



3rd International IUPAC Symposium on Trace Elements in Food

April 1-3, 2009

Rome, Italy

DETAILED PROGRAMME

Tuesday, 31 March 2009

- 17.30-19.30 Welcome reception
Registration of participants

Wednesday, 1 April 2009

- 8.30 *Registration of participants and mounting of posters*

- 9.00 *Opening ceremony and welcome addresses*
Enrico Garaci, Ryszard Lobinski, Francesco Cubadda

Session 1 - Advances in trace element analysis in food matrices

Chairpersons: Ryszard Lobinski, Kevin Francesconi

- 9.15 Invited lecture
STATE-OF-THE-ART ANALYTICAL TECHNIQUES FOR ELEMENT SPECIATION STUDIES IN FOOD AND FOOD SUPPLEMENTS
Joanna Szpunar
Laboratory of Analytical, Bio-Inorganic and Environmental Chemistry, CNRS UMR 5254, Pau, France
- 9.45 Invited lecture
DETECTION AND CHARACTERISATION OF INORGANIC NANOPARTICLES IN LIFE SCIENCE STUDIES
Erik H. Larsen, Bjørn Schmidt, Katrin Löschner
National Food Institute, Technical University of Denmark, Søborg, Denmark
- 10.15 **CHARACTERIZATION OF IODINE BIOMOLECULES IN MICROALGAE FUNCTIONAL FOODS**
Elisa Gomez De Las Heras, Macarena Gonzalez-Fernandez, Fernando Moreno-Roldan, Tamara Garcia-Barrera, Jose Luis Gomez-Ariza
Department of Chemistry, Universidad de Huelva, Huelva, Spain
- 10.30 Coffee Break and Poster Session
- 11.15 Invited lecture
SPECIATION AND ISOTOPE PATTERN DECONVOLUTION FOR ICP-MS QUANTITATIVE STUDIES OF MINERALS METABOLISM AND SUPPLEMENTATION
Alfredo Sanz-Medel, Héctor González Iglesias, María Luisa Fernández-Sánchez
Department of Physical and Analytical Chemistry, University of Oviedo, Oviedo, Spain
- 11.45 Invited lecture
INTERNAL AND EXTERNAL QUALITY CONTROL FOR THE DETERMINATION OF TRACE ELEMENTS IN FOOD
Maria Beatriz de la Calle
Institute for Reference Materials and Measurements, Joint Research Centre, European Commission, Geel, Belgium
- 12.10 **THE DEVELOPMENT OF A GUIDELINE TO IMPROVE RELIABILITY OF PUBLISHED ANALYTICAL DATA ON TRACE ELEMENTS IN FOODSTUFFS**
Lars Jorhem
Research and Development Department, National Food Administration, Uppsala, Sweden
- 12.25 **ISOTOPIC AND ELEMENTAL FINGERPRINTS TO PROVE AUTHENTICITY AND ORIGIN OF FOOD AND FEED BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**
Thomas Prohaska (a), Marion Brunner (a), Siegfried Swoboda (a), Micha Horacek (b), Zsolt Stefanka (c), Robert Katona (c), Carla Rodrigues (d), Cristina Maguas (d)
(a) Department of Chemistry, University of Natural Resources and Applied Life Sciences, Vienna, Austria
(b) Austrian Research Center, Seibersdorf, Austria
(c) Institute of Isotopes, Hungarian Academy of Sciences, Budapest, Hungary
(d) Science Faculty Center for Environmental Biology, University of Lisbon, Lisbon, Portugal

- 12.40 **CHEMICAL SPECIATION AND FRACTIONATION OF METALS IN WINE**
Krystyna Pyrzynska
Department of Chemistry, Warsaw University, Warsaw, Poland
- 12.55 Buffet lunch
- 14.15 **SIMULTANEOUS DETERMINATION OF TOTAL S, P, Se AND As AND ELEMENTAL SPECIES BY HPLC COUPLED TO ORS ICP-MS USING SPECIES-SPECIFIC ISOTOPE DILUTION MASS SPECTROMETRY**
John Entwisle
Mass Spectrometry, LGC Ltd, Teddington, UK
- 14.30 **AFFORDABLE SYNTHESIS OF SeCys₂-CONTAINING OLIGOPEPTIDES FOR QC PURPOSES IN SELENIUM SPECIATION**
Mihaly Dernovics (a), Anna Magyar (b)
(a) Department of Applied Chemistry, Corvinus University of Budapest, Budapest, Hungary
(b) Research Group on Peptide Chemistry, Lorand Eotvos University, Hungarian Academy of Sciences, Budapest, Hungary
- 14.45 Session 1: Plenary discussion

Session 2 - Sources and transfer of trace elements in the food chain

Chairpersons: **Alberto Mantovani, Barbara Szteke**

- 15.00 Invited lecture
FOOD CHAIN SELENIUM AND HUMAN HEALTH: THE COMPLEXITY OF OPTIMAL INTAKE
Margaret Rayman
University of Surrey, Surrey, UK
- 15.30 **INORGANIC AND ORGANIC SELENIUM IN CHICKEN FEED; UPTAKE, DISTRIBUTION AND BIOACCESSIBILITY OF Se IN Se-ENRICHED CHICKEN MEAT**
Anicke Brandt-Kjelsen, Espen Govasmark, Brit Salbu
Department of Plant and Environmental Sciences, University of Life Sciences, Aas, Norway
- 15.45 **SELENIUM SPECIATION OF MILK AND MILK PRODUCTS FROM DAIRY CATTLE FED DIETS CONTAINING GRADED ADDITIONS OF ORGANIC AND INORGANIC SELENIUM**
Darren Juniper (a), Gérard Bertin (b)
(a) School of Agriculture, Policy and Development, University of Reading, Reading, UK
(b) EU Regulatory Department, Alltech France, Levallois-Perret, France
- 16.00-17.30 Coffee Break and Poster Session
- 20.30 Night tour of Rome

