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Proceedings of

2nd EuroSciCon Conference on

FOOD TECHNOLOGY

May 14-16, 2018 Rome, Italy

Our Collaborators

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EuroSciCon Ltd
40 Bloomsbury Way
Lower Ground Floor, London, United Kingdom WC1A 2SE

Scientific Program

Food Technology 2018

Agenda Day 1: May 14, 2018

08:30-09:00 **Registration**

09:00-09:30 Opening Ceremony (Introduction)

Keynote Forum

09:30-10:10 **Title: Optimizing the nutrition of food and feedstuff with high-oleic peanuts and peanut-by products**

Ondulla T Toomer, USDA-ARS, USA

10:10-10:50 **Title: Ohmic heating: recent technology improvement and overview of latest applications with aseptic packaging**

Massimo Zonca, Independent Expert in Food Packaging and Food Process, Italy

Group Photo:

Coffee Break: 10:50-11: 10 @ Foyer

11:10-11:50 **Title: The new "solutions economy" and how it works globally to solve nutrition and health societal problems**

Sandra Poirier, Middle Tennessee State University, USA

11:50-12:30 **Title: Developing effective delivery systems of beneficial bacteria in food products**

Yiannis Kourkoutas, Democritus University of Thrace, Greece

Lunch Break 12:30-13:25 @ Hotel Restaurants

Sessions: Food safety | Food additives | Nutraceuticals | Food Chemistry | Food waste management | Food quality standards | Food packaging | Food and human health | Horticulture

Session Chair: Ondulla T Toomer, USDA-ARS, USA

Session Co Chair: Massimo Zonca, Independent Expert in Food Packaging and Food Process, Italy

Session Introduction

13:25:-13:50 **Title: Optimization and validation of an analytical method by HPLC-UV-diode array detection for the simultaneous determination of 12 dyes in meat products**

Marco Iammarino, Istituto Zooprofilattico Sperimentale della Puglia e della Basilicata, Italy

13:50-14:15 **Title: Quantification of polar compound fractions as a reliable and objective method to gauge oil degradation during excessive frying**

Azmil Haizam Ahmad Tarmizi, Malaysian Palm Oil Board, Malaysia

14:15-14:40 **Title: Oleuropein and copper: a new opportunity against liver disease**

Clara Balsano, University of L' Aquila, Italy

14:40-15:05 **Title: Capsaicinoids and Vitamin C in habanero chili (Capsicum chinense) cultivated in different types of soils from Yucatan, Mexico**

Ingrid Mayanin Rodriguez Buenfil, Center for Research and Assistance in Technology and Design of the State of Jalisco AC (CIATEJ), Mexico

15:05:-15:30 **Title: Bioactive compounds in essential oil from torch ginger (Etlingera elatior) flower extracted using subcritical carbon dioxide**

Anis Shobirin Meor Hussin, University Putra Malaysia, Malaysia

Coffee Break: 15:30-15:50 @ Foyer

15:50-16:15	**Title: Antioxidant activity of Kappaphycus alvarezii and Sargassum polycystum seaweeds extracts** **Babak Rasti,** Universiti Malaysia Sabah, Malaysia
16:15-16:40	**Title: Industrial development for mass production of a dietary supplement obtained by topspray continuous fluid bed aglomeration** **Daniel Laguado,** Quala S.A., Colombia
16:40-17:05	**Title: Chestnut peels: from a food waste to a valuable and functional ingredient for cereal-based products** **Maria Paciulli,** University of Parma, Italy
17:05-17:30	**Title: Effect of processing condition on the milk/soy milk yogurt quality** **Arezoo Erfanian,** Universiti Malaysia Sabah, Malaysia
17:30-18:00	**Question Time**
18:00	**Chairman's Summing Up & Panel discussion**

Agenda Day 2: May 15, 2018

09:00-09:30	**Registration**

Keynote Forum

09:30-10:10	**Title: Engineering the microbiome for prevention and treatment of medical conditions** **Rob te Biesebeke,** HNM Engineering, Switzerland
10:10-10:50	**Title: The use of information and communications technology (ICT) in food engineering: review and perspectives** **Marco Pellegrini**, Universita Politecnica delle Marche, Italy

Coffee Break: 10:50-11:10 @ Foyer

Sessions: Agriculture | Food Microbiology | Food Preservation | Nutrition | Food Engineering | Food Safety and Hygiene | Food Processing | Food Packaging

Session Chair: Sandra Poirier, Middle Tennessee State University, USA

Session Co Chair: Marco Pellegrini, Universita' Politecnica delle Marche, Italy

Session Introduction

11:10-11:35	**Title: Quality of habanero chili by texture measurements: fresh-cut and post-harvest study** **Manuel Octavio Ramirez Sucre,** Center for Research and Assistance in Technology and Design of the State of Jalisco AC (CIATEJ), Mexico
11:35-12:00	**Title: Results of the Cati Leite Project implementation at rural farms in the Jaboticabal region** **Roberto Saverio Souza Costa ,** Coordenadoria de Assistencia Tecnica Integral (CATI), Brazil
12:00-12:25	**Title: Organophosphate residues in buffalo milk collected from local dairy farms** **Muhammad Wasim Sajid,** COMSATS Institute of Information Technology, Pakistan

Lunch Break: 12:25-13:20 @ Hotel Restaurants

YOUNG RESEARCH FORUM

13:20-13:40	**Title: Antibacterial activity of nerolidol in free and encapsulated forms in orange juice** **Elissa Ephrem,** Lebanese University, Lebanon
13:40-14:00	**Title: Supercritical CO_2, an alternative drying technique for food treatment** **Filippo Michelino**, University of Padova, Italy
14:00-14:20	**Title: Alternative production of microbiologically safe foodstuff with high nutritional value by SC-CO_2 drying process** **Giovanni Lorenzon,** University of Padova, Italy
14:20-14:40	**Title: Oxidative stability of PUFAs under food processing conditions** **Sandra Grebenteuch,** Technische Universitat Berlin, Germany
14:40-15:00	**Title: Zinc content in breast milk: report from Latvia** **Liva Aumeistere,** Latvia University of Agriculture, Latvia

15:00-15:20	**Title: The effects of lemon peel essential oil coating on quality of pacific white shrimp (Litopenaeus vannamei) stored at 4°C** **Elham Nasiri,** Tabriz University, Iran

Coffee Break: 15:20-15:50 @ Foyer

POSTER PRESENTATIONS 15:50-16:50 @ Foyer

FT 01	**Title: A statistical approach to investigate the effects of biotechnological parameters on the obtaining and processing of brewing yeast biomass** **Mihaela Violeta Ghica,** Carol Davila University of Medicine and Pharmacy, Romania
FT 02	**Title: Sample irradiation coupled to electronic spin resonance analysis for identifying a mechanically separated meat** **Marco Iammarino,** Istituto Zooprofilattico Sperimentale della Puglia e della Basilicata, Italy
FT 03	**Title: A molecular study on the gut survival properties of Bulgarian amylolytic Lactobacillus plantarum strains** **Velitchka G. Gotcheva,** University of Food Technologies, Plovdiv, Bulgaria
FT 04	**Title: Effect of salt content on microbiological quality of dried beef slices** **Elif Aykin Dincer,** Akdeniz University, Turkey
FT 05	**Title: Valorization of minor olive cultivars and olive oil from different Italian regions: a physicochemical and thermal approach** **Maria Paciulli,** University of Parma, Italy
FT 06	**Title: Effect of aqueous extract of myrtle leaves (Myrtus communis) on quality changes of farmed gutted rainbow trout (Oncorhynchus mykiss) during chilled (4±1°C) storage**
FT 07	**Elham Nasiri,** Tabriz University, Iran **Title: Microbiota of fresh pork sausage in modified atmosphere** **Tiziana Maria Sirangelo,** University of Modena and Reggio Emilia, Italy
FT 08	**Title: Zn chelate application on Zn deficient soil cultivated with maize under greenhouse** **Roberto Saverio Souza Costa,** Coordenadoria de Assistência Técnica Integral (CATI), Brazil
FT 09	**Title: AMPK modulatory activity of polyphenols from Lippia citriodora: a dietary strategy against obesity** **Marilo Dolores Olivares Vicente,** Miguel Hernandez University of Elche, Spain
FT 10	**Title: Some quality characteristics of produced and marketed Hungarian Salami in Turkey** **Elif Aykin Dincer,** Akdeniz University, Turkey
FT 11	**Title: Effects of hibiscus and lemon verbena polyphenols in overweight volunteers: the role of appetite related hormones** **Marina Boix Castejon,** Miguel Hernandez University of Elche, Spain
FT 12	**Title: Development of functional food products from brewery spent grain recovery** **Maria Paciulli,** University of Parma, Italy
FT 13	**Title: Plant polyphenols for weight management: potential role of AMPK** **Maria Herranz-Lopez,** Miguel Hernandez University of Elche, Spain
FT 14	**Title: The effect of gellan gum on cooked rice digestibility** **Syahrizal Muttakin,** University of Birmingham, UK
FT 15	**Title: Effect of free or immobilized kefir culture on the profile of volatiles in low-alcohol wines** **Yiannis Kourkoutas,** Democritus University of Thrace, Greece
16:50-17:20	**Question Time**
17:20	**Chairman's Summing Up**

Poster Judge: Rob te Biesebeke, HNM Engineering, Switzerland

Awards Function & Closing Ceremony

Agenda Day 3 May 16, 2018

NETWORKING SESSION AND LUNCH

Lunch Break 12:00-13:00 @ Hotel Restaurants

Mark your calender

World Congress on
Nutrition and Dietetics

June 18-19, 2018
Paris, France

Email: nutrition@eurosciconmeetings.com

Website: https://nutrition.euroscicon.com/

3rd EuroSciCon Conference on
Food Technology

April 22-24, 2019
Athens, Greece

Email: foodtechnology@eurosciconconferences.com

Website: https://food-technology.euroscicon.com/



Upcoming Conferences



2nd EuroSciCon Conference on

Food Technology

May 14-16, 2018 Rome, Italy

EuroSciCon CONFERENCE DIRECTORY 2018



Agri, Food Aqua & Veterinary

European Summit on
Aquaculture, Fisheries and Horticulture
Sep 20-21, 2018 Lisbon, Portugal
E: aquaculture@eurosciconevents.org
W: aquaculture.eurosciconcom

EuroSciCon Conference on
Agriculture & Horticulture
Oct 15-16, 2018 Paris, France
E: agriculture@eurosciconevents.org
W: agriculture.eurosciconcom



