

*International Society of Antioxidants
in Nutrition and Health*

8th ISANH Congress on
Polyphenols Applications

8th World Congress on
POLYPHENOLS APPLICATIONS

JUNE 5-6, 2014 - LISBON, PORTUGAL



Abstracts Book



INTERNATIONAL SOCIETY
— OF —
ANTIOXIDANTS

8th World Congress on
Polyphenols Applications

June 4-6, 2014 – Lisbon, Portugal

Chairmen of the Scientific Committee

Marvin Edeas & Andreas Schieber

Local Organising Committee

Luisa Bivar Roseiro & Fernanda Borges



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IN NUTRITION & HEALTH

ISBN 978-2-35609-073-7

CASTANEA SATIVA MILL. FLOWERS AS A SOURCE OF BIOACTIVE PHENOLIC COMPOUNDS

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In the Trás-os-Montes region of Portugal and across a good part of the Mediterranean countries, chestnut trees are a considerable part of the landscape. These trees and their respective nuts have been important in the past and are still a source of incomes for those regions. The chestnut tree and products, such as nuts, wood, leaves and flowers are known to possess a myriad of applications [1]. In particular, infusions and decoctions of chestnut flowers have been reported for different medical purposes [2], but their phytochemical profile and antioxidant activity are still mostly unknown. Herein, decoctions and infusions of flowers from the two most appreciated chestnut cultivars (*longal* and *judia*) in Trás-os-Montes, Portugal, were prepared and characterized with regard to their phenolic composition, which was analyzed by HPLC-DAD-ESI/MS. Furthermore, the antioxidant activity was assessed in terms of free radical scavenging capacity, reducing power and inhibition of lipid peroxidation in brain cell homogenates [2].

The individual polyphenol with the highest concentration in all samples was a trigalloyl-HHDP-glucoside, followed by pentagalloyl glucose, whereas quercetin 3-O-glucuronide and a quercetin hexoside were the most abundant flavonoids in *judia* and *longal* cultivars, respectively. The sample with the highest concentration of total polyphenols was the infusion of *judia*, closely followed by the decoction of *longal*. The preparations of the cultivar *judia* presented higher flavonoid levels than those of *longal* that in turn, displayed higher concentrations of hydrolyzable tannins. Decoctions showed greater antioxidant activity than infusions, which might be explained by the longer time at boiling point that decoctions were subjected to during extraction [2]. Overall, the decoction of the cultivar *judia* was the sample with both the highest quantity of flavonoids and antioxidant activity. The obtained results support ancestral claims about health benefits of infusions and decoctions of chestnut flowers. Moreover, due to the extremely potent antioxidant activity observed, flower decoctions are currently being tested for their potential use as natural preservatives in food industry (research project PRODER nº 46577).

Acknowledgments: The authors are grateful to project PRODER nº 46577- PlantLact and to Foundation for Science and Technology (FCT, Portugal) for financial support to the research centre CIMO (PEst-OE/AGR/UI0690/2011) and for L. Barros' contract ("Compromisso para a Ciência 2008").

References:

[1] Borges OP, Carvalho JS, Correia PR, Silva AP. (2007). *J. Food Comp. Anal.* 20, 80-89.

[2] Carocho M, Barros L, Bento A, Santos-Buelga C, Morales P, Ferreira ICFR. (2014). *BioMed. Res. Int.* In press.

