

15th World Congress on

POLYPHENOLS APPLICATIONS

September 28-30, 2022 - Valencia, Spain



INTERNATIONAL SOCIETY OF
mICROBIOTA



Congress & Workshop Agenda

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Program

Welcome to Polyphenols Applications 2022 Congress

On behalf of the International Society of Antioxidants in Nutrition and Health (ISANH), the International Society of Microbiota, and the Scientific Committee, we are delighted to announce that the 15th World Congress on Polyphenols Applications will be held on September 28-30, 2022 at ADEIT 'Fundación Universitat', Valencia, Spain, & Online.

This conference will bring together experts from academia and industry to discuss the latest scientific advances in fundamental and applied research on polyphenols. While the focus of the conference will be on food and nutrition research, pharmaceutical and medical sciences, as well as related disciplines such as microbiology and biotechnology, will also be covered.

Polyphenols Applications 2022 Sessions:

- **Polyphenols & Microbiota – Recent Advances & Perspectives**
- **Polyphenols & Health: What We Know**
- **Technological Innovations in Polyphenols Extraction & Valorization**
- **Sensory Aspects of Polyphenols**
- **Polyphenols Applications 2022 – Innovations & Perspectives**

Cannabis 2022: A new workshop on "Medical Cannabis, Cannabinoids and Derivatives: Recent Advances and Applications" will be held. Cannabis 2022 aims to cover the cannabis constituents, their isolation, and their application in the medical sector and food industry.

Among the hot topics that will be covered in this 3-day event: Microbiota, metabolites, adipose tissue, nervous system, senolytic activity, ageing, endothelial function, radioprotection, oxidative stress, ferroptosis, cancer, atherosclerosis, extracellular vesicles, cannabinoids, cannabinoid receptors, anticancer activity, antiviral activity, anti-dyslipidemic effect, ocular delivery, cosmetic application, polyphenols recovery, extraction, valorization, fermentation, wine polyphenols, sensory aspects, inter-individual variability ...

We hope that you will enjoy the Polyphenols 2022 Congress and that your interactions with your colleagues from many countries will stimulate a creative exchange of ideas and challenges.



Prof. Dr. Andreas Schieber
President of Polyphenols Applications 2022
University of Bonn, Germany

Polyphenols Applications 2022 Speakers



Keynote Introduction: Polyphenols Application 2022: Where We Are Now and What's Next
Juan Carlos Espín, Spanish National Research Council, Spain



Effects of Berry (Poly)phenols on Cardiovascular Health: Clinical Evidence and Mechanistic Insights
Ana Rodriguez-Mateos, King's College London, United Kingdom



Polyphenols and Extracellular Vesicles: A New Revolution?
Ramaroson Andriantsitohaina, France



Beneficial Health Effects of Polyphenol-Rich Fruit Juice in Humans
Elke Richling, University of Kaiserslautern, Germany



Conversion of Phenolic Compounds in Food Fermentations by Lactic Acid Bacteria: Metabolic Pathways and Functional Metabolites
Michael Gänzle, University of Alberta, Canada



Methods of Quantitative Analysis for Cannabinoids in Industrial Hemp
Jennifer Duringer, Oregon State University, USA



Wine Polyphenols and Gut Microbiota
Nenad Naumovski, University of Canberra, Australia



Flavan-3-ols Induces Browning of Adipose Tissues through Sympathetic Nerve Activation
Naomi Osakabe, Shibaura Institute of Technology, Japan



Gut Microbial Metabolism of Dietary Polyphenols in Health and Disease
Jan Claesen, Cleveland Clinic, USA



Innovative Processes for Berry Juice Production and Side Stream Valorization
Nicole Nemetz, University of Bonn, Germany



Towards the Utilization of Cannabinoids as Anticancer Agents
Guillermo Velasco, Instituto de Investigación Sanitaria San Carlos, Spain



Inhibition Mechanism of Catechins on Dietary AGEs Absorption and Toxicity
Qian Wu, Hubei University of Technology, China



Antioxidant Activity and Phenolic Composition of Extracts Obtained from Microalgae After the Application of Innovative Processes
Francisco Juan Martí-Quijal, University of Valencia, Spain



Chemical and Sensory Evaluation of Astringency Modulation in Red Wine
Fabian Weber, University of Bonn, Germany



Recovery of Polyphenols from Medicinal Plants Extracts Assisted by Pulsed Electric Fields
Noelia Pallarés, University of Valencia, Spain