Alternative Healthcare

International Conference on
Holistic Medicine & Holistic Nursing
Oct 22-23, 2018 Athens, Greece
E: holisticmedicine@eurosciconevents.org
W: holisticmedicine.eurosciconcom

International Traditional and Herbal Medicine Conference
Oct 22-24, 2018 Athens, Greece
E: herbalmedicine@eurosciconevents.org
W: herbalmedicine.eurosciconcom

International Conference on
Physical Medicine
Nov 12-13, 2018 Paris, France
E: physicalmedicine@eurosciconevents.org
W: physicalmedicine.eurosciconcom

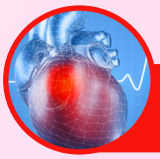


Bacteriology

Annual Congress on
Biomarkers & Clinical Research
July 19-20, 2018 Prague, Czech Republic
E: biomarkers@eurosciconmeetings.com
W: biomarkers.eurosciconcom

International Conference on
Nutritional Biochemistry
Sep 10-11, 2018 Prague, Czech Republic
E: nutritionalbiochemistry@eurosciconmeetings.com
W: nutritionalbiochemistry.eurosciconcom

EuroSciCon Congress on
Biochemistry & Molecular biology
Oct 11-12, 2018 Amsterdam, Netherlands
E: biochemistry@eurosciconevents.org
W: biochemistry.eurosciconcom

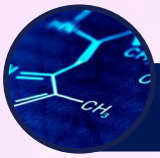


Cardiology

EuroSciCon Conference on
Clinical Cardiology
May 24-25, 2018 London, UK
E: clinicalcardiology@eurosciconmeetings.com
W: clinical-cardiology.eurosciconcom

Annual World Cardiology congress
Aug 9-10, 2018 Prague, Czech Republic
E: cardiology@eurosciconmeetings.com
W: cardiology.eurosciconcom

EuroSciCon Congress on
Heart Disease & Interventional Cardiology
Oct 15-16, 2018 Paris, France
E: heartdisease@eurosciconevents.org
W: heartdisease.eurosciconcom



Chemical Engineering

EuroSciCon Conference on
Biochemical & Chemical Engineering
July 19-20, 2018 Prague, Czech Republic
E: biochemicalengineering@eurosciconmeetings.com
W: biochemicalengineering.eurosciconcom

World Congress on
Polymer Engineering
Aug 9-10, 2018 Prague, Czech Republic
E: polymer@eurosciconmeetings.com
W: polymer.eurosciconcom

International Conference on
Polymer & Bioopolymer Chemistry
Oct 1-2, 2018 Stockholm, Sweden
E: polymerchem@eurosciconevents.org
W: polymer-biolpolymer.eurosciconcom

EuroSciCon Conference on
Physical Chemistry
Oct 08-10, 2018 Amsterdam, Netherlands
E: physicalchemistry@eurosciconevents.org
W: physicalchemistry.eurosciconcom

World Congress on
Petroleum Engineering & Natural Resources
Nov 12-13, 2018 Athens, Greece
E: petroleumengineering@eurosciconevents.org
W: petroleumengineering.eurosciconcom

EuroSciCon Conference & Expo on Oil and Gas
Nov 26-27, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
W: oilandgas.eurosciconcom

EuroSciCon CONFERENCE DIRECTORY 2018

International Conference on
Biofuels & Bioenergy
Nov 26-27, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
W: biofuels-bioenergy.euroscicon.com

EuroSciCon Conference on
Biochemical & Chemical Engineering
July 19-20, 2018 Prague, Czech Republic
E: biochemicalengineering@eurosciconmeetings.com
W: biochemicalengineering.euroscicon.com

World Congress on
Polymer Engineering
Aug 9-10, 2018 Prague, Czech Republic
E: polymer@eurosciconmeetings.com
W: polymer.euroscicon.com

International Conference on
Polymer & Bioopolymer Chemistry
Oct 1-2, 2018 Stockholm, Sweden
E: polymerchem@eurosciconevents.org
W: polymer-biolpolymer.euroscicon.com

EuroSciCon Conference on
Physical Chemistry
Oct 08-10, 2018 Amsterdam, Netherlands
E: physicalchemistry@eurosciconevents.org
W: physicalchemistry.euroscicon.com

World Congress on
Petroleum Engineering & Natural Resources
Nov 12-13, 2018 Athens, Greece
E: petroleumengineering@eurosciconevents.org
W: petroleumengineering.euroscicon.com

EuroSciCon Conference & Expo on Oil and Gas
Nov 26-27, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
W: oilandgas.euroscicon.com

International Conference on
Biofuels & Bioenergy
Nov 26-27, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
W: biofuels-bioenergy.euroscicon.com



Dentistry

23rd International Conference on
Dentistry and Dental Practice
May 24-25, 2018 Vienna, Austria
E: dentalpractice@eurosciconmeetings.com
W: dentalpractice.euroscicon.com

28th International Conference on
Dental Treatment
September 10-11, 2018 Zurich, Switzerland
E: dentaltreatment@eurosciconmeetings.com
W: dentaltreatment.euroscicon.com

29th International Conference on
Advanced Dental Care
October 08-10, 2018 Moscow, Russia
E: advanceddentalcare@eurosciconconferences.com
W: advanced-dentalcare.euroscicon.com

30th International Conference on
Dental Science and Research
October 18-19, 2018 Warsaw, Poland
E: dentalpublichealth@eurosciconconferences.com
W: dentalpublichealth.euroscicon.com



Dematology

EuroSciCon Conference on
Cosmetology & Dermatology
June 21-22, 2018 London, UK
E: cosmetology@eurosciconmeetings.com
W: cosmetology.euroscicon.com

EuroSciCon Congress on
Dermatology & Dermatologists
Sep 24-26, 2018 Lisbon, Portugal
E: dermatologists@eurosciconevents.org
W: dermatologists.euroscicon.com



EEE & Engineering

Annual Summit on
Sustainable and Renewable Energy Research Conference
Aug 13-14, 2018 Paris, France
E: sustainableenergy@eurosciconmeetings.com
W: sustainableenergy.euroscicon.com

EuroSciCon Conference on
Wireless & Telecommunication
Sep 17-18, 2018 Lisbon, Portugal
E: wireless@eurosciconevents.org
W: wirelesscommunication.euroscicon.com

EuroSciCon Conference on
3D Printing
Sep 17-18, 2018 Lisbon, Portugal
E: 3dprinting@eurosciconevents.org
W: 3dprinting.euroscicon.com

International Conference on
Nuclear Medicine & Radiation Therapy
Oct 1-2, 2018 Stockholm, Sweden
E: nuclearmedicine@eurosciconevents.org
W: nuclearmedicine.euroscicon.com

EuroSciCon CONFERENCE DIRECTORY 2018

International Conference on
Structural and Civil Engineering Research
Oct 1-2, 2018 Amsterdam, Netherlands
E: civil@eurosciconevents.org
W: civilengineering.euroscicon.com

EuroSciCon Conference on
Robotics & Automation
Oct 1-2, 2018 Amsterdam, Netherlands
E: automation@eurosciconevents.org
W: automation.euroscicon.com

EuroSciCon Conference on
Data Analytics and Data Mining
Oct 1-2, 2018 Amsterdam, Netherlands
E: dataanalytics@eurosciconevents.org
W: dataanalytics.euroscicon.com

EuroSciCon Conference on
Mining & Metallugy
Nov 1-2, 2018 Paris, France
E: metal@eurosciconmeetings.org
W: metal.euroscicon.com

European Congress on
Applied Science and Innovative Engineering
Nov 12-13, 2018 Athens, Greece
E: appliedscience@eurosciconmeetings.org
W: appliedscience.euroscicon.com

International Conference on
Steel & Structural Engineering
Nov 15-16, 2018 Paris, France
E: steel@eurosciconevents.org
W: steelengineering.euroscicon.com

European Congress on
Mechatronics
Nov 26-27, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
W: mechatronics.euroscicon.com



GASTROENTEROLOGY

Annual European Conference on
Gastroenterology
June 19-20, 2018 Paris, France
E: gastro@eurosciconmeetings.com
W: gastro.euroscicon.com

Annual Hepatology & Hepatitis Conference
Aug 9-10, 2018 Prague, Czech Republic
E: hepatitis@eurosciconmeetings.com
W: heptology-hepatitis.euroscicon.com

International congress on
Liver & Pancreatic Diseases
Sep 6-7, 2018 Paris, France
E: liver@eurosciconmeetings.com
W: liver.euroscicon.com



Genetics and Molecular Biology

EuroSciCon Congress on
Enzymology and Molecular Sciences
Aug 13-14, 2018 Paris, France
E: enzymology@eurosciconmeetings.com
W: enzymology.euroscicon.com

World Congress on
Genetics & Genetic Engineering
Aug 20-21, 2018 Amsterdam, Netherlands
E: genetics@eurosciconevents.org
W: genetics.euroscicon.com

EuroSciCon Conference on
Cell and Gene Therapy
Aug 20-21, 2018 Amsterdam, Netherlands
E: genetherapy@eurosciconmeetings.com
W: genetherapy.euroscicon.com

EuroSciCon Conference on
Metabolomics & Systems Biology
Sep 3-4, 2018 Paris, France
E: metabolomics@eurosciconmeetings.com
W: metabolomics.euroscicon.com

EuroSciCon Conference on
Integrative and System Biology
Oct 08-10, 2018 Amsterdam, Netherlands
E: systembiology@eurosciconevents.org
W: systembiology.euroscicon.com

EuroSciCon Conference on
Biotechnology & Bioengineering
Nov 15-16, 2018 Athens, Greece
E: bioengineering@eurosciconevents.org
W: biotechnology-bioengineering.euroscicon.com

EuroSciCon Conference on
BioScience
Nov 22-23, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
W: bioscicence.euroscicon.com

European Congress on
Protein & Proteomics
Dec 3-4, 2018 Amsterdam, Netherlands
E: contact@eurosciconconferences.com
W: protein-proteomics.euroscicon.com

International Conference on
Biomaterials & Tissue Engineering
Dec 3-4, 2018 Amsterdam, Netherlands
E: contact@eurosciconconferences.com
W: tissueengineering.euroscicon.com

EuroSciCon Conference on
Computational and Structural Biology
Dec 6-7, 2018 Amsterdam, Netherlands
E: contact@eurosciconconferences.com
W: computational-structuralbiology.euroscicon.com