8th International Conference on
Polyphenols Applications - ISANH Polyphenols 2014

June 4-6, 2014 – Lisbon, Portugal

Day 1 - June 4, 2014

Workshop on Polyphenols Biowaste Valorization

From 9h00 to 17h00

Introduction of Workshop

Marvin Edeas, Andreas Schieber, Luisa Bivar, ISANH Polyphenols 2014 Committee

Workshop Animated by:

Charis Galanakis, Galanakis Laboratories, Chania, Greece

Practical Cases presented by:

Jaromír Lachman, Czech University of Life Sciences, Prague, Czech Republic

Maria Elena Sanchez-Pardo, Universidad de Cahalcatongo, Oaxaca, Mexico

A dedicated abstracts book with power point presentations and practical cases will be available during the conference

Day 2 - June 5, 2014

07h30 Welcome Coffee - Registration of Attendees

09h00 Welcome Note by Chairmen of ISANH Polyphenols 2014 & Local Organising Committee

Marvin Edeas & Andreas Schieber, Chairmen of Scientific Committee

Luisa Bivar & Fernanda Borges, Local Organising Committee

09h05 Introduction ISANH Polyphenols 2014 - Oxidative Stress, Microbiota & Polyphenols: Where is the Target?

Marvin Edeas, Chairmen of ISANH, Paris, France

ISANH Polyphenols 2014: Microbiota, Mechanistic Data & Directions

09h30 Human/microbial Metabolites of Dietary Polyphenols: New Actions in the Cardiovascular Context

Daniele Del Rio, University of Parma, Parma, Italy

09h50 Polyphenols & Inflammatory Bowel Diseases: Recent Advances & Mechanistic Perspectives

Diana Jurado Serra, University of Coimbra, Coimbra, Portugal

10h10 Bioactivation of Dietary Phytochemicals by Probiotics and Bifidobacteria

Maddalena Rossi, University of Modena and Reggio Emilia, Modena, Italy

10h15 Protection of Phenolics of the Mixture of Citronellol and Chinese Medical Herbs Complex on Gastrointestinal Diseases

Chin-Kun Wang, Chung Shan Medical University, Taichung, Taiwan

10h20 Grape-Seed Procyanidin Extract Protects Gastrointestinal Mucosa from Oxidative Stress

Anna Ardévol, Universitat Rovira I Virgili, Taragona, Spain

10h25 Discussion & Questions

10h35 Coffee Break, Posters & Exhibition Sessions

11h05 Overview on Daily Polyphenols Intake from Fresh Fruits, in particular Berries. Effects of Berries Metabolites on Brain

Claudia Santos, Instituto de Biologia Experimental e Tecnologica, Oeiras, Portugal

11h25 Targeting Polyphenols to Brain and to Blood-Brain-Barrier: Recent Advances & Perspectives

Anthocyanins crossing biological barriers: recent advances & perspectives

Ana Faria, University of Porto, Porto, Portugal

11h45 Mechanistic Investigation of Polyphenol Bioactivities in Alzheimer's Disease

Giulio Maria Pasinetti, Icahn School of Medicine at Mount Sinai, New York, USA

11h55 Effects of Quercetin on microRNA Signaling Associated with Atherosclerosis

Mahdi Garelnabi, University of Massachusetts, Lowell, USA

12h00 Polyphenols against Cancer and a Fatal Neglected Infectious Disease

Gerd Birkenmeier, University of Leipzig, Leipzig, Germany

12h05 A Short-cut to Comprehensive Health Benefits of Dietary Polyphenols: The Nitrate-nitrite-nitric Oxide Pathway

João Laranjinha, University of Coimbra, Coimbra, Portugal

12h10 Discussion & Questions

Special Session on ISANH Polyphenols & Taste Receptors

12h20 **Polyphenols & Taste: Activation of Distinct Human Bitter Taste Receptors**
Susana Soares, University of Porto, Porto, Portugal

12h40 **ISANH Polyphenols 2014 - Group Pictures**

12h45 **Lunch Break, Posters & Exhibition Sessions**

Special Session on ISANH Polyphenols, Beer & Xanthohumol

14h00 **Beer Polyphenols, Xanthohumol in Inflammation and Angiogenesis: Recent Advances & Perspectives**
Rita Negrão, Faculty of Medicine of University of Porto, Porto, Portugal

14h20 **Polyphenols, Bio-Waste & Bi-Products: The Hidden Gold for Brewer's spent grain and Spent Coffee Ground**
Solange I. Mussatto, University of Minho, Braga, Portugal

