

25TH INTERNATIONAL SYMPOSIUM ON ADVANCES IN EXTRACTION TECHNOLOGIES (EXTECH).

(EXTECH – TENERIFE 2023)

The Pre-symposium Course “Solid-phase microextraction. Insights, present and future” with a total of 8.5 hours, held on July 18th, 2023, was given at Arona, Tenerife, Canary Islands, Spain. It consisted of 4 different sessions: The 1st session “SPME fundamentals and applications” was given by Prof. Janusz Pawliszyn (University of Waterloo, Canada) in which different theoretical approaches of SPME were introduced, followed by applications of SPME. The 2nd session, “Direct SPME-MS”, was given by Wei Zhou, PhD (University of Waterloo, Canada) regarding the coupling of SPME with direct MS. The 3rd session, “Strategies of using microextraction in clinical and biomedical research”, was given by Prof. Barbara Bojko (Nicolaus Copernicus University, Poland). Finally, the 4th session, “On-site extraction”, was given by Prof. Rafael Lucena (University of Córdoba, Spain).

After the pre-symposium course, the opening ceremony was at 06:00 p.m. and the opening plenary lecture entitled "Think big but design small and efficient, a green path of microextractions" was given by Prof. Stig Pedersen-Bjergaard (University of Oslo, Norway) and Prof. Janusz Pawliszyn (University of Waterloo, Canada).

The second day of the symposium started at 9:00 a.m. with two parallel sessions consisting of four keynote lectures and nine oral communications. The session dedicated to “New extraction methods” was opened by Prof. José Manuel Herrero-Martínez (University of Valencia) with a keynote lecture on the advantages of smart materials for low-cost supports in the field of sample preparation while the closing keynote lecture covered new miniaturized approaches for the analysis of low-availability samples and was delivered by Prof. Alberto Chisvert (University of Valencia). The parallel morning session was devoted to “Novel sorbents and Solid-Phase Extraction configurations” and started with a lecture given by Prof. Milton Rosero-Montero (University of Caldas, Colombia) on the synthesis of clay-based nanocomposites and their application in solid-phase extraction. This session was closed by Prof. María Llompart (University of Santiago de Compostela) with a lecture on sustainable miniaturized sample preparation strategies to assess the impact of microplastics from recycled tire crumb rubber. Poster session and the sponsors exhibition could be enjoyed during the coffee break and the talks were resumed with two parallel sessions where six young oral communications and two keynote lectures. In these sessions, on-site extraction devices and microextraction methodologies for characterization of complex samples were covered in the keynote lectures delivered by Prof. Rafael Lucena (University of Córdoba) and Prof. Emanuela Gionfriddo (University of Toledo, USA), respectively.

After lunch, the Poster Session 1 continued parallel to a Sponsors exhibition in the Espejos room. During this short period of time, we had the possibility to solve any doubts that had remained during the morning session. This was followed by a Discussion Table on Green Metrics in the Auditorium which was moderated by Renata Wietecha-Posłuszny from Jagiellonian University (Poland) and the panellists were: Marek Tobiszewski, Yolanda Moliner-Martínez, Torsten C. Schmidt, and Frank Michel. After the end of the round table discussion, the Young Oral Session 3 and 4 began in parallel at Auditorium and Atenas room respectively, where two keynote lectures and nine young oral communications were carried out. Both sessions started with two interesting keynote lectures; on the one hand, "Omics analysis of natural products is going greener: Opportunities from new materials combined with microextraction techniques" delivered by Cecilia Cagliero in the Auditorium and, on the other hand, "Aptamer-based sorbents for the selective extraction of molecules and ions at trace levels in complex samples" given by Valérie Pichon. The young oral session 3 began with "Miniaturized QuEChERS combined with HPLC-MS/MS for determination of atropine and scopolamine in leafy vegetables" and finished with "Towards high throughput analysis using 96-well plate SPE for residue monitoring in food control" that were conducted by Lorena González-Gómez and Ane Arrizabalaga-Larrañaga. Young oral session 4 started with "A green ionic liquid-based three-phase partitioning system as a simple miniaturized platform for the analysis of human saliva" by Raúl González-Martín and finished with the lecture entitled "Evaluating new generations of magnetic ionic liquids as extraction platforms for organic compounds present in biological fluids" of María J. Trujillo-Rodríguez. From 06:15 p.m. onwards, the day's talks were over and we were able to enjoy the wonderful beaches of Tenerife.

