

INTERNATIONAL MEASUREMENT CONFEDERATION
TC23 “Metrology in Food and Nutrition”



October, 1st - 4th 2017 - Thessaloniki (Greece)



**Metrology promoting
Standardization and Harmonization
in Food and Nutrition**



BOOK OF PROCEEDINGS

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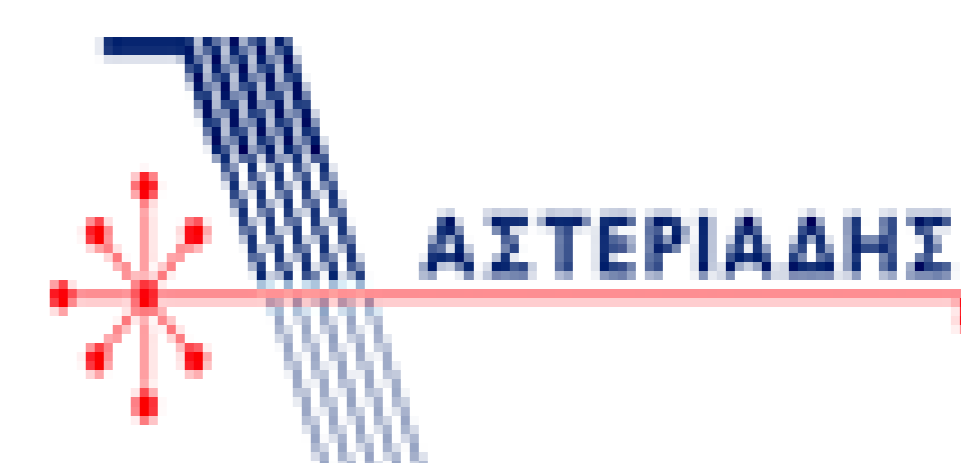


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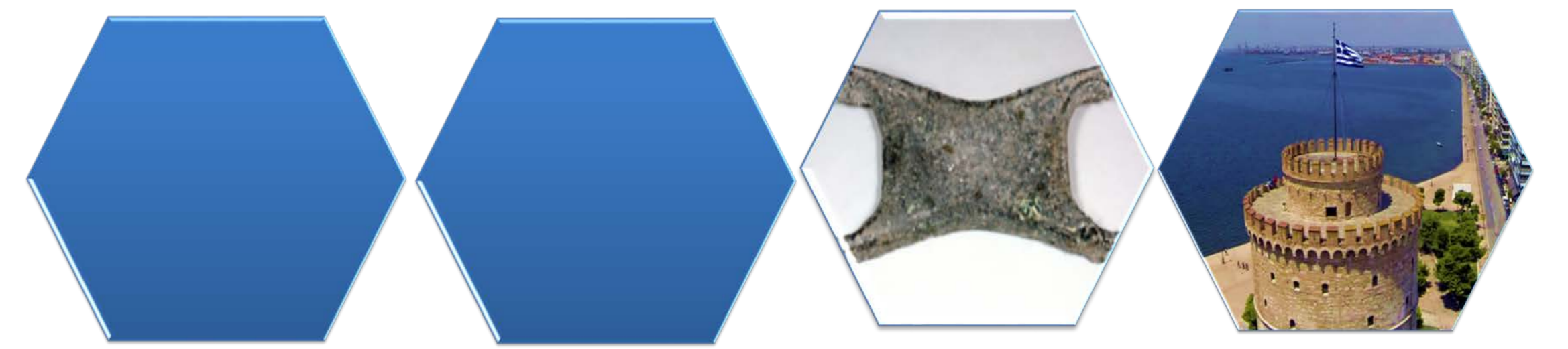


GA n. 739568



GA n. 635690

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- Michaela Sotiroglou – Chemist, MSc student, AUTH



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The Organizing Committee of the 3rd IMEKOFODDS Conference wishes to thank the volunteer students of the School of Chemistry and Chemical Engineering, who dedicated time and efforts to support the successful realization of this conference. In particular we thank:

Martha Nikopashou	Sotiria Koumpia
Aristos Charitidis	Maria Liouta
Athanasia Dalatsi	Eirini- Konstantina Manthou
Christina Karadimou	Alexandros Nakas
Antigoni Koletti	Efstathia Tsarouchi



GENERAL CHAIR WELCOME MESSAGE

Thessaloniki, October 1st, 2017

Dear participants,

It is my honor to welcome ALL of you at KEDEA building of our University named after Aristotle, the philosopher, whose work influenced the evolution of Sciences for hundreds of years.

Observation, experimentation, documentation, verification are the methodological tools, we, as scientists, apply before to pose a hypothesis or make a generalization according to Aristotle's heritage.

The Aristotle University of Thessaloniki (AUPh, 1925) is the largest and most interdisciplinary public University in Greece with 41 departments and 11 Faculties. AUPh has 311 laboratories, 61 are accredited and certified to provide quality services. AUPh has active spin-off companies and patents available for licensing. Recently, the Center for Interdisciplinary Research and Innovation (KEDEK) was established to reinforce joint research activities. About 74 000 students study at the Aristotle University at undergraduate and postgraduate programs among which ~4000 at Doctoral level. There are >2.000 faculty members and a great number of supporting and administrative personnel. A significant number of visiting academics and students are also hosted every year under the umbrella of different exchange programs and bilateral agreements.

IMEKOFOOD conferences, organized by IMEKO TC23, bring together scientists working for the development of methods and approaches that reveal qualitative characteristics of foods as matrices and measure accurately major or minor constituents -both desirable and undesirable ones- for the benefit of those who produce, process, trade and consume, i.e. the society per se.

The 3rd IMEKOFOOD conference is a great opportunity to strengthen links among scientists having common interests and bring new perspectives in our thinking. Senior and young scientists will listen to each other's work, discuss proposals and findings in a critical way, make plans with new and old collaborators and enjoy some nice moments in our city, Thessaloniki.

Thessaloniki, is called "fthomana" (who cares for the poor), a name indicative of the inclusive character of this multicultural city since its foundation in the 4th century B.C.

Being the General Chair of the Conference, I would like to express my gratitude to Professor Theodoros Laopoulos, Vice Rector for Research & Coordination, who, being an IMEKO member himself, embraced this event and supported it by all means.

The conference is under the aegis of the faculties of Exact Sciences and Engineering of AUPh, the Mayor of Thessaloniki, The Hellenic Food Authority, The State Chemical Laboratory, The Hellenic Institute of Metrology, The Federation of Hellenic Food Industries and The Association of Greek Chemists.

I thank our sponsors, their support is greatly acknowledged.

On behalf of the co-organizer and those, who worked hard for the realization of the 3rd edition of IMEKOFOODS

A handwritten signature in black ink, enclosed in a thin black rectangular border.

Maria Tsimidou, professor
General Chair

HONORARY CHAIR WELCOME MESSAGE



Dear Friends and Colleagues,

On behalf of the IMEKO TC 23 Metrology in Food and Nutrition, it is my great pleasure to welcome you to Thessaloniki on the IMEKOFOODS annual meeting.

Since the first joint event in 2008 in Budapest, our Committee has grown attracting a large number of scientists and outstanding experts from the global world. In 2013 the IMEKO Government Council has decided to create IMEKOFOODS, a landmark to refresh our knowledge base and explore the innovation of issues surrounding measurements related to food components and contaminants. The success of previous events has attracted excellent presentations and commercial exhibitions to 3rd IMEKOFOODS.

Thanks to the TC 23 members and all other reviewers who have contributed to make this outstanding program possible. We are delighted to know that, through the support of IMEKO official journals - Measurement and Acta IMEKO - selected papers will be published according to the editorial journal policy.

These are indeed golden times for metrology in food and nutrition, with significant scientific contributions from our Greek hosts in general and organizing committee in particular, which, by a growing number of brilliant initiatives, enhance measurement in Food and Nutrition to the next level of improvement.

On behalf of TC 23 members, we are also thankful for the proposal of Prof. Maria Tsimidou (School of Chemistry, AUTH) to organize IMEKOFOODS in Thessaloniki an illustrious UNESCO world heritage. We hope that you can take a little extra time to enjoy the fantastic beauty of Thessaloniki. HellasLab the Greek IMEKO MO is also acknowledged for its support to the organization of the conference.

Finally, I express my profound thanks to all who have provided assistance in one way or another to this excellent conference, a symphony of outstanding science, culture and networking.

A handwritten signature in black ink, appearing to read 'Isabel'.

Isabel Castanheira
Honorary Chair



3rd IMEKOFOODS CONFERENCE & SATELLITE EVENTS

TIME	30 September 2017	1 October 2017			2 October 2017	3 October 2017	4 October 2017	5 October 2017
8:30-10:30			SYMPOSIUM: “Metrology supporting authenticity and traceability of raw materials and products” 08:30-13:00 (Conference Hall I)		3rd IMEKOFOODS Conference 08:30-17:30 (Conference Hall I, III, foyer)	3rd IMEKOFOODS Conference 08:30-17:15 (Conference Hall I, III, foyer)	3rd IMEKOFOODS Conference 08:30-13:00 (Conference Hall I, foyer)	OLEUM 2nd Project Meeting 09:00-18:00 (Conference Hall III)
10:30-12:00	PROMETROFOOD 3rd Project Progress Meeting 10:30-17:30 (Conference Hall I)							
12:00-13:00								
13:00-15:00		REGISTRATION FOR THE CONFERENCE OPENS AT 12:00	Workshop on “Vibrational spectroscopy and chemometrics as tools for the analysis of agricultural products and foods” 13:00-15:00 (Conference Hall I)	Workshop on “Metrology and traceability – Applications in the food sector” 13:00-15:00 (Conference Hall III)			OLEUM 2nd Project Meeting 13:00-19:00 (Conference Hall III)	
15:00-17:30								
17:00-18:00								
18:00-19:00								
19:00-20:00								
20:00-21:00								
21:00-22:00					Gala Dinner (MEGARO MOUSIKIS, KTIRIO M2 (details on the webpage))	Young scientists meet together for an evening stroll in Thessaloniki (meeting point Kamara)		



SYMPOSIUM

Free entrance, priority list for registration

“Metrology supporting authenticity and traceability of raw materials and products”

1st October 2017, 08:30-13:00

Thessaloniki, Greece

**Aristotle University Research Dissemination Center (KEDEA)
Conference Hall I**

Online registration at <http://imekofoods3.web.auth.gr/free-pre-conference-event/>

