



1ST UK INTERNATIONAL FUNCTIONAL FOOD CONFERENCE

The science, claims and marketing of functional foods

PROGRAMME AND ABSTRACTS

Thursday and Friday
25th-26th November 2010

Barceló Oxford Hotel



Organised by

Functional
Food Centre



OXFORD
BROOKES
UNIVERSITY

In Association with

Plant & Food
RESEARCH

RANGAHAU AHUMĀRA KAI



Richardson Centre
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Committees

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**POSTER
ABSTRACTS
-Thursday-**

Tocopherol content and antioxidant properties of some Spanish wild vegetables

By P. Morales^{1,2}, I.C.F.R. Ferreira¹, AM. Carvalho¹, M.C. Sánchez-Mata,³ M. Cámara³, M. Molina⁴ and J. Tardío⁴.

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Reactive oxygen and nitrogen species (ROS and RNS) seem to be involved in the oxidative deterioration of food products as well as in the pathogenesis of several human diseases, such as atherosclerosis, diabetes mellitus, chronic inflammation, neurodegenerative disorders and certain types of cancer¹. There is a great interest in finding natural antioxidants for retarding lipid oxidative rancidity in foods and in treating chronic diseases related to the production of free radicals. Plants are among the most important sources of antioxidants, providing high quantities of phytochemicals. The present study describes the tocopherol composition and antioxidant activity of seven wild vegetables traditionally consumed in Spain: *Apiumnodiflorum*, *Foeniculumvulgare*, *Montiafontana*, *Papaverrhoeas*, *Rumexpulcher*, *Silene vulgaris* and *Sonchusoleraceus*. The young and tender stems with leaves are the edible parts that were analysed. Tocopherol composition was evaluated by HPLC coupled to a fluorescence detector and antioxidant activity was screened by the following *in vitro* assays²: DPPH scavenging activity, reducing power, β -carotene bleaching inhibition, and lipid peroxidation inhibition in brain homogenates by TBARS assay, and total phenolics determination.

The four isoforms of tocopherol (α , β , γ and δ) were identified and quantified, and α -tocopherol was the most abundant form in all the studied samples, particularly in *Sonchusoleraceus* (14.68 mg/100 g dw). This sample also showed the highest total tocopherol content (19.10 mg/100g dw). Delta-Tocopherol was not found in *Apiumnodiflorum*, *Foeniculumvulgare* and *Rumexpulcher* samples. The highest phenolics and flavonoid contents were found in *Apiumnodiflorum* sample (80.47 mg GAE/g extract and 45.48 mg CE/g extract, respectively), which is in agreement with the lowest EC₅₀ values obtained in its reducing power (0.02 mg/ml), DPPH scavenging activity (0.07 mg/ml) and β -carotene bleaching inhibition (0.02 mg/ml). *Foeniculumvulgare*, *Montiafontana*, *Papaverrhoeas*, *Rumexpulcher*, *Silene vulgaris* and *Sonchusoleraceus* samples revealed the highest TBARS formation inhibition capacity (lowest EC₅₀ value; 0.02 mg/ml). Overall, wild vegetables could provide important bioactive compounds including powerful antioxidants, such as phenolics and tocopherols.

1. Valko et al. (2007). Free radicals and antioxidants in normal physiological functions and human disease. *Int. J. Biochem. Cell Biol.* 39, pp. 44-84.
2. Barros et al. (2009). Systematic evaluation of the antioxidant potential of different parts of *Foeniculumvulgare* Mill. from Portugal. *Food Chem. Toxicol.* 47, pp. 2458-2464.