Thursday, 2 April 2009

- 8.30 *Registration of participants and mounting of posters*

Chairpersons: **Alberto Mantovani, Barbara Szteke**

- 9.00 Invited lecture
INSIGHTS ONTO SELENIUM FERTILIZATION ON TEA PLANT AND RICE AND CHEMOPREVENTION OF Se-ENRICHED FOOD
Qihui Hu (a), Juan Xu (b)
(a) College of Food Science, Nanjing Agricultural University, Nanjing, China
(b) Department of Food Science, University of Leeds, Leeds, UK
- 9.25 **BIOACCESSIBILITY OF SELENIUM IN Se-ENRICHED WHEAT**
Espen Govasmark, Brit Salbu
Department of Plant and Environmental Sciences, Norwegian University of Life Sciences, Aas, Norway
- 9.40 **IRON BIO-FORTIFICATION MORE THAN SIX-FOLD IN THE ENDOSPERM OF GENETICALLY ENGINEERED RICE BY SYNERGISTIC ACTION OF TWO TRANSGENES**
Judith Wirth (a), Beat Aeschlimann (b), Susanna Poletti (a,c), Benedikt Drosse (a), Sonja Osorio-Algar (d), Yakandalawa Nandadela (a,e), Alisdair Fernie (d), Detlef Günther (b), Wilhelm Gruissem (a), Christof Sautter (a)
(a) Department of Biology, ETH Zurich, Zurich, Switzerland

- (b) Department of Chemistry and Applied Biosciences, ETH Zurich, Zurich, Switzerland
 (c) Plant Breeding, Genetics and Biotechnology, International Rice Research Institute, Los Baños, Philippines
 (d) Department 1 Central Metabolism, Max-Planck-Institut für Molekulare Pflanzenphysiologie, Golm-Potsdam, Germany
 (e) Kane Biotech Inc., Winnipeg, Manitoba, Canada

9.55 **ZINC BIOFORTIFICATION OF CEREAL GRAINS THROUGH APPLYING ZINC FERTILIZERS**

Ismail Cakmak

Faculty of Engineering and Natural Sciences, Sabanci University, Istanbul, Turkey

10.10 **PHYTOAVAILABILITY OF Cd FROM REPEATED ANNUAL APPLICATIONS OF PHOSPHORUS FERTILIZER**

Cynthia Grant (a), Sukhdev Malhi (a), Don Flaten (b), Sébastien Sauvé (c), Eugene Gawalko (d), Mario Tenuta (b)

(a) *Brandon Research Centre, Agriculture and Agri-Food Canada, Brandon, Manitoba, Canada*

(b) *Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada*

(c) *Department of Chemistry, Université de Montréal, Montréal, Quebec, Canada*

(d) *Canadian Grain Commission, Winnipeg, Manitoba, Canada*

10.25 Session 2: Plenary discussion

10.40 Coffee Break and Poster Session

Session 3 - Toxicology and risk assessment

Chairpersons: Philippe Grandjean, Erik H. Larsen

11.25 Invited lecture

PITFALLS IN ASSESSING ADVERSE HEALTH EFFECTS OF METHYLMERCURY IN SEAFOOD

Philippe Grandjean

Institute of Public Health, University of Southern Denmark, Odense, Denmark

Department of Environmental Health, Harvard School of Public Health, Boston, Massachusetts, USA

11.55 Invited lecture

GENDER DIFFERENCES IN SUSCEPTIBILITY TO CADMIUM IN FOOD

Marie Vahter, Maria Kippler, Agneta Åkesson

Institute of environmental medicine, Karolinska Institutet, Stockholm, Sweden

12.25 Invited lecture

ARSENIC SPECIES IN SEAFOOD: ORIGIN AND HUMAN HEALTH IMPLICATIONS

Kevin Francesconi

Institute of Chemistry-Analytical Chemistry, Karl-Franzens University Graz, Graz, Austria

12.50 **RICE, THE MAJOR SOURCE OF INORGANIC ARSENIC: ASPECTS OF PLANT PHYSIOLOGY, ANALYTICAL CHEMISTRY AND TOXICOLOGY**

Jörg Feldmann (a), Andrea Raab (a), Andrew Meharg (b), Paul Williams (b)

(a) *School of Natural & Computing Sciences, Chemistry, University of Aberdeen, Aberdeen, UK*

(b) *School of Biological Sciences, University of Aberdeen, Aberdeen, UK*

13.05 Buffet lunch

14.25 Invited lecture

APPLICATIONS FOR THE FOOD INDUSTRY AND TOXICOLOGICAL ISSUES SURROUNDING NANOTECHNOLOGY

Chunying Chen, Ligeng Xu, Ying Liu

Chinese Academy of Sciences Key Lab for Biomedical Effects of Nanomaterials and Nanosafety, National Center for Nanoscience & Technology, Beijing, China

14.55 Invited lecture

ORGANIC FORMS OF TRACE ELEMENTS AS FEED ADDITIVES: ASSESSMENT OF RISKS AND BENEFITS FOR FARM ANIMALS AND CONSUMERS

Alberto Mantovani

Department of Veterinary Public Health and Food Safety, Istituto Superiore di Sanità, Rome, Italy

15.20 **METABOLISM OF METAL(LOID)S BY INTESTINAL MICROORGANISMS**

Roland Diaz-Bone (a), Tom Van de Wiele (b), Alfred Hirner (a)

(a) *Institute of Environmental Analytical Chemistry, University of Duisburg-Essen, Essen, Germany*

(b) *Laboratory of Microbial Ecology and Technology, University of Gent, Gent, Belgium*

15.35 **CHARACTERIZATION OF INTESTINAL ABSORPTION OF As(III), As(V), MMA(V) AND DMA(V) USING Caco-2 CELL LINE**

Marta Calatayud, Jose Gimeno, Dinoraz Vélez, Rosa Montoro, Vicenta Devesa
Metal Laboratory Contamination, Instituto De Agroquímica Y Tecnología De Alimentos, Consejo Superior de Investigaciones Científicas, Burjassot, Spain

15.50 **IGF-I AND PROGESTERONE RELEASE BY PORCINE OVARIAN GRANULOSA CELLS AFTER IN VITRO LEAD ADMINISTRATION**

Adriana Kolesarova (a), Jana Slivkova (a), Shubhadeep Roychoudhury (a), Peter Massanyi (a), Alexander Sirotkin (b), Marcela Capcarova (a), Jaroslav Kovacik (a)
(a) *Department of Animal Physiology, Slovak University of Agriculture, Nitra, Slovak Republic*
(b) *Department of Genetics and Reproduction, Slovak Agricultural Research Centre, Nitra, Slovak Republic*

