



# 10º Encontro Nacional de Cromatografia

Bragança 2017 – 4 a 6 de dezembro

**Abstracts book / Livro de resumos**



SOCIEDADE PORTUGUESA DE QUÍMICA



INSTITUTO POLITÉCNICO DE BRAGANÇA Centro de Investigação de Montanha

COM O ALTO PATROCÍNIO DE SUA EXCELÊNCIA



*O Presidente da República*

## Title

10th Chromatography Meeting

## Título

10º Encontro de Cromatografia

## Authors / Autores

António M. Peres (Instituto Politécnico de Bragança, Portugal)

Lillian Barros (Instituto Politécnico de Bragança, Portugal)

Luís G. Dias (Instituto Politécnico de Bragança, Portugal)

Isabel C.F.R. Ferreira (Instituto Politécnico de Bragança, Portugal)

## Edition / Edição

Instituto Politécnico de Bragança · 2017

5300-253 Bragança · Portugal

Tel. (+351) 273 303 200 · Fax (+351) 273 325 405

<http://www.ipb.pt>

## Imaging services / Serviços de imagem

Atilano Suarez (Instituto Politécnico de Bragança, Portugal)

## URL

<http://hdl.handle.net/10198/8896>

## ISBN

978-972-745-234-7



## PC-58

# Free fatty acids profiling in olive oil and olives from the Trás-os-Montes Portuguese region

**Luís M. Rodríguez-Alcalá<sup>a,\*</sup>**, Inês F. Correia<sup>a</sup>, Lúcia L. Pimentel<sup>a</sup>, José A. Pereira<sup>b</sup>, Ana M. Gomes<sup>a</sup>, Manuela Pintado<sup>a</sup>

<sup>a</sup>Universidade Católica Portuguesa, CBQF - Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia, Rua Arquiteto Lobão Vital, 172, 4200-374 Porto, Portugal;

<sup>b</sup>Centro de Investigação de Montanha (CIMO), Escola Superior Agrária, Instituto Politécnico de Bragança, Campus Sta Apolónia, 5300-253 Bragança, Portugal.

\*lcalca@porto.ucp.pt

Olive oil and olives are food products highly appreciated by consumers for both organoleptic (e.g. taste/flavour) and technological properties (i.e. cooking). Moreover, during the last years several research works have also reported presence of phenols, tocopherols, squalene, sterols and fatty acids (e.g. oleic acid) with important positive health effects (e.g. anti-inflammatory, antiarrhythmic and vasodilatory) [1]. Although free fatty acids (FFA) in olive oil are an important quality parameter, this analysis is highly challenging as it involves isolation, fractionation and derivatization steps. Interestingly, some studies suggest that free polyunsaturated FA can be recognized by GPR120 receptors triggering anti-inflammatory processes [2]. Thus, a single-step method for the FFA analysis in both biological and foodstuffs was recently developed by authors of this current work [3].

The Portuguese region of Trás-os-Montes is an important producer of high quality olive oil and olives but to date, its FFA composition has been poorly studied. The detailed composition of such nutritional parameter would help increase the value of these products to promote the region and the producers. Therefore, different monovarietal olive oils of Cobrançosa (n=2), Madural (n=2), Verdeal (n=5) and Santulhana (n=6) were collected, in duplicate, directly from various local olive mills. Corresponding olive samples were also obtained. The procedure described by Matyash *et al.* [4] was used for lipid isolation. FFA in all samples were analyzed by GC-FID as fatty acid methyl esters (FAME) according to the above commented method of Pimentel *et al.* [3].

Olive oil and olives had the same qualitative composition and oleic acid was the main FFA as expected. Results showed intra-varietal differences that may be associated to location. When compared with olives, oil elaboration decreased the concentration of all FFA as expected, but homogenized the composition of the assayed oils.

### **Acknowledgements:**

This research work was performed in the framework of the project "Biological tools for adding and defending value in key agro-food chains (bio-n2-value)", no NORTE-01-0145-FEDER-000030, funded by Fundo Europeu de Desenvolvimento Regional (FEDER), under Programa Operacional Regional do Norte - Norte2020. Authors also like to thank to APPITAD and local mills for donating samples as well as the scientific collaboration of CBQF under the FCT project UID/Multi/50016/2013.

### **References:**

- [1] Piroddi M, Albini A, *et al.* *BioFactors* 2017, 43, 17–41.
- [2] Rodríguez-Pacheco F, Gutiérrez-Repiso C, *et al.* *Eur J Nutr* 2017, 56, 1743–52.
- [3] Pimentel LL, Fontes AL, *et al.* *MethodsX* 2015, 2, 475–84.
- [4] Matyash V, Liebisch G, *et al.* *J Lipid Res* 2008, 49, 1137–46.