



Instituto Politécnico
de Castelo Branco
Escola Superior
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Olive oil quality evaluation after 2 years of storage in glass bottles with 3 types of closure

Paulina Bąk

Engenharia Biológica e Alimentar

Orientador

Prof. Adjunto Maria de Fátima Pratas Peres

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Abstract

Several studies have been published about the negative impact that oxygen has on virgin olive oil quality, namely in promoting the formation and degradation of hydroperoxides, originating volatile compounds of low molecular weight responsible for off-flavors, sensory described as rancidity. Those studies on oxidation have focused mainly on the type of conditioning rather than on the most efficient type of bottle closure to be used. The aim of the present study was to assess the effect of natural cork bottle closure as the closing system of glass bottles, in virgin olive oil quality after two years storage time, making a link between two important Iberian clusters, olive oil and cork. So, a comparative study between three types of bottle closure is presented namely between screw cap, natural cork covered with bee wax and bartop cork stopper.

Oxidation was evaluated by peroxide value and UV absorbances as well as by oxidative stability. Other parameters like acidity, total phenols, chlorophyll pigments and specific absorbance at 225 nm were also evaluated.

The results showed that after two years of storage the quality of olive oil has deteriorated for acidity, K_{225} , K_{270} , K_{232} , oxidative stability, total phenols and chlorophyll pigments parameters. The most unfavorable changes was noted in the case of a screw cap closure, the least unfavorable changes were noted in the case of a bartop closure. It can be concluded that the most favorable closure of olive oil, taking into account its quality will be the closure with bartop. However, all the olive oils can still be classified as extra virgin olive oils, based on chemical evaluation.

Keywords: bartop cork stopper; natural cork; screw cap; oxidation

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