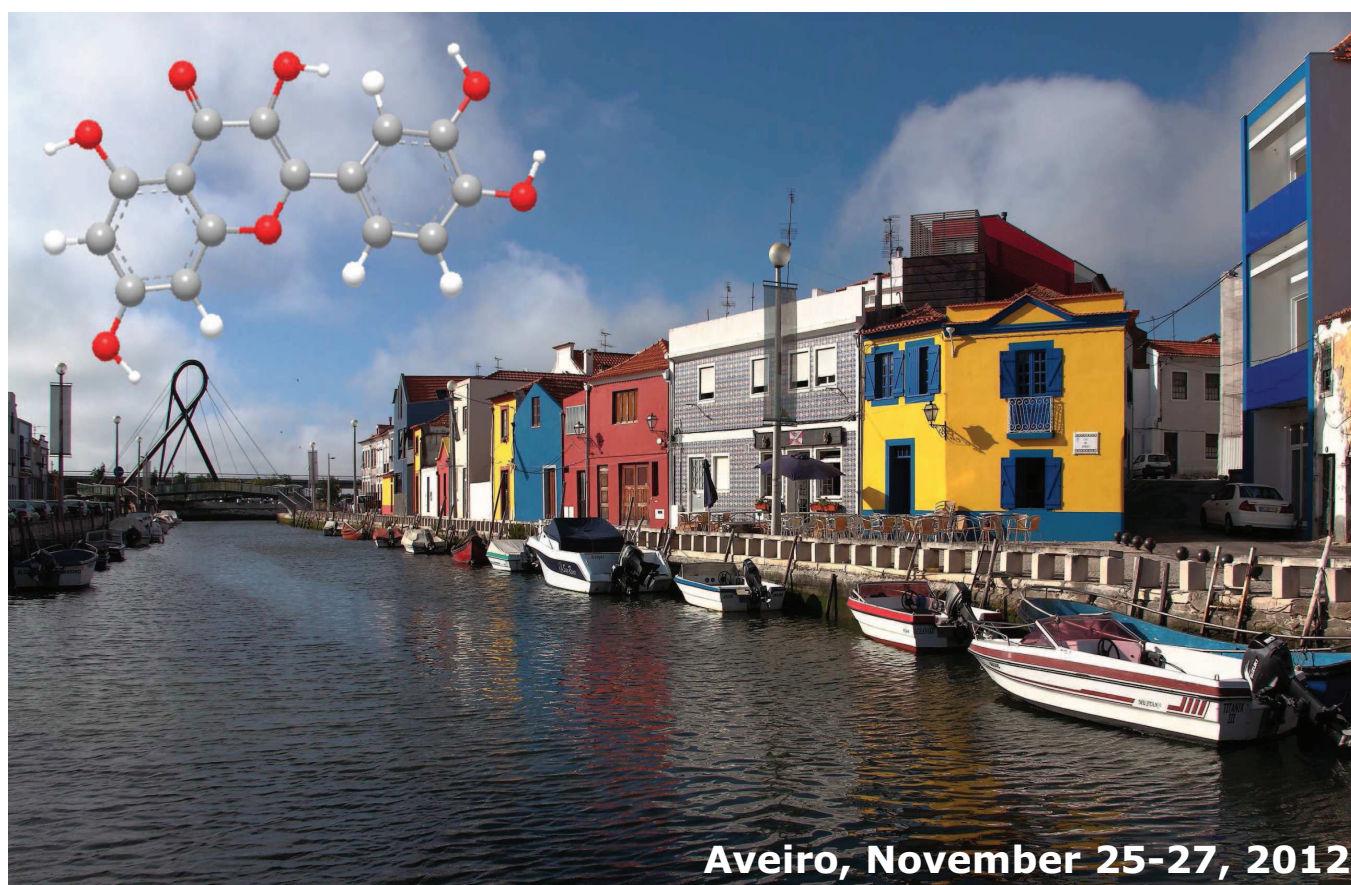




Natural Products and related Redox Catalysts: Basic Research and Applications in Medicine and Agriculture



Aveiro, November 25-27, 2012



Phenolic composition of *Leonurus cardiaca* L.

Olívia R. Pereira^{a,b}, Maria R. M. Domingues,^c Susana M. Cardoso^a

^aCERNAS - Escola Superior Agrária, Instituto Politécnico de Coimbra, Coimbra, Portugal; ^bDepartamento de Tecnologias de Diagnóstico e Terapêutica, Escola Superior de Saúde, Instituto Politécnico de Bragança, Bragança, Portugal; ^cDepartamento de Química & QOPNA, Universidade de Aveiro, Aveiro, Portugal.

Leonurus cardiaca L., also known as motherwort, is a plant native from central Europe that it is spread in different temperate countries around the world. The plant has been described to exert several beneficial properties and it is presently used in infusions, decoctions, syrups and tinctures, as well as an ingredient of pharmaceutical formulations.^[1,2,3] Yet, the plant phenolics, which are frequently associated to the claimed health benefits of *Leonurus cardiaca* L., are not fully clarified. This topic is focused in the present work.

For that, an extract of the aerial parts of the plant was obtained with aqueous ethanolic solution (80%) and it was further purified onto SPE C18-E cartridges. The resulting purified phenolic extract was analyzed by HPLC-DAD and ESI-MSⁿ techniques, for phenolic identification and quantification.

Accordingly, phenolic compounds in *Leonurus cardiaca* L. purified ethanolic extract accounted for 15 mg/g of dry plant (500 ± 49 mg/g of extract). Phenylethanoid glycosides were the most prevalent phenolics with lavandulifolioside and verbascoside representing 50% and 27% of its total quantified phenolic compounds, respectively. Additionally, the present study allowed the identification and quantification of leucoseptoside A and leonoside B for the first time in *Leonurus cardiaca* L., which together, accounted for 11% of the quantified phenolics. Besides phenylethanoid glycosides, the *Leonurus cardiaca* L. ethanolic extract also contained flavonoids (10%) and caffeic acid derivatives, albeit the latter were only present in vestigial amounts. With the exception of luteolin-7-*O*-rutinoside, all the remaining flavonoids were glycosidic quercetin derivatives, which include the isoquercitrin, rutin, rutin-*O*-glucoside and quercetin-3-*O*-sophoroside. Possible association of the major phenolics herein identified with specific health benefits of the plant are under investigation.

Acknowledgments: The authors acknowledge the financial support provided by the FCT to CERNAS (project PEst-OE/AGR/UI0681/2011) and of the FCT as well as FSE (III Quadro Comunitário de Apoio) to QOPNA (project PEst-C/QUI/UI0062/2011), REDE/1504/REM/2005 (that concerns the Portuguese Mass Spectrometry Network). Olívia R Pereira was supported by a PhD grant (SFRH/PROTEC/49600/2009).

References

- [1] Matkowski, A., Tasarz, P., Szygula, E. *J. Med. Plants Res.* **2008**, 2, 321.
- [2] Jafari, S., Moradi, A., Salaritabar, A., Hadjiakhoondi, A., Khanavi, M. *Res. J. Biol. Sci.* **2010**, 5, 484.
- [3] Xin-Hua, L., Hong, X., Yi-Zhun, Z. *Acta Phys. Sin.* **2007**, 59, 578.