**Local organizer: Maria Z. Tsimidou, Professor of Food
Chemistry; School of Chemistry, Laboratory of Food
Chemistry & Technology, AUTH**

**Contact person: Dr. Anastasia Kyriakoudi
(prometrofood@gmail.com; 0030 2310997792)**

**Under the aegis of ARISTOTLE UNIVERSITY of THESSALONIKI
and the HELLENIC INSTITUTE OF METROLOGY**



**PRO-METROFOOD Project has received funding
from the European Union's Horizon 2020 research
and innovation programme under GA No 739568**



SYMPOSIUM: “Metrology supporting authenticity and traceability of raw materials and products”

1st October 2017, 08:30-13:00
Thessaloniki, Greece

Aristotle University Research Dissemination Center (KEDEA)
Conference Hall I
3is Septevriou, University Campus – Thessaloniki
Free entrance based on priority list

Agenda

8:30 – *Registration*

9:00 – *Opening, greetings*

9:00 – 13:00 – **Poster session: Activities of PRO-METROFOOD partners**

9:20 – *“METROFOOD-RI: a new Research Infrastructure for promoting Metrology in Food and Nutrition”* - Dr. Claudia Zoani METROFOOD-RI Coordination Office, (ENEA, IT)

9:40 – *“The Role and Responsibilities of EIM in the development of the Metrological System in Greece with focus on chemical metrology”* - Dr. Elias Kakoulides (EXHM, G.C.S.L.-H.M.I., GR)

10:10 – *“Valorization of Local Food Products: The case of the Food Identity Database”* -Dr. Anagnostis Argiriou, Senior Researcher and Deputy Director at the Institute of Applied Biosciences– Centre for Research and Technology Hellas (CERTH, GR)

10:40 – *Coffee break*

11:00 – *“National and EU RIs on Food and Health linked to METROFOOD RI objectives”* - Dr. Larraitz Añorga, Head of the Sensors Unit (IK4-CIDETEC, ES)

11:20 – *“The Global Landscape of Food & Health Networking to strengthen EU Research Infrastructures”* - Isabel Castanheira, Professor, Chairperson IMEKO TC-23 Metrology in Food and Nutrition (INSA, PG)

11:40 Round Table: *“National, Pan-European and Global Research Infrastructures in the Agrofood and Nutrition Sector-Current Status and Prospect”*

Panel: Professor Theodore Laopoulos (Vice Rector for Research & Coordination, President of KEDEK, AUTH, GR); **Mrs Maria Koutrokoi**, National Representative for ESFRI t.b.c (General Secretary of Research and Technology, GSRT); **Dr. Giovanna Zappa** (PRO-METROFOOD & METROFOOD Coordinator, ENEA, IT); **Assoc. Professor Nikolaos Thomaidis** (UoA, SEVT, GR); **Dr. Kyriakos Loufakis** (President of SEVE); **Dr. Periklis Agathonos** (President of HellasLab)

12:30 – *Open discussion*

13:00 – *Conclusions*



PRO-METROFOOD Project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement

No 739568



Local Organizer



Maria Tsimidou (tsimidou@chem.auth.gr) is a Professor of Food Chemistry and Head of the Laboratory of Chemistry and Technology in the School of Chemistry at the Aristotle University of Thessaloniki (AUTH), Greece. Her teaching is food chemistry, analysis, quality control, and food legislation.

Her research interests are related to virgin olive oil chemistry, quality and authenticity, saffron chemistry, authenticity and quality, antioxidant activity of plant extracts and constituents, new sources of targeted bioactive compounds (squalene, carotenoids, and phenols), and analytical procedures for their determination. She supervised many postdoctorate research projects, PhD, MSc and undergraduate theses, and served as an internal or external examiner of theses in Greece and abroad. She has published many research papers, review articles, and contributions to scientific books and encyclopedias, served as editor to special publications on the above-mentioned topics and participates in relevant projects funded by national and European sources. She held several duties as expert in food chemistry, olive oil and saffron and was member of different evaluation bodies. She is currently Executive Editor in EJLST and Scientific Responsible for the Greek METROFOOD RI. Ongoing H2020 projects OLEUM, PROMETROFOODS.



SYMPOSIUM



SPEAKERS



Dr. Claudia Zoani (ENEA, METROFOOD-RI) is researcher at ENEA. She graduated in Chemistry, with a PhD in Analytical Chemistry, she is concluding a second PhD in Agriculture, Food and Environment. Specialist on atomic spectroscopic and mass spectrometry techniques and Metrology, she conducts R&D activities on Reference Materials and Methods; food quality & safety; traceability of raw materials and products; chemical risk assessment.

Scientific Reviewer of Journals and National and International Conferences, she is Member of the Steering Committee and Technical Chair of IMEKOFODS International Conferences. Member of the Technical Scientific Committee of the public-private jointly owned consortium Ce.R.T.A. (Regional Centers for Alimentary Technology). Awarded with the Premio Leonardo UGIS Comunicare la ricerca”- IV Edition 2014. She is Deputy Coordinator of METROFOOD-RI and PRO-METROFOOD Project.

METROFOOD-RI: A NEW RESEARCH INFRASTRUCTURE FOR PROMOTING METROLOGY IN FOOD AND NUTRITION

METROFOOD-RI “*Infrastructure for promoting Metrology in Food and Nutrition*” is a new, distributed Research Infrastructure of Global Interest, by means of which it will be possible to carry out different activities supporting data collection and measurement reliability, as well as basic and frontier research in food and nutrition. It aims at providing high quality metrology services in food and nutrition, comprising an important cross-section of highly inter-disciplinary and inter-connected fields throughout the food value chain, including agro-food, sustainable development, food safety, quality, traceability and authenticity, environmental safety, and human health. Dealing with Metrology, it embraces both experimental and theoretical determinations in science & technology and is characterised by an holistic approach to the agrofood sector, which implies measurements being carried out from primary production until final consumption (all along the supply chain, from farm – to fork). Listed as “Emerging” on the ESFRI Roadmap 2016, METROFOOD-RI is currently undertaking its “Early Phase” under H2020 INFRADEV-02-2016 PRO-METROFOOD project (GA 739568), with the goal to enter the next ESFRI Roadmap 2018 as “Active”.

For further information and documentation– METROFOOD-RI Coordination Office: +39 06 3048 6202; info@metrofood.eu; www.metrofood.eu



SPEAKERS



Elias Kakoulides is the Acting Head of the Chemical Metrology Service, which forms part of the General State Chemical Laboratory. He studied Chemical Engineering in NTU Athens, where he also obtained his Doctorate in Engineering. He also holds an MPhil in Polymeric Drug Delivery Systems and an MSc in Public Management. He has worked in the Greek chemical industry and in 2002 he joined the General State Chemical Laboratory. Since 2009 he has been working for EXHM/GCSL-EIM, the laboratory responsible for Metrology in Chemistry in Greece. He has participated in more than twenty comparisons on chemical metrology, most of which were on food matrix materials.

THE ROLE AND RESPONSIBILITIES OF EIM IN THE DEVELOPMENT OF THE METROLOGICAL SYSTEM IN GREECE WITH FOCUS ON CHEMICAL METROLOGY

Kakoulides E.^{1*}, Alexopoulos Ch.¹, Georgopoulou A.¹, Giannikopoulou P.¹, Stathoudaki A.¹, Schoina V.⁴, Kyriakidis, D.²

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Taking into account that activities involving measurements in developed countries represent about 6-7% of their GDP according to EURAMET, the basic role of metrology is to establish a system of reliable measurements as required in international trade. Instituting and operating a Metrological System is a prerequisite for tracing measurements to the respective SI measurement units. The Hellenic Metrology Institute (EIM) constitutes the pinnacle of the Metrological System in Greece with specific responsibilities and roles. EIM was founded in 1994 as a state legal entity under private law. It is located in the Industrial Area of Thessaloniki and is supervised by the General Secretariat of Industry of the Ministry of Economy and Development. Since 2005, EIM has designated the Chemical Metrology Laboratory (EXHM) of the General State Chemical Laboratory (GCSL) as responsible for the dissemination of the mole. The role of EXHM/GCSL-EIM is quite distinct, as the realisation of the unit of measurement (SI) is achieved by means of primary analytical methods. EXHM/GCSL-EIM has made considerable progress in founding its technical competence by successful participation in key comparison studies in the context of international metrology agreements. Since its establishment, EXHM/GCSL-EIM is supporting and expanding the infrastructure for chemical metrology in Greece by providing the necessary tools, such as measurement traceability, interlaboratory testing schemes and reference materials.



SPEAKERS

Dr. Anagnostis Argiriou

Studies and Working Status

Dr. Anagnostis Argiriou is a Senior Researcher and Deputy Director at the Institute of Applied Biosciences– Centre for Research and Technology Hellas. He got his Doctor of Biological Sciences degree cum laude in 1996 and his Ph.D. in Biochemistry and Medical Biotechnology in 2001 in Italy. From 2001 to 2003 he worked at CEINGE Biotechnologie Avanzate in Italy mainly to implement and improve human biodiagnostic protocols. In 2005 he joined the Institute of Agrobiotechnology in a Post Doctoral position and in 2006 became researcher. From 2005 he also collaborates as external scientist with the Laboratory of Lipid Research and Prevention of Cardiovascular Diseases of the 2nd Paediatric Clinic at the Aristotle University of Thessaloniki.

In his current position in the Institute of Applied Biosciences he is responsible for the Agri - Food Biotechnology Unit and he is the Head Manager of the Services Unit.

Project's experience and network

Dr. Argiriou has been coordinating or participating in EU, bilateral, and national projects (FPs, INTERREGs, HORIZON2020 etc.) and has submitted numerous proposals in various funding frameworks. He is involved and has been networking via academia and research throughout Europe, Africa, and Asia. During this period he was involved in different projects such as the genome sequencing of the plant model Arabidopsis, molecular diagnostics and design and construction of kits for gene therapy protocols. In the last five years, he participated as partner or coordinator in nine national and EC funded projects.

Academic experience and international involvement in Science

The field of prevailing scientific interests are the study of the genetic and epigenetic regulation of metabolic pathways in humans, the role of nutrition in the appearance of diseases as well as exploitation of genomic and proteomic technologies to improve plants and animal qualitative traits and nutritional characteristics.

In the last few years his scientific interest is also focused on the creation of databases for the traceability and the Identity of Food products based on omic technologies. He has different years of teaching experience in academic institutions and is the author of several scientific publications on internationally reputed journals with more than 160 impact factor and over 1300 citations.

