



**La chimica degli alimenti e i giovani ricercatori: nuovi
approcci in tema di qualità,
sicurezza e aspetti funzionali di ingredienti alimentari**

Una giornata per il futuro della ricerca nella Chimica degli Alimenti

Milano, Sala Napoleonica, Palazzo Greppi

25 Settembre 2017

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25 Settembre 2017

Sala Napoleonica, Palazzo Greppi, via S. Antonio 10, Milano

- 8.30 Registrazione dei partecipanti
9.00 Benvenuto e apertura del convegno - Prof. Patrizia Restani (Università degli Studi di Milano) e Prof. Gianni Galaverna (Università di Parma)
9.10 Introduzione (Chiara Di Lorenzo e Martina Cirilini)

Sezione CARATTERIZZAZIONE CHIMICA DEGLI ALIMENTI

- 9.15 **Gilda Aiello** (Università degli Studi di Milano, Fac. Scienze del Farmaco)
Proteomic Investigation of Sweet Algerian Apricot Kernels (*Prunus armeniaca* L.) by LC-MS/MS coupled to Combinatorial Peptide Ligand Libraries
- 9.30 **Caterina Bergantin** (Università di Ferrara, Fac. Scienze del Farmaco)
Chemical characterization and bioaccessibility of pumpkin varieties from southern Po Delta area
- 9.45 **Matteo Bordiga** (Università del Piemonte Orientale)
The impact of distillation process on prebiotic activity of different oligosaccharidic fractions extracted from grape seeds
- 10.00 **Lucia Marchetti** (Università di Modena-Reggio Emilia)
Usefulness of ¹H-NMR for qualitative and quantitative characterization of Hop (*Humulus lupulus* L.)
- 10.15 **Giacomo Petretto** (Università di Sassari)
Stir Bar Sorptive Extraction Coupled with GC/MS Applied to Honey: Optimization of Method and Comparative Study with Head Space Extraction Techniques

Comunicazioni brevi (Digital Poster Session)

- 10.30 **Baldi Alessandra** (Università di Pavia)
Chemical characterization of fruits from *Adansonia digitata* L.: a multi-methodological approach
- 10.35 **Bellumori Maria** (Università di Firenze)
Polyphenols determination in coloured-fleshed potatoes from Perù
- 10.45-11.15 Discussione
- 11.15-11.30 Coffe break

Sezione NUTRACEUTICA

- 11.30 **Giovanni Caprioli** (Università di Camerino, Fac. Scienze del Farmaco)
Lentils: a healthy food and a tool for a novel nutraceutical approach
- 11.45 **Valeria Curti** (Università di Pavia)
Chemical composition and epigenetic effect of green and brown propolis
- 12.00 **Chiara Di Lorenzo** (Università degli Studi di Milano, Fac. Scienze del Farmaco)
New *in vitro* approaches to evaluate antioxidant activity of food and their application to real samples
- 12.15 **Carmen Lammi** (Università degli Studi di Milano, Fac. Scienze del Farmaco)
Hempseed peptide: proteomic characterization and molecular investigation of their hypocholesterolemic effect on human hepatic cells
- 12.30 **Monica Locatelli** (Università del Piemonte Orientale, Fac. Scienze del Farmaco)
Italian pigmented rice varieties (*Oryza sativa*): an overview on the phenolic composition, nutraceutical potentiality and technological aspects

Comunicazioni brevi (Digital Poster Session)

- 12.45 **Annalisa Maietti** (Università di Ferrara)
Study of nettle enriched bread as new functional food
- 12.50-13.15 Discussione

Sezione CONTROLLO QUALITÀ/ILLECITI

- 14.00 **Martina Cirlini** (Università di Parma)
Molecular markers of bioactivity in pork meat products: characterization of gastro-intestinal digested samples
- 14.15 **Valentina di Rienzo** (Università di Bari)
Agreement between research institutions and regulatory bodies: best practices for the validation of bioanalytical methods for tracking and identification of fraud in the olive oil sector.
- 14.30 **Vladimiro Cardenia** (Università di Bologna)
Food Crossing District project: by-products fingerprinting for industrial symbiosis in Emilia Romagna Region
- 14.45 **Cristiano Garino** (Università del Piemonte Orientale)
Set up of an untargeted method based on lab-on-a-chip® protein micro electrophoresis applied to salmon traceability
- 15.00 **Giulia Graziani** (Università di Napoli)
Simultaneous determination of isoflavones and mycotoxins in vegetarian foods by HRMS-Orbitrap
- 15.15 **Matteo Perini** (Fondazione Edmund Mach, San Michele all'Adige, TN)
Stable Isotope Ratio Analysis for authentication of Red Yeast Rice

15.30 **Enrico Valli** (Università di Bologna)
The EU H2020 OLEUM Project: innovative analytical strategies to fight olive oil fraud. Focus on the soft-deodorization

Comunicazioni brevi (Digital Poster Session)

15.45 **Francesca Colombo** (Università degli Studi di Milano)
Detection of adulterations and counterfeits in food supplements: development and validation of fast analytical methods

15.50 **Agnese Giacomino** (Università di Torino)
Inorganic and redox profiles as “fingerprint” of italian extravirgin oil

15.55 **Veronica Lolli** (Università di Parma)
Determination of cyclopropane fatty acids in food of animal origin by 1hnmr spectroscopy

16.00 **Giulia Leni** (Università di Parma)
Evaluation of the chemical composition of hermetia illucens prepupae for potential food applications

16.05 **Stefania Baldassarre** (Università di Parma)
Agroindustrial by-products as source of pectin: extraction and characterization

16.10-16.30 Discussione e chiusura dei lavori

16.30-18.00 Riunione Gruppo Scientifico Disciplinare

**DETECTION OF ADULTERATIONS AND COUNTERFEITS IN
FOOD SUPPLEMENTS: DEVELOPMENT AND VALIDATION
OF FAST ANALYTICAL METHODS**

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Adulterations and counterfeits represent an important problem in the market of food supplements. Dietary supplements are not subjected to any safety assessments prior to commercialization; therefore they can easily added with pharmaceutical drugs or analogue substances in order to increase product effectiveness. Food supplements for body weight reduction or for athletes are the products most frequently involved in illicit additions. Screening methods, such as High-Performance Thin-Layer Chromatography (HPTLC), are often the best analytical approaches to screen a large number of samples characterized by complex matrixes. Other analytical technique, such as High-Performance Liquid Chromatography (HPLC) coupled with different detectors, can be used to confirm and quantify the illicit additions.

The aim of this work was the development and validation of different analytical approaches to detect adulterants in food supplements. Several dietary supplements confiscated by NAS (Comando Carabinieri per la Tutela della Salute) in different Italian gymnasiums were analyzed in order to detect steroid hormones and active amines; two HPTLC methods were set up for the screening analysis of these classes

of compounds. The illicit compounds investigated were detected in 23% of the samples suspected for a possible adulteration. The more expensive mass spectrometry technique was applied only to the positive samples to confirm the presence of adulterants identified in screening analysis.

HPTLC showed to be a fast and simple technique for the preliminary identification of adulterations in food supplements, representing an important tool for laboratories involved in food control. The use of expensive and sensitive techniques, such as HPLC coupled with mass spectrometry detector, can be limited only to the positive samples, allowing a wider control of the market by public institutions.