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Immunology

EuroSciCon Conferece on
Microbiology and Virology
June 21-22, 2018 Paris, France
E: virology@eurosciconmeetings.com
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15th International Conference on
Immunology
July 05-07, 2018 Vienna, Austria
E: immunology@eurosciconmeetings.com
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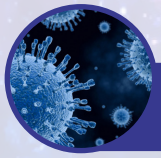
European Congress on
Vaccines & Vaccination
Aug 23-24, 2018 Amsterdam, Netherlands
E: vaccines@eurosciconmeetings.com
W: vaccines.euroscicon.com

EuroSciCon Conference on
Parasitology
Sep 6-7, 2018 Paris, France
E: parasitology@eurosciconmeetings.com
W: parasitology.euroscicon.com

Euro-Global summit on
Allergy
Oct 11-12, 2018 Amsterdam, Netherlands
E: allergy@eurosciconevents.org
W: allergy.euroscicon.com

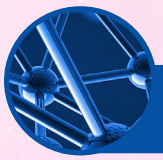
International Conference on
Imuunology Research
Nov 5-6, 2018 Paris, France
E: immunologyresearch@eurosciconevents.org
W: immunologyresearch.euroscicon.com

International Conference on
Antibiotics
Nov 5-6, 2018 Paris, France
E: antibiotics@eurosciconevents.org
W: antibiotics.euroscicon.com



Infectious Diseases

World Congress on
Clinical Microbiology & Infectious Diseases
Sep 3-4, 2018 Paris, France
E: infection@eurosciconmeetings.com
W: infection.euroscicon.com



Materials Science

World Congress on
Materials Science and Engineering
Aug 23-25, 2018 Amsterdam, Netherlands
E: materialsscience@eurosciconmeetings.com
W: materialsscience.euroscicon.com

Annual Congress on
Smart Materials
Oct 04-06, 2018 Amsterdam, Netherlands
E: smartmaterials@eurosciconevents.org
W: smartmaterials.euroscicon.com

International Conference on
Magnetism & Magentic Materials
Nov 8-9, 2018 Paris, France
E: magnetism@eurosciconevents.org
W: magnetism.euroscicon.com

International Conference & Expo on
Cermaics and Composite Materials
Nov 12-13, 2018 Paris, France
E: ceramics@eurosciconevents.org
W: ceramics.euroscicon.com

International Conference & Expo on
Graphene and 2D materials
Nov 12-13, 2018 Paris, France
E: graphene@eurosciconevents.org
W: graphene.euroscicon.com

EuroSciCon Conference on
Energy Materials
Nov 22-23, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
W: energymaterials.euroscicon.com

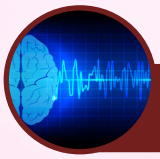


Nephrology

World Congress on
Nephrology & Urology
Sep 6-7, 2018 Paris, France
E: nephrology@eurosciconmeetings.com
W: nephrology.euroscicon.com

EuroSciCon Congress on
Microbiology
Oct 15-16, 2018 Paris, France
E: microbiology@eurosciconevents.org
W: microbiologyconference.euroscicon.com

EuroSciCon CONFERENCE DIRECTORY 2018



Neurology

4th EuroSciCon Conference on
Neurology and Neurological Disorders
July 12-13, 2018 Paris, France
E: neurology@eurosciconmeetings.com
W: neurology.euroscicon.com

Neurological Disorders and Stroke
August 16-17, 2018 Paris, France
E: stroke@eurosciconmeetings.com
W:stroke.euroscicon.com

EuroSciCon Conference on|
Addiction Therapy & Behavioral Science
Oct 22-24, 2018 Athens, Greece
E: addictiontherapy@eurosciconevents.org
W: addictiontherapy.euroscicon.com

EuroSciCon Congress on
Neurology and Neuro Surgery
Nov 1-2, 2018 Paris, France
E: neurosurgery@eurosciconmeetings.org
W: neurology-neurosurgery.euroscicon.com

EuroSciCon Conference on
Anxiety, Depression and Stress Management
Nov 8-9, 2018 Paris, France
E: stress@eurosciconevents.org
W: stressmanagement.euroscicon.com

EuroSciCon Conference on
Trauma and Critical Care
Nov 22-23, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
W: trauma.euroscicon.com

EuroSciCon Conference on
Hypertension
Nov 29-30, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
W: hypertension.euroscicon.com

World Congress on
Dementia
Dec 6-7, 2018 Amsterdam, Netherlands
E: contact@eurosciconconferences.com
W: alzheimers-dementia.euroscicon.com



Nursing

6th International Conference on
Advance Nursing Practice
June 21-22, 2018 Paris, France
E:nursepractitioners@eurosciconmeetings.com
W: nursepractitioners.euroscicon.com

Annual Congress on
Primary Healthcare & Nursing
July 23-24, 2018 Amsterdam, Netherlands
E: healthcarenursing@eurosciconmeetings.com
W: healthcare-nursing.euroscicon.com

28th World Conference on
Nursing & Nursing Diagnosis
Sep 10-11, 2018 Paris, France
E: nursingdiagnosis@eurosciconmeetings.com
W: nursingdiagnosis.euroscicon.com

8th International Conference on
Nursing and Midwifery
Sep 10-11, 2018 Paris, France
E: nursing@eurosciconmeetings.com
W: nursing-midwifery.euroscicon.com

EuroSciCon Conference on
Nursing Science & Education
Oct 18-19, 2018 Paris, France
E: nursingscience@eurosciconevents.org
W: nursingscience.euroscicon.com



Obesity

EuroSciCon Congress on
Obesity and Diabetes
Nov 12-13, 2018 Athens, Greece
E: euroobesity@eurosciconevents.org
W: obesity-diabetes.euroscicon.com

International Conference on
Diabetes, Endocrinology and Metabolism
July 16-17 , 2018 Prague, Czech Republic
E: diabetes@eurosciconmeetings.com
W: diabetes.euroscicon.com



Oncology & Cancer

International Conference on
Cancer Science
July 23-24, 2018 Amsterdam, Netherlands
E: cancerscience@eurosciconmeetings.com
W: cancerscience.euroscicon.com

World Congress on
Oncology & Immuno Oncology
July 23-24, 2018 Amsterdam, Netherlands
E: immunooncology@eurosciconmeetings.com
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World Summit on
Oncology & Oncologists
Sep 24-25, 2018 Lisbon, Portugal
E: oncology@eurosciconevents.org
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EuroSciCon Conference on
Gynecologic Oncology
Sep 24-25, 2018 Lisbon, Portugal
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EuroSciCon Conference on
Cancer Therapy
Oct 18-19, 2018 Paris, France
E: cancertherapy@eurosciconevents.org
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EuroSciCon Conference on
Women health and breast cancer
Oct 18-19, 2018 Paris, France
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Ophthalmology

European Ophthalmology Congress
Aug 16-17, 2018 Paris, France
E: ophthalmology@eurosciconmeetings.com
W: ophthalmology.euroscicon.com

EuroSciCon Conference on
Eye & Retina Surgery
August 16-17, 2018 Paris, France
E: eyesurgery@eurosciconmeetings.com
W: eyesurgery.euroscicon.com

European Congress on
Optometry and Vision Science
Nov 29-30, 2018 Prague, Czech Republic
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Pathology

EuroSciCon Conference on
Bacteriology
June 18-19, 2018 Paris, France
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Pediatrics

World Conference on
Pediatrics
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EuroSciCon Conference on
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Pharma

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Toxicology and Pharmacology
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World Summit on
Medicinal Chemistry
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European Congress on
Pharma
Aug 13-14, 2018 Paris, France
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W: pharma.euroscicon.com

World Congress on
Nutraceuticals
Sep 3-4, 2018 Paris, France
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W: nutraceuticals.euroscicon.com

EuroSciCon Conference on
Clinical Pharmacy
Oct 1-2, 2018 Stockholm, Sweden
E: pharmacy@eurosciconevents.org
W: pharmacy.euroscicon.com

EuroSciCon CONFERENCE DIRECTORY 2018

Annual Conference and Expo on
Analytical and Separation Techniques
Oct 11-12, 2018 Amsterdam, Netherlands
E: analyticaltechniques@eurosciconevents.org
W: analytical-separationtechniques.euroscicon.com

EuroSciCon Conference on
Biosimilars and Biologics
Oct 26-27, 2018 Budapest, Hungary
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W: biosimilars.euroscicon.com

World Congress on
Chromatography
Oct 26-27, 2018 Budapest, Hungary
E: chromatography@eurosciconevents.org
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European Congress on
Pharmaceutics & Pharmaceutical Technology
Nov 1-2, 2018 Paris, France
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European Congress on
Pharmacovigilance & Drug Safety
Nov 15-16, 2018 Athens, Greece
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World Conference on
Pharmaceutical Chemistry
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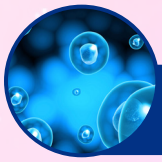
International Conference on
Nanomedicine and Drug Delivery
Dec 10-11, 2018 Amsterdam, Netherlands
E: contact@eurosciconconferences.com
W: nanodelivery.euroscicon.com

International Conference on
Advanced Analytical Techniques & Spectroscopy
Dec 10-11, 2018 Amsterdam, Netherlands
E: analyticaltechniques@eurosciconevents.org
W: analyticaltechniques.euroscicon.com



PSYCHIATRY

EuroSciCon Conference on
Psychiatry, Psychology & Mental Health
Aug 6-7, 2018 Prague, Czech Republic
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STEM CELLS

EuroSciCon Conference on
Cancer Stem Cell & Oncology Research
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Surgery

Annual Surgery Summit
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EuroSciCon Conggress on
Otorhinolaryngology and Communication Disorders
Sep 20-21, 2018 Lisbon, Portugal
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EuroSciCon Conference on
Ear, Nose and Throat Disorders
Nov 29-30, 2018 Amsterdam, Netherlands
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ENVIRONMENTAL SCIENCE

World Summit on
Climate Changes and Global Warming
June 21-22, 2018 Paris, France
E: climate@eurosciconmeetings.com

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Recycling
Aug 20-22, 2018 Amsterdam, Netherlands
E: recycling@eurosciconmeetings.com
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International Conference on
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Euroscicon Conference on
Climate Change
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Environmental Engineering
Oct 29-30, 2018 Budapest, Hungary
E: environmentalengineering@eurosciconevents.org
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International Conference on
Water, Waste & Energy Management
Nov 15-16, 2018 Paris, France
E: waste@eurosciconevents.org
W: wastemanagement.euroscicon.com

EuroSciCon Conference on
Environmental Pollution and Global Warming
Nov 19-20, 2018 Prague, Czech Republic
E: contact@eurosciconconferences.com
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EuroSciCon Conference on
Environmental Toxicology
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Basel, March 2018