16.05 Session 3: Plenary discussion

16.20-17.30 Coffee Break and Poster Session

20.00 Social Dinner

Friday, 3 April 2009

Session 4 - Trace elements in nutrition and human health

Chairpersons: **Marina Patriarca, Munehiro Yoshida**

9.00 Invited lecture

ALTERNATIVE PATHWAYS FOR IRON ABSORPTION FROM FOODS

Bo Lönnerdal

Department of Nutrition and Program in International Nutrition, University of California, Davis, California, USA

9.30 Invited lecture

SELENIUM BIOMARKERS AND IMMUNE FUNCTION: RESULTS OF A HUMAN INTERVENTION STUDY

Susan Fairweather-Tait

University of East Anglia, Norwich, UK

10.00 **USE OF ENRICHED STABLE ISOTOPES FOR QUANTITATIVE SPECIATION OF ENDOGENOUS AND EXOGENOUS Se OR Fe IN RATS BY IPD-HPLC-ICP-MS**

Hector González Iglesias (a), María Luisa Fernández-Sánchez (a), Jose Ignacio García-Alonso (a), Jose López Sastre (b), Alfredo Sanz-Medel (a)

(a) *Department of Physical and Analytical Chemistry, University of Oviedo, Spain*

(b) *Department of Neonatology, "Hospital Central de Asturias", Oviedo, Spain*

10.15 **BIOACCESSIBILITY OF IRON, CALCIUM AND ZINC FROM BREAD AND BAKERY PRODUCTS DETERMINED BY TWO IN VITRO METHODS**

Carmen Frontela, Gaspar Ros, Carmen Martínez

Faculty of Veterinary Sciences, University of Murcia, Murcia, Spain

10.30 Coffee Break and Poster Session

11.05 Invited lecture

USING STABLE ISOTOPES TO STUDY TRACE MINERAL METABOLISM IN CHILDREN

Ian J. Griffin

Department of Pediatrics, University of California-Davis Medical Center, Sacramento, California, USA

11.35 Invited lecture

ZINC DEFICIENCY IN INFANTS AND YOUNG CHILDREN: CURRENT PERSPECTIVES ON SUSTAINABLE SOLUTIONS

Nancy F. Krebs

Section of Nutrition, Department of Pediatrics, University of Colorado, School of Medicine, Denver, Colorado, USA

12.05 **ZINC, METALLOTHIONEINS AND LONGEVITY: INTERRELATIONSHIPS WITH NIACIN AND SELENIUM**

Eugenio Mocchegiani (a), Marco Malavolta (a), Elisa Muti (a), Laura Costarelli (a), Catia Cipriano (a), Francesco Piacenza (a), Silvia Tesei (a), Robertina Giacconi (a), Fabrizia Lattanzio (b)

(a) *Research Department, Italian National Research Center on Aging, Ancona, Italy*

(b) Scientific Direction, Italian National Research Center on Aging, Ancona, Italy

12.20 **CDC BIOMONITORING OF IODINE IN THE US POPULATION**

Kathleen Caldwell, Amir Makhmudov, Robert Jones

Inorganic Toxicology and Radionuclide Laboratories, Division of Laboratory Sciences/ Centers for Disease Control and Prevention, Atlanta, Georgia, USA

12.35 Session 4: Plenary discussion

12.50-13.0 Closure of the Symposium

Poster contributions

Poster Session 1 - Advances in trace element analysis in food matrices

W01 AFF-MALS-ICP-MS AND ELECTRON MICROSCOPY FOR THE CHARACTERIZATION OF NANOPARTICLES IN BIOLOGICAL STUDIES

Katrin Löschner (a), Bjørn Schmidt (a), Xueyun Gao (b), Jens J. Sloth (a), Erik H. Larsen (a)

(a) *National Food Institute, Technical University of Denmark, Søborg, Denmark*

(b) *Institute of High Energy Physics, Chinese Academy of Science, Beijing, China*

W02 THE EVALUATION OF CRUCIAL PARAMETERS IN Se SPECIATION ANALYSIS IN BIOLOGICAL SAMPLES

Petra Cuderman, Vekoslava Stibilj

Jožef Stefan Institute, Ljubljana, Slovenia

W03 CHARACTERIZATION OF COMMERCIALY AVAILABLE SELENIZED YEAST FOOD SUPPLEMENTS

Johann Far, Marta Kaminska, Katarzyna Bierla, Hugues Preud'homme, Ryszard Lobinski

Laboratory of Analytical, Bio-Inorganic and Environmental Chemistry, CNRS UMR 5254, Pau, France

W04 DETERMINATION OF SELENOMETHIONINE AND SELENOCYSTEINE IN EDIBLE TISSUES OF ANIMAL ORIGIN

Katarzyna Bierla (a), Véronique Vacchina (b), Gérard Bertin (c), Joanna Szpunar (a)

(a) *Laboratory of Analytical, Bio-Inorganic and Environmental Chemistry, CNRS UMR 5254, Pau, France*

(b) *Ultra Traces Analyses Aquitaine, Université de Pau et des Pays de L'Adour, Pau, France*

(c) *Alltech European Union Regulatory Department, Levallois-Perret, France*

W05 LA-ICP MS AND NANO HPLC-COUPLED TO MASS SPECTROMETRY FOR THE DETECTION AND IDENTIFICATION OF SELENIUM-CONTAINING PROTEINS IN SELENIUM-RICH YEAST

Laure Tastet (a), Dirk Schaumlöffel (b), Ryszard Lobinski (b), Gérard Bertin (a)

(a) *Alltech European Union Regulatory Department, Levallois-Perret, France*

(b) *Laboratory of Analytical, Bio-Inorganic and Environmental Chemistry, CNRS UMR 5254, Pau, France*

W06 FRACTIONATION OF Cr, Fe AND Zn IN METAL-ENRICHED YEAST FOR BIOAVAILABILITY STUDIES

Nattikarn Kaewkhomdee (a, b), Sandra Mounicou (a), Joanna Szpunar (a), Ryszard Lobinski (a), Juwadee Shiowatana (b)

