IMETI WORKSHOP ON "MEMBRANE APPLICATIONS IN AGROFOOD"

18 - 20 October 2009, Cetraro (CS) – Italy

MARIE CURIE ACTIONS

ITM

BOOK OF ABSTRACTS



ITM **ORGANIZING INSTITUTE**

ISTITUTO PER LA *TECNOLOGIA DELLE MEMBRANE*

Via Pietro Bucci, Cubo 17C, c/o Università della Calabria

87036 Rende (CS) ITALIA

ORAL PROGRAMME

Sunday 18 October

9:30 – 13:00	*Arrivals and Tour*
13:30 – 15:00	*Lunch*
15:00 – 15:15	**Opening and introductory remarks,** *Enrico Drioli, ITM-CNR (Italy)*
15:15 – 15:55	**Novel membrane process for natural compounds enrichment,** *Ines R. Baptista, Imperial College London (UK)*
15:55– 16:35	**Membrane separation – promising process for agro food industry,** *Jaroslav Pridal, MIKROPUR, s.r.o. (Czech Republic)*
16:35 – 17:15	**Integrated membrane operations in fruit juice processing,** *Alfredo Cassano, ITM-CNR (Italy)*
17:15 – 17:45	*Coffee break*
17:45 – 18:45	**Membrane emulsification for innovative food formulation: present knowledge and future prospects,** *Gun Trägårdh, Lund University (Sweden)*
18:45 – 19:25	**Membrane emulsification and its application in the food industry**, *Peter Bongers, Unilever (The Netherlands)*
	Discussion
20:00	*Banquet*

Monday 19 October

07:00 – 08:30	*Breakfast*
08:30 – 09:30	**Membrane processes in food processing and production of high value products from agrofood and plants**, *Andrea Meniconi, MET (UK)*
09:30 – 10:10	**Evaluation of nanofiltration as method for fractionation and concentration of biologically active components from propolis,** *Boryana Trusheva, Bulgarian Academy of Sciences (Bulgaria)*
10:10 – 10:50	**Implementation of nanofiltration for concentrating extracts of polyphenolics,** *Bartosz Tylkowski, University of Chemical Technology and Metallurgy (Bulgaria)*
10:50 – 11:20	*Coffee break*
11:20 - 12:00	**Where could membrane processes be used in manufacturing of beet sugar and what will it take to brake the barriers?** *John P Jensen, Nordic Sugar A/S Innovation & Technology (Denmark)*
12:00 – 12:40	**Membranes in food packaging,** *Alberto Figoli, ITM-CNR (Italy)*
12:40 – 13:00	Discussion
13:00 – 15:00	Lunch
15:00 – 15:40	**Membrane emulsification for innovative food formulation – applying surface microfilters**, *Michael T. Stillwell, Loughborough University and Micropore Technologies Ltd. (UK)*
15:40 – 16:10	**Potential of NF membrane diafiltration in downstream processing of food, pharma and fine-chemical products,** *Pieter Vandezande, Flemish Institute for Technological Research - VITO (Belgium)*
16:10 – 16:50	**Reduction of sugar content in musts – an alternative to the removal of alcohol,** *Martine Mietton Peuchot, University of Bordeaux (France)*
16:50 – 17:20	**Optimisation and integration of membrane processes in the food industry,** *Frank Lipnizki, Alfa Laval Copenhagen A/S (Denmark)*
17:30 - 19:30	**POSTER SESSION and BROKERAGE EVENT (Drinks)**

Evaluation of nanofiltration as method for fractionation and concentration of biologically active components from propolis

Boryana Trusheva

Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria
bobi_tru@orgchm.bas.bg

Propolis (bee glue) is a bee product with proven healing effect on human organism. It is well known for centuries and during this period the propolis proved its ability to kill harmful microorganisms and turns to be ideal defence for bee hive as well as for human body. Propolis has been used as a preventive and remedy in traditional medicine and apitherapy and in the last years in official medicine. This is due to its wide range of biological activity: antimicrobial, anti-inflammatory, antioxidant, antiviral, antitumoral, etc., due to its biologically active compounds as phenolic acids, their esters and flavonoids.

In practice there are various techniques for purify and fractionate different propolis extracts in order to obtain biologically active fractions or pure compounds. These fractions, with the appropriate purity, are of great interest nutritionally and pharmacologically.

Membrane separation processes have an improved efficiency and reduced operating cost in comparison with the traditional concentration processes, used in pharmaceutical industry. Nanofiltration is an especially promising separation and fractionation process and its main advantages are significant selectivity in separation of compound on molecular level and easy scale-up.

The lecture presents an evaluation of the possibility for use of nanofiltration for fractionation and concentration of propolis biologically active components. For method assessment, quantitative analysis of propolis fractions, obtained by nanofiltration of bee glue extract, using two membranes (Starmem® 122 and Duramem® 200), is used. The content of flavones, flavonols, flavanones and dihydroflavonols as well as total phenols is determined spectrophotometrically in the feeds and permeates of dead end nanofiltration and the obtained results is used for appreciation of applied method.