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Food Technology 2018

DAY 1

Keynote Forum



2nd EuroSciCon Conference on

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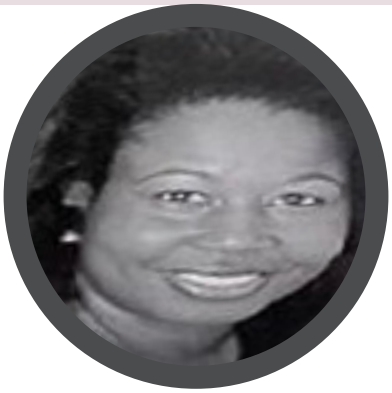
2nd EuroSciCon Conference on

Food Technology

May 14-16, 2018
Rome, Italy

Ondulla T Toomer, J Food Nutr Popul Health 2018, Volume: 2
DOI: 10.21767/2577-0586-C1-001

OPTIMIZING THE NUTRITION OF FOOD AND FEEDSTUFF WITH HIGH-OLEIC PEANUTS AND PEANUT-BY PRODUCTS



Ondulla T Toomer

USDA-ARS, USA

Peanuts, Arachis hypogaea, are one of the most widely consumed legume globally due to its nutrition, taste and affordability. Peanuts are protein and energy-rich and have been utilized worldwide to address the nutritional needs of people and production animals in developing countries. In the United States, 85% of the American peanut production is utilized for domestic edible products, such as peanut butter, candy, confections, and snacks. Thus, our goal in MQH-ARS-USDA has been to evaluate the chemical constituents of peanuts and to investigate the usefulness of peanuts and/or peanut products as a feed and/or food ingredient. We aimed to identify the usefulness of new high-oleic peanut cultivars as a preferable feed ingredient for poultry. Previous studies have identified normal-oleic peanuts as a suitable and economical poultry feed ingredient. However, no studies to date have examined the use of high-oleic (HO) peanut cultivars as a feed ingredient for poultry and determined the impact of feeding.

HO peanuts on poultry performance or nutritive qualities of the eggs produced. To meet these objectives layer hens were fed a conventional diet (soybean meal + corn) or a HO peanut + corn diet for 10 weeks. Body and feed weights were collected weekly. Pooled egg samples were analyzed for quality and lipid analysis. There were no significant differences between treatment groups in hen performance or egg quality. Eggs produced from layer hens fed the HO peanut diet had significantly ($p<0.05$) greater yolk color scores (2-fold), HO fatty acid and β-carotene levels in comparison to the controls. Eggs produced from hens fed the control diet had significantly greater content of saturated fatty acids and trans fat in comparison to eggs produced from layer hens fed the HO peanut diet. This study identifies HO peanuts as an abundant commodity that could be used to support local agricultural markets of peanuts and poultry and be of economic advantage to producers while providing a potential health benefit to the consumer with improved egg nutrition.

Secondly, we aimed to determine the usefulness of peanut skins, a significant waste product produced within the peanut industry, as a functional food ingredient. Numerous studies have demonstrated the health promoting benefits of phenolic compounds found in antioxidant rich plant foods such as, green tea, blueberries, broccoli, beets, seaweed, spinach and grape seeds shown to lower serum and liver low-density lipoproteins, prevent free radical DNA damage and to reduce histamine release and inflammation. To meet our objectives mice were fed a control mouse chow diet (A), an atherogenic diet (B) or an atherogenic diet supplemented with peanut skin phenolic extract (C) for 20 weeks. Bodyweights and blood samples were collected weekly and at termination, liver samples were collected for analysis. Mice fed the peanut skin phenolic extract supplemented atherogenic diet (C) had reduced hepatic inflammation and blood glucose levels in comparison to treatment B, suggesting that phenolic extracts from peanut skins like ther naturally occurring plant compounds may have health benefits when consumed in the diet.

Biography

Dr. Toomer is employed with the USDA-ARS as a Research Chemist in the Market Quality and Handling Research Unit and as an Adjunct Professor in the Department of Food, Bioprocessing and Nutrition Sciences, North Carolina State University, Raleigh NC. She graduated from North Carolina State University with a Ph.D. in Nutrition with a minor in Biotechnology in 2005. In July 2005, Toomer began a postdoctoral fellowship in the Mucosal Immunology Laboratory of Pediatric Gastroenterology at Massachusetts General Hospital/Harvard Medical School under the supervision of Dr. Allan Walker and Dr. Hai Ning Shi. Toomer completed a second postdoctoral training program at the United States Department Agriculture (USDA)/Agricultural Research Service (ARS) in Beltsville MD with a research emphasis in differential gene expression in the reproductive tissues of turkey hens. Subsequently, Dr. Toomer was employed for over 7 years with the United States Food and Drug Administration-Center for Food Safety and Applied Nutrition as a Research Biologist with a research emphasis in the development and prevention of Pediatric Food Allergy and the identifying immunological biomarkers of food allergy using in vitro and in vivo models, and studying the effects of commensal microorganisms and/or probiotics on early (pre-weaning) immunological development.

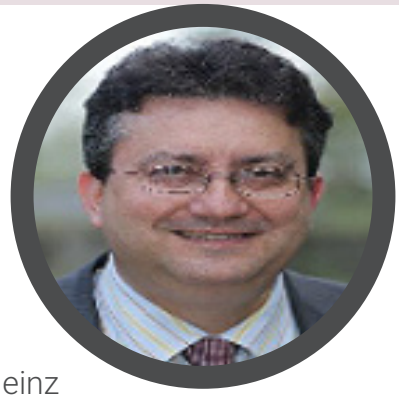
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Rome, Italy

Massimo Zonca, J Food Nutr Popul Health 2018, Volume: 2
DOI: 10.21767/2577-0586-C1-001

OHMIC HEATING: RECENT TECHNOLOGY IMPROVEMENT AND OVERVIEW OF LATEST APPLICATIONS WITH ASEPTIC PACKAGING



Massimo Zonca

Independent Expert in Food Packaging & Food Process – Former HJHeinz R&D Leader (30+ years)

Ohmic heating offers a valid alternative to conventional heating, especially for product with big particulates (up to 30 mm), because it simultaneously heats both phases by internal energy generated through electrical energy. In this process, heating rate depends upon the electrical conductivity and field strength. This technique grants a minimum structural damage to a product, which retains its nutritional value and gives excellent processed quality products in minimum operating time, as for HTST process - High Temperature Short Time. This technology was facing several issues during application in terms of process control (appropriate temperature increase control, electrical arc generation, possible burning of product, etc.): those issues discouraged food technologist and technician to promote this technology and, to date, some preconceptions still be present and often become an obstacle for a deep evaluation and adoption of Ohmic heating. The aim of this work is to demonstrate how the problems on this technology were fixed, thanks to the determination from an Italian company, focusing on electrode geometry, application of high frequency, modularity of the equipment and software control; also, the presentation will make an excursus and provide an overview of the most recent applications on food with particulates or specific food with very sensitive components/ingredients and then packed in aseptic condition. Results will be presented taking real examples from the 40 plus industrial equipment installed worldwide and the most recent applications. For each application the main process data: capacity, power and tension applied, flow rate, particulate dimensions, pumping systems, pipe diameter will be showed together with some equipment details.

Biography

Massimo Zonca is a Food Technologist graduated from Milan State University. He has 30+ years of experience in leading Packaging Development, Food Process and Innovation at H J Heinz, and also at Kraft Heinz Company. Since 2016, he is an Independent Consultant on Food Packaging and Food Process, based in Bergamo, Italy. He held various roles at Heinz, as Packaging Engineer & Development Manager (1987- 2006), European R&D Manager (2006-2009) and Global Packaging Innovation Efficiency Manager until February 2016, managing global initiatives on packaging and innovation and facilitate technology transfer. He gained expertise working in several international projects both in Food Packaging Development and Food Process. He managed food contact issues working together with the DG SANCO (European Commission) and the Istituto Superiore di Sanita- ISS (Italian Health Ministry). He is a member of GSICA, Italian Scientific Group for Food Packaging, does lectures in Parma University on Food Packaging and provides speech at major conferences. He served his hometown (Filago – BG) as a Mayor, from 2005 to 2015.

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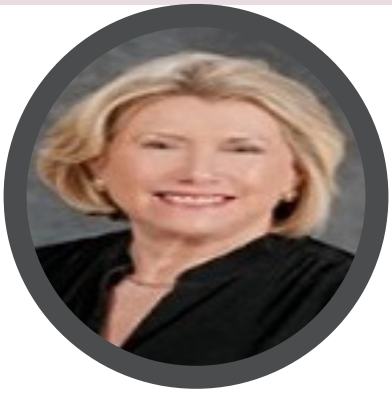
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May 14-16, 2018
Rome, Italy

Sandra Poirier, J Food Nutr Popul Health 2018, Volume: 2
DOI: 10.21767/2577-0586-C1-001

THE NEW "SOLUTIONS ECONOMY" AND HOW IT WORKS GLOBALLY TO SOLVE NUTRITION AND HEALTH SOCIETAL PROBLEMS



Sandra Poirier

Middle Tennessee State University, USA

Rising obesity, food insecurity, a lack of quality education and safe water for the poor in the developing world are some of the global society's entrenched problems. Whose job is it any way to solve these problems? For decades, the answer to the question has been simple: government. Today we live in a different world where a new economy has emerged. The new "solutions economy" represents not just an economic opportunity, but a new strategy for solving many of the global nutrition and health problems. This presentation explores how, in today's new "solutions economy," solving social problems is becoming a multidisciplinary exercise that challenges businesses, governments, philanthropists, and social enterprises to think holistically about their role and their relation to others, not as competitors but as collaborators serving as many stakeholders as possible.

Biography

Sandra Poirier has been employed at Middle Tennessee State University, USA, since 2005. She received her BSc and MSc degrees in Family and Consumer Sciences from Florida State University and University of Arizona respectively. Her Doctorate was received in 1998 from Florida International University in Miami, Florida with her dissertation in the area of health-related quality of life. Prior to coming to MTSU, she taught for three years at Zayed University in Dubai, United Arab Emirates. Additionally, she has worked at the University of Florida Cooperative Extension Service, Florida International University, Florida Atlantic University, University of Arizona Cooperative Extension Service, and the Provincial Government of Alberta, Canada. She has more than 15 years of international teaching experience working in culturally diverse environments. Her strengths include creating innovative educational programs with a focus on food and culture, identifying appropriate outreach efforts to solve community problems, and empowering students for successful careers. She has been recognized for her ability to create and teach online courses, work as an advisor for student organizations, and creating positive educational environments for optimal learning. She has published over 25 journal articles and been invited to speak in Malaysia, Switzerland, Germany, Poland, Austria, Puerto Rico, and the Andros Island in the Caribbean.