Chemistry and Pharmacology of Cannabinoids
Jan Frederik Stevens, Oregon State University, USA



Inhibition of Oxytosis/Ferroptosis by Cannabinol Requires Mitochondria and is Independent of Cannabinoid Receptors
Pam Maher, The Salk Institute for Biological Studies, USA



Discoloration Caused by Interactions Between Flavonoids and Iron
Jean-Paul Vincken, Wageningen University & Research, The Netherlands



Molecular Taste: Molecular Approaches to Understand Food Polyphenols Astringency and Bitterness
Susana Soares, Universidade do Porto, Portugal



Micellar Formulations Enhance the Post-Digestive Solubility and Bioavailability of Polyphenols
Jan Frank, The University of Hohenheim, Germany



Ocular Delivery of Polyphenols
Yolanda Diebold, Universidad de Valladolid, Spain



Polyphenol-Protein Interactions - Still Many Challenges to Cope With...
Sascha Rohn, Technische Universität Berlin, Germany



Ion Mobility-Mass Spectrometry in Food Analysis
Sonia Sentellas, University of Barcelona, Spain



Procyanidin C1 is a Natural Agent With Senolytic Activity Against Aging and Age-Related Diseases
Yu Sun, The Chinese Academy of Sciences, China



Radioprotective Formula Based on Natural Polyphenols
Elena Obrador, University of Valencia, Spain



Impact of Berries, Cherries and Quinoa Polyphenols on Gut Microbiota & Health
Franck Carbonero, Washington State University-Spokane, USA



Innovative Technologies for the Extraction of Antioxidant Bioactive Compounds from Mushrooms
Mara Calleja, University of Valencia, Spain



Gas Chromatography-Mass Spectrometry Analysis of Cannabinoids: Chemical Diversity Across a Range of Feral Cannabis Plants
Luke Busta, University of Minnesota Duluth, USA



Evaluation of Microstructure and Green Extraction Methodologies for Recovering Polyphenols From Sweet Potato Peel
Juan Manuel Castagnini, University of Valencia, Spain



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Program

– Day 1 –

Wednesday, September 28, 2022

- 8h00 **Welcoming of Participants and Badges Distribution**
- 8h55 **Welcome note by Prof. Andreas Schieber**, President of Polyphenols Applications 2022, University of Bonn, Germany
- 9h00 – 9h40 **Keynote Introduction: Polyphenols Application 2022: Where We Are Now and What's Next**
Juan Carlos Espín, Spanish National Research Council, Spain

Session 1 : Polyphenols & Microbiota – Recent Advances & Perspectives

Chairs: Marvin Edeas, Michael Gänzle

Presentations lengths: 15 minutes + 5 minutes of discussion

9h40 **Conversion of Phenolic Compounds in Food Fermentations by Lactic Acid Bacteria: Metabolic Pathways and Functional Metabolites**
Michael Gänzle, University of Alberta, Canada

10h00 **Wine Polyphenols and Gut Microbiota**
Nenad Naumovski, University of Canberra, Australia

10h20 – Coffee Break, Networking & Poster Session

11h10 **Impact of Berries, Cherries and Quinoa Polyphenols on Gut Microbiota & Health**
Franck Carbonero, Washington State University-Spokane, USA

11h30 **Gut Microbial Metabolism of Dietary Polyphenols in Health and Disease**
Jan Claesen, Cleveland Clinic, USA

15th World Congress on Polyphenols Applications

September 28-30, 2022 – Valencia, Spain

Program

Session 2: Polyphenols & Health: What We Know

Chairs: Jan Frederik Stevens

Presentations lengths: 15 minutes + 5 minutes of discussion

11h50 **Flavan-3-ols Induces Browning of Adipose Tissues through Sympathetic Nerve Activation**
Naomi Osakabe, Shibaura Institute of Technology, Japan

12h10 **Procyanidin C1 is a Natural Agent with Senolytic Activity Against Aging and Age-Related Diseases**
Yu Sun, The Chinese Academy of Sciences, China

12h30 – Lunch Break, Networking & Poster Session

14h00 **Effects of Berry (Poly)phenols on Cardiovascular Health: Clinical Evidence and Mechanistic Insights**
Ana Rodriguez-Mateos, King's College London, United Kingdom

14h20 **Radioprotective Formula Based on Natural Polyphenols**
Elena Obrador, University of Valencia, Spain

14h40 **Beneficial Health Effects of Polyphenol-Rich Fruit Juice in Humans**
Elke Richling, University of Kaiserslautern, Germany