For the last five years he acts as reviewer for the following journals: PLoS ONE, Molecular Biology Reporter, Plant Molecular Biology Reporter, BMC Plant Biology, Journal of Plant Physiology, Journal of Agricultural and Food Chemistry, Planta, Biotechnology and Biotechnologica Equipment and others.

He has organized or participated in the organization of a relevant number of Workshops and Conferences and has several invited presentations to Conferences, Symposia & Workshops, participating as keynote speaker. He is member of the Greek Society of Molecular Biology and Biochemistry, the Greek Society of Bioscientists, the European Atherosclerosis Society and the Greek Atherosclerosis Society of Northern Greece and member of the Scientific Board of the American-Hellenic Chamber of Commerce, the Hellenic Food Authority (EFET) and the Ministry of Health for the National Nutrition Policies.

VALORIZATION OF LOCAL FOOD PRODUCTS: THE CASE OF THE FOOD IDENTITY DATABASE

International tourism's dynamic globalized space acts as a catalyst for identity production, maintenance and transformation, fostering cross-cultural comparison, adoption and exchange not only of money and material goods but also of ideas, identities and conceptualizations. Tourism creates a distinctive inter-cultural space where disparate groups temporarily observe and interact with each other in what is often a carefully structured, power saturated environment. In this context, traditional foods are a significant element of every European Member State's cultural heritage and their production and sale are critical economic inputs to many regions. Such a coordinated ecosystem is able to support the sustainable development of local economies based on agri-food and tourism.

In order to exploit local food culture and give added value to local food products, tools to collect data for the creation of the identity of gastronomic products are needed. In such an effort the use of genomic, metabolomic and socio-culture information of local food value chains and products, coupled with advanced Information and Communication Tools will be presented.



SPEAKERS



Dr. Larraitz Añorga is the Head of the Sensors Unit at IK4-CIDETEC since 2014. Dr. Añorga holds a PhD in Biological Sciences by the University of Navarra in 2010. During her Ph.D, at the Microelectronics & Microsystems Unit at IK4-CEIT, she developed a strong interest for the development of electrochemical biosensors.

In 2010, she became the Head of the R&D Unit at BIOLAN (www.biolanmb.com), an SME focused on the development and commercialization of biosensors for Agri-Food industry, and in 2011 she joined IK4-CIDETEC. Her main research interests include the design and development of low-cost mass-manufacturable (bio)sensors based on screen and inkjet printing technologies with applications in clinical, environmental, and agri-food industries. Currently, she is member of the Organic and Printed Electronics Association, member of the SSI (Smart System Integration) Scientific committee and is managing several EU, national and regional projects targeting industrial applications such as SO2SAFE, BIOBEER and NEOPOC. Dr Añorga is co-author of six scientific papers, ten communications to conferences, one patent and reviewer of several Elsevier journals.

NATIONAL AND EU RIS ON FOOD AND HEALTH LINKED TO METROFOOD RI OBJECTIVE.

In order to integrate METROFOOD-RI, a new distributed Research Infrastructure for promoting metrology in food & nutrition, into the European landscape, to fill the gaps of the existing RIs, to prevent duplication, to create synergies with existing RIs and to identify the future trends, an in-depth analysis of the pan-European landscape on RIs, both at EU and national level, has been performed by METROFOOD partners.

Here, we will present the high number of national and EU RIs that has been identified, the strong synergies between METROFOOD-RI and 3 ESFRI RIs (AnaEE, EMPHASIS, and LifeWatch) and why METROFOOD-RI is unique to cover the current gaps of the “Health & Food” RI Landscape.



SYMPOSIUM



SPEAKERS



Dr. Isabel Castanheira is a principal scientist at the Instituto Nacional de Saúde Doutor Ricardo Jorge (INSA), the Portuguese National Health Institute and **Chair of International Measurement Confederation - IMEKO TC 23 Metrology in Food and Nutrition.** Her research activities are performed within three interacting themes namely: Bioinorganic Chemistry; Food Safety and Quality and Metrology of Food and Nutrition.

She has interest in analysing and studying the content of classical nutrients in food products regarding comparability and reliability of the measurement values, which is undertaken as part of the PRO-METROFOOD –RI. The contribution of her work to the overall integration project, is focused on scientific aspects related with the coordination of Quality standards & certification. Her activities in European and National projects consider aspects of the traceability routes to SI units involving intermediate reference points which are identified and developed through state of the art analytical methods such as HPLC-ICP-MS, LC-MS or GC-MS. Other studies, in both projects, deal with the estimation of uncertainty by the so called experimental approaches verified by modelling approach as described in GUM. She published more than one hundred papers in peer-reviewed journals. She gives lectures in academic seminars and courses designed to address the needs of the National Health Service and International Graduate Courses on Production and Use of Food Composition Data in Nutrition. She has been active as academic supervisor of master and doctorate students. She is referee for the several peer-reviewed journals and member of editorial board for the following journals: Measurement and Journal of Food Composition and Analysis.



ROUND TABLE

“National, Pan-European and Global Research Infrastructures in the Agrofood and Nutrition Sector-Current Status and Prospect”

ROUND TABLE COORDINATOR



Giovanna Zappa, Research director at ENEA (Italian National Agency for New Technologies, Energy and Environment) with more than thirty years of experience in Analytical Chemistry, Reference Materials and Metrology applied to Chemical and Biological Measurements. She is Coordinator of the European Research Infrastructure METROFOOD-RI and of the JRU METROFOOD-IT. Scientific Responsible of the National Research Project on food safety SAFE&SMART of the National Technology Cluster Agrifood and principal Investigator of research projects on food quality and safety. She is member of the IMEKO TC23 "Metrology in Food and Nutrition", UNI and ISO Committees, Codex Alimentarius. Professor for graduation courses at the Universities “La Sapienza” and “Tor Vergata” of Rome, tutor for graduation, post-graduation, PhD and fellowships. She is author of more than 150 scientific publications.

QUESTIONS TO BE DISCUSSED AT THE ROUND TABLE

- From your point of view how and to what extent the research infrastructures are important? and can they actually promote the economic and social development?
- Specifically concerning research infrastructures for agri-food and nutrition, what are the priorities and what suggestions you would like to give to those who are engaged in the realization of these infrastructures?

SCIENTIFIC PROGRAMME - LECTURES



Sunday, October 1st 2017

12:00-17:15 Registration (*Foyer KE.D.E.A.*)

Room *Conference Hall I - KE.D.E.A.*
13:00-15:00 **Workshop 1** - "Training course in vibrational spectroscopy and chemometrics as tools for the analysis of agricultural products and foods" - Petros A. Tarantilis (AUA, GR)

Room *Conference Hall III - KE.D.E.A.*
13:00-15:00 **Workshop 2** - "Metrology and traceability - Applications in the food sector"
13:00-14:00 Ioannis Sitaras (E.SY.D., GR) - The establishment of traceability of measurements in food testing through the use of reference materials
14:00-15:00 Eugenia Lampi (General Chemical State Laboratory, Athens, GR) - Chemical metrology and traceability in food testing

Room *Conference Hall I - KE.D.E.A.*
17:30-18:00 **Opening and Welcome Remarks**
Chairs: Maria Tsimidou (AUTH, GR), Isabel Castanheira (INSA, PT), Periklis Agathonos (HellasLab, GR)

18:00-18:45 [PL01] Chemical analysis, monitoring of dynamic changes, metabolomics and "in cell" applications of NMR in natural products and food chemistry: Is the role of metrology underestimated? Ioannis P. Gerothanasis (University of Ioannina, Greece; International Center for Chemical and Biological Sciences, Pakistan)

19:00-21:00 **Welcome Cocktail (Foyer + Terrace)**

Monday, October 2nd, 2017

08:00-17:00 Registration

Room *Conference Hall I - KE.D.E.A.*
09:15-11:00 **Session 1: FoodOmics**
Chairs: Elena Ibañez [CIAL (CSIC-UAM), ES] - Roberto Consonni (ISMAL-CNR, IT)

09:15-10:00 [K01] Foodomics: Last Advances in the Binomial Food & Health - Alejandro Cifuentes (Institute of Food Science Research, ES)

10:00-10:15 Standardising Analytical Metabolomics. Focus in Food Analysis - Theodoridis, G.

10:15-10:30 NMR metabolomics in food authentication - Consonni R., Cagliani L.R.

10:30-10:45 NMR metabolomics and spectrophotometric studies to infusions and decoctions of plant species to assess and compare the metabolic and antioxidant profiles - Fotakis C., Proestos C., Sinanoglou V.J., Zoumpoulakis P.

10:45-11:00 Evaluation of extraction methods for metabolite profiling of *Apis mellifera* using NMR spectroscopy - Kalčic F., Fraňková A., Maršík P., Jiralová K., Havlík J., Hroncová Z., Klouček P.