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May 14-16, 2018
Rome, Italy

Yiannis Kourkoutas, J Food Nutr Popul Health 2018, Volume: 2
DOI: 10.21767/2577-0586-C1-001

DEVELOPING EFFECTIVE DELIVERY SYSTEMS OF BENEFICIAL BACTERIA IN FOOD PRODUCTS

Yiannis Kourkoutas

Democritus University of Thrace, Greece



Nowadays there is a growing interest in developing novel functional foods containing probiotic microorganisms. To deliver the health benefits, probiotic products need to contain an adequate amount of live bacteria capable of surviving the acidic conditions of the upper gastro-intestinal tract, as well as proliferating in the intestine, a requirement that is not always fulfilled. To overcome such deficiencies, immobilization techniques have been developed, aiming at stabilization of cells and formulation of new types of foods fortified with immobilized health-promoting bacteria that are only released upon reaching the human gut. In this vein, immobilization of probiotic cells on natural, food-grade, prebiotic dietary fibers was studied. As it is important to develop approaches that are compatible with the use of dried cultures, a technology which accommodates its use by the industrial and commercial sector, the wet immobilized cultures were then subjected to drying processes (freeze- and thermal-drying) and the survival rate after the drying procedure and during storage at room and low-temperatures (4 and -18°C) for various time periods (up to 1 year) were studied. Cell immobilization enhanced cell viability and extended the shelf-life of pro-and pre-biotic fortified foods, as documented by microbiological and molecular analysis. The probiotic strains were encountered at levels greater than 7 logcfu/g after 2 and 12 months of storage at ambient and low temperatures, respectively, and can also withstand high temperature processing steps (up to 60°C) with no significant loses. Our process resulted in successful dried immobilized probiotic culture preparations appropriate for many food applications that maintained cell viability during storage for time periods suitable for industrial uses.

Biography

Yiannis Kourkoutas has completed his PhD from University of Patras, Greece, and Postdoctoral Studies from University of Ulster, Northern Ireland, UK. He is the Director of Laboratory of Applied Microbiology & Biotechnology at the Department of Molecular Biology & Genetics, Democritus University of Thrace, Greece. He has published more than 80 papers in peer-reviewed journals and has been serving as a lead Guest Editor and an Editorial Board Member in several special issues and reputed scientific journals.

ikourkou@mbg.duth.gr

Food Technology 2018

DAY 1

Scientific Tracks & Abstracts



2nd EuroSciCon Conference on

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DAY 1

May 14-15, 2018

Sessions

Food safety | Food additives | Nutraceuticals | Food Chemistry | Food waste management | Food quality standards | Food packaging | Food and human health | Horticulture

Session Chair
Ondulla T Toomer
USDA-ARS, USA

Session Co-Chair
Massimo Zonca
Independent Expert in Food Packaging & Food Process, Italy

Session Introduction

Title: **Optimization and validation of an analytical method by HPLC-UV-diode array detection for the simultaneous determination of 12 dyes in meat products**
Marco Iammarino, Istituto Zooprofilattico Sperimentale della Puglia e della Basilicata, Italy

Title: **Quantification of polar compound fractions as a reliable and objective method to gauge oil degradation during excessive frying**
Azmil Haizam Ahmad Tarmizi, Malaysian Palm Oil Board, Malaysia

Title: **Oleuropein and copper: a new opportunity against liver disease**
Clara Balsano, University of L'Aquila, Italy

Title: **Capsaicinoids and Vitamin C in habanero chili (Capsicum chinense) cultivated in different types of soils from Yucatan, Mexico**
Ingrid Mayanin Rodriguez Buenfil, Center for Research and Assistance in Technology and Design of the State of Jalisco AC (CIATEJ), Mexico

Title: **Bioactive compounds in essential oil from torch ginger (Etlingera elatior) flower extracted using subcritical carbon dioxide**
Anis Shobirin Meor Hussin, University Putra Malaysia, Malaysia

Title: **Antioxidant activity of Kappaphycus alvarezii and Sargassum polycystum seaweeds extracts**
Babak Rasti, Universiti Malaysia Sabah, Malaysia

Title: **Industrial development for mass production of a dietary supplement obtained by topspray continuous fluid bed aglomeration**
Daniel Laguado, Quala S.A., Colombia

Title: **Chestnut peels: from a food waste to a valuable and functional ingredient for cereal-based products**
Maria Paciulli, University of Parma, Italy

Title: **Effect of processing condition on the milk/soy milk yogurt quality**
Arezoo Erfanian, Universiti Malaysia Sabah, Malaysia

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Marco Iammarino et al., J Food Nutr Popul Health 2018, Volume: 2
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OPTIMIZATION AND VALIDATION OF AN ANALYTICAL METHOD BY HPLC-UV-DIODE ARRAY DETECTION FOR THE SIMULTANEOUS DETERMINATION OF 12 DYES IN MEAT PRODUCTS

Marco Iammarino[1], Annalisa Mentana[2], Diego Centonze[2], Carmen Palermo[2], Michele Mangiacotti[1] and Antonio E Chiaravalle[1]

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Control of the presence of food additives in meat products is important to ensure their quality and safety. However, the attention of the official control plans is usually more focused on identifying/quantifying some food preservatives (i.e. nitrites/nitrate and sulphites) with respect to food dyes. The use of food dyes in meat is regulated by the actual normative due to several food safety concerns. Only three food dyes (cochineal, carminic acid, carmines (E120), Ponceau 4R, cochineal Red A (E124) and Allura Red AC (E129)) are admitted in some types of meat products, and maximum admissible levels were established in the Regulation No. 1129/2011/EC. Furthermore, the presence of different red dyes, including some carcinogens, was found in some types of spices used in the production of meat products (European Commission decision 2004/92/EC). For these reasons, an accurate method combining high performance liquid chromatography with UV-diode array detection was developed in this study, for the simultaneous determination of 12 food dyes (Amaranth, Ponceau 4R, Carmine, Ponceau SX, Ponceau 3R, Allura Red AC, Carmoisine, Erythrosine, Sudan I, Sudan II, Sudan III and Sudan IV) in meat products. The chromatographic separation was accomplished by a Hypersil Gold column (Thermo Fisher Scientific, 150 x 4.6 mm, i.d. 5 µm), eluted with an optimized step-change gradient, based on a mobile phase consisting of a acetate buffer and acetonitrile. These conditions guaranteed a very good selectivity towards endogenous interfering substances. The extraction of analytes from the matrix was accomplished using acetonitrile, methanol, water, ammonia, 50:40:9:1 (v/v/v/v) as solvent, and ultrasonic bath. Good analytical performances were obtained, in terms of selectivity, sensitivity, accuracy and ruggedness. Both method precision (CV% range: 6.2% - 18.0%) and recovery percentages (range: 86.4% - 105.0%) resulted in compliance with Decision 657/2002/EC, demonstrating that the procedure can be applied successfully for confirmation analyses.

Biography

Marco Iammarino is a Food Technologist and Chemical Surveyor. Since 2002, he is a Researcher at Istituto Zooprofilattico Sperimentale della Puglia e della Basilicata (IZS-PB) of Foggia (Italy). Currently, he is employed as Principal Investigator at National Reference Centre for Detection of Radioactivity in Feed and Foodstuff of IZS-PB. He deals about food quality and safety, analytical chemistry applied to food analysis, research & development and analytical methods validation. In particular, he has developed several analytical methods (HPLC, HPIC, CE, LSC, TLC, ELISA) for the determinations of food additives (nitrites, nitrates, sulphites, polyphosphates, organic acids, etc.), radionuclides, mycotoxins, pesticides and drug residues in foods and feed materials. He has published more than 100 articles in peer-reviewed and academic journals, congress proceedings and books. The H index has reached 10 and citation exceeded 235 (source: Scopus). He was a reviewer for 49 international journals.

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QUANTIFICATION OF POLAR COMPOUND FRACTIONS AS A RELIABLE AND OBJECTIVE METHOD TO GAUGE OIL DEGRADATION DURING EXCESSIVE FRYING

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Measurement of total polar compounds (TPC) is recognised as one of the indicator used to determine the thermal stability of oils when exposed to heat treatments. Nevertheless, dependency on TPC alone in judging oil quality and thus on safety is often deceptive, primarily for oils that contain higher level of natural diacylglycerols (DAG). Hence, this study investigates the levels of polar compound fractions in various oils when subjected to extended frying conditions. Four individual oils, i.e. palm olein (POO), soybean oil (SBO), canola oil (CAN) and sunflower oil (SFO), three binary blends of POO with SBO, CAN and SFO, respectively, and one tertiary blend containing POO, SBO and CAN were subjected to 144 frying cycles over 72 h of heating (8 h day-1 for 9 days). Polar compounds were initially separated gravimetrically through two elution steps before being introduced to the High Performance Liquid Chromatography (HPLC) – Size Exclusion Chromatography with Evaporative Light Scattering Detector (ELSD). It is much anticipated that the initial content of TPC in POO is considerably higher because of diacylglcerols (DAG) content of almost 7% when compared to other liquid oils that contained lesser amount of DAG (2%). After 9 days of frying, the TPC content in SFO reached 32% while other oils fell within 24 and 29%. Regardless to oil compositions, the levels of oxidised triacylglycerols (OxTAG) were ranged between 8 and 10%. The formation of polymerised triacylglycerols (PTAG) was more prominent when POO exhibited much lower PTAG (8%) as opposed to CAN (13%), SBO (17%) and SFO (19%). This study indicates that oils with higher unsaturation are prone to thermal degradation as a result of tertiary oxidation and/or thermal alteration of TAG molecules. Of course, blending liquid oils with POO provides the opportunity to moderate the level of PTAG when oils are heated at frying temperatures.

Biography

Azmil Haizam Ahmad Tarmizi is a Senior Research Officer at the Malaysian Palm Oil Board. He joined the organisation in 2004 after obtaining his Master's Degree in Bioprocess Engineering from the Universiti Teknologi Malaysia. He earned his Doctorate's Degree in Food and Nutritional Sciences from the University of Reading UK in 2012 and awarded with a Master's degree in Business Administration from Anglia Ruskin University UK in 2017. His major research areas are on the frying process and technology, quality and safety of oils and fats, palm oil processing, and palm based reference materials. He has published more than 20 peer reviewed and technical papers, and presented many papers in local and international conferences. He is also a member of the International Standardisation – Malaysia Mirror Committee on ISO/TC34/SC11: Animal and Vegetable Fats and Oils, and the Industry Standard Committee on Food Products and Food Safety (ISC U).

