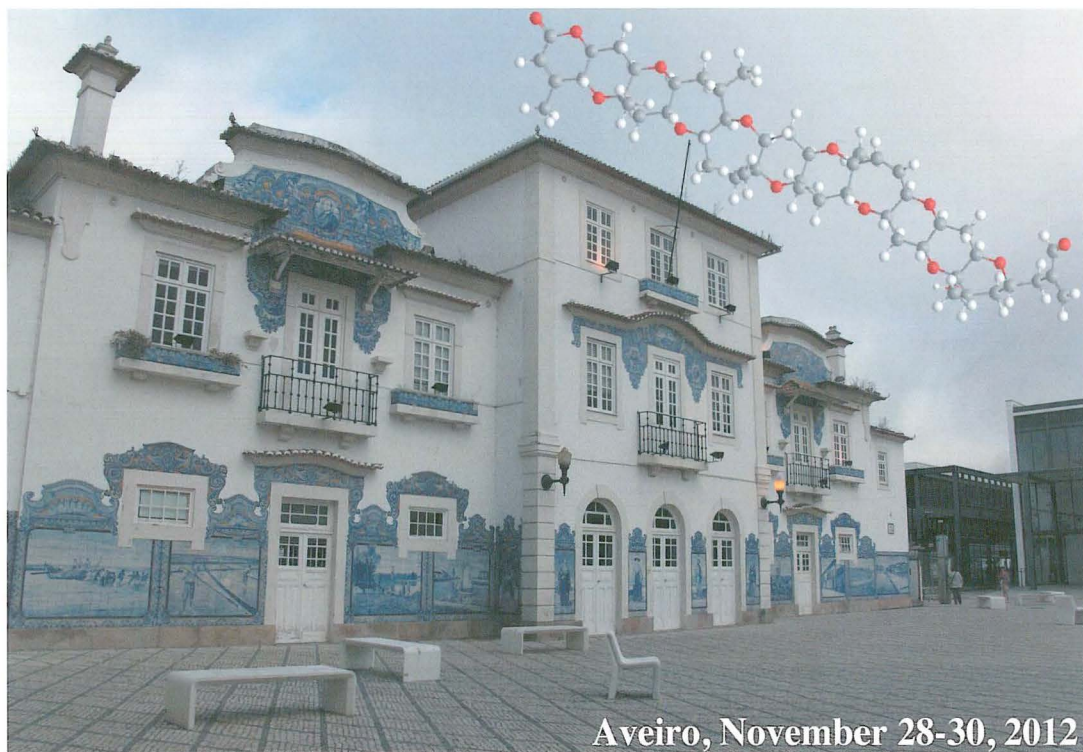


3º Encontro Nacional de Química Terapêutica



Aveiro, November 28-30, 2012

3rd Portuguese Meeting on Medicinal Chemistry
1st Portuguese-Spanish-Brazilian Meeting on Medicinal Chemistry.



SOCIEDADE
PORTUGUESA
DE QUÍMICA



universidade
de aveiro

3rd Portuguese Meeting on Medicinal Chemistry

1st Portuguese-Spanish-Brazilian Meeting on Medicinal Chemistry

Supported by The Portuguese Society of Chemistry and the University of Aveiro

Scientific Committee

Antoni Torrens	President of the Spanish Society of Medicinal Chemistry (SEQT); ESTEVE, S.A., Barcelona, Spain
Artur M. S. Silva	Department of Chemistry and QOPNA, University of Aveiro; President
Carlos Montanari	Institute of Chemistry of São Carlos, University of São Paulo, Brazil
Fernanda Proença	Department of Chemistry, School of Science, University of Minho
Hans Peter Wessel	F. Hoffmann-La Roche Ltd, Pharma Research & Early Development (pRED), Basel, Switzerland & Department of Chemistry, University of Aveiro
Madalena Pinto	Faculty of Pharmacy, University of Porto
Maria Luísa Sá e Melo	Faculty of Pharmacy, University of Coimbra
Patrício Soares da Silva	Bial - Portela & C. ^ª , S.A.
Rui Moreira	Faculty of Pharmacy, University of Lisboa
William Heggie	Hovionne, Loures, Portugal

