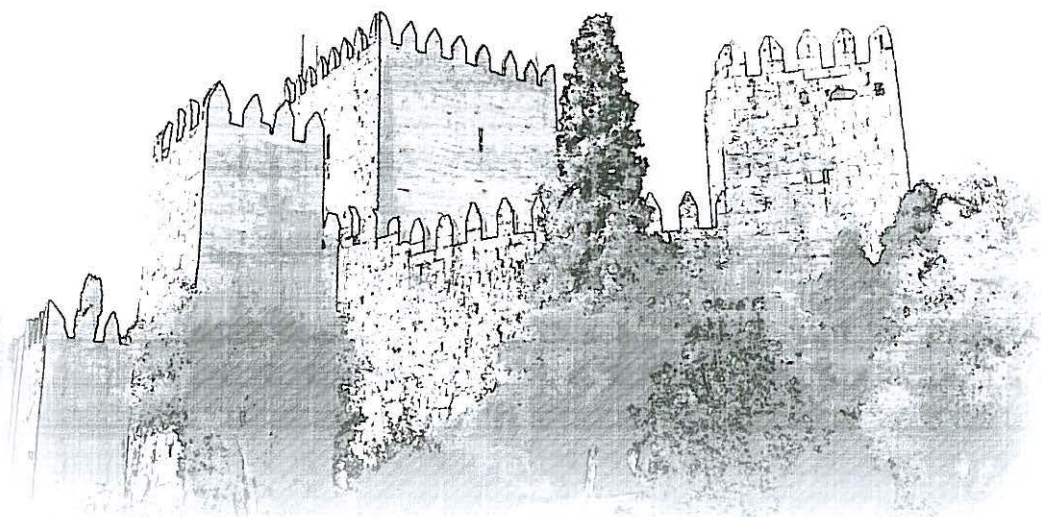


62nd International Congress and Annual Meeting
of the Society for Medicinal Plant and Natural
Product Research - GA2014



Book of Abstracts



31st August - 4th September 2014

University of Minho, Campus of Azurém
Guimarães, Portugal

LC-MS/MS	Herb extracts		Root extracts	
	Loc. 1	Loc. 2	Loc. 1	Loc. 2
	mg g ⁻¹ of dry extract			
Quinic acid	4.556	12.800	0.221	2.914
Gallic acid	1.778	2.465	1.305	1.863
Protocatechic acid	0.201	0.206	0.058	0.092
Chlorogenic acid	8.357	6.405	0.005	0.015
Cinnamic acid	n.d.	n.d.	n.d.	n.d.
Catechin	0.078	0.188	<< LQ	n.d.
Epigallocatechin gallat	0.084	0.301	0.156	0.152
Epicatechin	0.040	0.153	0.118	0.142
Luteolin-7-O-Glc	0.147	0.144	0.004	0.005
Hyperoside	4.842	4.925	0.038	0.098
Rutin	2.748	2.650	0.099	0.454
Quercetin-3-O-Glc	6.843	11.713	0.042	0.279
Kaempferol-3-O-Glc	0.505	1.439	0.003	0.020
Apigenin-7-O-Glc	0.164	0.222	n.d.	0.003
Myricetin	<< LQ	<< LQ	n.d.	n.d.
Quercitrin	3.066	2.097	0.004	0.013
Quercetin	0.641	0.268	<< LQ	<< LQ
Naringenin	0.113	0.082	0.004	<< LQ
Luteolin	0.737	0.134	0.007	n.d.
Apigenin	2.175	0.562	n.d.	n.d.
Kaempferol	0.087	0.056	<< LQ	n.d.
IC ₅₀ (DPPH) [μg mL ⁻¹]	7.59 ± 1.25	2.06 ± 0.38	2.82 ± 0.16	2.42 ± 0.94
IC ₅₀ (LP) [μg mL ⁻¹]	31.1 ± 2.53	11.2 ± 3.80	40.7 ± 8.74	49.5 ± 3.19
n.d. – not detected		Loc 1. – Vlasina lake surrounding area		
<< LQ – under limit of quantitation		Loc 2. – Tara mountain		

Acknowledgements: Ministry of education, science and technological development, Serbia, grant No.172058.

Keywords: *Persicaria maculosa*, LC-MS-MS, phenolics, antioxidant activity

References:

- [1] Kurkina, A. V. et al. (2013) Chem. Nat. Comp. 49: 845-847.
- [2] Beara, I. et al (2009) J. Agric. Food. Chem. 57: 9268-9273.
- [3] Orcic, D. et al (2014) Food Chem. 143: 48-53
- [4] Smolarz, H. (2002). Acta Soc. Bot. Pol. 71: 29-33.

