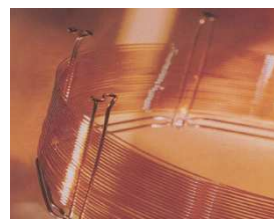


# BOOK OF ABSTRACTS

## 7<sup>th</sup> International Symposium on **RECENT ADVANCES IN FOOD ANALYSIS**

**November 3–6, 2015  
Prague, Czech Republic**

Jana Pulkrabová, Monika Tomaniová, Michel Nielen and Jana Hajšlová  
Editors



# BOOK OF ABSTRACTS

7<sup>th</sup> International Symposium on

## **RECENT ADVANCES IN FOOD ANALYSIS**

**November 3–6, 2015  
Prague, Czech Republic**

Jana Pulkrabová, Monika Tomaniová, Michel Nielen and Jana Hajšlová  
Editors



Published by the University of Chemistry and Technology, Prague  
UCT Prague Press  
Technická 5  
166 28 Praha 6  
Czech Republic



© Jana Hajšlová and Michel Nielen, 2015

Edited by Jana Pulkrabová, Monika Tomaniová, Michel Nielen and Jana Hajšlová

**ISBN 978-80-7080-934-1**

**7<sup>th</sup> International Symposium on**

**RECENT ADVANCES  
IN  
FOOD ANALYSIS**

**November 3–6, 2015 • Prague • Czech Republic**

Clarion Congress Hotel Prague

Organized by

**University of Chemistry and Technology, Prague, Czech Republic**

**&**

**RIKILT Wageningen UR, The Netherlands**

## B7 RAPID TARGET AND UNTARGET ANALYTICAL METHOD FOR ALKALOIDS ANALYSIS IN HERBAL EXTRACTS

**Tiziana Nardin<sup>1\*</sup>, Chiara Barnaba<sup>2</sup>, Roberto Larcher<sup>3</sup>**

<sup>1, 2, 3</sup> Fondazione E. Mach, San Michele a/A, Trento, Italy

\*Corresponding author – E-mail: tiziana.nardin@fmach.it, Phone: +39 0461 615119

Alkaloids are a group of nitrogenous basic compounds commonly found in certain families of plants. Over ten thousand alkaloids have been isolated from nature resource [1]. Some of them are responsible for the beneficial effects of traditional medicines, but some may instead have harmful effects of poisons [2]. There is no uniform classification of alkaloids and, depending on their chemical structure, they can be classified into the following main groups: pyrrolidine, tropane, pyrrolizidine, piperidine, quinolizidine, indolizidine, pyridine, and isoquinoline structures. In particular pyrrolizidine alkaloids (PAs) have hepatotoxic, mutagenic, and cancerogenic effects [3] and in accordingly with the German Federal Institute for Risk Assessment (BfR) was identified for 1,2-unsaturated PAs a daily intake of 0.007 µg/kg body weight (0.42 µg/60 kg adult). Different studies revealed clearly that preparation of herbal infusions products may partly contain high amounts of PAs exceeding current recommendations [3,4]. A rapid screening untargeted and target analytical method for alkaloids analyses using an UHPLC coupled with a Quadrupole/High-Resolution Mass Spectrometry (Orbitrap) was developed. The mass spectrometer operated in positive ion mode using the following parameters: sheath gas flow rate set at 30 arbitrary units; aux gas flow rate at 10 arbitrary units; spray voltage at 3.5 kV; capillary temperature at 330°C; aux gas heater temperature at 300°C; Mass spectra were acquired in full MS-data dependent MS/MS analysis (full MS–dd MS/MS) at mass resolving power of 140.000 and compared with a database of about 300 alkaloid molecules built from literature. A selection of commercial infusion extracts (mint, peppermint, fennel, aloe vera, chamomile, basil, almonds, lemon, passion fruit, black tea, white tea, green tea etc.) were studied in order to check the possible presence of a large number of alkaloids.

- [1] M. Yanga, J. Sunb, Z. Lua, G. Chena, S. Guana, X. Liua, B. Jianga, M. Ye, De-An Guo, Journal of Chromatography A, 1216, 2045–2062 (2009).  
 [2] T.P. Tim Cushniea, Benjamart Cushnie, Andrew J. Lamb, International Journal of Antimicrobial Agents, 44, 377–386 (2014).  
 [3] M. Schulz, J. Meins, S. Diemert, P. Zagermann-Munckea, R. Goebel, D. Schrenkc, M. Schubert-Zsilavec, M. Abdel-Tawab, Phytomedicine, 22, 648–656 (2015).  
 [4] I. Mädge, L. Cramer, I. Rahaus, G. Jerz, P. Winterhalter, T. Beuerle, Food Chemistry, 187, 491–498 (2015).

**Keywords:** alkaloids, infusion extracts, Orbitrap, mass spectrometry

**Acknowledgement:** Thermo Fisher Scientific Inc., Fondazione Edmund Mach

## B8 AUTHENTICATION OF FISH PRODUCTS BY MICROIMAGE TECHNOLOGY

**Marzia Pezzolato<sup>1</sup>, Serena Meistro<sup>2</sup>, Mario Botta<sup>3</sup>,  
Erasmus Chessa<sup>4</sup>, Angelo Duilio Tracanna<sup>5</sup>, Fabio Olivo<sup>6</sup>,  
Elisa Baioni<sup>7</sup>, Elena Bozzetta<sup>8\*</sup>**

<sup>1, 2, 3, 6, 7, 8</sup> Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta, Torino, Italy

<sup>4</sup> Trustech s.r.l. Innovation Technology, Torino, Italy

<sup>5</sup> Digital Media Industries S.r.l., Borgomanero (Novara), Italy

\*Corresponding author – E-mail: elena.bozzetta@izsto.it, Phone: +390112686261

The production of seafood is approaching the all-time high of 160 million tonnes per year. Seafood remains a fundamental component of the human diet; for 3 billion people, it provides more than 20% of animal proteins consumed, it also remains an energetically favourable way to produce proteins, compared to farming terrestrial livestock. Yet, wild fisheries remain grossly mismanaged in many parts of the world and the seafood supply chain becomes increasingly difficult to regulate, as a result of the globalisation of traded commodities. Such a scenario is vulnerable to fraudulent operations, such as the deliberate mislabelling of seafood products. Seafood mislabelling opens the opportunity to fraud for economic gain but the economic gain can not exclude sanitary frauds. In this context a common fraudulent economic practice is selling valuable fish products as fresh when they have actually been frozen and thawed. The same mislabeling fraud could otherwise have an impact on human health, when fish intended for raw consumption is administered fresh instead of frozen, as expected from Regulation EC 853/2004 and Regulation EU 1276/2011, to reclaim parasites and to prevent human infestation. This presentation is focused on perspectives of the application of a new rapid, cost-effective and high throughput method that allows to discriminate between fresh and frozen-thawed fish in the frame of monitoring plans for fish authentication. Automation development as an official routine screening tool fulfilling the EU requirements stated in the EC Regulation No. 882/2004 will be discussed.

**Keywords:** fish, fraud, fresh, thawed