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OLEUROPEIN AND COPPER: A NEW OPPORTUNITY AGAINST LIVER DISEASE

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Introduction: Diet significantly affects health. Incorrect feeding results in overweight or obesity that are associated with liver steatosis, a pathological condition that affects about 30% of the world's population. This pathology, characterized by accumulation of fat in the liver, inflammation and balloning, can progress toward cirrhosis and hepatocarcinoma (HCC). In such processes, transition metals (copper, zinc, Fe etc,) play a key role. Accordingly, altered copper homeostasis has been observed in various stages of Nonalcoholic fatty liver disease (NAFLD). Mediterranean diet has beneficial effects on health, and olive oil is one of the main actors. Oleuropein (Ole), a phenolic compound derived from green olives and olive leaves, is able to bind copper. Hence, we evaluated the correlation between Ole and intracellular copper concentration and its role in counteracting liver damage related to high fat diet intake (HFD).

Methodology: Real-time PCR, atomic absorption, BioPlex multiplex biometric ELISA-based immunoassays, adipoRed and Western blots were performed for *in vitro* and *in vivo* experiments.

Results: *In vitro*, fatty acids induce intracellular copper modulation. Oleuropein leads to a significant reduction in both the intracellular content of Cu and lipid accumulation. In a HFD mouse model treated with Ole, we highlighted a significant reduction in levels of Cu in liver tissue, hepatic steatosis and related inflammatory conditions. In particular, the levels of chemokines MCP1 and CXCL1, both correlated with the progression of liver disease, were significantly reduced. The involvement of genes (e.g. tp53, Myc etc.) in the control of the entry and efflux of copper in cells, is under investigation.

Discussion: Our results demonstrate that Ole has inhibitory effects on the progression of liver disease that correlates with its ability to modulate copper.

Biography

Balsano Clara was the Director of the Institute of Molecular Biology and Pathology (IBPM) of Cancer National Research (CNR) till last year June. She has a great research expertise on liver diseases, as highlighted by her scientific publications: author of more than 100 scientific papers. IF > 562; H-index: 33 (WOS); G-index: 60 (WOS); Citations > 3500 (WOS); orcid.org/0000-0002-9615-7031. In the last period, her research interest was dedicated in understanding of the molecular bases of the pathogenesis of Non-Alcoholic Fatty Liver Disease (NAFLD) to find new targets to develop new opportunities for a target therapy. NAFLD affects about 1.8 billion of people, the 25% of world population. Its prevalence is growing rapidly, along with the associated risk of worsening, in fact, the related cardiovascular risk cannot be underestimated. Currently, NAFLD should be considered one of the most important problems for National Health burden.

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CAPSAICINOIDS AND VITAMIN C IN HABANERO CHILI (CAPSICUM CHINENSE) CULTIVATED IN DIFFERENT TYPES OF SOILS FROM YUCATAN, MEXICO

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Habanero pepper (*Capsicum chinense*) is the main horticultural species commercially exploited in the Yucatán Peninsula in Mexico, in addition to being a symbol of pungency. It possesses characteristics of commercial interest due to its high contents of capsaicinoids accumulated in the fruit. The contents of these compounds are believed to vary in conditions of hydric or water stress. The fruits of *Capsicum chinense* plants grown in the Yucatan Peninsula have its appellation of origin based on their unique characteristics, which are suggested to be due to the particularities of the soils in which they are cultivated. For its cultivation three main types of soil are used: K'áankablu'um (red soils), Box lu'um (black soils) or ch'ich 'lu'um (brown soils). The interaction of the soil with the plant affects the development of the fruit, since the amount of nutrients, water and salinity in the soil has a significant effect on the quantity and size of fruit, and in the content of some secondary metabolites with the same factors. The objective of the present work was to determine the content of capsaicinoids and vitamin C in habanero pepper grown in different types of soils and to evaluate the relationship of these contents with the state of maturity of the pepper fruit. There were significant differences in both, the content of capsaicinoids and vitamin C due to different types of soil and the degree of ripeness of the fruit, the highest content of capsaicinoids were obtained with the orange ripened pepper (O) and red soil (figure 1). For the content of vitamin C, the highest amount was found in the red soil in the orange ripened pepper (O) and in those of incomplete ripeness (IR) without significant differences between them. The green immature pepper (V) presented the lowest vitamin C content (figure 2).

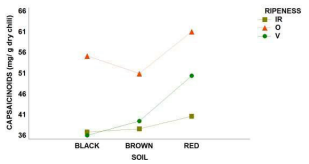


Figure 1: Capsaicinoids in Habanero pepper grown in different soils and with different degrees of ripeness.

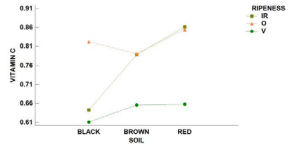


Figure 2: Vitamin C in Habanero pepper grown in different soils and with different degrees of ripeness.

Biography

Rodríguez-Buenfil Ingrid has her expertise in Biotechnological Process and Design of Experiments. She has 32 years of experience in scientific research, with participation in 78 projects (31 as Project Manager), 4 patents granted and 6 patent applications in process. She has 122 publications among scientific articles, extensive memoirs, books, book chapters, among others. She has guided 34 graduate students. She was a Founding Director of the Southeast Unit of Center for Research and Assistance in Technology and Design of the State of Jalisco (CIATEJ) in Mérida Yucatán, from July 2002 to April 2015. She has been elected to be a Member of the National Research System (MX) level I from 2017-2020 and a Certified Evaluator of the National Council of Science and Technology (CONACYT). Her current project is, 'Analysis of the metabolomic changes during the development of the fruit Capsicum chinense jacq cultivated in different soil types (Project CONACYT 257588)'.

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BIOACTIVE COMPOUNDS IN ESSENTIAL OIL FROM TORCH GINGER (ETLINGERA ELATIOR) FLOWER EXTRACTED USING SUBCRITICAL CARBON DIOXIDE

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Introduction: The presence of biologically active volatile compounds in Torch ginger (Etlingera elatior) highlighted as a new oriental in flavour and fragrances. Research on bioactive and volatile compounds of torch ginger offers promising development of natural resources into nutraceuticals, cosmeceuticals and biopharmaceuticals. The aim of the study is to characterize the chemical constituents and bioactive compound activities of essential oil from torch ginger extracted using the subcritical carbon dioxide.

Materials & Methods: Essential oil from sliced oven dried tight bud torch ginger flowers were extracted using subcritical carbon dioxide extraction. The bioactive compounds in the essential oil were identified using Gas Chromatography-Mass spectrometry (GCMS). The bioactive compound activities of the essential oils were analysed by total phenolic content (TPC) and total flavonoid content (TFC), antioxidant analysis (DPPH assay, FRAP assay and ABTS scavenging activity) and antibacterial analysis (disc diffusion method and minimal inhibitory concentration (MIC)).

Results: The yield of essential oil obtained from subcritical carbon dioxide extraction was 5.5% and the most abundant compounds in torch ginger included á-pinene, caryophyllene, 1-dodecanol, dodecanoic and dodecanal. The bioactive compound activities of essential oil from torch ginger flower were as such: TPC (1590.23±3.74 mg GAE/100g), TFC (1686.19±17.34 mg QE/100g), DPPH assay (90.04±0.25%), FRAP assay (8876.46±36.35) and ABTS scavenging activity (81.77±2.10%). The inhibition zone exhibited by torch ginger flower's essential oil shows against several Gram positive bacteria such as *Bacillus cereus* (40.52±1.28 mm), *Listeria monocytogenes* (20.51±1.02 mm) and *Staphylococcus aureus* (9.14±0.51 mm) and against one Gram negative bacteria *Klebsiella pneumoniae* (30.44±0.90 mm) tested in the study.

Conclusion: These findings clearly indicated that the extracts and essential oil derived from torch ginger flower could be potentially used as a new source of natural antioxidant and antibacterial in the food and pharmaceutical products.

Biography

Meor Hussin A S has completed her PhD from International Islamic University, Malaysia and did her Postdoctoral studies (visiting scientist) from Institute of Food Research, UK for 2 years. She is Head of the Department of Food Science for the Faculty of Food Science and Technology, University Putra Malaysia. She has published more than 40 papers in reputed journals.

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ANTIOXIDANT ACTIVITY OF KAPPAPHYCUS ALVAREZII AND SARGASSUM POLYCYSTUM SEAWEEDS EXTRACTS

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The aim of present study was to optimize the extraction condition of *K. alvarezii* and *S. polycystum* resulting in the highest antioxidant activity. The extraction conditions, namely extraction time (X1: 3-24 hours) and ethanol concentration (X2: 0-100%), were optimized by employing Response Surface Methodology (RSM). Each of the seaweed has 14 extraction conditions generated by Central-Composite Design to obtain maximum yield (Y1), maximum Total Phenolic Content (Y2), maximum Ferric Reducing Ability of Plasma (Y3), and minimum EC50 of 2, 2-diphenyl-1-picrylhydrazyl (DPPH) scavenging ability (Y4). All dependent variables were fitted into second-order polynomial equations of reduced model and showed no significant ($p>0.05$) lack of fit. The optimal extraction conditions for *K. alvarezii* and *S. polycystum* were found to be at 24 hours with 100% ethanol and 16.6 hours with 0% ethanol, respectively. The yield, TPC, FRAP, and EC50 of optimum extraction of *K. alvarezii* was 0.25±0.01 g, 15.86±0.02 mg GAE/g extract, 72.18±0.04 mM TE/g extract, and 1.12±0.01 mg/ml, respectively, while for *S. polycystum* extract the values were 0.86±0.01 g, 17.85±0.05 mg GAE/g, 75.70±0.15 mM TE/g extract, and 0.30±0.01 mg/ml, respectively. The final reduced models were fitted by RSM, and hence, the models were accepted and exhibited high antioxidant activity. Overall, the studied seaweeds found to be a good source of antioxidants.

Biography

Babak Rasti has completed his PhD in Food Technology from University Putra Malaysia. He is a Senior Lecturer of Food Technology and Bioprocessing at University Malaysia Sabah (UMS). He has published more than 14 papers in reputed journals.

