

INTERNATIONAL SOCIETY OF ANTIOXIDANTS

13th WORLD CONGRESS ON
POLYPHENOLS APPLICATIONS



Scientific Agenda

September 30 - October 1, 2019 - Malta



www.polyphenols-site.com

13th World Congress on POLYPHENOLS APPLICATIONS

September 30 - October 1, 2019 - Grand Hotel Excelsior - Valletta, Malta

Congress Sessions & Round table discussion

- Polyphenols-microbiome interactions, metabolism and health effects
- Skin and Polyphenols: Recent advances and practical applications
- Technological & Biotechnological aspects of Polyphenols
- Polyphenols Applications & Innovations in 2019

Deadline to submit

4
SEP
SHORT ORAL
PRESENTATION

10
SEP
POSTER
PRESENTATION

Malta Polyphenols 2019 Speakers



Malta Polyphenols 2019: General Introduction by
President of Malta Polyphenols 2019

Andreas Schieber,
University of Bonn, Germany



Influence of juice processing and natural variation
in the bioaccessibility of phenolics from grapes and
blueberries

Mario Ferruzzi,
North Carolina State University, USA



Phenolic compounds from wine industry
by-products: characterization and in vitro
bioaccessibility

Ariel Fontana,
Universidad Nacional de Cuyo (UNCUYO), Argentina



Role of polyphenols in cognitive diseases

Yves Desjardins,
Laval University, Canada



Polyphenols of Bulgarian oil-bearing rose
(Rosa damascena Mill.): Recovery and potential
applications in food industry

Rada Dinkova,
University of Food Technologies, Bulgaria



Phlorotannins – extraction, profiling and bioactivities

Mariana Barbosa,
University of Porto, Portugal



Novel Insights of Polyphenols in Obesity

Gerard Aragonès,
Rovira i Virgili University, Spain



Use of nanosystems to improve delivery of
polyphenols for skin repair

Carla Caddeo,
University of Cagliari, Italy



Epigenetic modulation of inflammation and synaptic
plasticity by polyphenolic metabolites promotes
resilience against stress in mice

Giulio Maria Pasinetti,
ICAHN School of Medicine at Mount Sinai, USA



Hemisynthesis of anthocyanin phase II metabolites
and their characterization by LC-ESI-IMS-QTOF
mass spectrometry

Sarah Schmitt,
University of Bonn, Germany



Natural and bioinspired phenolic compounds as
skin depigmenting agents: Recent Advances

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



Skin and Polyphenols: Recent advances and
practical applications

Alessandra Napolitano,
University of Naples Federico, Italy



Volatile Phenols– Important contributors to the flavour
and aroma of herbs spices and fruits

Matthias Wüst,
Bonn University, Germany



Metabolomic assessment of polyphenols in tropical
fruits

Carolina Rojas-Garbanzo,
University of Costa Rica, Costa Rica



Polyphenols and Mitochondria: Recent Advances &
Perspectives

Gunter P. Eckert,
Justus-Liebig-University Giessen, Germany



Computation-Assisted Annotation of Biological Ac-
tivity to Polyphenols in Botanical Supplements and
Herbal Medicines

Fred Stevens,
Oregon State University, USA

www.polyphenols-site.com

Introduction Note by the President of Malta Polyphenols 2019

On behalf of the International Society of Antioxidants in Nutrition and Health (ISANH) and the Scientific Committee, we are pleased to announce the organization of the **13th World Congress on Polyphenols Applications: Malta Polyphenols 2019**, which will be held at the Excelsior Hotel, Malta, from Monday, September 30 to Tuesday October 1, 2019.

After the huge success of the previous editions of this series of conferences, **Malta Polyphenols 2019** will bring together the experts from the academia and industry to discuss the latest scientific advances in research on polyphenols. In continuation of our cross-disciplinary approach, both basic research topics and practical applications of polyphenols in the food, pharmaceutical and medical sciences and related disciplines will be covered.

Among the Polyphenols 2019 Hot Topics:

Polyphenols-Microbiome Interactions, Metabolism and Health Effects

There is consensus in the scientific community that phenolic compounds are extensively metabolized by the human microbiome, and evidence is accumulating that phenolics which are present in food have an effect on the composition of gut microorganisms.