On Thursday, the session began at 9:00 a.m. The morning of Thursday, July 20th, included 6 keynotes, 8 oral communications, one plenary communication and 6 young oral communications, which were distributed in two rooms. The plenary lecture was given by Professor Jared L. Anderson from Iowa State University, who explained how to design and synthesise ionic liquids, magnetic ionic liquids and polymeric ionic liquids. Prof. Anderson also demonstrated applications of these materials within the field of sample preparation. The keynotes discussed solid-phase microextraction with headspace, automated flow-based methodologies for sample treatment in the pharmaceutical field, hybrid organic and inorganic extraction media based on niobium, tantalum and other transition metal oxides for capillary microextraction, new 3D-printed bioselective sorbents, micro-extraction techniques for the extraction of volatile organic compounds from faecal samples for the diagnosis and prevention of colorectal cancer or different applications of the matrix solid-phase dispersion

technique. In the oral communications, there were several presentations from different trading house such as Bruker or Milestone. The rest of the oral communications included very diverse presentations on different novel sample preparation strategies. In addition, during the coffee break sessions of the day, different posters were presented. There were a total of 4 topics: bioanalysis, *in-vivo* analysis, metabolomics and natural products (Topic 1), food analysis (Topic 2), green analytical chemistry (Topic 3) and new extraction phases (Topic 4). A total of 89 posters were presented in the topics described on Thursday, 20 July.

After a delicious lunch, there was an hour for the poster exhibition, and the oral sessions continued at 03:45 p.m. The main topics of the afternoon sessions were advanced microextraction strategies and green analytical chemistry. There were two keynote lectures. Myriam Díaz-Álvarez gave the first one from the National Institute of Agricultural and Food Research and Technology (INIA), who spoke about the recent advances and future trends in molecularly imprinted polymers-based sample preparation. Dr. Alberto Escarpa, from the University of Alcalá, was responsible for the second keynote lecture. He showed us how micromotors in action can be used as environmental micro-cleaners and their future perspectives. There were 6 oral and 8 young oral communications during the afternoon session. The gala dinner was held at the Cleopatra Swimming Pool Terrace to close the day. Here we share with our colleagues and speakers. The organizing committee surprised us with a unique award ceremony in which the last registered attendant and the first abstract sent were awarded, among others. Finally, we danced to the rhythm of the typical batucada of the Tenerife Carnival.

The last session of the ExTech 2023 Symposium started at 9:00 a.m. on Friday, July 21st. In the Auditorium, the topic of the session was food analysis, and the keynote lecture was in charge of Ana María García-Campaña, which talked about sustainable analytical strategies for multiresidue/multiclass monitoring of emerging risks in complex samples. Following the lecture, five interesting communications took place, covering emerging topics such as sample preparation for GCxGC food analysis, extraction strategies for the extraction of bioactive compounds from food residues and green vegetables, or analysis of dairy products with GC-MS. The session closed with a keynote Lecture entitled "Challenges in extraction of aroma compounds from food matrices", by Henryk H. Jeleń. At the same time, a session focused on bioanalysis took place in the Atenas Room. To open the session, Barbara Bojko talked about Solid-phase microextraction and thin-film microextraction for direct and indirect characterization of organs' quality. After five short communications, the session ends with the intervention of Prof. Schmidt, talking about sample pretreatment for microplastic analysis. After a coffee break and the interesting Plenary Lecture on the

role of (bio)polymeric phases in extending the sustainability of sample preparation, by Prof. Soledad Cárdenas, the Closing Ceremony handed out awards for best oral and posters communications, and introduced next ExTech Symposium, which will be celebrated next year in Bucaramanga (Colombia). This Tenerife adventure was finalized with a fantastic trip to Mountain Teide, organized by the Symposium. I hope to see you all in the next ExTech Symposium!

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