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PT_SY31 | Olive trees of different ages: effect on the volatile and sensory composition of olive oils from a Portuguese cultivar.

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ABSTRACT

The volatile and sensory profiles of olive oils are influenced by various interacting compounds and factors. This study assessed the impact of olive tree age [young (<20 years), intermediate (20–50 years), and centenarian (>100 years)] on volatile compounds and sensory attributes of oils from the cv. Verdeal Transmontana over two consecutive years. Volatiles were analysed using HS/SPME-GC/MS, and sensory analysis was conducted by a trained panel. Aldehydes and ketones were the most abundant volatile compounds. In the first year, oils from young trees showed the highest concentrations of aldehydes (2.01 ± 3.82 µg/g) and ketones (0.70 ± 0.93 µg/g), whereas in the second year, the highest levels were observed in oils from centenarian trees (1.78 ± 2.73 µg/g and 4.38 ± 0.66 µg/g, respectively). These variations suggest that seasonal or environmental conditions influence the effect of tree age. Statistical analysis showed strong correlations between volatiles and positive sensory traits like green fruitiness, bitterness, and pungency. Therefore, tree age significantly affects olive oil quality, though interannual variability is also crucial.

Keywords: Olive tree age, olive oil, sensory attributes, gas chromatography.

PT_SY32 | Impact of pouch packages on olive oil shelf-life stored at 30 and 40°C.

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ABSTRACT

Olive oil is highly prone to oxidation, so proper storage and packaging are crucial to preserve its quality. This study evaluated the effectiveness of pouch packaging (like bag-in-box) in protecting extra virgin olive oil (EVOO) stored at 30 °C and 40 °C in darkness for 15 months, compared to glass packaging. EVOOs, classified as “soft” or “intense” based on aroma intensity, were analysed every three-months for free acidity, peroxide value, extinction coefficients (K232, K268) and total phenols. Except the latter, all parameters increased over time, especially at 40 °C. Pseudo-kinetic models (zero, first, and second order) accurately described the degradation (R^2: 0.9025–0.9973) and estimated shelf life (SL) based on legal EVOO thresholds. K268 gave the shortest SLs: 17/12 months for soft EVOO and 15/9 months for intense EVOO at 30 °C/40 °C. Despite the higher phenolic content, intense EVOO showed shorter SLs. Pouch packaging proved effective and comparable to traditional glass packaging.

Keywords: Packaging material; temperature; storage; oxidation.