



BIO-SUSTENTABILIDADE E BIO-SEGURANÇA ALIMENTAR, INOVAÇÃO E QUALIDADE ALIMENTAR

23-26 de outubro de 2022

Castelo Branco



Livro de Resumos
XVI Encontro de Química dos
Alimentos



Ficha Técnica

Título

Livro de Resumos do XVI Encontro de Química dos Alimentos - Bio-Sustentabilidade e Bio-Segurança Alimentar, Inovação e Qualidade Alimentar

Autores

Ofélia Anjos, Soraia I. Pedro, Carlos Antunes

Edição

Ofélia Anjos, Soraia I. Pedro, Natália Martins Roque, Carlos Antunes

Outros colaboradores:

Fátima Peres

Cecília Gouveia

Cláudia Adriana Fernandes Vitória

Ilustrações

Luísa Ferreira Nunes

Editor

Sociedade Portuguesa de Química

Esta publicação reúne os trabalhos apresentados no XVI Encontro de Química dos Alimentos: Bio-sustentabilidade e Bio-segurança alimentar, Inovação e qualidade alimentar, Castelo Branco 2022, e inclui ainda o programa científico do encontro.

As doutrinas expressas em cada um dos resumos são da inteira responsabilidade dos autores.

ISBN

978-989-8124-36-4

Data

Outubro de 2022

Chemical characterization of almond varieties natives from Algarve region

Luís Carreira¹, Alcinda Neves², António Marreiros³, Soukaïna El-Guendouz², Ângelo Luís⁴, Fátima Peres^{5,6,7}, Soraia I. Pedro⁷, Ofélia Anjos^{5,7,8}, Graça Miguel^{2,8}

¹ Universidade da Beira Interior, 6201-001 Covilhã, Portugal

² Faculdade de Ciências e Tecnologia, Universidade do Algarve, 8005-139, Faro

³ Direção Regional de Agricultura e Pescas, Patação, 8005-511 Faro

⁴ Centro de Investigação em Ciências da Saúde (CICS-UBI), Universidade da Beira Interior, 6200-506 Covilhã, Portugal

⁵ Instituto Politécnico de Castelo Branco, 6001-909 Castelo Branco, Portugal

⁶ LEAF —Linking Landscape, Environment, Agriculture and Food— Research Center, Lisboa, Portugal.

⁷ Centro de Biotecnologia de Plantas da Beira Interior, Castelo Branco, Portugal⁸⁷ Centro de Estudos Florestais, Instituto Superior de Agronomia, Universidade de Lisboa, 1349-017 Lisboa, Portugal; soraia_p1@hotmail.com

⁸ Mediterranean Institute for Agriculture, Environment and Development, Universidade do Algarve, 8005-139, Faro, Portugal

Almond, *Prunus dulcis* (Miller) D.A. Webb, syn. *Prunus amygdalus* Batsch is an important crop due to its fruits with high commercial value. In Portugal, there are traditional orchards in which almond trees grew on marginal soils, rainfed and with consequent low productivity; more recently huge investments in modern orchards with varieties originally from France and Spain such as 'Ferraganés', 'Ferraduel', 'Guara', 'Marcona', among others, are replacing the Portuguese varieties¹. So, it is important to preserve the traditional almond varieties and the purpose of the present study was to compare the chemical composition of 18 traditional cultivars maintained in the field collection with those commercial cultivars from Europe.

A Principal Component Analysis (PCA) was performed considering moisture, protein, ash, fat content, carbohydrates of each cultivar studied. Factor 1, which explained 56% of the total variability, explained the variation observed between energy, lipids, carbohydrates and ash content, with samples with higher lipid content and energy having lower carbohydrate and ash content. Factor 2, which represented 23% of the total variation, was explained by the variation in moisture and protein content. The cultivars Bonita, Lourencinha, Zé de Oliveira and Bonita do Caliço, all Portuguese cultivars formed the group of samples with the highest values of lipids and energy and lower levels of carbohydrates and ash. An inverse relationship is observed for the sample Convento, which has the highest carbohydrate content and nutritional composition that differentiates from the other samples.

The results of the PCA for acidity value (VA), peroxide value (PV), K₂₇₀ and K₂₃₂ of almond oils showed that K₂₇₀ and K₂₃₂ were the ones that most contributed to the discrimination of samples along the factor 1, which explained 53% of the total variability. Factor 2, which explained 30% of the total variability, discriminated the samples mainly by the PV. The profile of monounsaturated fatty acids (MUFAs), polyunsaturated fatty acids (PUFAs) and saturated fatty acids (SFAs) in almond oils showed that MUFAs are the most important group of fatty acids ranging from 66.23 to 82.55%.

The differentiation of the cultivars was also accessed by RAMAN spectroscopy, and the differentiation observed with the PCA performed with spectral data are quite similar to those obtained for the chemical composition.

As main conclusion, the different varieties of Algarve almond present a higher quality and different characteristic according to the different cultivars. In some cases, it is possible to distinguish by RAMAN spectroscopy, some cultivars according to their chemical composition.

Acknowledgements: This work is funded by National Funds through the FCT—Foundation for Science and Technology under the Projects UIDB/05183/2020 (MED) and UIDB/00239/2020 (CEF)

References:

1. M. Martins, R. Tenreiro, M.M. Oliveira. Plan Cell Rep. 22 (2003) 71-78.