BOOK OF ABSTRACTS

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XX EUROFOODCHEM CONGRESS

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Congress organized under the auspices of the Food Chemistry Division of the European Chemical Society (FCD-EuChemS) and the Portuguese Chemical Society (SPQ).

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Detailed Program

17th June	
8:30-9:00	Registration
9:00-9:30	Opening Ceremony
Plenary session 1 – Chairperson: Marco Arlorio	
9:30-10:10	**Livia Sarkadi** - "Peter Czedik-Eysenberg Lecture". The role of food chemistry in the development of food science. History and future challenge"
Room 1 – Functional Foods – Chairperson: Tanja Cirkovic Velickovic	
10:15-10:30	Yan Wang - Prenylated flavonoids derived from *Flemingia philippinensis* display potent bacterial neuraminidase inhibition activities
10:30-10:45	Filipa Mandim - Influence of the harvest stage on the phenolic composition and bioactive properties of *Cynara cardunculus* L. var. *altilis* heads
10:45-11:00	Laura Mateo-Vivaracho - Study of functional properties of wild and cultivated edible mushroom powder
Room 2 – Food Safety – Chairperson: Vieno Piironen	
10:15-10:30	Sonia Losada-Barreiro - The antioxidant efficiency in O/W emulsions can be controlled by modulating antioxidant interfacial concentrations
10:30-10:45	Maria S. Silva Lopes - Mycotoxin content of *Salicornia* L. in Portugal
10:45-11:00	Caroline Douny - Development of an analytical method for the simultaneous measurement of 10 biogenic amines in meat. Application to Beninese grilled pork samples.
Room 3 – Food Sustainability – Chairperson: Victor de Freitas	
10:15-10:30	Rúbia Corrêa - Chemical composition and bioactivities of Juçara fruit bio-residues, a promising source of valuable molecules
10:30-10:45	Elisabete Coelho - Antimicrobial potential of essential oils from agro-industrial by-products as possible feed ingredients
10:45-11:00	Tassadit Benhammouche - Enhancing Proteins extraction from *Moringa Oleifera* leaves: From conventional methods to a fully integrate process
11:00-11:45	***Coffee break / posters session***
Room 1 – Functional Foods – Chairperson: José Baptista	
11:45-12:00	Franks Kamgang Nzekoue - Development of a new functional dairy product enriched in phytosterols: the importance of food chemistry
12:0-12:15	Elisabete Gonçalves - Administration of Castanea sativa flowers extract in Wistar rats
12:15-12:30	Paulina Opyd- Comparative effects of dietary hempseeds and hempseed oil on liver functions and lipid metabolism in genetically obese rats

ORAL COMMUNICATIONS

Functional Foods

Influence of the harvest stage on the phenolic composition and bioactive properties of *Cynara cardunculus* L. var. *altilis* heads

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Cynara cardunculus L., commonly known as cardoon, is an erect perennial herbaceous plant. It belongs to the *Asteraceae* family and it is native to the Mediterranean area. This species comprises three taxa: the wild cardoon (var. *sylvestris*), the domesticated cardoon (var. *altilis*) and the globe or head artichoke (var. *scolymus*) [1]. Their edible capitula are widely used in several food recipes and as an herbal medicine, due to their known health-promoting effects and richness in bioactive compounds. The diverse industrial applications attributed to this crop (*e.g.* cheese manufacturing, biomass production, bioenergy and solid biofuels production, and pharmaceutics) make its cultivation highly important and with economic impact [1-3].

Thus, due to its increasing consumption and commercial interest, the present study purposes the analysis of phenolic compounds and bioactive properties of cardoon heads at different harvest stages. Cardoon (var. *altilis)* head samples were collected in Greece, at five different harvesting times, presenting therefore different maturation stages. The phenolic composition was determined in hydroethanolic extracts by HPLC-DAD-ESI/MS. The antimicrobial activity was tested against three Gram-positive and three Gram-negative bacteria, and six fungi species using the microdilution method. The cytotoxic effects were evaluated against four human tumor cell lines and in a porcine liver primary cell culture using the sulforhodamine B assay. The anti-inflammatory activity was evaluated through the inhibition of NO production using lipopolysaccharide-stimulated macrophages. Finally, the antioxidant activity was measured by TBARS and OxHLIA assays.

Nine phenolic compounds were tentatively identified, with *cis* 3,4-*O*-caffeoylquinic acid and apigenin-*O*-glucuronide being present in higher quantities. The content of phenolic compounds decreased with maturation process; the latest harvest caused a loss of 78% of the phenolic content. All the tested samples exhibited antibacterial and antifungal activity; but unlike the findings for phenolic content, the mature heads revealed the lowest MICs. Regarding the cytotoxic activity, the earliest harvest (immature heads) revealed activity against all the tumor cell lines tested, except for breast cancer cell lines for where the latest harvest had the highest potential. Moreover, the mature head extracts presented capacity to protect erythrocytes from the free radicals generated in the reaction system. Regarding the anti-inflammatory activities and TBARS inhibition, the immature heads revealed the highest activity. The heterogeneity of the biological results reveals that other compounds than phenolic ones may be correlated with these bioactivities.

This study proved the high biological potential of cardoon heads as also its possible use as a source of important bioactive compounds. Nevertheless, further studies are needed to understand which compounds are responsible for the observed bioactivities, as well as to find the stage of maturity that provides the best bioactive properties.

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