11:00-11:30 **Coffee Break & Poster session (Foyer)**



SCIENTIFIC PROGRAMME - LECTURES

Room	Conference Hall I - KE.D.E.A.	Room	Conference Hall III- KE.D.E.A.
11:30-13:15	Session 2: FoodOmics – Food Composition Databanks	11:30-13:15	Session 3: Analytical approaches for food contaminants and risk assessment
	Chair: Elena Ibañez [CIAL (CSIC-UAM), ES]		Chairs: George Miliadis (Food Allergens Lab., GR) - Dimitra Lambropoulou (AUTH, GR)
11:30-12:00	[INVL1] Expansion of the information included in Greek food composition tables: Contaminants, food additives, glycemic index, supplements & biodiversity - Antonia Trichopoulou (HHF, GR)	11:30-12:00	Uncertainty evaluation of parameters used in LC-MS/MS system suitability for the determination of pesticide residues - Miliadis, G., Tsiantas, P., Paraskevaidi, K., Siragakis, G.
12:00-12:15	The development of FoodEXplorer – A EuroFIR data interchange tool for searching and retrieving multiple food composition databases (FCDB) - Westenbrink, S., Kadvan, A., Korousic Seljak, B., Möller, A., Ireland, J., Glibetic, M., Mantur, A., Roe, M., Finglas P.	12:00-12:15	Large scale multi-residue methods by gas and liquid chromatography-mass spectrometry for the determination of pesticide residues in food matrices - Botitsi, E., Antoniou, S., Tsipi, D.
12:15-12:30	Development of the Guidelines for Assessment of Methods of Analysis (GAMA) – an online Wiki resource for food compilers and total diet studies - Castanheira, I., Zoani, C., Roe, M., Ollilainen, V., Presser, K., Finglas P.M.	12:15-12:30	Phospholipid fatty acid (PLFA) analysis and its applications in the study of pesticides effects on soil microbial diversity - Menkissoglu-Spiroudi, U., Papadopoulou, E.S., Karpouzias, D.G.
12:30-12:45	A semi-automatic system for classifying and describing foods according to FoodEx2 - Eftimov, T., Ispirova, G., Koroušić Seljak, B., Korošec, P.	12:30-12:45	Release of metals from ceramic articles in contact with food: effects of simulant, pH, temperature, contact duration and migration times - Li, Y., Bolle, F., Steenhout, A.
12:45-13:00	A pilot study to explore the link between habitual diet and urinary biomarkers during pregnancy – Fotiou, M., Kyrkou, C., Tsakoumaki, F., Dimitropoulou, A., Virgiliou, C., Fotakis, C., Athanasiadou E., Loukri, A., Papadopoulos, S., Stamkopoulos, A., Gika, H., Theodoridis, G., Athanasiadis, A.P., Biliaderis, C.G., Zoumpoulakis, P., Michaelidou, A.M.	12:45-13:00	The role of <i>in vitro</i> simulated human digestion models in assessing potential exposure to nanoparticles in food: an essential tool for risk assessment of nanomaterials used in food-related applications - Cubadda, F., Aureli, F., Raggi, A., Mantovani, A.
13:00-13:15	Metabolic profiling of royal jelly as a tool for the characterization of royal jelly - Pina, A., Begou, O., Kanelis, D., Gika, H., Kalogiannis, S., Tananaki, C., Zotou, A., Theodoridis, G.	13:00-13:15	A flexible model for the development and validation of multianalyte methods for the determination of migrants from food contact materials - Lampi, E., Dessipri, E., Poulima, I.
13:15-14:15	Lunch break (Foyer + Terrace)		

SCIENTIFIC PROGRAMME - LECTURES



Room	Conference Hall I - KE.D.E.A.	Room	Conference Hall III - KE.D.E.A.
14:15-15:45	Session 4: FT-IR-RAMAN - Other spectroscopic techniques	14:15-15:45	Session 5: Elemental and isotopic analysis for food traceability and authenticity
	Chair: Petros Tarantilis (AUA, GR)		Chairs: George Zachariadis (AUTH, GR) - Giovanna Zappa (ENEA, IT)
14:15-14:30	Building generic, easily-updatable chemometric models with harmonisation and augmentation features: The case of FTIR vegetable oils classification - Georgouli, K., Diaz-Chito, K., Martinez-del Rincon, J., Koidis, A.	14:15-14:30	Non-traditional stable isotope techniques for verifying the declared geographical origin of wine - Epova, E., Bérail, S., Zuliani, T., Medina, B., Donard, O.X.
14:30-14:45	Revealing the invisible changes in FTIR spectra upon storage of edible composite films using two dimensional correlation analysis - Matsakidou, A. , Tsimidou, M.Z., Kiosseoglou, V.	14:30-14:45	The elemental profile of the Greek saffron PDO “Krokos Kozanis” as a tool in authentication and traceability studies - Kyriakoudi A. , Zoani C., Zappa G., Tsimidou M. Z.
14:45-15:00	The use of FTIR spectroscopy to assess polyphenols induced changes in the biochemical composition of fish tissues - Coccia E. , Volpe M.G., Varricchio E., Paolucci M.	14:45-15:00	Verification of milk on the Slovenian market based on stable isotope and elemental analysis Potočnik, D., Nečemer, M., Jagodic, M., Mazej, D., Ogrinc, N.
15:00-15:15	Building spectral databases for the quality control of spices: The case study of saffron - Ordoudi, S.A. , Tsimidou, M.Z.	15:00-15:15	Essential and toxic trace elements in chocolate: Occurrence data, assessment of nutritional merits and risk evaluation - Chekri, R. , Bemrah, N., Kandia, D., Guérin, T., Noël, L., Jitaru, P.
15:15-15:30	Compound-specific analysis of $\delta^{13}C$ and $\delta^{2}H$ of olive oil fatty acids - Bontempo, L. , Paolini, M., Camin, F.	15:15-15:30	Relevancy of speciation analysis for geographical origin discrimination of red wines - Vacchina, V., Medina, B., Donard, O.X., Seby, F.
15:30-15:45	Multiresidue method for the determination of PPCPs in beetroot crops using QuEChERS by liquid chromatography-triple quadrupole tandem mass spectrometry - Papageorgiou, M., Zioris, I., Papaioannou, D., Danis, T., Kalavrouziotis, I., Lambropoulou, D.	15:30-15:45	Isotopic model for detecting wine origin - Karalis P., Poutouki A.E., Dotsika E.
15:45-16:15	Coffee Break & Poster sessions (Foyer)		
Room	Conference Hall I - KE.D.E.A.		
16:15-16:30	Presentation of PRO-METROFOOD poster session (P01-P08) chaired by Dr. Claudia Zoani (ENEA, IT), co-Coordinator of PRO-METROFOOD project		
16:30-17:00	Presentation of poster session (P09-P46) chaired by Dr. Anastasia Kyriakoudi (AUTH, GR), 2 nd IMEKOFOODS 1 st Best Poster awardee		



SCIENTIFIC PROGRAMME - LECTURES

17:00-18:00

IMEKO TC23 meeting

20:00-22:00

Gala Dinner (MEGARO MOUSIKIS, KTIRIO M2 *(details on the webpage)*)

Tuesday, October 3rd, 2017

08:30-17:00

Registration

Room

Conference Hall I - KE.D.E.A.

09:00-11:00

Session 6: Current and future needs in industry and official control laboratories

Chairs: Nastasia Belc (IBA, RO) - Liu Jun (NIM, CN)

09:00-09:30

[INVL2] From food microbiological analysis by culture to the liberation of DNA sequencing and beyond: Developments, challenges and future trends in reference methods and industry standards - Kostas Gkatzionis (Birmingham Univ., UK)

09:30-10:00

[INVL3] Chemical metrology - Progress in Greece - Elias Kakoulides (EXHM, G.C.S.L.-H.M.I., GR)

10:00-10:15

Thinking and practicing of National Quality Infrastructure in China - Jun, L., Fang, X., Shang, T.

10:15-10:30

Current status and future prospects of the French Agency for Food, Environmental and Occupational Health & Safety (Anses) in terms of national reference mandate for trace metals determination in foodstuff - Jitaru, P., Chekri, R., Guérin, T.

10:30-11:00

Presentation of poster session (P47-P78) chaired by Dr. Kaoru Yoshida (Sony Computer Science Laboratories, JP), 1st IMEKOFOODS Best Poster awardee

11:00-11:30

Coffee Break & Poster session (Foyer)

Room

Conference Hall I - KE.D.E.A.

Room

Conference Hall III- KE.D.E.A.

11:30-13:15

Session 7: Novel methods, markers, devices and services

Chairs: Lenka Kouřimska (CULS, CZ) - Larraitz Añorga (IK4-CIDETEC, ES)

11:30-11:45

Evaluation of commercial frying oils by using the OXITEST method - Favati, F., Bernardi, M., Galgano, F., Caruso, M.C., Cappiello, F.

11:45-12:00

Development and commercial implementation of a source assurance and traceability method based on DNA barcodes - Zografos, A., Clotilde, L., Birley, A.

12:00-12:15

Engineered Metallic Nanostructures for the detection of food contaminants by Surface Enhanced Raman Scattering - Mandrile, L., Giovannozzi, A.M., Taglietti, A., Bassi, B., Dacarro, G., Pallavicini, P., Schmidt, M.S., Marta, G., Rossi, A.M.

12:15-12:30

The effects of radiofrequency heating on the aminoacids content of Whole wheat bread, Graham bread and White bread - Miteluț, A.C., Ștefănoiu, G.A., Popa, E.E., Drăghici, M., Popa, M.E., Cramariuc, R., Balaurea- Chirilov, A.M., Măriuț, C., **Mustățea, G.S.**, Mohan, G., Culețu, A.

11:30-13:15

Session 8: Measurement uncertainty

Chairs: Eugenia Lampi (G.C.S.L., Athens, GR) - Hayrettin Özer (TÜBITAK, TR)

11:30-11:45

Accreditation of stable isotope ratios methods: guidelines to implement a quality system according to ISO/IEC 17025:1999 – Perini, M., Camin, F.

11:45-12:00

Metrological assesment of laboratory performance - Giannikopoulou P., Kakoulides, E., Alexopoulos, Ch.

12:00-12:15

Measurement uncertainty for the determination of alpha-tocopherol by high- performance liquid chromatography – Bešter, E., Bučar-Miklavčič, M., Butinar, B.

12:15-12:30

Development of new Multipurpose-RMs of rice grains and rice flour – Ogrinc, N., Zappa, G., Zoani C.