(a) *Laboratory of Analytical, Bio-Inorganic and Environmental Chemistry, CNRS UMR 5254, Pau, France*

(b) *Department of Chemistry and Center of Excellence for Innovation in Chemistry, Mahidol University, Bangkok, Thailand*

W07 As SPECIATION IN FRESHWATER FISH: FOCUS ON EXTRACTION AND MASS BALANCE

Silvia Ciardullo, Federica Aureli, Andrea Raggi, Francesco Cubadda

Department of Food Safety and Veterinary Public Health, Istituto Superiore di Sanità, Rome, Italy

W08 DETERMINATION OF DEPLETED URANIUM IN FOOD SAMPLES FROM BOSNIA AND HERZEGOVINA

Francesco Cubadda, Federica Aureli, Silvia Ciardullo, Marilena D'Amato, Andrea Raggi

Department of Food Safety and Veterinary Public Health, Istituto Superiore di Sanità, Rome, Italy

W09 CDC ANALYTICAL METHODS FOR SERUM MULTIELEMENT-SELENIUM, ZINC AND COPPER-DETERMINATION

Kathleen Caldwell, Amir Makhmudov, Robert Jones

Inorganic and Radiation Analytical Toxicology Branch, Division of Laboratory Sciences/Centers for Disease Control and Prevention, Atlanta, Georgia, USA

W10 CDC's EXTERNAL QUALITY ASSURANCE PROGRAM FOR TRACE ELEMENT DETERMINATIONS

Amir Makhmudov, Kathleen Caldwell, Robert Jones

Inorganic Toxicology and Radionuclide Laboratories, Division of Laboratory Sciences/ Centers for Disease Control and Prevention, Atlanta, Georgia, USA

W11 TOTAL Cd, Pb AND As AND EXTRACTABLE Cd AND Pb IN MINERAL FEED

Antonella Semeraro, Maria Beatriz de la Calle, Irena Wysocka, Christophe Quénel, Thomas Linsinger, Hakan Emteborg, Fernando Cordeiro, Inge Verbist, Danny Vendelbo, Philip Taylor

Institute for Reference Materials and Measurements, Joint Research Centre, European Commission, Geel, Belgium

W12 THE COMMUNITY REFERENCE LABORATORY FOR CHEMICAL ELEMENTS IN FOOD OF ANIMAL ORIGIN (CRL-ISS) AS PROVIDER OF PTs FOR THE NATIONAL REFERENCES LABORATORIES OF EU

Rosa Giordano, Laura Ciaralli, Maria Ciprotti, Alessandra Sepe, Oreste Senofonte, Andrea Colabucci, Marilena D'Amato, Marco Di Gregorio, Sergio Costantini

Community Reference Laboratory for Chemical Elements in Food of Animal Origin, Istituto Superiore di Sanità, Rome, Italy

W13 TRACE ELEMENT ANALYSIS OF DIETARY SUPPLEMENTS AND NUTRIENTS BY TXRF

Armin Gross (a), Hagen Stosnach (a), James Neal-Kababick (b)

(a) Bruker AXS Microanalysis GmbH, Berlin, Germany

(b) Flora Research Laboratories, Grants Pass, Oregon, USA

W14 SOLID PHASE EXTRACTION OF TRACE METALS IN FOOD SAMPLES USING RESIN FUNCTIONALIZED WITH AROMATIC DITHIOCARBAMATE AND DETERMINATION BY ICP-AES

Seshaiah Kalluru, Naresh Kuma Bommana, Hari Kishore, Reddy Desireddy

Department of Chemistry, Sri Venkateswara University, Tirupati, India

W15 DETECTION OF MERCURY IN FEED AND FOOD: VALIDATION OF A TDA-AAS METHOD

Maria Cesarina Abete, Renata Tarasco, Stefania Gavinelli, Elisabetta Poma Genin, Stefania Squadrone

National Reference laboratory for heavy metals in feed, Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta, Turin, Italy

W16 COMPARISON OF THE PERFORMANCES OF ANALYTICAL TECHNIQUES BASED ON ATOMIC SPECTROMETRY FOR THE DETERMINATION OF TOTAL TIN FROM PPT TO PPM LEVEL IN CANNED FOODSTUFFS

Khalid Boutakhrit, Fabien Bolle, Massimo Crisci, Joris Van Loco

Department of Pharma-Bromatology, Scientific Institute of Public Health, Brussels, Belgium

W17 MULTI-ELEMENT DETERMINATION OF Cu, Fe, Ni AND Zn CONTENT IN VEGETABLE OILS SAMPLES BY HIGH RESOLUTION CONTINUUM SOURCE ATOMIC ABSORPTION SPECTROMETRY AND MICROEMULSION SAMPLE PREPARATION

Luana S. Nunes (a), José T.P. Barbosa (a), Fernanda R.A.M. Moreira (b), Isabelle G.C. Ribeiro (b), Maria Graças A. Korn (a), Leonardo S.G. Teixeira (a)

(a) Departamento de Química Analítica, Universidade Federal da Bahia, Salvador, Brasil

(b) Departamento de Engenharia e Arquitetura, Universidade Salvador, Salvador, Brasil

W18 DETERMINATION OF ARSENIC AND SILICON IN VEGETABLE OIL USING ATOMIC SPECTROMETRY METHODS

Mariana Antunes Vieira (a), Ligia Claudia Castro de Oliveira (b), Reinaldo Calixto de Campos (a)

(a) Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio), Rio de Janeiro, Brazil

(b) National Institute of Metrology, Standardization and Industrial Quality INMETRO, Rio de Janeiro, Brazil

W19 MINERALS AND MACRONUTRIENTS IN FOOD PROCESS CHAIN: EXAMPLES OF METHODS USING ICP TECHNOLOGY FOR CONTROL AND LABELLING

Marine Nicolas, Laetitia Graveleau, Janique Richoz Payot, Eric Poitevin

Quality & Safety Department, Nestlé Research Center, Lausanne, Switzerland

W20 DETERMINATION OF COPPER AND NICKEL IN SEASONING SAMPLES BY ATOMIC ABSORPTION SPECTROMETRY AFTER CLOUD POINT EXTRACTION