Organizing Committee

Artur M. S. Silva (Chairman – Dep. Chem., Univ. Aveiro)
Augusto A. C. Tomé (Dep. Chem., Univ. Aveiro)
Diana C. G. A. Pinto (Dep. Chem., Univ. Aveiro)
M^ª Graça P. M. S. Neves (Dep. Chem., Univ. Aveiro)
Graça M. S. Rocha (Dep. Chem., Univ. Aveiro)
José A. S. Cavaleiro, (Dep. Chem., Univ. Aveiro)
M^ª do Amparo F. Faustino (Dep. Chem., Univ. Aveiro)
Mário M. Q. Simões (Dep. Chem., Univ. Aveiro)
Aurora Fernandes (Dep. Chem., Univ. Aveiro)

Phenolic compounds and bioactive properties of wild German and Roman chamomiles

Rafaela Guimarães,^{a,b} Lillian Barros,^{a,c} Montserrat Dueñas,^c Ricardo C. Calhella,^{a,b} Ana Maria Carvalho,^a Celestino Santos-Buelga,^c Maria João R. P. Queiroz,^b Isabel C. F. R. Ferreira^{a,*}

^aCentro de Investigação de Montanha, Escola Superior Agrária, Campus de Santa Apolónia, apartado 1172, 5301-854 Bragança, Portugal; ^bCentro de Química, Universidade do Minho, Campus de Gualtar 4710-057 Braga, Portugal; ^cGIP-USAL, Facultad de Farmacia, Universidad de Salamanca, Campus Miguel de Unamuno, 37007 Salamanca, Spain

Natural products represent a rich source of biologically active compounds and are an example of molecular diversity, with recognized potential in drug discovery. In the present work, the methanolic extract of *Matricaria recutita* L. (German chamomile) and *Chamaemelum nobile* L. (Roman chamomile) and their decoction and infusion (the most consumed preparations of these herbs) were submitted to an analysis of phenolic compounds and bioactivity evaluation. Phenolic compounds were characterized by HPLC-DAD/ESI-MS. The bioactivity of the samples was tested in human tumour cell lines (breast- MCF-7, lung- NCI-H460, colon- HCT-15, cervical- HeLa and hepatocellular-HepG2 carcinomas), and the hepatotoxicity was evaluated using a porcine liver primary cell culture (non-tumour cells, PLP2).^[1,2]

Methanolic extracts of both chamomiles presented the highest amount of phenolic compounds varying in their composition. Furthermore, it was observed a decrease in the amount of phenolic compounds in decoction preparations of both samples. The major compounds found were luteolin *O*-acylhexoside in German chamomile, and 5-*O*-caffeoylquinic acid and an apigenin derivative in Roman chamomile. Methanolic extract and infusion preparation of both herbs showed inhibitory activity of the growth of HCT-15 and HeLa cell lines, without hepatotoxicity (GI₅₀>400 µg/mL). Nevertheless, Roman chamomile methanolic extract presented the highest inhibitory activity for all the cell lines (GI₅₀<168 µg/mL). Decoction of both herbs did not show inhibitory activity of the growth of none of the tested cell lines (GI₅₀>400 µg/mL), which could indicate that this bioactivity might be related to compounds (including phenolic compounds) that were not extracted or that were affected by the decoction procedure.

Overall, both chamomiles, mainly the methanolic extracts, contain important phytochemicals with bioactive properties to be explored in the medicine, food, and cosmetic industries.

Acknowledgments: The authors are grateful to strategic project PEst-OE/AGR/UI0690/2011 for financial support to CIMO. R. Guimarães, L. Barros and R. Calhella thanks to FCT, POPH-QREN and FSE for their grants (SFRH/BD/78307/2011, SFRH/BPD/4609/2008 and SFRH/BPD/68344/2010). The GIP-USAL is financially supported by the Consolider-Ingenio 2010 Programme (FUN-C-FOOD, CSD2007-00063).

References

- [1] Guimarães, R., Barros, L., Dueñas, M., Calhella, R.C., Carvalho, A.M., Santos-Buelga, C., Queiroz, M.J.R.P., Ferreira, I.C.F.R. *Food Chem.* In press. Doi 10.1016/j.foodchem.2012.09.007.
- [2] Guimarães, R., Barros, L., Dueñas, M., Calhella, R.C., Carvalho, A.M., Santos-Buelga, C., Queiroz, M.J.R.P., Ferreira, I.C.F.R. *Food Chem.* In press. Doi 10.1016/j.foodchem.2012.08.025.