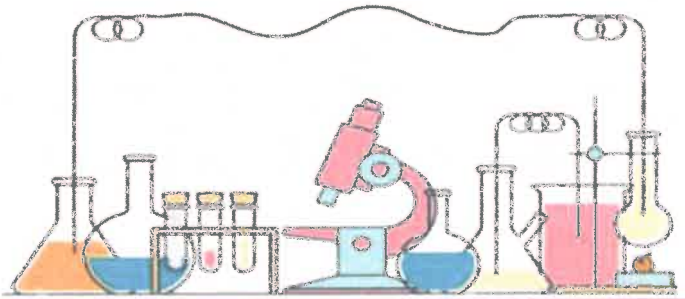

3rd Symposium on Medicinal Chemistry of University of Minho

May 26th, 2017

School of Science, Chemistry Department

University of Minho, Campus of Gualtar

Scientific Committee

Fernanda Proença - Department of Chemistry, University of Minho
Isabel Ferreira - Polytechnical Institute Bragança
M. Alice Carvalho - Department of Chemistry, University of Minho
A. Gil Fortes - Department of Chemistry, University of Minho
Luís S. Monteiro - Department of Chemistry, University of Minho

Organizing Committee

Maria Alice Carvalho
António Gil Fortes
Luís Monteiro
Ana Patrícia Lourenço (MSc student of Medicinal Chemistry)
Ana Rita Abreu (MSc student of Medicinal Chemistry)
Ana Rita Araújo (MSc student of Medicinal Chemistry)
André Carvalho (MSc student of Medicinal Chemistry)
David Freitas (MSc student of Medicinal Chemistry)
Diogo Lopes (MSc student of Medicinal Chemistry)
Inês Machado (MSc student of Medicinal Chemistry)
Joana Filipa Parente (MSc student of Medicinal Chemistry)
Juliana Rocha (MSc student of Medicinal Chemistry)
Mónica Fernandes (MSc student of Medicinal Chemistry)
Pedro Figueiredo (MSc student of Medicinal Chemistry)

Posters

P07

The role of chamomile phenolic compounds in the development of dairy functional foods

C. Caleja[a,b,c], L. Barros[a,b], A.L. Antonio[a], M. B. P. P. Oliveira[c], I. C. F. R. Ferreira[a]

[a] *Mountain Research Centre (CIMO), ESA, Polytechnic Institute of Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal; iferreira@ipb.pt*
[b] *Laboratory of Separation and Reaction Engineering (LSRE), Associate Laboratory LSRE/LCM, IPB, Campus de Santa Apolónia 5301-857 Bragança, Portugal.*
[c] *REQUIMTE/LAQV, Faculty of Pharmacy, University of Porto, Rua Jorge Viterbo Ferreira, no. 228, 4050-313 Porto, Portugal.*

There is a growing interest for healthier foods either by consumers or by industrial sectors [1]. Bioactive phytochemicals, such as phenolic compounds (PC), have been used in the preparation of nutraceuticals and functional foods [2]. In the present work, the antioxidant and antimicrobial properties of plant extracts rich in PC were evaluated. *Matricaria recutita* L. (chamomile) extracts were prepared following a decoction procedure and displayed 2,2-diphenyl-1-picrylhydrazyl scavenging activity (EC_{50} = 335 ± 3 µg/mL), reducing power (238 ± 38 µg/mL), β-carotene bleaching inhibition (297 ± 27 µg/mL) and lipid peroxidation inhibition (72 ± 2 µg/mL). The bacteria *Staphylococcus aureus* (MIC=35 µg/mL), *Bacillus cereus* (MIC=100 µg/mL) and *Salmonella typhimurium* (MIC=100 µg/mL), as also the fungi *Penicillium funiculosum* (MIC=200 µg/mL), *Aspergillus versicolor* (MIC=400 µg/mL) and *Trichoderma viride* (MIC=400 µg/mL), were susceptible to the action of chamomile phenolic extracts. Their chemical characterization, performed by HPLC-DAD-ESI/MS, revealed the presence of nine flavonoids (mainly luteolin-*O*-glucuronide) and ten phenolic acids (mainly di-caffeoyl-2,7-anhydro-3-deoxy-2-octulopyranosonic acid). Due to the observed bioactive properties, chamomile phenolic extracts were used to functionalize yogurts. This functionalization did not cause significant changes in the yoghurt pH and nutritional value, but improved antioxidant properties when compared with control samples. The obtained results support the use of PC extracts in the development of novel dairy foods.

Acknowledgments:
The authors are grateful to the Foundation for Science and Technology (FCT, Portugal) and FEDER under Programme PT2020 for financial support to CIMO (UID/AGR/00690/2013), REQUIMTE (UID/QUI/50006/2013 - POCI/01/0145/ FERDER/007265), C. Caleja (SFRH/BD/93007/2013) and L. Barros (SFRH/BPD/107855/2015) grants.

References:

*[1] Carocho M. et al., Compr. Rev. Food Sci. Food Saf., **2014**, 13, 377-399.*
*[2] Carocho, M. et al., Trends Food Sci. Technol., **2015**, 45, 284-295.*