

# Livro de Resumos

## XV Encontro de Química dos Alimentos



MADEIRA

ENCONTRO DE  
QUÍMICA DOS  
ALIMENTOS

5-8 DE SETEMBRO DE 2021



ESTRATÉGIAS PARA A EXCELÊNCIA,  
AUTENTICIDADE, SEGURANÇA  
E SUSTENTABILIDADE ALIMENTAR



SOCIEDADE PORTUGUESA DE QUÍMICA



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## Titulo

Livro de Resumos do XV Encontro de Química dos Alimentos: Estratégias para a Excelência, Autenticidade, Segurança e Sustentabilidade Alimentar

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## Comunicações Orais

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## OC10: Olive oils from Cv. Santulhana, a cultivar with singular oils: effect of the year on quality, composition, and sensory characteristics

**N. Rodrigues,<sup>1</sup> S. Casal,<sup>2</sup> A.M. Peres,<sup>1</sup> J.A. Pereira<sup>1</sup>**

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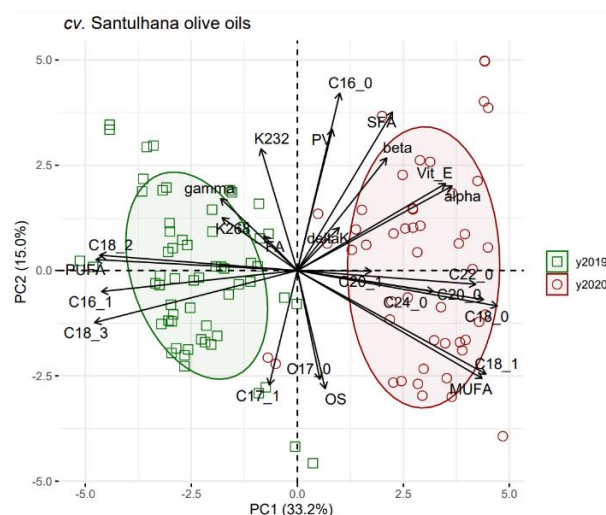
The olive tree (*Olea europaea* L.) is widely distributed in various regions of the world, with a major incidence in the Mediterranean basin, where the climate characteristics are favourable for its cultivation, and where 97.9% of world production is located.<sup>1</sup> In Portugal, olive tree growing has a long tradition, being olives mainly used for the extraction of olive oil and in a lower extent for the production of table olives. Trás-os-Montes, is the second national producer region, after Alentejo, being the olive tree one of the main crops. In this region, olive tree heritage is vast, and the existing cultivars can be grouped into “main or majority”, such as Cobrançosa, Madural, and Verdeal Transmontana, “secondary or of local importance” such as Negrinha de Freixo, in Freixo de Espada à Cinta, and Santulhana, in the municipalities of Bragança, Vimioso and north of Macedo de Cavaleiros, and “minority varieties”, where the rest are included. The cv. Santulhana, adapted to colder climates and higher altitude areas, is a cultivar with great vigour, entering medium/late production and presenting an oil yield of around 20%. Nowadays, its fruits are destined almost exclusively for olive oil extraction. However, in the past, the table olives produced with the fruits of this cultivar were also well recognized. Although highly appreciated, the oils of this cultivar are insufficiently characterized.

In this sense, the present work aimed to contribute to the characterization of olive oils from cv. Santulhana, as a first step towards the recovery of its importance and valorisation. Thus, in 2019 and 2020, and in each year, 30 monovarietal olive oils were collected from producers in the municipalities of Bragança and Vimioso, which were characterized in terms of quality parameters (acidity, peroxide value, UV extinction coefficients, and organoleptic evaluation) and composition in fatty acids according to European Community Regulation,<sup>2</sup> tocopherol content according to ISO 9936<sup>3</sup>, with some modifications as described by Rodrigues et al.<sup>4</sup>; resistance to oxidation by the Rancimat method; and descriptive analysis of the sensory profile according to the International Olive Council (IOC)<sup>5</sup> with some modification as described by Rodrigues et al.<sup>6</sup>.

The results indicate that only 33% of the olive oils analysed resent values within the legal limits for the category of extra virgin olive oil. Concerning fatty acid composition, the content of oleic acid ranged from 64.9 to 71.8% (2019) and 68.4 to 72.9% (2020), palmitic acid varied between 11.5 and 15, 2%, in 2019, and 11.3 and 16.4% in 2020; while the levels of stearic acid were from 6.5 to 13.2% (2019) and 7.7 to 11.3% (2020). Regarding the tocopherols, 4 vitamins were identified, with the total levels of tocopherols ranging from 224.5 to 272.5 mg/kg of oil in 2019 and 231.1 to 583.4 mg/kg of oil in 2020. In relation to the oxidative stability, mean values were of 8.5 h for 2019 and 8.6 h for 2020. In which concerns the descriptive sensory profiles, cv. Santulhana olive oils, possessed a green fruity note, with sensations of fruits including apple, banana, tomato and dried fruits, with a predominance of apple in both years with an average intensity of 4.1 in 2019 and 4.2 in 2020. Regarding herbaceous sensations, aromas of fresh grass, tomato branch, cabbage and olive leaf were perceived, being cabbage and tomato branch the most dominant sensations.

Finally, the effect of the crop year on the olive oils' physicochemical and sensory profiles was further verified by applying a principal component analysis (PCA). This unsupervised pattern recognition tool

allowed a clear splitting of the evaluated cv. Santulhana olive oils according to the crop year (Figure 1), demonstrating the impact of the crop year on the olive oils composition.



**Figure 1.** Unsupervised differentiation of cv. Santulhana olive oils (2D PCA biplot) according to the crop year, based on the quality, physicochemical parameters and sensory profiles of olive oils obtained from olives collected from Santulhana trees during two consecutive crop years (2019 to 2020).

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