15h00 **Inhibition Mechanism of Catechins on Dietary AGEs Absorption and Toxicity**
Qian Wu, Hubei University of Technology, China

15h20 – Coffee Break, Networking & Poster Session

15th World Congress on Polyphenols Applications

September 28-30, 2022 – Valencia, Spain

Program

Session 3: Technological Innovations in Polyphenols Extraction & Valorization

Chairs: Andreas Schieber, Francisco Barba

Presentations lengths: 12 minutes + 3 minutes of discussion

- 16h00 **Evaluation of Microstructure and Green Extraction Methodologies for Recovering Polyphenols from Sweet Potato Peel**
Juan Manuel Castagnini, University of Valencia, Spain
- 16h15 **Recovery of Polyphenols from Algerian Medicinal Plants Extracts Assisted by Pulsed Electric Fields**
Noelia Pallarés, University of Valencia, Spain
- 16h30 **Innovative Technologies for the Extraction of Antioxidant Bioactive Compounds from Mushrooms**
Mara Calleja, University of Valencia, Spain
- 16h45 **Antioxidant Activity and Phenolic Composition of Extracts Obtained from Microalgae After the Application of Innovative Processes**
Francisco Juan Martí-Quijal, University of Valencia, Spain
- 17h00 **Innovative Processes for Berry Juice Production and Side Stream Valorization**
Nicole Nemetz, University of Bonn, Germany

17h15 – 18h30 **Short Oral Presentations**

Standardized Polyphenol Mixture from Poplar-Type Propolis Modulates Gut Microbiota in Healthy and Diseased Subjects

Maria Daglia, University of Naples Federico II, Italy

Innovative Tannin-based Deodorant and Its Impact on Skin's Microbiota

Laura Berkarić, Silvateam Spa, Italy

Olive Oil Polyphenols Protect the Brain from Chronic Low-Grade Inflammation

Daniel Di Risola, Sapienza University, Italy

Lemon Peel Polyphenol Extract Reduces Interleukin-6 Dependent Invasiveness and Matrix Metalloproteinase-9/2 Expression in Human Gastric and Primary Colon Carcinoma Cells

Rosaria Arcone, University of Naples Parthenope, Italy

15th World Congress on Polyphenols Applications

September 28-30, 2022 – Valencia, Spain

Program

Effects of Feeding Supplemented with *Olea Europaea L.* Polyphenols on Plasma Fatty Acid Profile in Lactating Holstein-friesian Cows

Maria Chiara Di Meo, Università Degli Studi Del Sannio - Benevento, Italy

Anthocyanin-Rich Berry Extracts and Chemotherapy: A Critical Combination

Cornelia Schmutz, University of Vienna, Austria

Resveratrol Shifts Energy Metabolism to Increase Lipid Oxidation: In Vivo and In Vitro Studies

Kristine Stromsnes, University of Valencia, Spain

Polyphenol-Rich Botanicals Modulate Intestinal Oxidative Stress and Epithelial Integrity In Vitro

Andrea Toschi, Vetagro S.p.A., Reggio Emilia, Italy

Optimization of Extraction Conditions for the Recovery of Bioactive Compounds from Dried Fruits Hard Shells

Vera Muccilli, Università di Catania, Italy

Polyhydroxynaphtoquinones from Sea Urchins' Waste: Extraction, Characterization and Biomedical Applications

Stefania Marzorati, Università degli Studi di Milano, Italy

Detailed Analysis of Enzymatic Mash Treatment and Oxygen-Excluding Spiral Filter Pressing on the Retention of Potentially Health-Promoting Phenolic Compounds in Apple Juice

Stefan Dussling, Hochschule Geisenheim, Germany

18h30 **End of Polyphenols Applications 2022 Day 1**

20h00 **Dinner with Speakers at El Coso del Mar – Reserved for ticket holders only**

15th World Congress on Polyphenols Applications

September 28-30, 2022 – Valencia, Spain

Program

– Day 2 –

Thursday, September 29, 2022

8h50 Introduction Note of Day 2 – Polyphenols in Transition

Session 4: Sensory Aspects of Polyphenols

Chair: Fabian Weber

Presentations lengths: 15 minutes + 5 minutes of discussion

9h00 **Molecular Perception of Astringency & Bitter Taste of Tannins in Food**
Susana Soares, Faculdade de Ciências da Universidade do Porto (FCUP), Portugal

9h20 **Chemical and Sensory Evaluation of Astringency Modulation in Red Wine**
Fabian Weber, University of Bonn, Germany