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INDUSTRIAL DEVELOPMENT FOR MASS PRODUCTION OF A DIETARY SUPPLEMENT OBTAINED BY TOPSPRAY CONTINUOUS FLUID BED AGGLOMERATION

Daniel Laguado and Jorge Andres Sarmiento

Quala SA, Tocancipa, Cundinamarca, Colombia

This work describes the industrial development of a new dietary supplement based on the needs of the Colombian people. Actually, in Colombia, some dietary supplements comes in granules traditionally produced by extrusion; this production process leads to product degradation specially in the vitamin content due to high temperatures and high shear. To solve this issue producers overdose the ingredients to overcome the loss generated due to processing conditions that at the end increases the product cost. Therefore, Quala S.A. proposed a top-spray production technology for continuous fluid bed agglomeration, which allows using lower temperatures with lower shear rates for the granulation leading to less impact on the stability of the vitamins and other components as flavours. The variables of greatest relevance in the production of the multivitamin granules were also studied in order to obtain the main characteristics that are useful for the product consumption. As far as we know, this is an innovative technology for the production of dietary supplements and provides good results not only for Quala S.A. but also for the national industry.

Biography

Daniel Laguado is a Chemical Engineer from Universidad del Valle (Colombia) with a Master degree in Product Formulation and Technology from Universidad de Huelva (Spain). In 2009, he was awarded by the European Union with a scholarship for his Master degree in Engineering Rheology as part of the Erasmus Mundus program. Currently he is working as Research & Development Manager for the consumer health care division in Quala SA, a consumer goods manufacturing industry with presence in several countries in Latin America. He has more than eight years of experience in product & process development working at companies like Johnson & Johnson (Hair, Skin Care and OTC divisions) and PepsiCo (Snacks products).

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CHESTNUT PEELS: FROM A FOOD WASTE TO A VALUABLE AND FUNCTIONAL INGREDIENT FOR CEREAL-BASED PRODUCTS

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In the last decade, research dealing with the use of chestnut has received considerable interest due to chestnut's promising potential to produce high quality and healthy products with high nutritional value. It can be consumed as fresh, boiled, or roasted. Besides, chestnut is also ground into flour which can be used in the production of diverse high quality products such as bread, cookie, cake, breakfast cereals and also pasta. A new perspective may be the use of the chestnut pericarp, now considered a waste and that represents from 6 to 10 % of the fresh fruit weight, in formulations for cereal-based products. The use of this by-product, naturally rich in antioxidants and fibers, may represent a way to enhance the chestnut supply chain, making it more sustainable, as well as giving an improved nutritional contribution to the chestnut products. In the present research work, feasibility of the addition of chestnuts' pericarp in several cereal-based products was studied, particularly bread, biscuits and pasta. Studied products were prepared both with wheat flour and in a gluten-free version. Chestnut peels showed a great water absorption capacity with great effects on dough rheological properties regardless the product. Similarly, chestnut peels deeply influenced the appearance of the enriched products with a darker colour and the presence of brown particulates. Moreover, chestnut peels enhanced also total antioxidant content of all tested products. In general, chestnut peels showed many challenges in gluten-free formulations as it competed with other thickening agents for water and hindered the formation of a network responsible of the final product structure. Finally, considering all the tested products, the optimal chestnut peels addition varied from 3 to 7 g/100g of the recipe.

Biography

Maria Paciulli has completed her MSc and PhD in Food Science and Technology at the University of Parma, Italy. She is currently working as a Postdoctoral Fellow in the Department of Food and Drug of the same University, in the area of Food Technology. Her research activity is primarily focused on the investigation of the effect of processing and formulation on the physio-chemical and thermal properties and stability of food products, with a particular focus on oil and fats, bakery products and vegetables. She is an author of 24 papers in reputed journals and 3 book chapters, along with participation in several national or international conferences.

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EFFECT OF PROCESSING CONDITION ON THE MILK/SOY MILK YOGURT QUALITY

Arezoo Erfanian and Babak Rasti

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This study was aimed to determine the effect of sonication condition (time and temperature) on the milk/soy milk yogurt quality. Yogurt quality such as particle size, viscosity, texture, and syneresis of the milk/soy milk were analyzed in this study. The effects of both sonication time and temperature on the yogurts were analyzed using two ways ANOVA and post hoc Tukey's test. The study showed that both sonication time and temperature did not significantly affect the particle size of milk/soy milk yogurt ($p>0.05$). Although there was a reduction in particle size of sonicated samples, it was insignificant. On the other hand, the viscosity of milk/soy milk quality was significantly affected by sonication time and temperature ($p>0.05$). Sonication time and temperature also significantly affect the milk/soy milk texture in terms of firmness, consistency, cohesiveness, and an index of viscosity. Sonicated samples have significantly higher textural quality as compared to control ($p<0.05$). In addition, syneresis of milk/soy milk yogurt was also significantly affected by the sonication time and temperature. Sonication condition (time and temperature) significantly affects viscosity, texture, and syneresis of milk/soy milk yogurt but did not significantly affect its particle size.

Biography

Arezoo Erfanian has completed her PhD in Food Technology from University Putra Malaysia. She is currently a Senior Lecturer at the Faculty of Food Science and Nutrition, University Malaysia Sabah, Malaysia. She has published manuscripts in high impact journals and presented her works at international conferences.

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Food Technology 2018

DAY 2

Keynote Forum



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ENGINEERING THE MICROBIOME TO PREVENT AND TREAT A MEDICAL CONDITION

Rob te Biesebeke

HNM Engineering, Switzerland

The human and animal microbiome is an incredible diverse and agile complex of microbial species with an important impact on the host. In humans and animals this relation is relevant for health and wellness. The microbiome of any living organism catalyzes biochemical reactions influencing the bioavailability and metabolism of bioactive molecules like nutraceuticals, pharmaceuticals, and feed and/or food additives. Consumption of food and these (bioactive) components changes the microbiome in that the growth of certain microbial species will be (dis) favored. Since the discovery of the different antibiotics that all have wide range antimicrobial impact, the research focus has been on the avoidance of communicable diseases. Almost all important bacterial infections are becoming resistant to antibiotics and to revert this phenomenon has become a major challenge. The smart use of antibiotics and new strategies to control microbial growth are key to controlling the spread of resistance. Every living organism has to deal with the reality that we live in a co-evolved symbiotic relationship with environmental microbes. There are now many examples showing a correlation between the microbiome, health and disease. The gastro-intestinal microbial species of the microbiome have been correlated with conditions like Inflammatory Bowel Disease, metabolic disorders, colorectal cancer, allergy and autism. The microbiological, nutritional and nutraceutical interventions facilitate a promising and underexplored opportunity to 'engineer' the Microbiome to prevent or treat a medical conditions.



Biography

Rob te Biesebeke has his PhD from the Wageningen University (NL), a MSc from the Utrecht University (NL). He is a Laboratory Engineer in Saxion Polytechnics (NL) with a track record of achievements in Microbial Biotechnology, Food technology, Nutrition, Dietary Fibers, Digestive Enzymes, Probiotics, Antimicrobials and Microbiology. He is a Technology and Science Officer at HNM Engineering. He was a former Microbial Biochemistry Researcher of the Ecole Polytechnique l'X (Paris, France), former Probiotics Taskforce for ILSI Life Sciences (Brussels, Belgium) and External Expert for the World Health Organization (Geneva, Switzerland).

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THE USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) IN FOOD ENGINEERING: REVIEW AND PERSPECTIVES



M Pellegrini and M Mozzon

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According to the 2017 revision of the World Population Prospects database by the United Nations, the current world population of 7.6 billion is expected to grow reaching 9.8 billion in 2050 and 11.2 billion in 2100, so the food supply also will have to increase. Food production and security are major issues for feeding an increasing world population. New technology is being developed to allow for improving food production, safety and quality. Food engineering encompasses a wide range of activities in a multidisciplinary approach. It combines microbiology, applied physical sciences, chemistry and engineering for food and related industries. In the development of food engineering, one of the many challenges is to employ modern tools, technology and knowledge to develop new products and processes. In the framework of food engineering, it is widely recognized that information and communications technology (ICT) today plays a key role in ensuring a sustainable and inclusive growth of agriculture. ICT is a wide term that includes micro and nano-electronics, signal processing, communications, remote sensing, control systems, big data and biosystems; nano-materials, low-cost miniature and wearable sensors, satellite and airborne imaging, robotics and big data analytics are some of the applications that ICT can offer to the agricultural and food sector. In this work we first review the state-of-the-art of using ICT in food engineering and then draw some perspectives on possible evolutions of food processing that could improve the level of safety and automation for the food industry. In particular, we focus on the integration between 5G (the next generation of wireless communication networks that will have much higher transmission speeds and capacity and much lower latency than existing cellular systems), Internet of Things (IoT), artificial intelligence (AI) and machine learning (essential to make 5G a smarter network), big data collection and processing systems.

Biography

Marco Pellegrini received his M.Sc. in Telecommunications Engineering from University of Firenze (Italy) at the age of 26 and completed his Ph.D. in Methods and Technologies for Environmental Monitoring at the age of 31 (University of Basilicata, Italy). He is a contract Professor of Physics and Remote Sensing, both at Universita Politecnica delle Marche (Italy) and is also a professional Telecommunications and Systems Engineer. He has published more than 20 papers in reputed journals and conference proceedings and has been serving as a peer reviewer and technical program committee (TPC) member for international conferences.

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Food Technology 2018

DAY 2

Scientific Tracks & Abstracts



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DAY 2

May 15-16, 2018

Sessions

Agriculture | Food Microbiology | Food Preservation | Nutrition | Food Engineering | Food Safety and Hygiene | Food Processing | Food Packaging

Session Chair
Sandra Poirier
Middle Tennessee State University, USA

Session Co-Chair
Marco Pellegrini
Universita' Politecnica delle Marche, Italy

Session Introduction

Title: **Quality of habanero chili by texture measurements: fresh-cut and post-harvest study**
Manuel Octavio Ramirez Sucre, Center for Research and Assistance in Technology and Design of the State of Jalisco AC (CIATEJ), Mexico

Title: **Title: Results of the Cati Leite Project implementation at rural farms in the Jaboticabal region**
Roberto Saverio Souza Costa, Coordenadoria de Assistencia Tecnica Integral (CATI), Brazil

Title: **Organophosphate residues in buffalo milk collected from local dairy farms**
Muhammad Wasim Sajid, COMSATS Institute of Information Technology, Pakistan

Title: **Antibacterial activity of nerolidol in free and encapsulated forms in orange juice**
Elissa Ephrem, Lebanese University, Lebanon

Title: **Supercritical CO2, an alternative drying technique for food treatment**
Filippo Michelino, University of Padova, Italy

Title: **Alternative production of microbiologically safe foodstuff with high nutritional value by SC-CO2 drying process**
Giovanni Lorenzon, University of Padova, Italy

Title: **Oxidative stability of PUFAs under food processing conditions**
Sandra Grebenteuch, Technische Universitat Berlin, Germany

Title: **Zinc content in breast milk: report from Latvia**
Liva Aumeistere, Latvia University of Agriculture, Latvia

Title: **The effects of lemon peel essential oil coating on quality of pacific white shrimp (Litopenaeus vannamei) stored at 4°C**
Elham Nasiri, Tabriz University, Iran

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Ramirez-Sucre M O et al., J Food Nutr Popul Health 2018, Volume: 2
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QUALITY OF HABANERO CHILI BY TEXTURE MEASUREMENTS: FRESH-CUT AND POST-HARVEST STUDY

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[1]CIATEJ, Mexico

[2]CICY, Mexico

Texture is one of the most critical attribute when referring to crops maturation. In Mexico the Habanero chili (*Capsicum chinense*) of the Yucatan Peninsula achieves the appellation of origin (2010) which makes it susceptible for exportation. The compounds (like capsaicinoids) vary depending on the variety of chili, climate, maturation stage and type of soil. The aim of this study was to measure the texture in terms of hardness of 1) habanero chili fruits cultivated in three types of soils (lu'um): brown (Ch'ich), black (Box) and red (K'áankab) during the development of the plant/fruit, and of 2) orange chilies in a post-harvest study, for later correlation to the maturity state.