SCIENTIFIC PROGRAMME - LECTURES



12:30-12:45	Greek PDO saffron authentication studies using species specific molecular markers - Bosmali, I., Ordoudi, S.A, Tsimidou, M.Z., Madesis, P.	12:30-12:45	Validation of ELISA method to support detection and quantification of total aflatoxins for the traditional Romanian sponge cake “cozonac” - Smeu, I., Cucu, M.E., Dobre, A.A.
12:45-13:00	SO2SAFE - A fast and accurate Electrochemical Biosensor for Sulphite Analysis in Food Industry - Añorga, L., Martínez-Paredes, G., Jubete, E., Parrilla, M., Lamas-Ardisana, P.J., Grande, H.J., Ramos, E., Salleres, S., Jaureguibeitia, A., Albizu, A.	12:45-13:00	Uncertainty associated with sampling and effect of sampling plan in aflatoxin analysis of dried figs – Ozer, H., Oktay, Basegmez, H.I., Whitaker, T.B., Slate, A.B.
13:00-13:15	Development of a Pilot Service for the electronic Infrastructure of METROFOOD-RI - Presser, K., Zoani, C., Szymanek, J., Ocke, M.	13:00-13:15	Using least squares method for minimizing the total energy value measurements error for olive oil and alcoholic beverages with bomb calorimeter - Kogia F., Andronikopoulos K., Sapalidou G., Angelidis P., Angelidis G.
13:15-14:15		Lunch break	
<i>Room</i>	<i>Conference Hall I - KE.D.E.A.</i>	<i>Room</i>	<i>Conference Hall III - KE.D.E.A.</i>
14:15-15:15	Session 9A: Antioxidants and other bioactive compounds	14:15-15:15	Session 10: Experimental design
	Chairs: Dimitris Makris (Aegean Univ., GR) - Sema Demirci Çekiç (Istanbul Univ., TR)		Chairs: Nives Ogrinc (JSI, SL) - Christos Ritzoulis (ATEI of Thessaloniki, GR)
14:15-14:30	Development of novel DNA-CUPRAC colorimetric probe for determination of hydroxyl radical damage and related antioxidant activity - Çekiç, S.D., Uzunboy, S., Apak, R.	14:15-14:30	How the Design of Experiments (DOE) can reduce the systematic and random sources of variation during the extraction of labile bioactive constituent - Mantzouridou, F.
14:30-14:45	Effect of dehydrogenation or dihydrogenation of C α -C β Bond of hydroxystilbenes to their hydrogen atom donating activity: A DFT approach - Nenadis, N., Stavra, K.	14:30-14:45	Optimization of a green method for the recovery of natural colorants from onion solid wastes: application in a yogurt product - Mourtzinos, I., Prodromidis, P., Makris, D., Biliaderis, C.G., Moschakis, T.
14:45-15:00	Enhanced extraction of antioxidant polyphenols from <i>Moringa oleifera</i> Lam. leaves using a biomolecule-based low-transition temperature mixture - Karageorgou, I., Grigorakis, S., Lalas, S., Makris, D.P.	14:45-15:00	Towards some common protocols for the extraction of hydrocolloids from plant sources: Challenges and emerging opportunities - Ritzoulis, C.



SCIENTIFIC PROGRAMME - LECTURES

15:00-15:15	Oxidative stability and microstructure of granola bars enriched with fish oil and algal antioxidants - Karadag, A., Hermund, D.B., Alasalvar, C., Jacobsen, C.	15:00-15:15	Whey protein denaturation determined by a novel approach of analysis of difference-UV spectra - Nikolaidis, A., Moschakis, T.
15:15-15:30	Comprehensive identification of polyphenols in different hazelnut products - Pelvan. E., Olgun, E., Karadağ, A., Alasalvar, C.	15:15-15:30	Optimization of HPLC methods for simultaneous analysis of food colors - Najdenkoska, A., Petanovska-Ilievska, B.

15:30-16:00	Coffee Break & Poster session (Foyer)
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<i>Room</i>	<i>Conference Hall I - KE.D.E.A.</i>	<i>Room</i>	<i>Conference Hall III - KE.D.E.A.</i>
16:00-17:00	Session 9B: Antioxidants and other bioactive compounds	16:00-17:00	Session 11: Sensory analysis
	Chairs: Aris Xenakis (NHRE, GR) -Christina Popovici (TUM, MD)		Chairs:Adamantini Paraskeuopoulou (AUTH, GR) – Effie Hatzidimitriou (AUTH-GR)
16:00-16:15	Antioxidant activity of bioactive molecules in homogeneous and heterogeneous media - Chatzidaki, M.D., Sotiroudis, G., Zoumpanioti, M., Bourlieu-Lacanal, C., Villeneuve, P., Xenakis, A.	16:00-16:15	Sensory Evaluation of Boar Taint Compounds - Kouřimská, L., Čítek, J., Dvořáková, B., Zadinová, K., Okrouhlá, M., Stupka, R.
16:15-16:30	Food security and wild fruits: kiwiberry a proved source of bioactive compounds - Santos, J., Nunes, A., Oliveira, M.B.P.P.	16:15-16:30	High-throughput analysis of food volatiles by direct injection mass spectrometry - Khomenko, I., Cappellin, L., Pedrotti, M., Farneti, B., Capozzi, V., Biasioli, F.
16:30-16:45	Bioactive components, antioxidant activities, and principal component analysis of two health benefit food groups from Anatolia: Monofloral honeys and honey-bee pollens - Erim, F.B., Kalaycioğlu, Z., Kaygusuz, H., Döker, S., Tezcan, F., Yıldız, O., Şahin, H., Can Z., Kolayli, S.	16:30-16:45	Cake aroma profile as affected by wheat flour replacement with carob flour - Paraskevopoulou, A., Pantazi, F., Papageorgiou, M.
16:45-17:00	Innovation strategies for creating advantage of walnuts (<i>Juglans regia</i> L.) bioactive compounds in foods - Popovici, C., Baerle, A., Tatarov, P.	16:45-17:00	Romanian consumer profile on food waste behaviour - Iorga, S., Belc, N., Mosoiu, C., Apostol, L., Niculae, O.

17:00-17:30	Oral and Poster Award Ceremony (supported by Gibertini Elettronika S.r.l., IT)
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21:00	Young scientists meet together for an evening stroll in Thessaloniki (meeting point Kamara)
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SCIENTIFIC PROGRAMME - LECTURES



Wednesday, October 4th, 2017

08:30-12:00	Registration
<i>Room</i>	<i>Conference Hall I - K.E.D.E.A.</i>
08:30-10:30	Session 12: Food chemistry, technology and analysis
	Chairs: Fabio Favati (Verona Univ., IT) - Tasos Koidis (Belfast Queen's Univ., UK)
08:30-09:00	Chemical analysis and chemometrics for Greek potable waters classification - Vlachou, C., Hatzi, E., Xonoglou, N., Liouza, D., Tarantili, P.
09:00-09:15	Environmental and processing-derived metabolomics alterations in saffron (<i>C. sativus</i> L.) mature stigmas from two PDO ecotypes (Castilla-La Mancha; Kozani) - Diretto, G., Sulli, M., Demurtas, O., Frusciante, S., Giuliano, G.
09:15-09:30	Multicore-microencapsulation of bioactive-rich extracts, an innovative technology for functional food ingredients - Shi, J.
09:30-09:45	Implementation of rapid and non-invasive quality control through PTR-ToF-MS for anhydrous milk fat quality control - Pedrotti, M., Khomenko, I., Cappellin, L., Fogliano, V., Biasioli, F.
09:45-10:00	Starch - Cellulose ether films: Microstructure and water resistance - Arik Kibar, E.A., Us, F.
10:00-10:15	Abundance of selenium and selenoproteins in foods consumed in Portugal - Gueifão, S., Sanches, D., Delgado, I., Coelho, I., Ventura M., Castanheira, I.
10:15-10:30	Spray drying technology producing tomato powder - Novel way to reduce post harvest loss - Abubacker Siddick, S.
10:30-11:00	Coffee Break
<i>Room</i>	<i>Conference Hall I - K.E.D.E.A.</i>
11:00-11:45	Session 13: Current needs in oils and fats analysis
	Chairs: Ramon Aparicio (CSIC, ES) - George Blekas (AUTH, GR)
11:00-11:15	Application of wide scope target, suspect and non-target High Resolution Mass Spectrometric methods coupled with advanced chemometrics in food authenticity studies - Kalogiouri, N.P., Thomaidis, N.S.
11:15-11:30	Screening of olive pomace polyphenols from individual and mixed olive varieties - Santos, J., Nunes, M.A., Oliveira, M.B.P.P.
11:30-11:45	Development of metrology of the organoleptic quality extra virgin olive oil system - Caciotta, M., Giarnetti, S., Orioni, B.
<i>Room</i>	<i>Conference Hall I - K.E.D.E.A.</i>
11:45-13:00	Session 14: OLEUM (Better solutions to protect olive oil quality and authenticity) session
	Chairs: Alessandra Bendini (Bologna Univ., IT) - Diego Luis García González (CSIC, ES)
11:45-12:15	SPECIAL GUEST LECTURE "The EU H2020 OLEUM Project: state of play and advancements" Gallina Toschi, T., Conte, L., García González, D., Maquet, A., Brereton, P., Fernández Celemín, L.
12:15-12:30	Time Domain Reflectometry as a promising analytical approach for the determination of fatty acid ethyl esters in extra virgin olive oils - Valli, E., Palagano, R., Berardinelli, A., Ragni, L., Moreda, W., Pérez, Camino M., Bendini, A., Gallina Toschi, T.
12:30-12:45	The development of Reference Materials in virgin olive oil sensory assessment: The contribution of Flavour Chemistry - García González, D.L., Tena, N., Valli, E., Winkelmann, O., Brereton, P., Lacoste, F., Maquet, A., Vichi, S., Conte, L., Bendini, A., Gallina Toschi, T.
12:45-13:00	Tailored sample preparation for olive oil Analysis by ¹H-NMR: Applications in sensory evaluation, origin classification and polyphenol determination - Winkelmann, O., Kuechler, T., Tsimidou, M., Nenadis, N., Mastralexi, A., Bendini, A., Gonzalez, D.L.G., Gallina Toschi, T.

