

5th MoniQA International Conference
16-18 September 2015, Porto, Portugal

Food and Health - Risks and Benefits

Book of Abstracts



MoniQA MoniQA
Association

5th MoniQA International Conference

16 – 18 September 2015

Porto, Portugal

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Book of Abstracts of the 5th MoniQA International Conference

"Food and Health - Risks and Benefits" on "Innovative Technologies for Food Quality and Safety Management"

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Programme



Wednesday, 16 September 2015

9:00-12:30

Pre-Conference Workshops (Registration required)

- 1) R-Biopharm, Gold Sponsor Workshop: "Mycotoxin Analysis in your hand"
- 2) MoniQA Workshop: "Towards Improved Food Allergen Reference Materials"
- 3) DISH-RI and METROFOOD Workshop: "Pan-EU Food & Health RI - from challenges towards a roadmap: an introduction of two new initiatives METROFOOD and DISH-RI"

12:30-13:30

Lunch (provided for workshop participants only)

13:30

Official Conference Opening

13.30-14:00

Opening Session

Chairs: **Beatriz Oliveira**, REQUIMTE-LAQV, Portugal; **Roland Poms**, Imprint Analytics, Austria

Welcome addresses:

MoniQA President, **Richard Cantrill**, AOCS, USA,
ICETA President, **Baltazar Castro**, University of Porto, Portugal

14:00-16:00

Session 1:

Keynote lectures

14:00-14:30

Food, Safety and Health - Societal Changes and Trends,
Pier Sandro Cocconcelli, Università Cattolica del Sacro Cuore, Italy

14:30-15:00

Microbial risks - New tools for risk assessment along global food chains,
Bernd Appel, Federal Institute for Risk Assessment, Germany

15:00-15:30

Food safety regulations based on real science

Cristina L.M. Silva, CBQF, College of Biotechnology, Portuguese Catholic University, Portugal and GHI – Global Harmonisation Initiative

15:30-16:00

Food safety capacity building needs and opportunities to support convergence with international standards,

Samuel Godefroy, World Bank, Washington DC, USA, and University Laval, Quebec, QC, Canada

- 15:30-16:20 Coffee Break and Poster Viewing
- 16:20-18:00 **Session 6:**
Personalized nutrition, food & health infrastructure
Chairs: Paul Finglas, EuroFIR/IFR, UK, and Isabel Ferreira, Polytechnic Institute of Bragança, Portugal
- 16:20-16:40 Advancing food and health research in Europe - Building a research infrastructure on food related to nutrition and health
Karin Zimmermann, Wageningen University, The Netherlands
- 16:40-17:00 QualiFY - Using scientifically credible data to underpin connected health
Sian Astley, EuroFIR AISBL, Belgium
- 17:00-17:15 *EuroFIR data and tools to support dietary monitoring and food labelling*
Paul Finglas, EuroFIR AISBL, Belgium
- 17:15-17:30 The development of a preventive care infrastructure based on ubiquitous sensing – the PRECIOUS project
Carlos Ramos, EuroFIR AISBL, Belgium
- 17:30-17:45 Development of a new nutraceutical formulation containing microencapsulated polyphenolic extracts from wild *Fragaria vesca* L. vegetative parts
Maria Inês Dias, Polytechnic Institute of Bragança, Portugal
- 17:45-18:00 Slowing down starch digestibility of rice products by modifying process conditions
Juicheng Rachel Hsu, China Grain Products R&D Institute, Taiwan, Republic of China
- 19:30-23:00 **Gala Dinner**
 19:30 Short sightseeing tour by bus along Porto
 20:00 Technical tour and dinner at Taylor's Porto Wine Cellar (registration mandatory)

Friday, 18 September 2015

- 9:00-10:30 **Session 7:**
Risks and benefits of minor nutritional components
Chairs: Victoria Heinrich, OFI, Austria, and Joana Amaral, REQUIMTE-LAQV, Portugal
- 9:00-9:20 Risks and benefits of minor components – biological and chemical safety of spices and herbs
Anneluise Mader, Federal Institute for Risk Assessment, Germany
- 9:20-9:35 The contribution of phenolic composition to the antioxidant potential of *Glycyrrhiza glabra* L. rhizomes and roots
Natália Martins, Polytechnic Institute of Bragança, Portugal
- 9:35-9:50 Potential of Basil (*Ocimum basilicum* L.) as bioactive ingredient and natural preserver
Márcio Carcho, Polytechnic Institute of Bragança, Portugal

**Development of a new nutraceutical formulation containing
microencapsulated polyphenolic extracts from wild *Fragaria vesca* L.
vegetative parts**

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The microencapsulation of bioactive compounds and its applicability in food matrices arises to overcome many problems related with the use of free bioactives [1]. Natural bioactive extracts are increasingly used in this technique due to their synergistic and additive effects that can provide higher beneficial effects [2]. The vegetative parts of *Fragaria vesca* L., wild strawberry, are being used as infusion or decoction for their detoxifying and diuretic properties; the bioactivities reported for this plant could be correlated with the presence of several families of phenolic compounds such as, ellagic acid derivatives, flavonols and flavan 3-ols [3,4].

In the present study, the individual phenolic profile of hydroalcoholic and aqueous extracts of wild *F. vesca* vegetative parts was established using HPLC-DAD/ESI-MS, and related to their antioxidant activity evaluated through several in vitro assays. Furthermore, the most bioactive extract, the infusion form, was protected by microencapsulation through the atomization/coagulation technique using alginate as the wall material. Also, an applicability experiment was developed using k-carrageenan gelatine as food matrix, in order to explore new nutraceutical formulations for food applications. The aqueous preparations presented higher antioxidant activity that the hydromethanolic extracts in DPPH scavenging activity, reducing power, β -carotene bleaching inhibition and TBARS inhibition assays. It gave higher content of phenolic compounds, mainly flavonols and flavan-3-ols: (+)-catechin and quercetin O-glucuronide, respectively, which can be correlated with the higher bioactivity observed in these extracts. The production of microspheres enriched with the infusion form of wild *F. vesca* was achieved with success using the atomization/coagulation technique. The microspheres obtained showed, after FTIR analysis, the desired shape and size. The HPLC-DAD analysis of the coagulation water evidenced encapsulation efficiency close to 95%. For the incorporation into the gelatine food matrix, high temperatures were used (dissolution of the k-carrageenan), but without affecting the shape and size of the enriched microspheres, preserving the bioactive extract. The antioxidant properties of the extract were preserved after microencapsulation,

when compared with the free form that loses activity when incorporated in the gelatine matrix without protection. This is an innovative study on the development of nutraceuticals based on *F. vesca* extracts. Further studies will be required to establish a controlled release of the bioactive extract within the organism, using an in vitro gastrointestinal model.

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- [2] Liu, R.H. (2003). American Journal of Clinical Nutrition, 78, 517-520.
- [3] Camejo-Rodrigues, J., et al. Journal of Ethnopharmacology, 89, 199-209.
- [4] Dias, M.I., et al., Industrial Crops and Products, 63, 125-132.