

18<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON ADVANCES IN EXTRACTION TECHNOLOGIES (EXTECH) &  
22<sup>ND</sup> INTERNATIONAL SYMPOSIUM ON SEPARATION SCIENCES (ISSS)

The 18<sup>th</sup> International Symposium on Advances in Extraction Technologies (ExTech) & 22<sup>nd</sup> International Symposium on Separation Sciences (ISSS) were held in Torun (Poland) between 3<sup>th</sup>-6<sup>th</sup> July 2016. ExTech series started in 1999 in Waterloo (Canada), and it has been held annually around the world. The ExTech symposium is the world leading scientific meeting for sample preparation, analytical and sample clean-up techniques. The meeting is focused in the discussion and presentation of theoretical and fundamental aspects of well-established and novel technologies and materials, as well as their application to biological, pharmaceutical, clinical, forensic and environmental analysis. On the other hand, the 1<sup>st</sup> ISSS took place in Bled (Slovenia) in 1990. Since 2002, this meeting has been celebrated annually, and its main objective is the presentation of new achievements in the fields of liquid, gas and thin-layer chromatography, electrophoresis, and hyphenated techniques thereof, sample preparation and chemometrics.

During 4 days, 14 plenary, 32 key notes, and 25 oral lectures were presented for international renowned speakers of 17 countries and also 257 poster communications were presented in 4 sessions.

The scientific program began on Sunday 3<sup>th</sup> with four different workshops which were held during the morning at the Faculty of Chemistry, Nicolaus Copernicus University. In them, theoretical aspects of different extraction techniques (SPE and SPME) were described and also advanced applications and new approaches of these techniques were presented. In the afternoon, the opening ceremony took place and afterwards, Prof. Pawliszyn (Canada) opened the Session I (theoretical and fundamental aspects in separation sciences) giving an interesting overview about the behavior of analytes in complex matrix. Afterwards, Prof. Jandera (Czech Republic) offered the most recent advances in multidimensional liquid chromatography, and finally Prof. Felinger (Hungary) and Prof. Schmitz (Germany) gave an overview about the characterization of stationary phases in liquid chromatography, and the use of ion mobility spectroscopy as an efficient separation dimension in liquid chromatography. Finally, the first day concluded with a nice welcome cocktail for all the participants.

On Monday, the day began with the plenary lecture of Prof. Stashenko (Colombia), talking about the analysis of complex mixtures of secondary metabolites from exotic plants. Afterwards, Session II & III (biological and environmental sample preparation and analysis) were placed in parallel sessions. In the Session II, recent trends in liquid-phase microextraction was presented by Prof. Pedresen-Bjergaard (Norway), Prof. Mills (United Kingdom) talked about the passive sampling for the analysis of emerging pollutants in water, and finally Prof. Chimuka revised the classical Soxhlet extraction in combination with molecularly imprinted polymers as a novel extraction technology. In Session II, 3 keynotes were presented. In the first of them, Prof. Maruska (Lithuania) presented methodologies, techniques and devices for bioanalysis, afterwards Prof. Poliwoda (Poland) showed an overview of sample pretreatment methods used for the determination of phytoestrogens in urine samples. The last keynote was presented by Prof. De Bubba (Italy) who showed different procedures to analyze micropollutants in the environment. After that, the first poster session took place during the coffee break, where more than 125 posters were presented and exhibited. In the second part of the morning Session IV (theoretical and fundamental aspects of extraction techniques) and Session V (emerging contaminants of natural samples) were held, in two interesting parallel sessions. In Session IV, the first lecture was presented by Prof. Nogueira (Portugal) talking about new strategies for sorption-based methods. Afterwards, Prof. Psillakis (Greece) showed an overview of the vacuum-assisted-HSSPME technique. The next oral presentation was about

new strategies for miniaturized on-line LC techniques presented by Prof. Campins-Falco (Spain), and the last oral presentation was presented by Prof. Madej (Poland) talking about different strategies for the analysis of biological samples. Regarding the Session V, it began with Prof. Kee Lee (Singapore) talking about the development of automated systems for monitor water, followed by Prof. Bruzzoniti (Italy) showing new perspectives in environmental water remediation. Afterwards, Prof. Coman (Romania) and Prof. Gersiuik (Ukraine) talked about the specific pollutants in the Romanian Tizsa River and their bioremediation. Finally, the session finished with the oral presentation of Prof. Vrana (Czech Republic) about the use of passive sampling devices for the toxicological screening of the Danube River. In the afternoon and after the lunch, the Session VI (miniaturization and hyphenated techniques) took place. Prof. Fanali (Italy) opened the afternoon lectures giving an overview of the miniaturized techniques and the future trends. After that, Prof. Edge (UK) showed a practical application of HILIC for the analysis of polar compounds. The next lecture was presented by Prof. Trafkowski (Germany) talking about hyphenated techniques for routine use. Afterwards, Prof. Pichon (France) presented enzymatic microreactors for the analysis of proteins. The two last lectures were presented by Prof. Buszewska-Forajta (Poland) and Prof. Matczuch (Poland) who talked about the identification of compounds from insects and the application of mass spectrometry based techniques to investigate anticancer metallocomplexes, respectively. After this intense day of conferences the participants were invited to a nice revel in the Ethnographic Museum of Torun, where all participants could enjoy a good time and live music.