14h40 **Global Metabolomics for Discovery of Polyphenol Bioactivity: Unravelling Broad-Spectrum Effects of Xanthohumol in a Rodent Model of Obesity**
Fred Stevens, Oregon State University, Corvallis, USA

Special Session on Pomegranate

15h00 **Pomegranate & Health: What's Next?**
Michael Aviram, Rambam Medical Center, Haifa, Israel

15h20 **Regular Consumption of a Pomegranate and Grape Juice Improves Oxidative Status and Causes Metabolome Changes in Healthy Adults**
Jara Perez-Jimenez, Institute of Food Science, Technology and Nutrition (ICTAN-CSIC), Madrid, Spain

15h25 **Discussion & Questions**

15h30 **Coffee Break, Posters & Exhibition Sessions**

Special Session on ISANH Polyphenols, Food Colorants & Food Packaging

16h00 **Pyranoanthocyanins as Novel Food Colorants**
Fabian Weber, University of Bonn, Germany

16h20 **Polyphenols & Antioxidants Incorporation into Food Packaging: Trends & Perspectives**
Ana Sanches Silva, National Institute of Health Dr. Ricardo Jorge, Lisbon, Portugal

Short Oral Presentations

16h40 **Novel Antioxidant Bioinspired Phenolic Polymers and their Applications in Packaging**
Luisella Verotta, University of Milan, Milan, Italy

16h45 **The Behaviour of Natural Antioxidants on Oxidation in Raw and Cooked Meat Balls**
Eva Tornberg, Lund University, Sweden

16h50 **Dihydrochalcones as Natural Sweeteners against "Modern" Diseases**
Mwafaq Ibdah, Washington State University, Pullman, USA

16h55 **Intensification of Polyphenols Extraction from Vine Shoots, and Extracts Concentration by Dead-End Ultrafiltration**
Hiba Rajha, Université de Technologie de Compiègne, Centre de Recherche de Royallieu, Compiègne, France & Université Saint-Joseph, Liban

17h00 **Hybrid Antioxidant Molecules Derived From Flavonolignan Silybin**
Vladimír Křen, Academy of Sciences of the Czech Republic, Prague, Czech Republic

17h05 **Mitocin's - The Highway to Target Bioactive Cinnamic Molecules to Mitochondria**
José Teixeira, University of Porto, Porto, Portugal

17h10 **Biology-Oriented Development of Novel Lipophilic Antioxidants with Neuroprotective Activity**
Tiago Silva, University of Porto, Porto, Portugal

17h15 **Green Tea (*Camelia Sinensis*), Rooibos (*Aspalathus Linearis*) and Cacao (*Theobroma Cacao*) Affect Contraction and Relaxation of Human Subcutaneous Arteries In Vitro**
Karin Persson, Linköping University, Sweden

17h20 **The Differential Modulating Effects of Green and Black Tea on Biomarkers of Chronic Inflammation by Smoking Status**
Iman Hakim, University of Arizona, Tucson, USA

16h25 **The Effect of Olive Leaf Supplementation on the Constituents of Blood**
Fatima Paiva-Martins, Universidade do Porto, Porto, Portugal

17h30 **Superior Heavy Metal Binding, Antioxidant and Chemopreventive Action of Black Sesame Pigment after Simulated Gastrointestinal Digestion: Toward the Development of a Food Supplement**
Lucia Panzella, University of Naples "Federico II", Naples, Italy

- 17h35 **Antioxidant and Metal Chelating Activities, Taste Profile and Phenolic Compounds of Organic, Biodynamic and Conventional Grape Juices**
Daniel Granato, Wageningen University and Research Centre, Wageningen, The Netherlands
- 17h40 **Castanea Sativa Mill. Flowers as a Source of Bioactive Phenolic Compounds**
Lillian Barros, Polytechnic Institute of Bragança, Portugal
- 17h45 **Discussion & Questions**
- 18h30 **Visit of Lisbon with Lisboa Turism**
For registered people
- 19h45 **ISANH Polyphenols 2014 Dinner - In a Portuguese Fado Restaurant**
If you are interested to take part to this dinner, please check on conference site.