Patricia Baliza, Leonardo Teixeira

Universidade Federal Da Bahia, Salvador, Brazil

W21 APPLICATION OF A NEW SOLID SORBENT TO PRECONCENTRATION OF COBALT AND MANGANESE IN COMMERCIAL CONDIMENTS

Patricia Baliza (a), Luana Santos (b), Valfredo Lemos (b)

(a) Universidade Federal Da Bahia, Salvador, Brazil

(b) Universidade Estadual Do Sudoeste Da Bahia, Vitória da Conquista, Brazil

W22 MULTIVARIATE OPTIMIZATION OF AN ET AAS METHOD FOR THE DETERMINATION OF CADMIUM IN WINE AND ITS APPLICATION TO THE QUANTIFICATION OF CADMIUM IN BRAZILIAN WINES

Sérgio Luis Costa Ferreira (a), Robson Mota de Jesus (a), Geraldo Domingos Matos (a), Jailson Bittencourt de Andrade

(a), Walter Nei Lopes dos Santos (b), Danuza Cavalcante (b), Maria Goreti Rodrigues Vale (c), Morgana Dessuy (c)

(a) Instituto de Química, Universidade Federal da Bahia, Salvador, Bahia, Brazil

(b) Universidade do Estado da Bahia, Salvador, Bahia, Brazil

(c) Universidade Federal do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil

W23 DIRECT DETERMINATION OF SELECTED TRACE ELEMENTS IN APPLE JUICE BY ICP-OES

Michaela Zeiner (a), Iva Juranovic-Cindric (b), Michaela Kröppl (c), Stephan Hann (a), Gerhard Stingeder (a)
(a) Department of Chemistry, University of Natural Resources and Applied Life Sciences, Vienna, Austria
(b) Laboratory of Analytical Chemistry, Faculty of Science, University of Zagreb, Zagreb, Croatia
(c) University of Applied Sciences Upper Austria Campus Wels, Wels, Austria

W24 DETERMINATION OF COPPER IN MILK USING A PORPHYRIN BASED COPPER-SELECTIVE ELECTRODE

Dana Vlascici (a), Dorina Modra (a), Otilia Bizerea (a), Eugenia Fagadar-Cosma (b)
(a) Faculty of Chemistry-Biology-Geography, West University of Timisoara, Timisoara, Romania
(b) Institute of Chemistry Timisoara of Romanian Academy, Timisoara, Romania

W25 TRACE ELEMENT PROFILING IN INDIAN TEA SAMPLES USING TOTAL REFLECTION X-RAY FLUORESCENCE AND INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROMETRY

Rupali L. Lagad (a), Sangita Dhara (a), Nand Lal Misra (a), Alamelu Devanathan (a), Kanchan Pande (b), Suresh K. Aggarwal (a)
(a) Fuel Chemistry Division, Bhabha Atomic Research Centre, Mumbai, India
(b) Earth Sciences Department, Indian Institute of Technology, Mumbai, India

W26 TRACE CONTENT OF MACROELEMENTS IN CANE AND BEET SUGARS AS CRITERIA OF SUGAR AUTHENTICATION

Maciej Wojtczak, Zbigniew Tamborski
Institute of Chemical Technology of Food, Technical University of Lodz, Lodz, Poland

W27 FAAS AND ICP-AES FOR THE ANALYSIS OF SELECTED BIOLOGICAL ACTIVE ELEMENTS IN COMPONENTS OF THE POLISH TYPICAL DIET

Irena Baranowska, Piotr Markowski, Hanna Barchańska, Agnieszka Jaros
Department of Analytical and General Chemistry, Silesian University of Technology, Gliwice, Poland

W28 DETERMINATION OF THE CONTENT OF SELECTED POTENTIALLY TOXIC ELEMENTS IN CURCUMA LONGA AND ITS PRODUCTS USING ICP-MS

Nguyen Thi Kim Dung (a), Nguyen Phuong Thanh (b), Pham Ngoc Khai (a), Pham Luan (c)
(a) Center for Analytical Chemistry, Institute for Technology of Radioactive and Rare Elements (ITRRE), Vietnam Atomic Energy Commission (VAEC), Hanoi, Vietnam
(b) Analytical Chemistry Department, Hanoi University of Technology, Hanoi, Vietnam
(c) Faculty of Chemistry, Hanoi University of Science, Hanoi, Vietnam

W29 EFFECT OF DIFFERENT WATER SOLUBLE CHEMICALS ON THE SIGNAL OF VARIOUS ELEMENTS USING ICP-MS

Béla Kovács
Institute of Food Science, Quality Assurance and Microbiology, Debrecen, Hungary

W30 DETERMINATION OF SELECTED HEAVY METALS IN MAIZE: COMPARISON BETWEEN WD-XRF WITH DETATA PRECONCENTRATION AND FLAME ATOMIC ABSORPTION SPECTROMETRY

Marcin Cichosz (a), Roman Buczkowski (a), Marzanna Kurzawa (b)
(a) Faculty of Chemistry, Nicolaus Copernicus University, Toruń, Poland
(b) Faculty of Chemistry, Nicolaus Copernicus University, Toruń, Poland

W31 QUALITATIVE AND QUANTITATIVE METAL ANALYSIS IN SELECTED HERBS AND DIET SUPPLEMENTS BY EDX/EDS, WD-XRF WITH DETATA PRECONCENTRATION AND FAAS

Marzanna Kurzawa, Marcin Cichosz
Faculty of Chemistry, Nicolaus Copernicus University, Toruń, Poland

W32 DETERMINATION OF TRACE ELEMENTS IN TOMATO SAUCES WITH SOLID SAMPLING

Asli Baysal, Mustafa Ozcan, Suleyman Akman
Faculty of Science and Letters, Istanbul Technical University, Istanbul, Turkey

W33 DETERMINATION OF SELECTED METALS IN HEN EGGS BY SPECTRAL METHODS

Grzegorz Piechota, Marcin Cichosz, Marzanna Kurzawa
Faculty of Chemistry, Nicolaus Copernicus University, Toruń, Poland

W34 OPTIMIZATION OF A MICROWAVE-ASSISTED EXTRACTION PROCEDURE FOR ZINC AND COPPER DETERMINATION IN FOOD SAMPLES BY BOX-BEHNKEN DESIGN