This session which addresses the latest findings in the field from a cross-disciplinary view, including microbiology and food chemistry, and will highlight the following strategic points: **Microbiota, Polyphenols & Food: Recent Advances & Perspectives / Can polyphenols modify the quality and diversity of microbiota?**

Skin and Polyphenols: Recent Advances and Practical Applications

We will highlight the strategic roles of polyphenols and phenolics compounds as antioxidants (anti-UV) and anti-inflammatory agents. We will also discuss the formulation of polyphenols and skin pigmentation. We will dedicate time to all innovations related to the use of polyphenols in skin care and skin aging.

Bioavailability, Metabolism and Health Effects of Polyphenols and Their Metabolites

Phenolic compounds have been associated with numerous beneficial effects on human health. The session will provide an overview of the latest investigations into the interrelationship between bioavailability, metabolism, and bioactivity, including among others, anti-obesity and cardiometabolic effects. We will also address recent research on the role of polyphenols in the prevention of neurodegenerative diseases.

Technological and Biotechnological Aspects of Polyphenols and their Metabolites

As there is still a gap in our knowledge about the effects of food processing on the stability of phenolic compounds, this session will cover studies about the impact of conventional and novel processes on phenolics. We also welcome presentations reporting the application of phenolics as natural antioxidants, preservatives, and colorants to replace synthetic food additives. In addition, recent advances in the biotechnological production of phenolic compounds and the role of volatile phenolics as food constituents will be covered.

Chemistry of Polyphenols including Synthesis and Analysis of Metabolites and Reactions of Phenolic Compounds

Due to the ongoing advances in analytical chemistry, our knowledge about the profile of phenolic compounds in plants and plant-derived food is continuously increasing. We will address studies on novel approaches in sample preparation, chromatographic separation and detection of phenolics, including hyphenated techniques such as LC-ion mobility mass spectrometry and LC-NMR spectroscopy. Presentations on the characterization of novel structures, reaction mechanisms, and the synthesis of phenolic metabolites are also highly welcome.

Innovations in Industrial Applications of Polyphenols

The session will highlight approaches in product development, exploitation of novel sources of phenolic compounds, characterization and application of novel nutraceuticals based on plant phenolics, and new processes for extraction and formulation of polyphenols on industrial scale. Abstracts for consideration of potential inclusion as oral or poster presentation are welcome for all these topics.

What is New for Polyphenols 2019: Round Table Discussion

Traditional ways of delivering scientific information to the audience during congresses are oral and poster presentations. However, despite the wealth of data typically presented, lots of questions remain unanswered for the participants and for many scientists as well, even for those who have been considered as keynote speakers, there is only limited opportunity to interact with colleagues. To facilitate the scientific discourse and make the conference more interactive, the scientific committee decided to include two round table discussions that address hot topics, challenges and pressing questions related to various areas of research about polyphenols.

Polyphenols and Health Applications

- Where are we now and what are the prospects?
- What is assured knowledge and what are the gaps?
- How do microbiota and metabolites, the new players in the world of polyphenols, affect our classical thinking and make us rethink and redesign our strategies concerning applications of polyphenols?

Polyphenols and Food Applications

- What is the impact of established and novel processing methods on polyphenols?
- How can we control and exploit reactions of polyphenols in food applications?
- How can we utilize side streams of food processing more efficiently for the recovery of polyphenols?
- Are there applications at the horizon beyond food – what about feed, cosmetics, and others?

All participants are invited to participate in these discussions by presenting their questions and thoughts before the meeting by **September 20, 2019**.

We look forward to welcoming you in Malta!