13:00

Closing Ceremony - Announcement of the 4th IMEKOFOODS Conference



SCIENTIFIC PROGRAMME - POSTERS

- P01** Food Contamination by Organochlorines: Analysis of Oyster Tissue - **Masci, M.**, Nevigato, T., Turrini, A., Caproni, R.
- P02** Comprehensive Analysis of Fatty Acids in Oysters by GC-FID/GC-MS - **Nevigato, T.**, Masci, M., Turrini, A., Caproni, R.
- P03** PRO-METROFOOD Project: Involvement of the French Node in setting up a novel European Research Infrastructure in Food and Nutrition- **Jitaru, P.**, Chekri, R., Lavison-Bompard, G., Fiscaro, P., Seby, F., Vacchina, V., Guérin, T., Donard, O.
- P04** METROFOOD-RI: inventory of the facilities and organization of the Physical Infrastructure - Alexandre, J., Tangni, E., Zoani, C., Donard, O., Van Loco, J.
- P05** Multi-elemental Analysis of Oysters by Means of Total Reflection X-ray Fluorescence - Borgese, L., Dalipi, R., Zoani, C., Zappa, G., Depero, L.E.
- P06** Development of a Data Management Plan for METROFOOD-RI - Presser, K., Szymanek, J., Zoani, C., Castanheira, I.
- P07** Development and delivery of a pilot service for the Physical Infrastructure of METROFOOD-RI - Ogrinc, N., Zappa, G., Zoani, C., Donard, O.F.X., Séby, F.
- P08** The importance of METROFOOD RI for/in the development of the agrofood sector in the South Eastern European (SEE) partner countries - Kyriakoudi, A., **Kouzounis, D.**, Zoani, C., Zappa, G., Tsimidou, M.Z.
- P09** The potential of NMR spectroscopy vs chemical and separation techniques: the case of balsamic vinegar analysis - Lalou, S., Kontogianni, V.G., Tsiafoulis, C.G., Gerothanassis, I.P., **Tsimidou, M.Z.**
- P10** Statistical Invariance Analysis of conventional and naturally grown green coarse tea (Bancha) Metabolome and Consumers' Physical Activity - **Ohta, K.**, Funabashi, M.
- P11** Development of metabolomics for Alternaria toxins as a model for risk assessment of mycotoxins - **Gotthardt, M.**, Kanawati, B., Schmitt-Kopplin, P., Rychlik, M.
- P12** Metabolomics associated with GWAS (mGWAS) related to the basal metabolic rate(BMR) in overweight/obese Korean women - **Lee, M.**
- P13** Exploring the link between the circulatory and excreted metabolome during pregnancy – A pilot study – Dimitropoulou, A., Fotakis, C., **Fotiou, M.**, Tsakoumaki, F., Kyrkou, C., Menexes, G., Athanasiadis A.P., Biliaderis, C.G., Zoumpoulakis, P., Michaelidou, A.M.
- P14** Isotopic model for detecting original wine product - **Karalis, P.**, Poutouki, A.E., Dotsika, E.
- P15** Isotopic model for detecting honey origin - **Karalis, P.**, Poutouki, A.E., Dotsika, E.
- P16** Isotopic model for detecting origin of milk - **Karalis, P.**, Poutouki, A.E., Dotsika, E.
- P17** Key metrological issues for the estimation of dietary intakes of manganese and copper from Portuguese total diet study - **Ventura, M.**, Coelho, I., Gueifão, S., Moreira, T., Costa, H., Castanheira, I.
- P18** Development of a digestion method to assist multi-element determination in Rocha pear by ICP-MS - **Castanheira, I.**, Coelho, I., Teixeira, R., Ventura, M.
- P19** Simultaneous determination of α -thujone, β -thujone and camphor in infusion of sage using Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy - **Sotiropoulou N.S.D.**, Pappas C.S., Tarantilis P.A.
- P20** Estimation of Sideritis species geographical origin using Diffuse Reflectance Fourier Transform Infrared Spectroscopy (DRIFTS) and chemometrics - **Pappas, C.S.**, Kimbaris, A., Karachasani, A., Korakis, G., Tarantilis, P.A.
- P21** Rapid evaluation of free fatty acids concentration in edible hemp food chain using ATR-FTIR spectroscopy - Siano, F., Sorrentino, G., Paolucci, M., Montano, L., **Volpe, M.G.**

SCIENTIFIC PROGRAMME - POSTERS



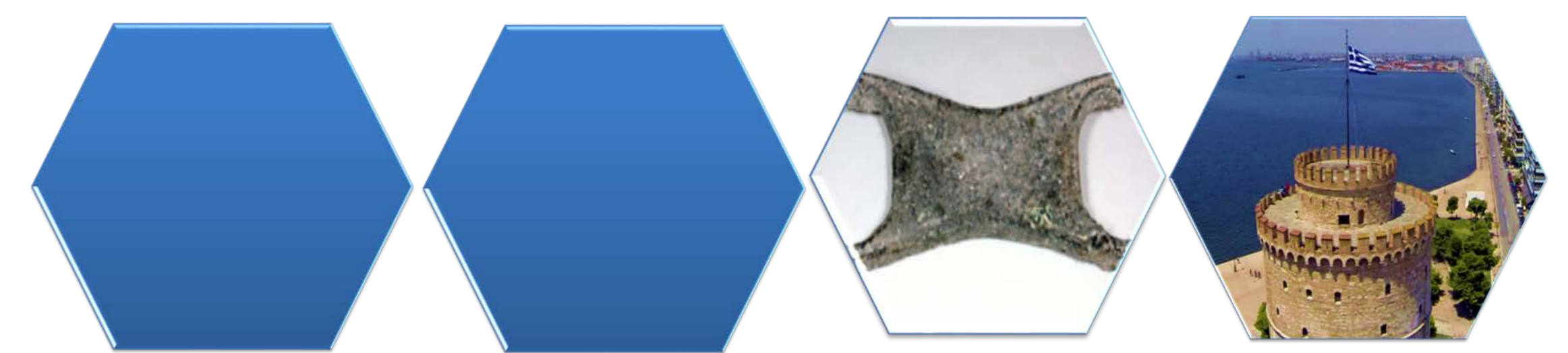
- P22** Study of mineral and phytosterol components of ancient Italian beans species - De Cunzo, F., Siano, F., Sorrentino, G., Riccardi, M., Pulvento, C., **Volpe, M.G.**
- P23** Comprehensive characterization of cold-pressing extracted hemp seed oil - Picariello, G., Siano, F., Sorrentino, G., **Volpe, M.G.**
- P24** Volatile molecules and phenolic profile of hemp edible products - Boscaino, F., Coccia, E., Paolucci, M., Siano, F., Sorrentino, G., Di Stasio, M., Moccia, S., **Volpe, M.G.**
- P25** MIR, NIR and Raman spectroscopies and chemometrics to authenticate honeys from Argentina - **Alonso-Salces R.M.**, Fernández-Pierna, J.A., Abbas, O., Aubone, I., Baeten, V., Fuselli, S.R.
- P26** Novel rapid approach by MIR, NIR and Raman spectroscopies and chemometrics to assess honey quality - **Alonso-Salces R.M.**, Fernández-Pierna, J.A., Abbas, O., Aubone, I., Amadei Enghelmayer, M., Rosso, V.S., Baeten, V., Fuselli, S.R.
- P27** Prediction of chemical composition of Greek traditional sausages by Near-Infrared Reflectance Spectroscopy - Tzemou, M., Parasoglou, V.K., Ioannidou, T., Papadopoulos, V., Mitlianga, P., **Kasapidou, E.**
- P28** Extra virgin olive oils quality assessment by ATR-FTIR spectroscopy - Volpe, M.G., Siano, F., Vasca, E. Medugno, A., **La Cara, F.**
- P29** Preparation of environmentally benign zero valent iron nanoparticles for removing soil contaminants - **Kozma, G.**, Kukovecz, Á., Kónya, Z.
- P30** Development and validation of RP-HPLC method for determination of pesticide residues in apple juice - **Velkoska-Markovska, L.**, Petanovska-Ilievska, B., Markovski, A.
- P31** Preliminary steps in validating an ICP-MS method for simultaneously analysis of six metals migration from food contact plastic materials into food simulants - **Mustatea, G.**, Ungureanu, E.L., Belc, N., Iorga, E., Apostol, L.
- P32** Using computer vision softwares in morphological analyses of European Chestnut (*Castanea sativa* Mill.) genotypes - Markovski, A., Velkoska-Markovska, L., Petanovska-Ilievska, B.
- P33** Development of selective and sensitive electrochemical sensors, based on novel carbonaceous materials - Diamantidou, D., Deliyanni, E., Girusi, S.
- P34** NMR Markers for quantitative analysis of the Romanian Lavandula varieties - **Ionescu, V.**, Manolache, F.A., Todască, C.
- P35** Neutron Activation Analysis for processed animal proteins and insect meals characterization - **Bergamaschi, L.**, Mandrile, L., Marchis, D., Amato, G., Martra, G., Rossi, A.M.
- P36** Peach kernel: a potential source for cosmeceuticals - Karadimou, C.C., Koletti, A.E., Moschona, A., Gika, H.G., Vlachos, D., **Assimopoulou, A.N.**
- P37** The effects of radiofrequency heating on the aminoacids content of Whole Wheat bread, Graham bread and White bread - Miteluț, A.C., Ștefănoiu, G.A., Popa, E.E., Drăghici, M., Popa, M.E., Cramariuc, R., Balaurea-Chirilov, A.M., Măriuț, C., Mustățea, G.S., Mohan, G., Culețu, A.
- P38** Determination of $^{18}\text{O}/^{16}\text{O}$ ratio of glycerol of triglyceride in fat using GC/P/IRMS after saponification - Zhong, Q.D., Wang, D.B., Li, G.H.
- P39** Uncertainty at very low analytical levels – The probabilistic approach - **Lampi, E.**, Boussias, S.
- P40** Proficiency Testing Activities; Experience of a Laboratory for Food Quality Control - **Arsova Sarafinovska, Z.**, Najdenkoska, A., Culeva, B., Dimitrovska, M.
- P41** HPLC method development and validation for the determination of sulfonamides residues in milk samples - Kechagia, M., **Samanidou, V.**
- P42** Robust processing method to produce candidate reference materials for ochratoxin a in wheat - **Ozer, H.**, Oktay Basegmez, H.I.



