Società Chimica Italiana
Divisione di Spettrometria di Massa

FONDAZIONE EDMUND MACH

DIFFA23

DIRECT INJECTION FOOD FLAVOUR ANALYTICS

Fondazione Edmund Mach

San Michele all'Adige, Italy

20 - 22 September 2023

1st International Symposium on
Direct Injection Food Flavour Analytics (DIFFA)

SCIENTIFIC COMMITTEE

Franco Biasioli - Chair	Fondazione Edmund Mach, Italy
Jonathan Beauchamp	Fraunhofer Inst. Process Engineering and Packaging IVV, Germany
Patric Silcock	University of Otago, New Zealand
Giuliana Bianco	University of Basilicata, Italy
Emanuela Gregori	Istituto Superiore di Sanità, Italy
Paola Montoro	University of Salerno, Italy
Donatella Caruso	University of Milano, Italy
Riccardo Flamini	Crea-VE, Conegliano, Italy
Gianluca Giorgi	University of Siena, Italy
Fulvio Magni	University of Milano Bicocca, Italy
Luciano Navarini	Illycaffè, Trieste, Italy

ORGANIZING COMMITTEE

Michele Pedrotti	Fondazione Edmund Mach, Italy
Iuliia Khomenko	Fondazione Edmund Mach, Italy
Emanuela Betta	Fondazione Edmund Mach, Italy
Franco Biasioli	Fondazione Edmund Mach, Italy
Martina Moretton	Fondazione Edmund Mach, Italy
Andrea Dell'Olio	Fondazione Edmund Mach, Italy
Maria Assunta Acquavia - Secretary	University of Basilicata, Italy
Flaminia Vincenti	Sapienza University of Roma, Italy

CONFERENCE PROGRAM

20th September 2023

12.30-14.00 Registration and welcome buffet

Conference opening

14.00-14.10	Welcome addresses
	Fulvio Magni - *Società Chimica Italiana-Divisione Spettrometria di Massa*
	Mario Pezzotti - *Fondazione Edmund Mach*
14.10-14.20	Why DIFFA23?
	Franco Biasioli - *Fondazione Edmund Mach*
14.20-15.05	Plenary lecture: *DI-MS – A game changer for flavour research?*
	Andy Taylor - *University of Nottingham*

Session 1 | Unlocking Flavour with DIMS

Chairs: Patrick Silcock & Nina Cleve

15.05-15.35	Jonathan Beauchamp - Fraunhofer Institute for Process Engineering and Packaging IVV
	The long and winding road: a flavoursome tale of PTR-MS
15.35-15.55	Graham Eyres - *University of Otago*
	What is Flavour and how can DIMS help untangle the puzzle?
15.55-16.15	Andreas Mauracher - *IONICON*
	Advantages of Next-Gen PTR-ToF instruments for food and flavour sciences

16.15-17.00 Tea break and Poster Session

Session 2 | DIMS in Health and Wellbeing

Chairs: Donatella Caruso & Eirini Pegiou

17.00-17.20	Josep Rupert - *Wageningen University & Research* ***Signalling volatile compounds in the human gut microbiota: new avenues offered by direct analytical methods.***
17.20-17.40	Chris Mayhew - *University of Innsbruck* ***Real-Time Trace Analysis of Breath Volatiles using Proton Transfer Reaction Mass Spectrometry: implications for in-vivo flavour release measurements***
17.40-18.00	Enrico Davoli - *Istituto Mario Negri* ***Direct analysis of sex-wellness products using a field deployable MS equipped with a Direct Sampling Atmospheric Pressure (DSAP) source***
18.00-18.20	Corrado Di Natale - *University of Rome Tor Vergata* ***Direct injection mass spectrometry and gas sensors: a teacher-pupil relationship***
18.20-18.40	Luca Cappellin - *University of Padova* ***Improved compound identification in direct VOC analysis using an EI&CI-TOFMS***

19.00 Welcome cocktail - cloister of the monastery and historical cellar

21st September 2023

Session 3 | Linking DIMS Data to Sensory Perception

Chairs: Graham Eyres & Iuliia Khomeko

9.00-9.30	Jean-Luc Le-Quéré - *INRAE-CSGA Dijon* ***Twenty years of Direct Injection Mass Spectrometry for aroma research in Dijon***
9.30-9.50	Catrienus De Jong - *Wageningen University & Research* ***Exploring new in vivo and in vitro methods to integrate sensory and instrumental analysis to get insight and improve the flavour of plant-based food products during oral processing and drinking***
9.50-10.10	Markus Stieger - *Wageningen University & Research* ***In vivo aroma release and sensory perception of composite foods***
10.10-10.20	Michele Pedrotti - *Wageningen University & Research* ***Characterization of plant-based milks by combining sensory analysis with headspace and nose-space direct injection mass spectrometry***
10.20-10.30	Karina Estanol Gonzalez - *Wageningen University & Research* ***In vivo analysis of nose-space concentration by direct injection mass spectrometry to study the effect of chewing rate on aroma release during food consumption***
10.30-10.40	Laura Hill - *University of Nottingham* ***Understanding the relationship between lipids, capsaicin and aroma release in confectionery***