Prof. Andreas Schieber
University of Bonn, Germany
President of Malta Polyphenols 2019

13th World Congress on

POLYPHENOLS APPLICATIONS

September 30 - October 1, 2019 - Grand Hotel Excelsior - Valletta, Malta

13th World Congress on Polyphenols Applications

September 30 – October 1, 2019 – Hotel Excelsior, Malta

September 29, 2019

17h00 – 19h00 Registration – Badges & Material Delivery at the Hotel

Malta Polyphenols - Day One

September 30, 2019

7h45 Welcoming of Attendees - Registration

9h00 Malta polyphenols 2019: General introduction by president of Malta Polyphenols 2019
Andreas Schieber, University of Bonn, Germany

Session 1: Polyphenols-Microbiome Interactions, Metabolism and Health Effects

Chairman: Prof. Andreas Schieber

9h10 Mitochondria, microbiota and polyphenols: introductory remarks
Marvin Edeas, University Paris Descartes, INSERM, France

9h30 Polyphenols and mitochondria: recent advances & perspectives
Gunter P. Eckert, Justus-Liebig-University Giessen, Germany

9h50 Epigenetic modulation of inflammation and synaptic plasticity by polyphenolic metabolites promotes resilience against stress in mice
Giulio Maria Pasinetti, Icahn School of Medicine at Mount Sinai, USA

10h10 Role of polyphenols in cognitive diseases
Yves Desjardins, Laval University, Canada

10h30 - Coffee Break & Poster and Exhibitor Session

Chairman: Prof. Fred Stevens

11h10 Short oral presentations (7 minutes for presentation + 3 min for questions)

Chicory polyphenols impact on gut microbiota composition and appetite regulation

Anca Lucau-Danila, University of Lille, Institut Charles Viollette, France

Stance4health Project: Tannins as Potential Microbiota Modulators

Samuele Giovando, Silvateam S.p.A, Italy

Green coffee extract modulates the immune response, mitigates high-fat diet-induced dysbiosis and improves cardiometabolic parameters in Apoe-deficient mice

Jelver Alexander Sierra Restrepo, Vidarium, Nutrition, Health and Wellness Research Center, Colombia

Bioactivity of olive oil polyphenol sulfate metabolites

Fátima Paiva-Martin, Faculty of Sciences, University of Porto, Portugal

Interactions of conjugated and colon metabolites of flavonoids with serum albumin and biotransformation enzymes

Miklós Poór, University of Pécs, Hungary

Quantitative profiling of urinary xanthohumol metabolites in humans reveals metabotypes that reflect differences in gut microbiomes

Luce Micaela Mattio, Università degli Studi di Milano, Italy

From fruits to compofunds: the importance of metabolomics in bioprospection studies

Alexandre Foito, The James Hutton Institute, Ukraine

Quercetin derivatives from *Hibiscus sabdariffa* to alleviate glucolipotoxicity-induced metabolic stress

Maria Herranz-Lopez, Miguel Hernandez University, Spain

Determination of anthocyanins and target phenolic acid metabolites in sweet cherries: implications for clinical studies

Nadine Hölzel, University of Tasmania, Australia

12h40 – Lunch Break, Group Picture, Poster and Exhibitor Session

14h10 Intracellular quercetin accumulation and its impact on mitochondrial dysfunction

Hanne Vissenaekens, Ghent university, Belgium

14h20 Dietary polyphenols and their immuno-modulating effects: implications during parasite-induced inflammation in the gut

Audrey Inge Andersen-Civil, Copenhagen University, Denmark

Session 2: Skin and Polyphenols: Recent Advances and Practical Applications

Chairperson: Prof. Alessandra Napolitano

14h30 Introductory remarks: skin and polyphenols 2019

Alessandra Napolitano, University of Naples Federico, Italy

14h45 Natural and bioinspired phenolic compounds as skin depigmenting agents: recent advances

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

15h00 Use of nanosystems to improve delivery of polyphenols for skin repair

Carla Caddeo, University of Cagliari, Italy

15h15 White-Light Supercontinuum Laser-Based Multiple Wavelength Excitation for TCSPC-FLIM of fluorescent Molecules in skin and their uptake

Ulrike Alexiev, Institute of Experimental Physics, Freie Universität Berlin, Germany

A melanin related polyphenol polymer with potent photoprotective and antioxidant activities for dermo-cosmetic applications.