Mostafa Khajeh
Department of Chemistry, University of Zabol, Zabol, Iran

Poster Session 2 - Sources and transfer of trace elements in the food chain

W35 EFFECTS OF SELENIUM SOURCE AND DOSE ON SELENOMETHIONINE AND SELENOCYSTEINE IN MILK OF DAIRY COWS

Luigi Calamari (a), Francesca Petrera (b), Gérard Bertin (c)
(a) *Facoltà di Agraria, Istituto di Zootecnica, Piacenza, Italy*
(b) *Azienda Sperimentale Vittorio Tadini, Gariga di Podenzano, Piacenza, Italy*
(c) *Alltech European Union Regulatory Department, Levallois-Perret, France*

W36 PHYTOAVAILABILITY OF CADMIUM AS INFLUENCED BY NITROGEN RATE, SEEDING DATE AND SOIL TYPE

Patrizia Perilli (a), Les G. Mitchell (b), Cynthia Grant (b), Michele Pisante (a)
(a) *Department of Food Science, Università degli Studi di Teramo, Teramo, Italy*
(b) *Brandon Research Centre, Agriculture and Agri-Food Canada Research Centre, Brandon, Manitoba, Canada*

W37 THE INFLUENCE OF ORGANIC AND MINERAL FERTILIZATION ON THE TRACE ELEMENTS CONTENTS IN THE FEED FROM THE HILL REGION OF BANAT (ROMANIA)

Monica Hărmanescu (a), Alexandru Moisuc (a), Ioan Gogoasa (b), Iosif Gergen (b)
(a) *Faculty of Agronomy, Banat's University of Agriculture and Veterinary Medicine, Timisoara, Romania*
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W38 TRANSFER AND ACCUMULATION OF CADMIUM, LEAD AND ARSENIC IN THE FOOD CHAIN OF CATTLE FROM RURAL AND INDUSTRIAL AREAS IN BELGIUM

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W39 EFFECTS OF WITHIN NATURAL RANGE VARIATION IN CADMIUM AND LEAD LEVELS IN GENERAL AQUATIC ENVIRONMENT ON LOCAL FOODS AND BODY BURDEN OF LOCAL RESIDENTS: NATION-WIDE ANALYSES IN NON-POLLUTED AREAS IN JAPAN

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W40 HEAVY METAL CONTENT OF CROPS IRRIGATED WITH WASTEWATER

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W41 MEASUREMENT OF HEAVY METALS BOUND BY POMEGRANATE (*PUNICA GRANATUM*) PEEL IN A MODEL SYSTEM

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W42 MINERAL CONTENTS OF KERNELS OF SOME IMPORTANT APRICOT (*PRUNUS ARMENIACA* L.) VARIETIES CULTIVATED IN TURKEY

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W43 PLANTING CLOSENESS ON THE ELEMENTAL COMPOSITION OF GROUND ALMOND (*CYPERUS ESCULENTUS* L.)

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W44 MINERAL CONTENT OF THE SEED AND THE PERICARP OF SUMACH (*RHUS CORIARIA* L.)

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W45 THE AFFINITY OF SOME MUSHROOMS SPECIES UBIQUITARIAN IN DAMBOVITA COUNTY ECOSYSTEMS FOR ABSORPTION AND STORAGE OF BIOMINERALS

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W46 CONTENT OF SELECTED ELEMENTS IN KING BOLETE (*BOLETUS EDULIS*) COLLECTED FROM THE SAME SITE OVER TWO YEARS

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W47 BIOACCUMULATION OF MERCURY IN SLIPPERY JACK (*SUILLUS LUTEUS*) MUSHROOM

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W48 MERCURY AND ITS BIOCONCENTRATION POTENTIAL BY RED ASPEN BOLE (*LECCINUM AURANTIAECUM*)

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W49 TRACE ELEMENTS IN WILD EDIBLE MUSHROOMS: *BOLETUS EDULIS*

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W50 DETERMINATION OF HEAVY METAL CONTENT OF MACROMYCETES (MUSHROOMS) AND THEIR SUBSTRATE BY EDXRF SPECTROMETRY AND AA SPECTROMETRY

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W51 IODINE CONTENT IN KOMBU (EDIBLE KELP) PRODUCTS CONSUMED IN JAPAN

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W52 MERCURY IN FISH PRODUCTS FROM THE FISH MARKET IN GENOVA

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W53 MERCURY AND METHYLMERCURY CONTENT, FATTY ACIDS PROFILE, AND PROXIMATE COMPOSITION OF CONSUMED FISH IN CANANÉIA, SÃO PAULO, BRAZIL

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W54 MERCURY, LEAD, CADMIUM AND ARSENIC CONCENTRATIONS IN SEAFOOD FROM THE NORTH ADRIATIC SEA

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W55 MERCURY CONTAMINATION IN MARINE ORGANISMS AT DIFFERENT TROPHIC LEVELS IN THE MAR PICCOLO OF TARANTO (IONIAN SEA, SOUTHERN ITALY)

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W56 MERCURY AND METHYLMERCURY IN SEDIMENTS AND SOFT TISSUE OF *MYTILUS GALLOPROVINCIALIS* FROM TARANTO GULF (IONIAN SEA, SOUTHERN ITALY)

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W57 RISKS AND BENEFITS OF FRESH AND CANNED FISH ON THE SLOVENIAN MARKET

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W58 ESSENTIAL AND TOXIC ELEMENTS DETERMINATION IN BRAZILIAN CULTIVATED MUSSEL PERNA PERNA

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W59 TRACE OF HEAVY METALS IN SMOKED "PROVOLA" CHEESE FROM CALABRIA (ITALY)

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W60 MONITORING OF POCs, PCBs AND MINERAL COMPONENTS IN DONKEY'S MILK FROM SICILIAN FARMS

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W61 TRACE ELEMENTS IN SAMPLES OF DIFFERENT TYPES OF STOCK CUBES AND BROTH GRANULATES

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W62 TRACE ELEMENT CONTENT OF NATURAL FOOD RED COLORANT FROM POKEBERRY AND GREEN TEA