SCIENTIFIC PROGRAMME - POSTERS

- P43** Method of assessment of the efficacy of decontamination of thermosensitive foodstuffs - **Apostol, L.**, Vatuia, I., Cucu, M., Racovita, R.C.
- P44** An integrated evaluation approach for metric comparison of analytical techniques, based on diverse requirements. Application in selection of suitable technique for ammonium determination in potable and recycled hygiene water, to be used in manned space missions - **Zachariadis, G.**, Giakisikli, G., Trikas, E., Anthemidis, A., Karapantsios, T.
- P45** Superfoods and Superherbs: Characterization of Antioxidant, Antifungal capacity and Nutritional Designation - Roidaki, A., Kollia, E., Panagopoulou, E., **Proestos, C.**, Markaki, P., Chiou, A.
- P46** Development and validation of a UPLC-qTOF MS method for the determination of flavonoids and phenolic acids in honey - Tsagkaris, A.S., Koulis, G.A., **Proestos, C.**, Thomaidis, N.S.
- P47** Extraction, purification and evaluation of food-grade phycocyanin from *Spirulina Platensis* - **Kissoudi, M.**, Samanidou, V.
- P48** Extensive characterization of phenolic composition from Pine Bark concentrated extract as a food supplement by HPLC-ESI/DAD-QTOF-MS - **de la Luz Cádiz-Gurrea, M.**, Fernández-Arroyo, S., Segura-Carretero, A.
- P49** Different behavior of food polyphenols from *Theobroma cacao* in energy metabolism of lipopolysaccharide-stimulated cells - **de la Luz Cádiz-Gurrea, M.**, Fernández-Arroyo, S., Joven, J., Segura-Carretero, A.
- P50** Encapsulation and controlled release of bioactive phenolic compounds: phenolic acids, flavonoids and phenylpropanoids - **Leyva-Jiménez, F.J.**, Lozano-Sánchez, J., Arráez-Román, D., Segura-Carretero, A.
- P51** Evaluation of antioxidant capacity and total polyphenol content of bread - **Culetu, A.**, Eglantina Duta, D., Mohan, G., Iorga, E.
- P52** Influence of sulfur dioxide and/or ascorbic acid on the antioxidant activity of resinated wine models and their oxidative stability under accelerated conditions - **Sotirolou, M.**, Nenadis, N., Xatzidimitriou, E., Blekas, G.
- P53** Standardization of sample preparation conditions for crocetin isolation from saffron aided by response surface methodology - **Kyriakoudi A.**, Tsimidou, M.Z.
- P54** Development of *in vitro* digestion models for food colloids - Ritzoulis, C., Margelou, I., Rousi, R., Karayannakidis, P., Papageorgiou, M.
- P55** Optimisation of assay conditions for the determination of antioxidant capacity in plant food matrices by using plant food matrices by using photochemiluminescence - **Zachia M.**, Multescu M., Iorga E.
- P56** Xinomavro Naousa red wines typicality; linking sensory and physicochemical data - Adamopoulou, E., Leloudi, M.C., **Hatzidimitriou, E.**
- P57** Selective voltammetric determination of ascorbic acid (vitamin C) in the presence of water soluble vitamins - **Diamantidou, D.**, Karastogianni, S., Girousi, S
- P58** Assessment of fatty acid composition of peanut butter fat extracted through different extraction methods - Negoită, M., **Mihai, A.L.**, Adascălului, A.C., Spadaro, G., Iorga, E.
- P59** Comparative analysis of fatty acids composition of vegetable oils and animal fats by application of GC-MS and NMR techniques - Mihai, A.L., **Negoită, M.**, Ionescu, V., Adascălului, A.C., Manolache, F.A., Iorga, E.
- P60** Evaluation of the biological detoxification of table olive processing wastewaters by UV-Vis spectrophotometry and liquid chromatography - **Papadaki, E.**, Tsimidou, M.Z., Mantzouridou, F.Th.
- P61** Sodium content in Spanish-style Halkidiki green olives and its relationship with consumer acceptability scores - **Mastralexi, A.**, Filippidou, M., Mantzouridou, F.Th., Zachariadis G., Tsimidou M.Z.
- P62** Monitoring the loss of freshness of the PDO Agoureleo Chalkidikis virgin olive oil upon storage in the dark using chromatographic, spectroscopic and organoleptic means - **Mastralexi A.**, Nenadis N., Tsimidou M.Z.

SCIENTIFIC PROGRAMME - POSTERS



- P63** Evaluation of virgin olive oil shelf-life by mesh cell-FTIR spectroscopy - Tena, N., Aparicio-Ruiz, R., Lobo, A., García-González, D.L., Morales, M.T., Aparicio, R.
- P64** Eventual limits of the current EU official method for evaluating milk adulteration of water buffalo dairy products and potential proteomic solutions - Caira, S., Nicolai, M.A., Lilla, S., Calabrese, M.G., Pinto, G., Scaloni, A., Chianese, L., Addeo, F.
- P65** Differential Scanning Calorimetry as an efficient tool for determination of food authenticity - Arik Kibar, E.A., Özer, H.
- P66** Current status and future needs in the assesment of saffron quality parameters included in the ISO 3632: "Saffron (*Crocus sativus* L.)" - Kyriakoudi, A., Ordoudi, S.A., Tsimidou, M.Z.
- P67** Comparative Metabolomics Of Saffron From Different Countries, Farming Methods And Food/Drug Classes - Yoshida, K.
- P68** Iodine content in food: comparison between Azores and continental Portugal - Delgado, I., Coelho, I., Nobre, D., Castanheira, I., Calhau, M. A.
- P69** Antibacterial and antifungal activity of Italian unifloral honeys extracts against different pathogenic species - Sateriale, D., Scioscia, E., Colicchio, R., Pagliuca, C., Paolucci, M., Varricchio, E., Volpe, M.G., Salvatore, P., Pagliarulo, C.
- P70** Tailor made sorbent for solid phase extraction of salbutamol in poultry meat and detection by high performance liquid chromatography - Tongson, A.B., Ebarvia, B.S.
- P71** Molecular identification and aflatoxin screening of *Aspergillus* species found on Philippine dried fish products - Madelaine L. Ebarvia, Thomas Edison E. dela Cruz
- P72** Matrix reference materials development for food safety application in Philippine products - Ebarvia, B., Cabanilla, S., Dacuya, A., Cruz, A., Tongson, A., Cortez, C., Aganda, K.C., Mamplata, N.
- P73** Establishment of traceability of chemical measurements for trace metals in drinking water of local laboratories in the Philippines -Bion, H.H., Mamplata, N.R., Encarnacion, E.K.P., Tayag, E.D., Piquero, L.M., Damian, R.L., Ubando, I.E., Cortez, C.C.
- P74** Effectiveness of the health and nutrition intervention programmes in the Czech Republic - Sabolová, M., Procházková, V., Kouřimská, L.
- P75** Fatty acid profile of fishes from Cambodia - Fraňková, A., Holmanová, K., Banout, J.
- P76** Fiber fabric sorbent extraction for on-line toxic metal determination in energy beverages - Kazantzi V., Anthemidis, A.
- P77** Buckwheat hull extract influence on *Aspergillus flavus* growth and aflatoxin production in vitro- - Nobili, C., De Acutis, A., Leone, G.P., Procacci, S., Bello, C., Natella, F., Brunori, A., Reverberi, M.
- P78** Functional foods & alimentary habits in purchase-consumption of comestible snails - Karamani, E., Karamani, M., Tzimitra Kalogianni, E.

WORKSHOP 1



“Training course in vibrational spectroscopy and chemometrics as tools for the analysis of agricultural products and foods”



Petros A. Tarantilis

Professor

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Abstract: Vibrational spectroscopy is the collective term referring to two complementary analytical techniques – infrared and Raman spectroscopy.

Fourier transform infrared (FTIR) technology has substantial potential as a quality control tool in the food industry. FTIR methods of analysis are convenient, rapid and automatable, and in conjunction with diffuse reflectance infrared Fourier transform (DRIFT) and attenuated total reflectance (ATR) modes, dramatically simplify sample handling.

The key elements of FTIR spectroscopy are presented along with a selection of methods developed or being under development, including analyses of milk, meat, fats and oils, sweetened condensed milk, juices, and spices. The range of applications in complex food matrices provides clear evidence of the benefits of FTIR in food quality control.

Raman spectroscopy comprises another molecular spectroscopic technique, in which a sample is exposed to an intense light beam such as a laser, and the spectrum produced is based on the Raman-active vibrational modes induced by the sample molecules. The diversity of applications and the structural information obtained, combined with recent advances in instrumentation, have rekindled the interest in various disciplines, including food science. Suitable analytes cover the entire range of food constituents, including the macro-components (proteins, lipids, carbohydrates and water) as well as minor components such as carotenoid pigments or synthetic dyes, and even microorganisms or packaging materials in contact with foods. Raman spectroscopy may be used as a tool for quality control, for compositional identification or for adulteration detection, as well as for basic research in the elucidation of structural or conformational changes that occur during processing of foods.

Chemometrics is the use of mathematical and statistical methods to attain maximum chemical information and to correlate quality parameters or physical properties to analytical–chemical data. Patterns in the data are modeled; the models built can then be routinely applied to future data in order to predict the same quality parameters. Chemometric approaches are increasingly gaining efficiency in assessing product quality and lead to more efficient laboratory practices or automated quality control systems. The only requirements are an appropriate instrument and dedicated software to interpret the underlying patterns in the data.

The field of chemometrics provides many efficient ways to solve calibration and classification problems as well as to evaluate spectroscopic data. Chemometrics can be used to enhance method development and make routine use of multivariate models for data analysis.



WORKSHOP 1: SPEAKER'S SHORT CV



Specialties

Instrumental Chemical Analysis (Chromatographic and Spectroscopic Techniques)

Research Interests:

- Isolation, purification and structure determination of natural products using chromatographic and spectroscopic techniques.
- Development of new techniques for separation, evaluation and analysis of main compounds of plants cultivated in Greece as Saffron (*Crocus sativus* L.) and Medicinal and Aromatic Plants (MAPs).
- Study of Biological Activity of Natural Products (Antioxidant, Antimicrobial, Toxicity etc).
- Instrumental methods of plants and food analysis.
- FT-IR & Raman Spectroscopic study of microorganisms.

Participation in International Research Projects: 12

Recent Projects

- SAFFIC. Methodologies for implementing International Standards for Saffron Purity and Quality. EU project 2006–2009.
- Heavy metals and radionuclides in soil: microbe-mediated bioleaching and effects on plant–microbe interactions. NATO Science Programme (NRCLG 982857) 2007-2008
- Genetic Resources of Saffron and Allies (*Crocus* spp.)-CROCUSBANK AGRI GEN RES 2005, EU project 2007-2009.
- COST ACTION FA 1101. SAFFRONOMICS: Short term scientific missions in Saffron research. Omics Technologies for Crop Improvement, Traceability, Determination of Authenticity, Adulteration and Origin in Saffron. 2011- . Participation as WG3 leader since 2013.

Refereed Publications Journal Articles Evaluated by Impact Factor: 106

Recent Refereed Journal Articles

- Sudan dyes in adulterated saffron (*Crocus sativus* L.): Identification and quantification by ¹H NMR. Petrakis, E.A., Cagliani, L.R., **Tarantilis, P.A.**, Polissiou, M.G., Consonni, R. Food Chemistry 217, 15 (2017) 418-424.
- Comparative evaluation of an ISO 3632 method and an HPLC-DAD method for safranal quantity determination in saffron. García-Rodríguez, M.V., López-Córcoles, H., Alonso, G.L., Pappas, C.S., Polissiou, M.G., **Tarantilis, P.A.** Food Chemistry, 221, (2017), 838-843.

