

Title Use of ethylene to accelerate mill olive ripening
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Abstract

Virgin olive oil is by definition the oil obtained from the olive fruit through physical procedures and its quality is directly related to the quality of the fruit from which it is extracted. After the green mature stage of ripening the increase of the lipid content is minimal. Thus, green mature can be considered as the most appropriate stage for the beginning of the fruit harvesting, because olive fruit cells contain enzymes which, during further ripening or extraction, might cause undesirable alterations in the oils. Nevertheless, the oils extracted from fruit at this stage have an excess of bitterness and, consequently, harvesting is at present carried out later, when the fruit already exhibits a black skin. Oil bitterness decreases with fruit ripening, as well as the oil quality. In this sense, it would be interesting to develop a postharvest treatment, which, when applied to green mature olives, would allow fruit ripening to accelerate in order to control the bitterness in the oil subsequently extracted. It is well known that ethylene causes skin degreening in stored table olives, but its effect on oil quality has not yet been reported. In this work, the effect of ethylene associated to passively modified atmosphere storage of green mature 'Lechin' olives on the oil characteristics has been monitored. Mill olives stored during 72 hours in a hermetically closed container under air supplemented with 30 ppm ethylene rendered oils with middle bitterness intensity, whereas the oils obtained from fruit stored similarly, but without ethylene, or in an open container, exhibited a strong intensity of this sensory attribute. Ethylene treatment did not affect acidity, peroxide index or ultraviolet absorbance of the oil, but significantly reduced its sensory quality due to the off-flavour induced by the accumulation of CO₂ in the modified atmosphere.