Nani Mchedlishvili, Nino Omiadze, Levan Gulua, Marine Abutidze, Giorgi Tsiklauri, Giorgi Kvesitadze

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W63 LEAD EXTRACTED FROM CERAMICS UNDER HOUSEHOLD CONDITIONS

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W64 THE EFFECT OF CADMIUM, LEAD AND ZINC AQUATIC POLLUTION ON TOTAL ANTIOXIDANT STATUS AND LIPID PEROXIDATION IN FRESHWATER FISH

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W65 EFFECT ON Cu, Mn AND Zn ABSORPTION OF SUPPLEMENTARY ROSA CANINA AND PHYTASE TO DIETS FED TO WEANED PIGLETS (10-30 KG)

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W66 QUALITY OF Se-ENRICHED EGGS UNDER THE CONDITIONS OF USING DIFFERENT LEVELS OF DIETARY E VITAMIN

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W67 COMPARISON OF SELENIUM CONCENTRATIONS IN EGGS AND MILK FROM ANIMALS FED SELENITE OR SELENIUM-ENRICHED PROBIOTICS

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W68 THE EFFECT OF NICKEL PERORAL ADMINISTRATION ON GROWTH, EGG QUALITY AND BIOCHEMICAL BLOOD PARAMETERS IN LAYING HENS

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T01 RESEARCH ON THE HYPOCHOLESTEMIC EFFECT OF HIGH LEVELS OF Cu GIVEN TO LAYERS

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T02 RESPONSE IN ACTIVITY OF SELENOENZYME GLUTATHIONE PEROXIDASE TO FEED SUPPLEMENTATION WITH CINNAMOMUM ZEYLANICUM OIL IN POULTRY

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T03 SELENIUM STATUS OF RUMEN MICROBIOTA IN SHEEP FED DIET SUPPLEMENTED WITH SODIUM SELENITE

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T04 BENEFICIAL EFFECT OF DIETARY CHLORELLA AND ESSENTIAL OIL PLANT EXTRACTS ON ESSENTIAL TRACE ELEMENT STATUS IN WEANED PIGLETS

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T05 SCREENING OF RHODOTURA RUBRA STRAINS RESISTANT TO MANGANESE, ZINC AND COPPER FOR THE PRODUCTION OF PROBIOTICS FOR ANIMAL NUTRITION

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T06 OBTAINING CHROMIUM AND SELENIUM ENRICHED YEAST UNDER BIOCONVERSION OF INORGANIC FORMS

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T07 STUDY OF THE INFLUENCE OF POTASSIUM PHOSPHATE ON LACTOBACILLUS STRAINS USED FOR PROBIOTIC PRODUCTION AND CHARACTERIZATION OF THEIR Cu, Zn, Co, Cd AND Fe CONTENT

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T08 DISCRIMINATION OF BRAZILIAN COFFEA CANEPHORA BY REGION USING TRACE ELEMENT COMPOSITION

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T09 WHAT DO METALS TELL US ABOUT WINE?

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T10 THE APPLICABILITY OF CHEMOMETRIC TECHNIQUES IN ASSESSING THE DIFFERENCES IN QUALITY OF VEGETABLE PRODUCTS

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T11 APPLICATION OF MULTIVARIATE METHODS TO QUALITY EVALUATION OF RICE

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T12 CHOCOLATE-IS IT ONLY A SWEET THING?

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T13 TRACEABILITY OF ELEMENT CONTENT DURING PROCESSING OF COW MILK

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T14 EFFECT OF MOLYBDENUM AND SELENIUM CONTENT IN MINERAL SOLUTION AND SOIL ON ELEMENT UPTAKE BY VARIOUS PLANTS

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T15 INVESTIGATION OF MOLYBDENUM IN SOIL-PLANT SYSTEM

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T16 TRACE ELEMENTS IN HUNGARIAN HONEYS

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T17 HEAVY METAL CONTENTS AND PHYSICO-CHEMICAL CHARACTERISTICS OF SAUDI ARABIAN FLORAL HONEYS

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T18 THE INFLUENCE OF SUNFLOWER SEED ON THE ELEMENT CONTENTS OF SUPPLEMENTED WHEAT-BASED PRODUCTS

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T19 ESSENTIAL AND NON-ESSENTIAL TRACE ELEMENTS IN SAUSAGES AND EGGS

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T20 TOXIC ELEMENTS AND THEIR SPECIES ASSOCIATED TO FOOD CONSUMPTION

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T21 DYNAMICS OF NUTRIENT ELEMENTS UPTAKE BY GARDEN STRAWBERRY (*FRAGARIA X ANANASSA* DUCH.) DURING THE VEGETATION PERIOD

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T22 SELECTED ELEMENTS IN INFUSIONS OF TEA, COFFEE AND OTHER PLANT SPECIES

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T23 ALUMINIUM IN TEA AND OTHER PLANT STIMULANTS AND THEIR INFUSIONS

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T24 ELEMENTAL COMPOSITION OF DIFFERENT PAKISTANI WHEAT VARIETIES

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T25 EVALUATION OF THE EFFECT OF INDUSTRIAL POLLUTION ON THE MICROELEMENT PROFILE OF WALNUT AND HAZELNUT CULTIVARS AND IMPLICATIONS FOR HUMAN HEALTH

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T26 DETERMINATION OF TRACE AND MAJOR ELEMENTS IN SOME MEDICINAL HERBS

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T27 IMPACT OF THE MILITARY CONFLICTS AND USE OF DEPLETED URANIUM ON THE FOOD CHAIN IN BOSNIA AND HERZEGOVINA AND KOSOVO: RISK ASSESSMENT OF URANIUM AND OTHER POTENTIALLY TOXIC TRACE ELEMENTS

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T28 TOTAL SELENIUM AND SELENIUM SPECIATION IN FOOD CROPS FROM A SELENIFEROUS AREA OF PUNJAB
Francesco Cubadda (a), Federica Aureli (a), Silvia Ciardullo (a), Marilena D'Amato (a), Andrea Raggi (a), Raghunath Acharya (b), Tejo Prakash Nagaraja (c)

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T29 DIETARY EXPOSURE TO POTENTIALLY TOXIC TRACE ELEMENTS IN NIGERIA: AN OVERVIEW

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T30 MERCURY, METHYLMERCURY AND FOOD: FOCUS ON RICE

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T31 DOES THE EDIBLE SEAWEED HIJIKI DEAL WITH ITS ARSENIC BURDEN VIA COMPLEXATION WITH PHYTOCHELATINS?

