such as furan derivatives and alcohols also contribute to the formation of undesirable flavour notes to a varying extent.

The goal of this work was to select a minimum number of flavour compounds whose evolution could be closely related to the factors that deteriorate olive oil during storage, namely, temperature and oxygen. Oils were subjected to storage at temperatures of 5; 15; and 25°C and to accelerated autoxidation using oven storage at 50°C. Oxidation levels of aged oils were measured by the formation of volatile compounds. Results show a difference in the volatile profile depending on the temperature and the availability of oxygen.