Title Effect of Temperature, Modified Atmosphere and Ethylene During Olive Storage on Quality and Bitterness Level of the Oil

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Abstract

Mill olives (*Olea europaea* L. cv. 'Lechín'), harvested at the green mature stage of ripening, were stored for 72 h under six different storage conditions: in air, in a closed container, and in a closed container with 30 ppm ethylene either at 20 or at 40 °C. The use of 40 °C as the fruit storage temperature reduced oil bitterness, regardless of the atmosphere applied; however, it also induced a significant reduction in stability and pigment content of the oil extracted. At 20 °C, mill olives stored under air supplemented with 30 ppm ethylene engendered 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. Fruit respiration in the closed containers caused a CO_2 accumulation and an O_2 decrease in the storage atmosphere. This CO_2 concentration was increased by the previous ethylene addition, but O_2 presence did not suffer an additional reduction. The use of modified atmospheres in fruit storage induced off-flavor development in the oils extracted, producing a significant reduction in the overall grading of their sensory quality.