15th World Congress on

POLYPHENOLS APPLICATIONS

September 28-30, 2022 - Valencia, Spain

INTERNATIONAL SOCIETY OF MICROBIOTA

Congress & Workshop Abstracts

15th World Congress on Polyphenols Applications

September 28 – 30, 2022

Valencia, Spain and Online

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President of Polyphenols Applications World Congress

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Prof. Jan Frederik Stevens

President of Cannabis 2022 Workshop

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University of Valencia, Spain

The global abstract book is referenced as Polyphenols Applications 2022 World Congress.

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Welcome to Polyphenols Applications 2022

Dear Colleagues,

It is a great pleasure to welcome all of you to our 15th World Congress on Polyphenols Applications which will be held on September 28-30, 2022 at ADEIT 'Fundación Universitat', Valencia, Spain, & Online.

We wish that the 15th World Congress on Polyphenols Applications will be at least as exciting and as successful as our previous meetings.

Hot topics which are going to be highlighted this year in Valencia include among others:

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 ...

Cannabis 2022 a new workshop on "Medical Cannabis, Cannabinoids and Derivatives: Recent Advances and Applications" will be held under the direction of **Prof. Jan Frederik Stevens**. Cannabis 2022 aims to cover the cannabis constituents, their isolation, and their application in the medical sector and food industry.

We thank **Prof. Francisco J. Barba** and his team: *Juan Manuel Castagnini, Noelia Pallares and Francisco Juan Marti Quijal* for their great assistance as local organizers.

We would like to thank all speakers for their contribution. Their breadth of knowledge and expertise has helped make this conference as extraordinary as it is:

***Ramaroson Andriantsitohaina**, INSERM, France*
***Luke Busta**, University of Minnesota Duluth, USA*
***Mara Calleja**, University of Valencia, Spain*
***Franck Carbonero**, Washington State University-Spokane, USA*
***Juan Manuel Castagnini,** University of Valencia, Spain*
***Jan Claesen**, Cleveland Clinic, USA*
***Yolanda Diebold**, Universidad de Valladolid, Spain*
***Jennifer Duringer**, Oregon State University, USA*
***Juan Carlos Espín**, Spanish National Research Council, Spain*
***Jan Frank**, University of Hohenheim, Germany*
***Michael Gänzle**, University of Alberta, Canada*
***Pam Maher**, The Salk Institute for Biological Studies, USA*
***Francisco Juan Martí-Quijal**, University of Valencia, Spain*
***Nenad Naumovski**, University of Canberra, Australia*
***Nicole Nemetz**, University of Bonn, Germany*
***Elena Obrador**, University of Valencia, Spain*
***Naomi Osakabe,** Shibaura Institute of Technology, Japan*
***Noelia Pallarés**, University of Valencia, Spain*

Elke Richling, *University of Kaiserslautern, Germany*
Ana Rodriguez-Mateos, *King's College London, United Kingdom*
Sascha Rohn*, Technische Universität Berlin, Germany*
Sonia Sentellas*, University of Barcelona, Spain*
Susana Soares*, Universidade do Porto (FCUP), Portugal*
Jan Frederik Stevens*, Oregon State University, USA*
Yu Sun*, The Chinese Academy of Sciences, China*
Guillermo Velasco*, Instituto de Investigación Sanitaria San Carlos, Spain*
Jean-Paul Vincken*, Wageningen University & Research, The Netherlands*
Fabian Weber*, University of Bonn, Germany*
Qian Wu, *Hubei University of Technology, China*

We wish to thank the International Society of Antioxidants in Nutrition and Health (ISANH) and the International Society of Microbiota (ISM) for their endorsement.

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We wish to also thank the following companies for supporting Polyphenols Applications 2022: Silvateam, Bioquochem, Extrasynthese, Eldercraft, and MetaSci.

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

TAILOR-MADE FERTILIZATION REGIMES AS STRATEGIES TO INCREASE PHENOLIC COMPOSITION: THE CASE STUDY OF POT GROWN *CICHORIUM SPINOSUM L.*

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Cichorium spinosum is a perennial halophyte of the Mediterranean basin, consumed for its fresh green leaves.1 It is normally handpicked from the wild, but the cultivated one allows its collection several times per year, resorting to the use of chemical fertilizers.2,3 Needless to say, that the switch to innovative and sustainable farming practices it is of the upmost importance in a world of climate crises, land degradation and, particularly, extreme drought, allowing the production of promising crops with low input requirements, sustainable footprint, and rich in high-added value compounds. In the present work, the individual phenolic profile was obtained by HPLC-DAD/ESI-MSn in the aqueous and hydroethanolic extracts of pot grown *C. spinosum plants*, non-fertilized and fertilized with different concentrations (mg/mL) of N:P:K nutrient solutions. In both extracts, seven phenolic compounds were found, being p-coumaroylquinic acid and O-glycosylated isorhamnetin derivatives the most abundant. The most important result found was the effect of increasing the nutrients in the obtaining of higher amounts of phenolic acids; while higher amounts of flavonoids were found in more moderate concentrations of nutrients.

Tailor-made fertilization regimes can, therefore, be used to implement a production strategy of innovative plants in order to obtain high quality final products.

1. Petropoulos, S.; Levizou, E.; Ntatsi, G.; Fernandes, Â.; Petrotos, K.; Akoumianakis, K.; Barros, L.; Ferreira, I. Salinity effect on nutritional value, chemical composition and bioactive compounds content of Cichorium spinosum L. Food Chem. 2017, 214, 129–136, doi:10.1016/j.foodchem.2016.07.080.
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3. Petropoulos, S.; Fernandes, Â.; Vasileios, A.; Ntatsi, G.; Barros, L.; Ferreira, I. Chemical composition and antioxidant activity of Cichorium spinosum L. leaves in relation to developmental stage. Food Chem. 2018, 239, 946–952, doi:10.1016/j.foodchem.2017.07.043

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