09h40 **Polyphenol-Protein Interactions - Still Many Challenges to Cope With...**
Sascha Rohn, Technische Universität Berlin, Germany

10h00 **Discoloration Caused by Interactions Between Flavonoids and Iron**
Jean-Paul Vincken, Wageningen University & Research, The Netherlands

10h20 **Ion Mobility–Mass Spectrometry in Food Analysis**
Sonia Sentellas, University of Barcelona, Spain

10h40 – Coffee Break, Networking & Poster Session

11h20 – 12h30 **Short Oral Presentations** (5 minutes for presentation + 2 min for questions)

Chair: Elke Richling

A New Colorimetric App for Polyphenols Detection in Beverages
Sandra Tamargo, BQC Redox Technologies, Spain

15th World Congress on Polyphenols Applications

September 28-30, 2022 – Valencia, Spain

Program

Effects of Urolithin A on Mitochondrial Parameters in a Cellular Model of Early Alzheimer Disease

Gunter Peter Eckert, Justus-Liebig University of Giessen, Germany

Botanical authentication : The Toolbox of Methods and Reference Materials

René De Vaumas, Extrasynthese SAS, France

Development of a Tool to Accelerate the Degradation Process on Rosé Wines

Jennifer Moriones, UPNA, Spain

Grape Cane Stilbenoids as Biopesticides in Organic Viticulture

Paul Besrukow, Geisenheim University, Germany

Lentil Protein and Tannic Acid Interaction Limits In Vitro Peptic Hydrolysis and Alters Peptidomic Profiles of the Proteins

Ruth Takyiwaah Boachie, Wageningen University & Research, The Netherlands

Dietary Polyphenol Intake and Gastric Cancer: A Systematic Review and Meta-analysis

Marcela de Araújo Fagundes, AC Camargo Cancer Center, Brazil

Growth Inhibition of the MCF7 Breast Adenocarcinoma Cells with Australian Native Currant (*Acrotriche depressa*) Extracts and Metabolomic Identification of Key Anticancer Metabolites

Deep Jyoti Bhuyan, Western Sydney University, Australia

Potential Prevention and Treatment of SARS-COV-2-induced Infection by Tannic Acid, Corilagin, or TGG

Roger Gaudreault, Université de Montréal, Canada

Anti-Dyslipidemic Effect of the Main Olive Oil Polyphenol Oleacein in the APOE-KO Mice Model of Atherosclerosis

Fátima Paiva-Martins, University of Porto, Portugal

Structure-Based Design and Synthesis of a Novel Long-Chain 4"-Alkyl Ether Derivative of (-)-Epigallocatechin-3-Gallate (EGCG) As Potent EGFR Inhibitor

Satyam Singh, Indian Institute of Technology Indore, India

12h30 pm – Lunch Break, Networking & Poster Session

Session 5: Innovations & Perspectives in Polyphenols Applications

Chairs: Jean-Paul Vincken, Franck Carbonero

Presentations lengths: 15 minutes + 5 minutes of discussion

14h00

Polyphenols and Extracellular Vesicles: A New Revolution?

Ramaroson Andriantsitohaina, Université de Montpellier, France

14h20

Ocular Delivery of Polyphenols

Yolanda Diebold, Universidad de Valladolid, Spain

15th World Congress on Polyphenols Applications

September 28-30, 2022 – Valencia, Spain

Program

14h40 **Micellar Formulations Enhance the Post-Digestive Solubility and Bioavailability of (Poly)phenols**
Jan Frank, The University of Hohenheim, Germany

15h00 **Flavonoid-Oxidation Derive Benzofuranones: An Emerging Case of Novel Antioxidants Development**
Hernan Speisky, University of Chile, Chile

15h15 – Coffee Break, Networking & Poster Session

16h00 – 17h40 **Short Oral Presentations (5 minutes for presentation + 2 min for questions)**

Chairs: Ramarason Andriantsitohaina, José Estrela

Antiviral Activity of European Black Elderberry Polyphenols

Stephan Plattner, ElderCraft / IPRONA, Italy

Nanoformulated Chestnut Wood Mud as a Source of Ellagic Acid for Dermo-cosmetic Applications

Lucia Panzella, University of Naples "Federico II", Italy

Targeting Glioblastoma Invasion and Survival with Cannabis-derived Flavonoids

Akeem Gardner, Canurta Inc, Canada

Poly(Glycerol-Sebacate)-Based Delivery Systems, Alternative Routes for Polyphenols Administration