Maria Laura Alfieri, University of Naples Federico II, Italy

15h30 - Coffee Break, Posters and Exhibition Session

16h15 Novel insights of polyphenols in obesity

Gerard Aragonès, Rovira i Virgili University, Spain

16h35 Short oral presentations (7 minutes for presentation + 3 min for questions)

Natural polyphenols-rich pomegranate juice positively modulates olympic performance and selected biological responses following resistance exercises in elite athletes: a double blind, placebo-controlled, crossover trial

Ammar Achraf, Otto-von-Guericke University, Germany

Effect of polyphenols on athletic performance

Stefania D'Angelo, University of Naples Parthenope, Italy

Influence of curcumin and black pepper, on exercise-induced pain, fatigue and stress

Ramona-Niculina Jurcau, Iuliu Hațieganu University of Medicine and Pharmacy Cluj-Napoca, Romania

Inflammatory biomarkers according to polyphenol intake in European adolescents: the Helena study

Ratih Wirapuspita Wisnuwardani, Ghent University, Belgium

Maternal polyphenols supplementation during pregnancy

Antonio Gonzalez-Bulnes, National Institute for Agricultural and Food Research and Technology, Spain

Polyphenol-enriched black elderberry (*Sambucus nigra* L.) fruit extract inhibits 7-ketocholesterol-induced endothelial inflammation via Erk dependent signaling pathway

Karolina Rudnicka, Uniwersity of Łódzki, Poland

Citrus flavonoid naringenin slows down myocardial senescence through the stimulation of Sirt1 enzyme

Lara Testai, University of Pisa, Italy

Resveratrol induced growth inhibition in human Ph+ acute lymphoblastic leukemia by modulation of sphingolipid mechanism

Aysun Adan, Abdullah Gul University, Turkey

Possible antitumor activity of a polyphenolic rich extract from *Thymbra spicata* (Lamiaceae) aerial parts

Mohamad Khalil, University of Genoa, Italy

Naringenin-induced MitoBKca channel-dependent changes in endothelial mitochondria

Anna Kicinska, Adam Mickiewicz University, Poland

Effects of a pomegranate peel extract in an *in vitro* intestinal inflammation model: role of heme oxygenase-1 modulation

Valeria Sorrenti, University of Catania, Italy

Polyphenols from *Lippia citriodora* as potential agonists of the master energy regulator ampk with synergistic effects

Marilo Olivares-Vicente, Universidad Miguel Hernández de Elche, Spain

Effect of polyphenol extract from blueberries on liver fibrosis model in rats

Shynggys Sergazy, Private Institution "National Laboratory Astana", Nazarbayev University, Kazhaktan

18h45 End of the first day

20h30 Malta Polyphenols Dinner

If you would like to participate to the dinner, please register online or contact the staff on site.

Malta Polyphenols - Day Two

October 01, 2019

08h00 Opening of Day Two

Session 3: Technological & Biotechnological aspects of Polyphenols

Characterization and analysis of polyphenols and their metabolites

Chairman: Prof. Mario Ferruzzi

08h00 Phlorotannins – extraction, profiling and bioactivities

Mariana Barbosa, University of Porto, Portugal

08h20 Phenolic compounds from wine industry by-products: characterization and in vitro bioaccessibility

Ariel Fontana, National University of Cuyo, Argentina

08h40 Metabolomic assessment of polyphenols in tropical fruits

Carolina Rojas-Garbanzo, University of Costa Rica, Costa Rica

09h00 Hemisynthesis of anthocyanin phase II metabolites and their characterization by LC-ESI-IMS-QTOF mass spectrometry

Sarah Schmitt, University of Bonn, Germany

09h20 Influence of juice processing and natural variation in the bioaccessibility of phenolics from grapes and blueberries

Mario Ferruzzi, North Carolina State University, USA

09h40 **Short oral presentations** (7 minutes for presentation + 3 min for questions)

Novel approach for stable food colorants from red wine or winery by-products

Ingrid Weilack, Rheinische Friedrich-Wilhelms-University Bonn, Germany

Resveratrol derived monomers and dimers: design, synthesis and biological evaluation as antidiabetic agents and food preservatives against foodborne pathogens

Andrea Pinto, University of Milan, Italy

From nanotechnology the way to improve the multi-target activities of a natural polyphenol: a study involving gallic acid and an ester-type biodegradable dendrimer