Day 3 - June 6, 2014

- 08h30 **Welcome Coffee - Registration of Attendees**

Polyphenols & Waste Valorisation from Fruits & Vegetables Processing

- 9h00 **Universal Strategy for the Recovery of Polyphenols: Targeting Industrial Applications**
Charis Galanakis, Galanakis Laboratories, Chania, Greece
- 9h20 **Ferulic Acid Oligomers: From (bio)Chemistry to Applications**
Mirko Bunzel, Karlsruhe Institute of Technology, Karlsruhe, Germany
- 9h40 **Non-Extractable Polyphenols or Macroantioxidants : Recent Advances and Perspectives**
Fulgencio D. Saura-Calixto, Instituto de Ciencia y Tecnología de Alimentos y Nutrición, Madrid, Spain
- 10h00 **Biorefinery Concept with Green Solvents towards the Phenolic Valorization**
Rafal Lukasik, National Laboratory for Energy and Geology, Lisbon, Portugal
- 10h20 **Polyphenols and Glucosinolates from leaf-salads: Characterization, Antioxidants & Antimicrobial effects**
Alfredo Aires, University of Trás-os-Montes and Alto Douro, Vila Real, Portugal

10h30 Coffee Break, Posters & Exhibition Sessions

- 11h00 **Valorization of Natural Polyphenols for Amyloid Disorders and Mechanisms of Action**
Amélia Pilar-Rauter, University of Lisbon, Lisbon, Portugal
- 11h20 **Electrochemical Mapping of Polyphenol's Antioxidants Activity**
Jorge Garrido, School of Engineering (ISEP) Polytechnic, Porto, Portugal
- Short Oral Presentations**
- 11h40 **Chromatographic Analysis of Polyphenolic Compounds: From Sample Preparation to the Results**
Magdalena Biesaga, University of Warsaw, Warsaw, Poland
- 11h45 **Unorthodox Efficient Separation Methods for Polyphenols**
David Biedermann, Institute of Microbiology, Prague, Czech Republic
- 11h50 **New Integrated Process Extraction-Adsorption for Selective Recovery of Antioxidant Polyphenols from Food Industry By-Products**
Krasimir Dimitrov, Lille University, Lille, France
- 11h55 **Towards Complex Utilisation of Winemaking Residues: Antioxidant Content in Grape Seeds as a By-Product of Winemaking and in Vine Canopy After Trimming**
Jaromír Lachman, Czech University of Life Sciences, Prague, Czech Republic
- 12h00 **Influence of some Process Parameters on Spray-Drying Encapsulation of a Red Grape Waste Skins Extract**
Durselem Garrido, Università Cattolica Sacro Cuore, Piacenza, Italy
- 12h05 **Phenolics Recovery from Different Agro-Food By-Products**
Alessandro Moncalvo, Università Cattolica Sacro Cuore, Piacenza, Italy
- 12h10 **Separation and Characterization of Phenolic Compounds from Pecans and Dry-Blanched Peanut Skins by Liquid Chromatography-Electrospray Ionization Mass Spectrometry**
Ronald B. Pegg, The University of Georgia, USA

12h40 Lunch Break, Posters & Exhibition Sessions

Special Session on Polyphenols as Drugs

- 14h00 **Flavonoids & Polyphenols as Drugs: Emerging Sulfated Flavonoids and Polyphenols as a New Class of Anticoagulant Agents**
Marta Correia da Silva, University of Porto, Porto, Portugal
- 14h20 **Encapsulation Modulates the Bioavailability of Anthocyanins and their Degradation Products**
Elke Richling, Kaiserslautern Technical University, Kaiserslautern, Germany