Refereed Conference Communications – Publications: 77

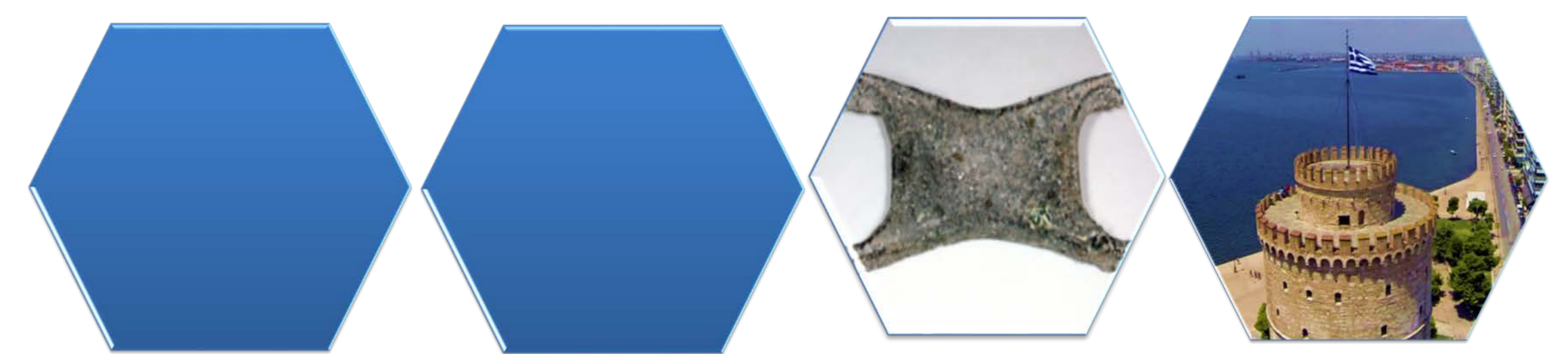
Recent Refereed Conference Papers

- Evaluation of a Raman Spectroscopic Method for the Determination of Alcohol Content in Greek Spirit Tsipouro. Christos Pappas, Marianthi Basalekou, Elina Konstantinou, Niki Proxenia, Stamatina Kallithraka, Yorgos Kotseridis and **Petros A. Tarantilis**. 1st International Multidisciplinary Conference on Nutraceuticals and Functional Foods. Current Research in Nutrition and Food Science Vol. 4 (SI.2), 01-09 (2016).

<http://dx.doi.org/10.12944/CRNFSJ.4.Special-Issue-October.01>.

- Authenticity Determination of Greek-Cretan Mono-Varietal White and Red Wines Based on their Phenolic Content using Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy and Chemometrics. Marianthi Basalekou, Argiro Strataridaki, Christos Pappas, **Petros A. Tarantilis**, Yorgos Kotseridis and Stamatina Kallithraka. 1st International Multidisciplinary Conference on Nutraceuticals and Functional Foods. Current Research in Nutrition and Food Science Vol. 4 (SI.2), 54-62 (2016). <http://dx.doi.org/10.12944/CRNFSJ.4.Special-Issue-October.08>

WORKSHOP 2



“Metrology and traceability – Applications in the food sector”

SPEAKER 1: “The establishment of traceability of measurements in food testing through the use of reference materials”



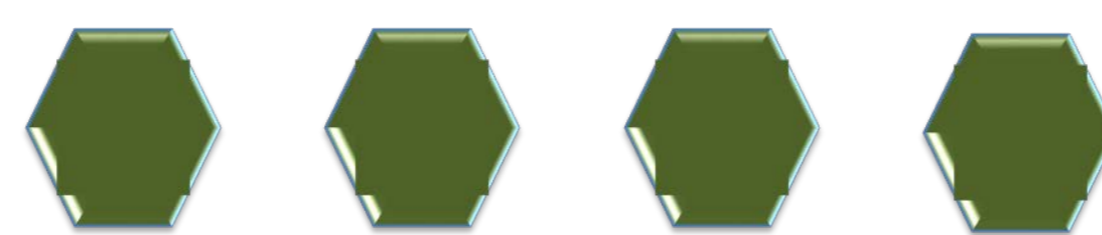
Dr. Ioannis Sitaras

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Abstract: Traceability of measurement in food testing can be established through the use of calibrated equipment and certified materials. In the field of food testing there are types of testing where the establishment of traceability is not an easy task e.g chemical, biochemical, biological. The presentation focus on the difficulties in the establishment of traceability regarding the use of reference materials (uncertainty, suitability, commutability) and the use of any alternative approach to the traceability, including interlaboratory comparisons, calibration of equipment etc. Also the importance and contribution of the use of reference materials in the quality of testing in foods is also presented, in relation to method validation-verification and internal quality control.



Ioannis Sitaras is a Chemist, PhD in Environmental Analytical Chemistry. Currently Director at ESYD (Hellenic Accreditation System) Laboratories Accreditation Division. He is a Lead Assessor for ISO/IEC 17025, ISO 15189, ISO/IEC 17043 accreditation standards. He participates as ESYD delegate to European Co-operation for Accreditation (EA) Laboratory Committee (LC) and he is Convener of EA/LC Technical Network for Food and Feed Testing. He is active in the field of training for Metrology in Chemistry and has participated as an expert and project manager to various international projects related to quality infrastructure in the areas of accreditation and metrology.



WORKSHOP 2

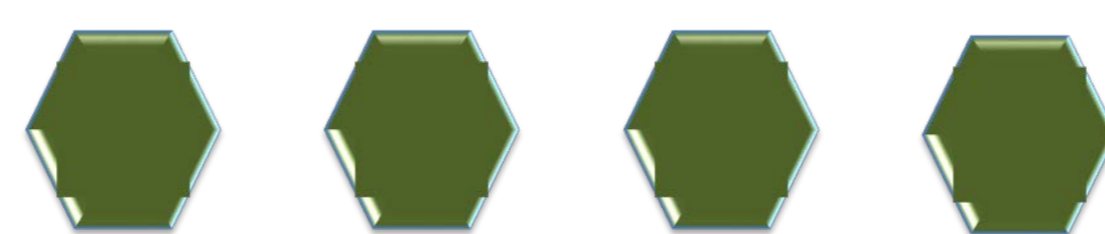
SPEAKER 2: Title: “Chemical metrology and traceability in food testing”



Dr. Eugenia N. Lampi

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Abstract: Traceability chain is necessary to ensure the quality and acceptability of measurements results. Uncertainty is a critical tool to characterize this quality and should be estimated in each step of the chain. Traceability in chemical analysis is a less established, comparing to physical measurements, process, however continuously improving. In any approach which could be used in order to achieve traceability and comparability in chemical measurements and specifically in food testing, several issues should be taken into account such as the complexity of the chemical analysis, involvement of complicated instrumentation and indirect measure of the analyte. In many analytical processes the direct traceability to mole is not achievable and a more flexible infrastructure is required. Several traceability infrastructure models are presented covering rational analytical methods which can be traceable to mole through a traceability chain, empirical and qualitative methods which cannot be traceable to mole.



Dr Eugenia N. Lampi Chemist, General Chemical State Laboratory Head of B' Chemical Services of Athens, NRL of Food Contact Materials In detail (8/10/2015 – PRESENT). Head of Chemical Metrology Service (EXHM/GCSL-EIM – National Reference Laboratory in metrology in Chemistry and SCHEMA/Proficiency Testing Provider (2010-2015). Head of laboratory and chemical analysis in food contact materials and food additives. Member, and National Delegate, of EURAMET/TC-MC, SGOA and SGIA and BIPM/CCQM/Organic Analysis Working Group. Work: Research and development of new analytical methods and method validation in the fields of food additives, contaminants and food contact materials. Application of high accuracy methods, Isotopic dilution with GC-MS(n), LC-MS/MS, High Res ICP-MS, RAMAN, FT-IR, UV-VIS spectrometry and electrochemistry. Establishment of the national infrastructure on metrology in chemistry. Traceability to mole. Participation in BIPM/MRO key comparisons. Submission for CMCs. Accreditation according to EN ISO/IEC 17025:2005 under flexible scope. Creation of a new laboratory for the production of reference materials. Preparation for accreditation according to ISO Guide 34. SCHEMA: Organization and provision of proficiency testing schemes in food, water, fuels and environmental fields. Accreditation according to EN ISO/IEC 17043:2010. Wide experience in statistical analysis, assessment of homogeneity and stability of samples and evaluation of participants' performance. Head of the consultive committee of SCHEMA. Member of various national, EC and international committees and working groups. Participation in EU programs. Authorship of scientific publications and books. Organization and participation in many symposia and workshops

MUSIC PART



Cloudy Sunday, V. Tsitsanis (1917 – 1984)

Giorgos Tsitsivakos, bouzouki

Philippos, Antoniou, guitar

Konstantinos Papaioannou, dance



PLENARY LECTURE

Title: “Chemical analysis, monitoring of dynamic changes, metabolomics and “in cell” applications of NMR in natural products and food chemistry: Is the role of metrology underestimated?”



Professor Ioannis P. Gerothanasis

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Abstract: A critical overview of recent developments of NMR spectroscopy in natural products and food chemistry will be provided with emphasis in the following applications:

- (i) chemical analysis of extracts without isolation or derivatization steps [1-5],
- (ii) ‘in situ’ direct monitoring of dynamic changes of metabolites as a function of solvent and temperature [6],
- (iii) aromatic C–H activation of flavonoids in aqueous solution at neutral pH and ambient temperatures [7],
- (iv) rapid ‘in situ’ analysis of enzymatic reaction products and enriching the biological space of natural products, through real time biotransformation monitoring [8] and
- (v) in-cell NMR in decoding the apoptotic activity of flavonoids with the Bcl-2 family of proteins [9].

Despite the significant advantages in methodology and the fact that NMR is a potentially primary analytical technique for qualification, much effort should be made in the future so that international compatibility can be achieved for a wide range of chemical constituents in natural products and in food chemistry. Selected examples of certified reference materials will be provided.

References

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Ioannis P. Gerothanassis is currently Professor of Chemistry in the University of Ioannina and an Adjunct faculty at the International Center for Chemical and Biological Sciences (ICCBS), University of Karachi. He is Vice Chairman of the Hellenic Quality Assurance and Accreditation Agency (HQAA) for Higher Education, Athens (2014-present). His research interests are focused on NMR applications in Bioorganic Chemistry, Structural Biology, Food Chemistry and Natural Product Analysis. He received numerous fellowships and awards for research activities in various Universities and Research Institutes. He has got distinction as Honorary Research Fellow, QMW College and D.Sc. University of East Anglia. He has over 146 publications in international journals with total impact factor over to 500.