Title	Storage of olives (<i>Olea europaea</i>) under CO_2 atmosphere: Effect on anthocyanins, phenolics, sensory
	attributes and in vitro antioxidant properties
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Abstract

Green, unripe olives were subjected to post-harvest treatment under a CO_2 atmosphere for a period of 12 days. The total polyphenol (TP), total flavonoid (TFd) and total anthocyanin (TA) contents, along with the antioxidant and sensory characteristics, were continuously monitored during the treatment on a 24 h-interval basis, in order to identify possible changes in the quality of olives related mainly to changes in the polyphenolic contents. The storage of olives under CO_2 atmosphere resulted in pronounced increases in TP and TF contents, mainly within the first 3-5 days, but TA exhibited a different pattern of evolution. Furthermore, storage under CO_2 contributed to flavour appearance with the development of fruity/floral notes, and reduced bitterness. The in vitro antioxidant properties of the CO_2 -treated sample showed notable increases compared with the sample stored under regular atmospheric conditions. It was concluded that storage of olives under a CO_2 atmosphere resulted in the appearance of desired sensory attributes, by decreasing bitterness and developing aroma and colour, and the functional (antioxidant) properties were improved. This approach may be used as an alternative, chemical-free means of table olive debittering.

Abbreviations: AAE, ascorbic acid equivalents; A_{AR} , antiradical activity; CTE, catechin equivalents; CyE, cyanin equivalents; DPPH^{*}, 2,2-diphenyl-picrylhydrazyl radical; GAE, gallic acid equivalents; MA, modified atmospheres; P_{R} , reducing power; TA, total anthocyanins; TFd, total flavonoids; TP, total polyphenols; TPTZ, 2,4,6-tripyridyl-*s*-triazine; TRE, Trolox^{**} equivalents