



UNIVERSIDADE DA BEIRA INTERIOR
Covilhã | Portugal

8º Encontro Nacional de CROMATOGRÁFIA

2, 3 e 4 | Dezembro | 2013

Faculdade de Ciências da Saúde
Universidade da Beira Interior

LIVRO DE RESUMOS



Centro de Investigação em Ciências da Saúde
Health Sciences Research Centre



UBI
Covilhã
Portugal



SOCIEDADE
PORTUGUESA
DE QUÍMICA

Título:
8º Encontro Nacional de Cromatografia

Coordenação:
J. A. Queiroz, E. Gallardo

Editor:
Sociedade Portuguesa de Química

Edição e Execução:
Faculdade de Ciências da Saúde
Universidade da Beira Interior

Impressão:
Serviços Gráficos da
Universidade da Beira Interior

Tiragem:
230 Exemplares

ISBN:
978-989-98541-1-6

P.043. Chromatographic analysis of organic acids in artichoke, milk thistle and borututu using UFLC-PDA

Carla Pereira, Lillian Barros, João C.M. Barreira, Isabel C.F.R. Ferreira*

Mountain Research Centre (CIMO), ESA, Polytechnic Institute of Bragança, Portugal

**iferreira@ipb.pt*

Cynara scolymus L. (artichoke), *Silybum marianum* (L.) Gaertn (milk thistle) and *Cochlospermum angolensis* Welw. (borututu) are three plants widely used for medicinal purposes due to their richness in bioactive compounds that provide antioxidant and hepatoprotective effects^[1]. Among these compounds are organic acids, that are involved in various fundamental pathways, as intermediate or end products, in plant metabolism and catabolism^[2]. Some of them, like malic, citric and oxalic acids, seems to be related to processes operating in the rhizosphere, including nutrient acquisition, metal detoxification, alleviation of anaerobic stress in roots, mineral weathering and microbial attraction^[3]. In this study, ultra fast liquid chromatography and photodiode array detection (UFLC-PDA) was used to analyse organic acids in the mentioned plants. The species presented oxalic, quinic, malic, shikinic, citric and fumaric acids with the exception of quinic and shikinic acids for artichoke and borututu, respectively. The higher values of total organic acids (53 mg/g dw) and quinic acid (27 mg/g dw) were found in milk thistle; artichoke showed the highest content of oxalic and malic acids, being the most abundant oxalic acid (20 mg/g dw); and borututu revealed higher contents of shikinic, citric and fumaric acids when compared with the other plants but its main acid was oxalic (7 mg/g dw). Thus, in addition to their capacity to prevent oxidative stress and liver diseases, these plants could also be included in food formulations as acidulants, given the presence of citric and malic acids in the plants composition.

Acknowledgments

FCT for financial support to CIMO (strategic project PEst-OE/AGR/UI0690/2011) and L. Barros contract ("Compromisso para a Ciência 2008").

[1] Pereira, C., Calhelha, R., Barros, L., Ferreira, I.C.F.R. (2013) *Industrial Crops and Products*, 49, 61-65.

[2] Rivasseau, C., Boisson, A.M., Mongélard, G., Couram, G., Bastien, O., Bligny, R. (2006) *Journal of Chromatography A*, 1129, 283-290.

[3] Mucha, A.P., Almeida, C.M.R., Bordalo, A.A., Vasconcelos, M.T.S.D. (2005) *Estuarine, Coastal and Shelf Science*, 65, 191-198.