Silvana Alfei, University of Genoa, Italy

Supercritical CO₂ extraction of polyphenols from agri-food residues

Stefania Marzorati, Università degli Studi di Milano, Italy

Identifying phenolic and other components as targets for valorisation of soft fruit co-products

Gordon James Mcdougall, The James Hutton Institute, United Kingdom

10h30 - Coffee Break, Poster and Exhibitor Session

Session 4: Polyphenols Applications & Innovations in 2019

Chairman: Prof. Gunter P Eckert

11h15 Computation-assisted annotation of biological activity to polyphenols in botanical supplements and herbal medicines

Fred Stevens, Oregon State University, USA

11h35 Volatile phenols – important contributors to the flavor and aroma of herbs spices and fruits

Matthias Wüst, Bonn University, Germany

11h55 Polyphenols of Bulgarian oil-bearing rose (*Rosa Damascena* Mill.): recovery and potential applications in food industry

Rada Dinkova, University of Food Technologies, Bulgaria

12h15 Polyphenol blends as technological antioxidants

Juan Javierre, Layn-USA, USA

12h30 - Lunch Break, Poster and Exhibitor Session

Chairmen : Prof. Marvin Edeas, Prof Andreas Schieber

13h30 **Short oral presentations including industry contributions** (7 minutes for presentation + 3 min for questions)

Solvents' influence in the measurement of phenolic compounds and antioxidant capacity in blueberries extracts
Marina Riego, Bioquochem SL, Spain

Polyphenols for the treatment of local tissue necrosis of victims bitten by cobras: a structure-activity analysis of cobra venom phosphodiesterase by quercetin and related flavonoids
Wen-guey Wu, National Tsing Hua University, Taiwan

4-Stilbenol: a promising tool in medicinal chemistry
Barbara De Filippis, University G. D'Annunzio Chieti, Italy

Artificial neural network versus response surface methodology optimization of polyphenols recovery from peppermint using microwave-assisted extraction
Branimir Pavlic, University of Novi Sad, Serbia

Electron transfer and neuroprotective properties of an olive oil phenolic compounds mixture. Focus on LC-ESI-MS₂ profiles of oxidation products
Marie Laurence Abasq, Université de Rennes, France

Production of natural eriodictyol and homoeriodictyol with biotechnology
Rui Zhou, Conagen Inc, USA

Grafting of polyphenols from grape pomace to implantable biomaterials: a chemical and biological characterization
Silvia Spriano, Politecnico Di Torino, Italy

Developing of trilobatin dihydrochalcone as a new-class of phytochemical agent
Mwafaq Ibdah, Newe Ya'ar Research Center, Agricultural Research Organization, Israel

Control of pineapple fusariosis with polyphenols
Rêmulo Carvalho, Empaer, Brasil

Polyphenol extract from the medicinal plant *antirhea borbonica* attenuates renal tubulointerstitial fibrosis
Bryan Veeren, INSERM U1188, France

Phytosomes with persimmon (*Diospyros kaki* L.) extract: preparation and preliminary demonstration of *in vivo* tolerability
Rosa Fernandes Direito, University of Lisbon, Portugal

15h20 Coffee Break, Poster and Exhibitor Session

16h00 **Round Table Discussions - Chairs: Prof. Marvin Edeas, Prof. Andreas Schieber**

To facilitate the scientific discourse and make the conference more interactive, the scientific committee has decided to include two round table discussions that address hot topics, challenges and pressing questions related to various areas of polyphenols research.

Polyphenols and health applications

- Where are we now and what are the prospects?
- What is assured knowledge and what are the gaps?
- How do microbiota and metabolites, the new players in the world of polyphenols, affect our classical thinking and make us rethink and redesign our strategies concerning polyphenols applications?

Polyphenols and food applications

- What is the impact of established and novel processing methods on polyphenols?
- How can we control and exploit reactions of polyphenols in food applications?
- How can we utilize side streams of food processing more efficiently for the recovery of polyphenols?
- Are there applications at the horizon beyond food – what about feed, cosmetics, and others?

16h45 **Concluding Remarks of Malta Polyphenols 2019**

17h00 **Malta Polyphenols Scientific and Innovation Awards 2019**

17h10 **End of Malta Polyphenols 2019**