Tuesday started with the plenary lecture presented by Prof. Gorecki (Canada) on the session dealing with new technologies, techniques and automated analytical systems. Continuing with this topic, two parallel sessions (VII and VIII) of three conferences each one were held. To begin session VII, Prof. Thiebaut (France) spoke about new approaches to replace conventional gas chromatographs by silicon based micro machined columns. In particular, he and his group developed silica monolith and sputtered stationary phases. Next, Prof. Jiang (China) explained the preparation of novel zwitterionic hilic monolithic columns. To conclude this session, Prof. Szumski (Poland) reported their achievements in preparation, evaluation and applications of new monolithic stationary phases, applied to capillary LC and sample preparation. At the same time, session VIII took place. Prof. Vovk (Slovenia) opened this session presenting different methods for the analysis of proanthocyanidins in plant and food samples. Subsequently, Prof. Malinowska (Poland) described diverse chromatographic procedures to determine biological properties of active compounds. Finally, Prof. Klebovich (Hungary) described how to determine Drug - Alcohol, -Caffeine and -Smoking interactions thanks to hyphenated bioanalytical techniques. Afterwards, a coffee break was made. Then, two parallel sessions (IX and X) of five key lectures each one were held. Session IX concerned with microextraction and microseparation, mainly focused on solid-phase microextraction. Session X addressed biomedical, bioanalytical applications and diagnostic tools.

Six oral communications dealing with bioseparation techniques in the analysis of food and natural samples opened the afternoon. Following these communications presented by Prof. Bojko (Poland), Prof. Brzozka (Poland), Prof. Malik (USA), Prof. Kaljurand (Estonia), Prof. Ouadah (France) and Prof. Karpińska (Poland), three poster sessions were conducted. One of them, about theoretical and fundamental aspects in separation sciences & extraction technologies, had 44 posters, while the next one, dealing with new technologies, techniques and automated analytical systems, had 35 and the last one, which addressed new devices and techniques for sample preparation, had 46 posters. To conclude the day, a nice banquet was celebrated in the Cultural and Congress Centre – Jordanki, which was enlivened by a musical group.

Last day, Wednesday 6<sup>th</sup> July, began with the plenary lecture of Prof. Mondello (Italy), who talked about a miniaturized liquid chromatography (LC) system, nanoLC, coupled to electron ionization mass spectrometry (EI-MS). Successively, two parallel sessions of three oral communications each one took place. All of them treated about separation techniques applied to the analysis of food and natural samples. Prof. Llompart (Spain) presented her work related to new extraction approaches for the analysis of personal care products. Prof. Jeleń (Poland) spoke about extraction of volatile metabolites from Brassica vegetables and Prof. Hussein (Lebanon) presented an extraction method to determine PAHs in chicken. On the parallel session, Prof. Weiss (Austria) discussed the use of UHPLC coupled with Charged Aerosol Detection (CAD) to detect compounds from natural products. Prof. Skalicka-Woźniak (Poland) presented the separation of coumarins and terpenoids from plant matrix with high performance counter-current chromatography (HPLCC) coupled with HPLC/DAD/ESI-TOF or GC-MS. Lastly, before the coffee break, Prof. Simon (USA) showed a new method of odour identification using canines for future use in the field of environmental substance detection. After the pause, two parallel sessions with 5 oral presentations were held. One of them about new extraction phases and remote sensing, and the other one about new separation phases & hyphenated techniques.

Prof. Berek (Slovakia) was in charge of opening the last session of the congress, regarding separation sciences in theory and praxis. His tutorial lecture addressed molecular characterization of block copolymers by liquid chromatography. Next, Prof. Knopp (Germany) spoke about the depletion of cyanotoxin microcystin-leucine-arginine (MC-LR) from surface water using plantibody-doped porous biofilters. Following, Prof. Corradini (Italy) discussed the factors affecting electrophoretic and chromatographic analysis with the aim of developing novel analytical separation methods for the identification and quantification of phytochemicals in plant extracts and foodstuff. Finally, Prof. Rosenberg (Austria) gave the last plenary lecture. He exposed his work based on the characterization of the organic electrolyte of the lithium ion batteries and its volatile degradation products by GC/MS and HPLC/MS.

To conclude the ExTech & ISSS'2016, the closing ceremony took place, where next ExTech'2017, which will be held in Santiago de Compostela (Spain), and ISSS'2017, in Innsbruck (Austria), were presented.

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