- 14h40 Novel Polyphenolic Compounds as Antioxidants and Anti-Inflammatory Agents**
Artur Manuel Soares da Silva, University of Aveiro, Aveiro, Portugal
- 15h00 Polyphenols & Flavonoids Delivery Systems**
- Nanoencapsulation for protective effect against colon-rectal cancer
- Nanoparticles for ocular delivery
Joana Fangueiro, University Fernando Pessoa, Porto, Portugal
- 15h20 Polyphenols and Drug Discovery: Is The Taming of Nature Chemistry a Solution to Surpass Clinical Trials Pitfalls?**
Fernanda Borges, University of Porto, Porto, Portugal
- 15h30 Polyphenols and Inflammation: Should they be Considered?**
Patricia Valentao, University of Porto, Porto, Portugal

15h40 Coffee Break, Posters & Exhibition Sessions

Polyphenols & Industrial Innovations

- 16h00 Development of an Antioxidant Rich Beverage and its Influence to Oxidative Stressparameter and Selected Micronutritions in Blood and Urin of Healthy People**
Sabine Larsen-Vefring, LR Health & Beauty Systems GmbH, Ahlen, Germany
- 16h05 Isoquercitrin: Emerging Quercetin Derivative for Food Supplements**
Kateřina Valentová, Academy of Sciences of the Czech Republic, Prague, Czech Republic
- 16h10 Review of in vitro and clinical evidence underlying Resveratrol for the management of Diabetes Mellitus.**
James Betz, Biotivia Longevity Bioceuticals, Llc, Verona, Italy
- 16h15 Have Plants, Besides Tocopherols and Carotenoids, Evolved a Third Antioxidative Mechanism for Lipid Protection: Carnosic Acid?**
Simona Birtic, Naturex, Avignon, France
- 16h20 Discussion & Questions**
Short Oral Presentations
- 16h30 Reversal of Endothelial Dysfunction Using Polyphenol Rich Roods and Polyphenol Supplements, Coupled with Avoidance of Major Dietary Lectins**
Steven Gundry, The International Heart and Lung Institute, USA
- 16h35 Resveratrol and Resveratrol Metabolites as Adjuvants to Synergize with Chemotherapeutic drugs to Induce Cell Death of Colon Cancer Cells**
Dominique Delmas, Université de Bourgogne, Dijon, France
- 16h40 Quercetin Decreases High-Fat Diet Induced Fatty Liver Disease In Mice**
Elise Hoek-Van Den Hil, Wageningen University, Wageningen, The Netherlands
- 16h45 Impact of Oxidative Metabolism on the Bioactivity Profile of Isoflavones**
Doris Marko, University of Vienna, Vienna, Austria
- 16h50 Biochemical Pharmacology of Curcumin**
Claus Schneider, Vanderbilt University Medical School, USA
- 16h55 Phenolic Compounds in Plasma after Supplementation with Raisins - A Bioavailability Study**
Panagiotis T. Kanellos, Harokopio University, Greece
- 17h00 Evaluation of Grape (Vitis Vinifera L.) Stems from Portuguese Varieties as a Source of (Poly)Phenolic Compounds: A Comparative Study**
Raul Domínguez-Perles, Universidade De Trás-Os-Montes E Alto Douro, Portugal
- 17h05 Phlorotannins from Brown Seaweeds: Bioavailability, Antioxidant and Anti-Inflammatory Potential**
Giulia Corona, University of Reading, United Kingdom
- 17h10 Nasturtium Flowers (Tropaeolum Majus), a Rich Source of Antioxidants**
Astrid Garzón, Universidad Nacional de Colombia, Bogotá, Colombia
- 17h15 Discussion & Questions**
- 17h45 Discussion: Polyphenols Bioavailability:**
- Can we modulate the Quality of Gut Microbiota with Polyphenols?
 - Can we Increase Polyphenols Bioavailability by Modulating Gut Microbiota?

Polyphenols 2014 Awards

- 18h15 Conclusion of Polyphenols 2014**