

Theme 3: OLIVE OIL CHEMISTRY & QUALITY

INFLUENCE OF HARVESTING PERIOD ON VOLATILE COMPOSITION AND SENSORY CHARACTERISTICS OF ISTARSKA BJELICA MONOVARIETAL VIRGIN OLIVE OIL

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Abstract: Istarska bjelica is one of the most prevalent autochthonous olive cultivars in Istria (Croatia), and it is quite specific since its fruits exhibit slow skin pigmentation during maturation and change color very late. Despite that, the variations in chemical and sensory characteristics of its monovarietal virgin olive oil during ripening were not studied extensively. In order to investigate the influence of harvesting period on volatile composition and sensory characteristics of Istarska bjelica oil, olive fruits were handpicked during three harvesting periods (middle October, middle November, middle December 2015). Although the dates covered the whole harvest season in Istria, olives still exhibited very similar ripening indexes ($RI_1=0.76$, $RI_2=1.08$, $RI_3=1.35$). Olive fruits were processed in triplicate for each harvesting period under the same conditions using an Abencor system. Quantitative descriptive sensory analysis of oil was carried out by the panel and volatile profile of oil was determined using HS-SPME-GC/MS. The results showed that harvesting period had a significant influence. C6 aldehydes and total C5 volatiles decreased gradually with later harvest, while C6 alcohols increased. Overall sensory score was the highest for oils obtained in the first harvesting period, and then decreased in the second, remaining the same in the third. Intensities of sensory characteristics *olive fruitiness*, *green grass/leaf*, *almond*, *radicchio/rucola*, *aromatic herbs*, *bitterness* and *pungency* decreased during ripening, while those for *apple*, *nuts* and *sweet* slightly increased. All the results showed that aroma volatile compounds accumulate differently depending on the harvesting period, reflecting directly on the sensory profile of the corresponding oils, which indicates that the conventional way of determining the harvest time based on the evaluation of olive skin and pulp color is not appropriate for this cultivar. Since investigated oils were differentiated according to harvesting period, information about these variations is important for the determination of proper harvest time of Istarska bjelica cultivar to achieve the optimum of its potential regarding desirable characteristics of obtained oil.

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Key words: monovarietal olive oil, harvesting period, volatile composition, sensory characteristics.

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