FINAL PROGRAM

EUROFOODCHEM XVIII

OCTOBER 13-16, 2015

MADRID, SPAIN

UPCOMING CHALLENGES IN FOOD SCIENCE




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ICTAN

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LAMIACEAE EXTRACTS AS A SOURCE OF PHYTOCHEMICALS WITH PROMISSORY ANTIOXIDANT PROPERTIES

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Keywords: Medicinal and aromatic plants; Antioxidant activity; Phenolic compounds

Plant extracts have been used over years due to their marked healing properties. Primitive societies used them not only as botanical preparations for therapeutic uses, but also as prophylaxis and for psychological effects. Despite the recognized millenary health evidences, numerous phytochemicals responsible for those benefits remain unknown. Among the heterogeneous group of secondary metabolites, phenolic compounds have been pointed out as relevant bioactive phytochemicals [1-3]. Furthermore, the culinary uses of different plant species associated to their biological activities highlight them as potential functional foods.

The aim of the present work was to evaluate the antioxidant potential of aqueous (infusion and decoction) and methanol/water (80:20, v/v) extracts of three Lamiaceae plant species used with culinary and medicinal purposes, Origanum vulgare L. (oregano), Thymus vulgaris L. (thyme) and Salvia officinalis L. (sage), and to relate it with the phenolic profile assessed by HPLC-DAD-ESI/MS.

In general, aqueous extracts evidenced the highest antioxidant potential (lipid peroxidation inhibition free radicals scavenging activity and reducing power). This potential seems to be related with the abundance in phenolic compounds, once sage that showed the highest antioxidant activity, also gave the highest concentration both in phenolic acid derivatives and flavonoids, followed by thyme and oregano.

In all the studied samples, rosmarinic acid and luteolin derivatives (especially luteolin 7-O-glucuronide and luteolin 7-O-glucoside) were the most abundant phenolic acid derivatives and flavonoids, respectively. Other abundant phenolic compounds present in these matrices were apigenin derivatives (in oregano and sage), hesperetin and eriodictyol derivatives (in thyme), hispidulin glucuronide (in sage), caffeic acid dimers, trimers and tetramers (in sage), and lithospermic acid A (a caffeic acid tetramer), quercetin and kaempferol derivatives (in oregano and thyme). Overall, flavonoids followed by phenolic acid derivatives were the classes involved in the antioxidant potential of the tested Lamiaceae extracts. These species might be used as functional foods, but more studies are necessary in order to elucidate the mechanisms of action involved, as well as the bioavailability of the different phenolic compounds and related metabolic pathways.

Acknowledgments:
The authors acknowledge FCT (Portugal) for financial support CIMO PEst-OE/AGUI0690/2014, N. Martins grant SFRH/BD/87658/2012 and L. Barros research contract.

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