P2P34 Variation in organic acids content in *Tuberaria lignosa* extracts induced by ionizing radiation and extraction procedures

José Pinela^{1,2}, Lillian Barros¹, Amílcar L. Antonio^{1,3}, Ana M. Carvalho¹, M. Beatriz P. P. Oliveira², Isabel C. F. R. Ferreira¹

¹ Centro de Investigação de Montanha (CIMO), ESA, Instituto Politécnico de Bragança, Campus de Santa Apolónia, Apartado 1172, 5301-855 Bragança, Portugal

² REQUIMTE/Departamento de Ciências Químicas, Faculdade de Farmácia, Universidade do Porto, Rua Jorge Viterbo Ferreira n.º 228, 4050-313 Porto, Portugal

³ Centro de Ciências e Tecnologias Nucleares (C2TN), Instituto Superior Técnico, Universidade de Lisboa, Estrada Nacional 10, 2695-066 Bobadela LRS, Portugal

Organic acids are important nutritional phytochemicals and some of them have biological activity, and thus a significant impact on human health. Additionally, they also act as precursors of phenolics and flavour compounds [1]. *Tuberaria lignosa* (Sweet) Samp. is one of the most quoted medicinal plants in several regions of the Iberian Peninsula,

used to treat various diseases and ailments [2]. It was previously highlighted by our research group as a source of bioactive compounds [3], but its content in organic acids was still unknown. As biomolecules can be degraded by improper processing treatments or even extraction methods [3], this work aims to find variations in organic acids content in *T. lignosa* extracts induced by both ionizing radiation and extraction procedures. Dried *T. lignosa* samples, obtained in a Northeastern Portuguese region, were exposed to 0 (control), 1, 5 and 10 kGy of γ -rays in a ⁶⁰Co experimental chamber, and then extracted by water infusion and decoction. The organic acids were analysed by ultrafast liquid chromatography coupled to a photodiode array detector (UFLC-PDA). Oxalic, quinic, malic, shikimic and succinic acids were quantified in all the extracts, being shikimic acid the most abundant. In infusion preparations, irradiated samples exhibited lower contents than the non-irradiated control (except for oxalic acid in the sample irradiated with 10 kGy). On the other hand, in decoctions, only oxalic acid was negatively affected by the irradiation treatment; while the other organic acids values remained unchanged or were improved. But, despite the negative effect of irradiation on samples extracted by infusion, the total organic acids content remained higher in these samples than in those extracted by decoction. Thus, infusion is preferable over decoction to extract organic acids from irradiated *T. lignosa*.

Acknowledgements: FCT for financial support to CIMO (PEst-OE/AGR/UI0690/2011), J Pinela grant (SFRH/BD/92994/2013) and L Barros contract.

Keywords: *Tuberaria lignosa*, Cistaceae, Iberian ethnobotany, organic acids, gamma irradiation, extraction methods

References:

- [1] Morales P, Ferreira ICFR, Carvalho AM, Sánchez-Mata MC, Cámara M, Fernández-Ruiz V, Pardo-de-Santayana M, Tardío J. Mediterranean non-cultivated vegetables as dietary sources of compounds with antioxidant and biological activity. *LWT - Food Sci Technol* 2014; 55: 389-396
- [2] Carvalho AM, Morales R. Persistence of wild food and wild medicinal plant knowledge in a North-eastern region of Portugal. In: Pardo de Santayana M, Pieroni A, Puri R, editors. *Ethnobotany in the New Europe: people, health and wild plant resources*. Oxford, UK: Berghahn Books; 2013:147-171
- [3] Pinela J, Barros L, Duenas M, Carvalho AM, Santos-Buelga C, Ferreira ICFR. Antioxidant activity, ascorbic acid, phenolic compounds and sugars of wild and commercial *Tuberaria lignosa* samples: Effects of drying and oral preparation methods. *Food Chem* 2012; 135: 1028-1035

P2P35 Evaluation of antioxidant activities and contents in bran extracts of Thai pigmented rice using chemical and cellular assays

Pintusorn Hansakul¹, Supranee Kongkham¹, Nusiri Lerdvuthisopon¹, Worawat Surarit²

¹ Division of Biochemistry, Department of Preclinical Science, Faculty of Medicine, Thammasat University, Rangsit Campus, Klongluang, Pathumthani, 12120 Thailand

² Division of Biochemistry, Department of Preclinical Science, Faculty of Medicine, Thammasat University, Rangsit Campus, Klongluang, Pathumthani, 12120 Thailand

Due to adverse effects of synthetic antioxidants, pigmented rice has become attractive as potential sources of natural antioxidants to prevent oxidative stress implicated in many chronic diseases. In the present study, antioxidant activities of ethanol-water (70:30, v/v) bran extracts of 11 Thai pigmented rice (red and purple) and 2 non-pigmented rice varieties were evaluated by chemical assays (DPPH and ABTS radical scavenging and ferrous ion chelating assays) and cellular assays (intracellular free radical