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Sensory evaluation of virgin olive oils from organic agriculture and integrated production

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In recent years, consumers concern on the quality and safety of olive oil has lead to an increasing demand for virgin olive oils from sustainable agriculture systems, particularly from organic agriculture which is perceived as healthier and safer. The present work aims to study virgin olive oil produced by organic agriculture and integrated production in Beira Baixa, an inland Region of Portugal. Virgin olive oils of the Protected Designation of Origin (PDO) “Beira Baixa” are mainly extracted from cultivar Galega Vulgar. The unique sensorial properties of this olive oil, together with its high oxidative stability during long storage make it particularly appreciated by Portuguese consumers. Previous studies showed that the blend of Galega and Picual olive oils have high oxidative stability and low bitter taste intensity. This is an important commercial feature since high intensity bitter oils might be refused by some consumers.

In the present work four olive groves were selected: two in organic agriculture and two in integrated production. Olives were handpicked at two ripening stages and processed by a low-scale mill with a working capacity of 0.05 tons h^{-1}. Differences between olive oils were evaluated through a sensory quantitative descriptive analysis (QDA) for positive attributes; moreover, some chemical parameters that could be related with bitterness, like phenol content and the specific absorbance at 225 nm (K_{225}), were determined as well. Some analyses were also conducted with an Alpha MOS electronic nose system, FOX 2000.

Results showed that organic versus integrated production cultivation did not affect consistently sensory characteristics of virgin olive oils. Harvest time had more marked effects in fruity flavour and bitterness.

Keywords: virgin olive oil, bitterness, sustainable agriculture, QDA