Alessio Massironi, Università di Milano, Italy

Polyphenols and Waste Proteins for Implementation of Bioadhesives with High Water-Resistance and Antibacterial Properties for Wound Treatment Applications

Alessandra Napolitano, University of Naples Federico II, Italy

Leaf Development in Chilean Bean Landraces Affects Phenolic Composition and A-Glucosidase Inhibition

Alberto Javier Burgos Edwards, Centro de Estudios en Alimentos Procesados, Chile

Enhancement of the Nutritional Value and Antioxidant Properties of Blackcurrant Juice Powder by Using Protein-based Carrier

Jessica Brzezowska, Wrocław University of Environmental and Life Sciences, Poland

Encapsulation of Hydroxytyrosol by Room Temperature Electrospraying Assisted by Pressurized Gas

Cristina Prieto López, Institute of Agrochemistry and Food Technology, Spain

15th World Congress on Polyphenols Applications

September 28-30, 2022 – Valencia, Spain

Program

Pigmented Potatoes: A Potential Panacea for Food and Nutrition Security and Health?

Learnmore Kambizi, Cape Peninsula University of Technology, South Africa

Effect of Urolithin A on Apoptosis and Autophagy in Podocytes Cultured in High Glucose

Milena Kotewicz, Medical University of Gdańsk, Poland

Adipocytes and Myotubes Increase Cellular Respiration in Response to Anthocyanin-Rich Berry Extracts

Patrick Matthew Solverson, Washington State University, USA

A Green Alternative Approach to Citrus Peel Bio-Waste Disposal: Characterization and Bioactive Potential

Esther Gomez Mejia, Complutense University of Madrid, Spain

Tailor-Made Fertilization Regimes as Strategies to Increase Phenolic Composition: The Case Study of Pot Grown *Cichorium spinosum* L.

Maria Inês Dias, Instituto Politécnico de Bragança, Portugal

Rosemary Extract and Its Major Polyphenol Carnosic Acid Promote Browning of White Adipocytes via AMPK Activation

Filip Vlavecski, Brock University, Canada

17h40 **Round Table Discussion and Concluding Remarks**

Jan Frederik Stevens, Oregon State University, USA

18h00 **Polyphenols Applications 2022 Awards**

18h30 **End of Polyphenols Applications 2022 Day 2**

15th World Congress on Polyphenols Applications

September 28-30, 2022 – Valencia, Spain

Program

– Day 3 –

Polyphenols Applications 2022 Workshop

Friday, September 30, 2022

Cannabis 2022

Medical Cannabis, Cannabinoids and Derivatives: Recent Advances and Applications

Aims and Objectives:

Cannabis 2022 aims to evaluate the constituents of cannabis and medical cannabis, mainly cannabinoids, flavonoids and their derivatives.

We will focus on the identification, characterization and isolation of different constituents in cannabis.

We will highlight recent studies and research in all related fields: health, wellbeing & food.

President and Chairman of the Workshop



Prof. Jan Frederik Stevens,

Oregon State University

USA

15th World Congress on Polyphenols Applications

September 28-30, 2022 – Valencia, Spain

Program

Cannabis 2022 Topics

9h25 Welcome note & introduction

Session 1 – General Introduction on Cannabis & Derivatives

9h30 **Chemistry and Pharmacology of Cannabinoids**
Jan Frederik Stevens, Oregon State University, USA

9h55 **Gas Chromatography-Mass Spectrometry Analysis of Cannabinoids: Chemical Diversity Across a Range of Feral Cannabis Plants**
Luke Busta, University of Minnesota Duluth, USA

10h20 **The Comparison Between HPLC-MS/MS and HPLC-PDA Analysis**
Jennifer Durringer, Oregon State University, USA

10h45 Coffee break

Session 2 – Mechanisms of Action of Cannabinoids

11h15 **Inhibition of Oxytosis/Ferroptosis by Cannabinol Requires Mitochondria and is Independent of Cannabinoid Receptors**
Pam Maher, The Salk Institute for Biological Studies, USA

Session 3 – Therapeutic Potential of Cannabinoids & Approaches for Further Development

11h40 **Towards the Utilization of Cannabinoids as Anticancer**
Guillermo Velasco, Instituto de Investigación Sanitaria San Carlos, Spain

12h05 **Discussion & Conclusion of Cannabis Workshop 2022**
Jan Frederik Stevens, Oregon State University, USA

12h35 **Getting Together Lunch**

End of Cannabis 2022