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T32 Zn²⁺ AND PROSTATE-SPECIFIC ANTIGEN (PSA) AS PROSTATE FUNCTIONAL BIOMARKERS: PHENOTYPIC ANCHORING WITHIN THE REPROTECT PROJECT

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T33 PRE- AND POST-NATAL EXPOSURE OF SPRAGUE-DAWLEY RATS TO THE ENVIRONMENTAL CONTAMINANT ETHYLENETHIOUREA (ETU) AFFECTS THE MALE REPRODUCTIVE SYSTEM ALTERING BOTH SEX STEROID HORMONE LEVELS AND PROSTATE Zn²⁺ SECRETION

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T34 BIOSENSOR-BASED APPROACH FOR THE ASSESSMENT OF THE RELATIVE ANTIOXIDANT CAPACITY OF BREAD

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T35 HEALTH RISK ASSESSMENT OF SELECTED TRACE ELEMENTS IN INORGANIC FERTILIZERS POST APPLICATION: A BRAZILIAN CASE STUDY

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T36 ELEMENTS STATUS IN THE LIVER OF RATS IN RELATION TO DIETARY SELENIUM DEFICIENCY

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T37 A LONG-TERM ASSESSMENT OF THE MERCURY CONTAMINATION OF FOODS IN THE IRKUTSK REGION, RUSSIA

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T38 METALLOIDS AND METALS IN FOOD SUPPLEMENTS

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T39 DIETARY EXPOSURE ASSESSMENTS OF HEAVY METALS AND TRACE ELEMENTS IN CHINA

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T40 ESTIMATION OF THE DIETARY INTAKE OF CADMIUM BY A BRAZILIAN TOTAL DIET STUDY

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T41 MERCURY CONTENT IN TWO FISH SPECIES, HAKE (*MERLUCCİUS MERLUCCİUS*) AND CARP (*CYPRINUS CARPIO*): ESTIMATED WEEKLY INTAKE IN SERBIAN POPULATION

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T42 INORGANIC ARSENIC IN SEAFOOD: AN UNDERESTIMATED ISSUE?

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T43 SIMPLE BUT SOUND RECOMMENDATIONS TO REDUCE ARSENIC INTAKE IN INDIA

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T44 DETERMINATION OF TOTAL AND INORGANIC ARSENIC IN CANNED AND FROZEN SEA PRODUCTS AND FISH COLLECTED AT A SPANISH MARKET

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T45 EFFECTS OF INCREASED FISH INTAKE ON SERUM SELENIUM: RESULTS FROM THE FISHGASTRO HUMAN INTERVENTION STUDY

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T46 EFFECT OF RIBOFLAVIN STATUS ON THE BIOAVAILABILITY OF NON-HAEM IRON

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T47 MILK OR CASEINOPHOSPHOPEPTIDES ADDED TO FRUIT BEVERAGE TO IMPROVE FERRITIN SYNTHESIS?

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T48 IRON AVAILABILITY OF DIFFERENT TYPES OF INULIN ENRICHED INTEGRAL BISCUITS: STUDIES USING AN IN VITRO DIGESTION/Caco-2 CELL CULTURE MODEL

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T49 IN VITRO BIOACCESSIBILITY OF IRON AND ZINC IN FORTIFIED FRUIT BEVERAGES

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T50 IODINE PROPHYLAXIS IN ITALY

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T51 POSSIBLE EFFECTS OF PROFESSIONAL EXPOSURE TO THYROID DISRUPTORS ON URINARY IODINE CONCENTRATION IN AGRICULTURAL WORKERS: PRELIMINARY RESULTS OF AN EPIDEMIOLOGICAL STUDY

Francesco Cubadda (b), Simona De Angelis (a), Emanuela Medda (c), Federica Aureli (b), Antonio Anastasio (d), Silvestro Canzano (d), Alessandro Correria (d), Filippo D'Addio (d), Antonio Natale (d), Ciro Pascarella (d), Silvio Pascarella (d), Michele Roberti (d), Alberto Mantovani (b), Antonella Olivieri (a)
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T52 SELENIUM-ENRICHED MYCELIUM OF *LENTINULA EDODES* (BERK.) PEGLER-A SOURCE OF ORGANIC FORMS OF SELENIUM WITH A POTENTIAL CANCER PREVENTIVE ACTIVITY

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T53 THE ROLE OF SELENIUM AND ZINC IN FORMATION OF ANTIOXIDANT QUALITIES OF PLANT FOOD

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T54 DOES A ZINC DEFICIENT DIET INDUCE IRON UPTAKE?

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T55 FRACTIONATION ANALYSES OF COPPER, IRON, MANGANESE AND ZINC IN HERBAL INFUSIONS

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T56 MINERAL CONTENT AND IRON SPECIATION OF TRADITIONAL TURKISH FRUITS' JUICE CONCENTRATE (PEKMEZ)

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T57 IRON AND ZINC IN FORTIFIED BRAZILIAN SOYBEAN JUICE

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T58 IRON IN COOKIES PREPARED WITH FORTIFIED FLOUR

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T59 IRON AND ZINC IN SNACKS

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T60 DETERMINATION OF MINERAL NUTRIENTS IN CEREAL FLAKES

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T61 PECULIARITIES OF MINERALS IN IRANIAN DAILY DIETS

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T62 ESSENTIAL ELEMENTS IN PRE-TERM AND FULL-TERM HUMAN COLOSTRUM

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T63 TRACE ELEMENTS IN HUMAN MILK

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T64 MINERAL AND TRACE ELEMENTS DISTRIBUTION PATTERN IN INFANT FORMULA AND RAW COW MILK

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T65 FRUITS AS AN ESSENTIAL PART OF A HEALTHY DIET

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T66 HEALTH BENEFITS RELATED TO CONSUMPTION OF WILD AND FARMED ATLANTIC SALMON

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T67 IRON AND ZINC AVAILABILITY IN OPAQUE SORGHUM BEER

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