10.40-11.10 Coffee break and poster session

Session 4 | Flavour Complexity and Cooking

Chairs: Fulvio Magni & Caroline Perltier

11.10-11.30	Samo Smrke - *ZHAW School of Life Sciences and Facility Management* ***Development of fast-GC PTR-MS method for coffee VOCs analysis***
11.30-11.45	Nina Cleve - *Fraunhofer Institute for Process Engineering and Packaging IVV* ***Milk matters: Unraveling retronasal aroma release and perception of coffee by combining in vivo nosespace analytics with dynamic sensory methods***
11.45-12.05	Tomasz Majchrzak - *Gdansk University of Technology* ***What happens when food goes into oil during deep frying? Monitoring the first minutes of frying using PTR-MS***
12.05-12.20	Gregory Schmauch - *Rational F&E GmbH* ***Influence of product quantity, cooking parameter and flow tube pressure on the measurement with Sift-MS in a cooking oven***
12.20-12.40	Vaughan Langford - *Syft Technologies* ***Application of SIFT-MS to chemical and sensory screening of packaging materials***

12.40-14.00 Conference group photo and lunch

Session 5 | Latest DIMS Showcasing

Chairs: Jonathan Beauchamp & Karina Estanol Gonzales

14.00-14.15	Terry Bates - *Cornell University* ***Rapid headspace solid-phase microextraction with sheets with direct analysis in real time mass spectrometry (SPMESH-DART-MS) of derivatized volatile phenols in grape juices and wines***
14.15-14.30	Matteo Tonezzer - *University of Cagliari* ***PTR-MS as a tool to understand and improve the performance of electronic noses***
14.30-14.45	Andrea Warburton - *University of Otago* ***Application of PTR-ToF-MS to monitor development of flavour in sourdough***
14.45-15.05	Paolo Redegalli - *Shimadzu Italia S.r.l.* ***Characterization of isoflavones and its metabolites in foods by direct probe ionization mass spectrometer (DPiMS) with high resolution detection***
15.05-15.25	Hansruedi Gygax - *GAS Dortmund* ***GC-IMS instruments and their use in food and flavour analysis***

15.25-16.15 Tea break and poster session

Session 6 | Microbial, Fermentation and Modelling

Chairs: Riccardo Flamini & Michele Pedrotti

16.15-16.45	Pat Silcock - *University of Otago* ***The use of DIMS to understand microbially induced flavour changes***
16.45-17.05	Vittorio Capozzi - *Institute of Sciences of Food Production - National Research Council of Italy (CNR)* ***DIMS techniques and the study on microbial VOCs in food: flavour attributes, fermentation monitoring and emerging trends***
17.05-17.20	Eirini Pegiou - *Wageningen University & Research* ***Easy and fast detection of abnormal olive brine fermentation – A showcase of SPOTDETECT.***
17.20-17.40	Caroline Peltier - *INRAE* ***Automatic pretreatment and multiblock analysis of flavor release and sensory temporal data simultaneously collected in vivo***
17.40-18.00	Ana Rita Monforte - *AFB INTERNATIONAL* ***Modelling the kinetics of flavour formation & relaese as a function of ingredients addition in real food systems***
18.00-18.20	Pietro Franceschi - *Fondazione Edmund Mach* ***Mining datasets from untargeted direct analytical methods: a data analyst point of view***
18.20-18.35	Mickael Le Bechec - *Institute of Analytical Sciences and Physico-Chemistry for Environment and Materials (IPREM)* ***Volatile fingerprints of food thanks to the untargeted use of SIFT-MS raw data***

20.00 Social dinner - cloister of the Museo Etnografico Trentino

22nd September 2023

Session 7 | Food Spoilage and Off-Flavour

Chairs: Catreinus de Jong & Brian Farneti

9.30-10.00	Patrik Španěl - *J. Heyrovský Institute of Physical Chemistry* ***Progress in Selected Ion Flow Tube Mass Spectrometry, SIFT-MS, analyses of food flavour, freshness and spoilage***
10.00-10.15	Antonella Grosso - *University of Bolzano* ***Monitoring autoxidation of vegetable oils by proton transfer reaction mass spectrometry***
10.15-10.30	Pedro Martinez Noguera - *University of Copenhagen* ***Using PTR-ToF-MS to quantify microbial off-flavors geosmin and 2-methylisoborneol in water. Method development, performance assessment and comparison with established GC-MS methods***
10.30-10.45	Davide Papurello - *Turin Polytechnic* ***Supporting sustainable energy production by PTR-MS: a review on the work accomplished on biofuel production from food waste to SOFC systems***
10.45-11.05	Rupert Holzinger - *Utrecht University* ***Using SI traceable gas standards to improve the accuracy of untargeted PTR-MS measurements***

10.40-11.10 Coffee break and Poster Session

Session 8 | Floral, Biogenics and Phenotyping

Chairs: Rupert Holzinger & Vittorio Capozzi

11.45-12.05	Štefan Matejčík - *Comenius University* ***Ion mobility spectrometry detection of plant hormons***
12.05-12.25	Brian Farneti - *Fondazione Edmund Mach* ***DI-MS as high performing VOC phenotyping tool to support the horticultural production chain management***
12.25-12.40	Alberto Roncone - *Fondazione Edmund Mach* ***Validation of gas chromatographic methods for the botanical characterization and authentication of lavender essential oil by stable isotope analysis of its organic volatile compounds***
12.40-12.55	Eugenio Aprea - *University of Trento* ***Contribution of volatile organic compounds to multifloral honey flavor***
12.55-13.15	Daniele Zatta - *3Slab* ***Comparative analysis of VOC purification techniques in complex cooking emission: adsorption, photocatalysis and combined systems.***
13.15-13.30	Closing remarks Fulvio Magni - *Società Chimica Italiana-Divisione Spettrometria di Massa* Franco Biasioli - *Fondazione Edmund Mach*

13.30 Farewell buffet

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