

Title Fruit ripening stage effects on the fatty acid profile on Arbequina and Picual olives in Uruguay
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Citation Abstracts Book, 6th International Postharvest symposium, 8-12 April 2009, Antalya, Turkey.
256 pages.
Keyword Olive; maturity; fatty acid

Abstract

Uruguay is one of the countries with favorable conditions for the development of olive tree culture. Olive oil is mainly composed by triglycerides, conformed by different fatty acids which confer a main portion of its properties. This acidic composition varies mainly with variety, local climatic conditions and maturity degree of the fruits. The objective of this work is to know the influence of fruit maturity stages on the fatty acid profile in Arbequina and Picual varieties cultivated in Uruguay. Fruits at six stages of maturity were used, according to skin and flesh color: M1 -green skin; M2 - yellow green skin; M3 - superficial maturity color appears; M4 - black skin and white flesh; M5 - black skin and flesh turning to purple immediately under the skin; and M6 - black skin and flesh only purple colored up the middle of fruit, and soft in texture. At each maturity stage, extraction of lipids was made and percent fatty acid composition was determined through gas chromatography on methylated byproducts, Palmitic (C16: 0), Palmitoleic (C16: 1), Estearic (C18: 0), Oleic (C18: 1), Linoleic (C18: 2) and Linolenic (C18: 3). Across different maturity stages and on Arbequina and Picual the C16: 0 was constant and showed a value of 20% and 19.5% respectively, showing no significant changes. The C16: 1 and C18: 2 significantly increased from the M1 to the M6 stage in Arbequina and Picual (C16:1 increased from 1.9 to 3.3 and 1.5 to 2.2 respect. C18: 2 from 8.0 to 13.3 and 1.6 to 6.5% respect.). (C18: 1 and of C18: 3 levels significantly decreased in oils originated from fruits with more advanced maturity (C18: 1 varied from 67 to 60 and 74 to 70 respect; C18:3 varied from 0.6 to 0.4 and 0.7 to 0.5%, respect.). With advancing maturity, C18:0 level decreased in Arbequina (1.7 to 1.4%) and increased in Picual (1.8 to 2.5%), both statistically significant variations. With advancing maturity and on both varieties, ratios between monounsaturated/polyunsaturated fatty acids decreased, and the decrease was greater in Picual. Focusing to the potential oil quality, preliminary data emphasize the importance of understanding the effect of maturity stages as related to the development of olive harvest indexes.