Materials & Methods: The hardness was measured using a downward compression polarity and a displacement and speed limit of 2.0 cm and 1.0 cm/min respectively, to chili fruits from greenhouse plants.

Results: Hardness was greater in fresh-cut orange chilies than in coloring (semi-mature) and green chilies, reaching average values of 50.0, 30.7 and 33.7 respectively, without significant differences between soils. However, a major production was observed in red soils (14 orange chilies vs. 8 of black and brown soils) (Fig. 1). The major hardness during storage was presented in 2nd week for black and red soils, rapidly than in brown soil (Fig. 2) Hardness of post-harvest study in commercial chilies showed a maximum of 52.2N in orange chilies, most of them remained green (Fig. 3). The hardness incremented even in old chilies (up to 98N) with an elastic and hard-to-penetrate skin.

Conclusion: Habanero plants develop texture with time in fresh-cut fruits. Two weeks were enough for the fruit hardness development (>50N). Hardness is recommended to measure chili texture until it reaches 50-60N; hardness more than 70N should be measured with a more sophisticated technique, registering the elasticity of the chili skin like texture profile analysis (TPA).

Biography

Ramírez-Sucre M O works on rheological/physicochemical evaluations. He was a member of the National Research System (Mexico) from 2013 to 2016. He is a Coordinator of the Strategic Alliance for the Sustainable Development of the South Pacific Region (ADESUR) in Acapulco, Mexico in 2016 which deals with added value of tropical fruits. He has been four years in charge of the food pilot plant in the Southeast Unit of CIATEJ. He held responsibility of 5 projects, two with technological developments. He has 8 international publications related to rheological and mechanical properties, one patent application (MX/a/2014/015444: Microaspersion Drying Process of the Hesperidin/Cyclodextrin complex) and one academic exchange (Institute of Agrochemistry and Food Technology, Valencia, Spain) for the study of protein-hydrocolloid interactions. He guided 4 theses and he is coordinator of various subjects (Food Physics, Food Chemistry, and Economic Engineering).

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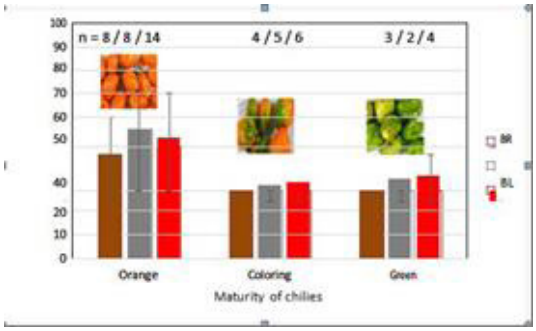


Fig.1: Hardness of habanero chili fruits cultivated in three type of soils: brown (BR); black (BL) or red (RD) as a function of maturity (n=number of measurements)

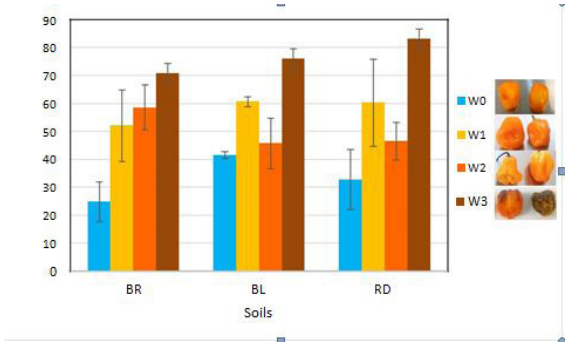


Fig.2 Hardness of oranges habanero chilies during three weeks (W0, W1, W2, W3) of storage at room temperature (25o C)

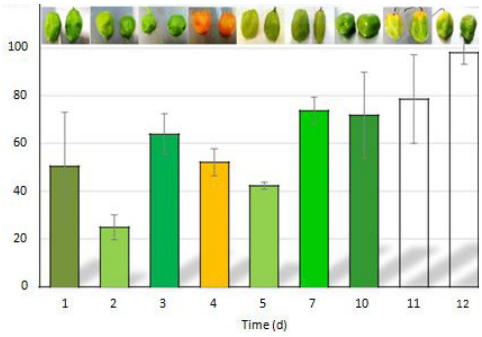


Fig.3: Hardness of commercial habanero chilies (Post-harvest study) during 12 days of storage at room temperature

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RESULTS OF THE CATI LEITE PROJECT IMPLEMENTATION AT RURAL FARMS IN THE JABOTICABAL REGION

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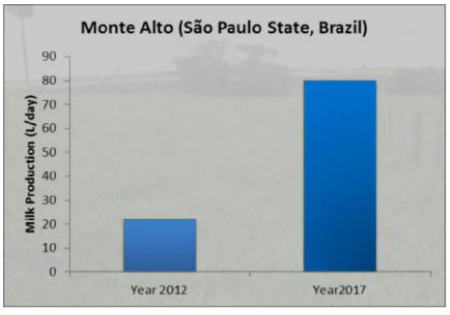
[2]Coordenadoria de Assistencia Tecnica Integral - Casa da Agricultura de Monte Alto, Brazil

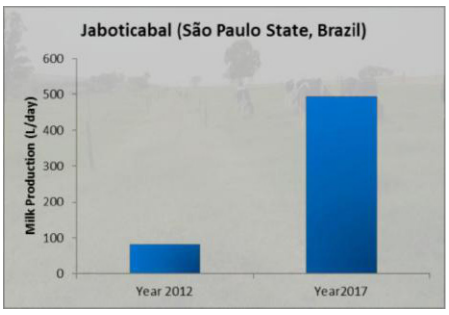
CATI Leite is a project developed in the State of São Paulo by the Coordenadoria de Assistência Técnica Integral (CATI), which aims to transfer technology, develop dairy activity to pasture and make viable production in family farms. Thus, the objective of this work was to evaluate the rural farms in the Jaboticabal region (cities: Jaboticabal, Monte Alto and Vista Alegre do Alto, SP, Brazil) that adopted the intensive grazing management system and implemented the Cati Leite Project, between the years of 2012 and 2017. Initially the extensive pasture areas were mapped with GPS and divided into pickets with a period of occupation of 1 day, respecting the cycle of the existing pasture (mombaça and tifton). The areas with mombaça pasture were divided in 29 pickets and the tifton pasture in 19 pickets. After 5 years implantation of the project CATI Leite, the results demonstrated that the property of Jaboticabal increased from 82 to 495 L/day and Monte Alto property from 22 to 80 L/day and Vista Alegre Alto has increased from 350 to 1600 L/day. In this way, it is concluded that the implementation of the CATI Leite project provided the increase of significant production, proving to be a viable and profitable alternative for the family producer.

Biography

Roberto Saverio Souza Costa has completed his graduation from University State of São Paulo in Brazil (Unesp – campus Ilha Solteira) and Master's studies form University State of São Paulo (Unesp – campus Jaboticabal). He is an Agronomist Engineer in Coordenadoria de Assistência Técnica Integral (CATI) and he works with family farmers in projects of São Paulo State Government. He has experience as an extensionist in the area of Plant Science, with emphasis on Management and Cultural Treatments, Plant Nutrition and Fertilization and also in the area of Topography and Rural Engineering. He is also a University Professor at Centro Universitário Unifafibe, in Bebedouro city, in the Agronomic Engineering course. He has published more than 8 papers in scientific journals and has 29 presentations of the work.

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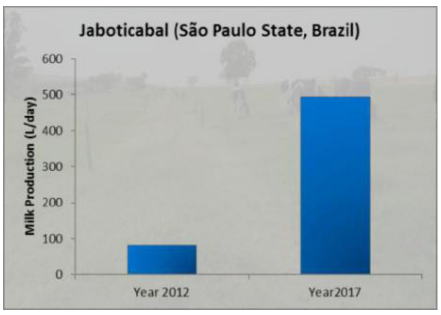


Figure 1, 2 and 3: Milk production after 5 years of CatiLeite Project implantation in the Monte Alto, Jaboticabal and Vista Alegre do Alto cities

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ORGANOPHOSPHATE RESIDUES IN BUFFALO MILK COLLECTED FROM LOCAL DAIRY FARMS

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[2]University of Agriculture Faisalabad, Pakistan

In Pakistan, in the national agenda of economic development and milk production, the livestock contributes a significant share and occupies a distinct position. Pakistan is blessed with high yielding milch animals. Pakistan is enjoying fourth position among milk producing countries of the world behind India, China and USA. Regarding buffalo milk production Pakistan ranks second in the world. At small scale level, small farmers mainly contribute towards total milk production in the country. They do not have adequate conditions for the storage of feed/forage on their dairy farms due to economic backwardness. They are using different kind of pesticides on fodder as a protection against pests, ultimately these pesticides residues becomes part of animal body than milk. Pesticides residues presence in milk is alarming situation for all governing authorities and milk producing companies. Lactating cows and buffalos like other animals may be exposed to pesticides from feed with contamination; pesticide residues can be accumulated in various parts of body including milk. However, pesticide application to the animal's body or their use in the animal shed, or even in the milk processing locations can also be a path of their exposure to pesticides and contamination to milk. To calculate the pesticide residues in buffalo milk a study was planned. Milk samples were collected from local dairy farms extracted for pesticide residues using glass column and was screened by HPLC. Milk samples were found contaminated with acephate, chlorpyriphos, fenthion, monocrotophos, profenofos and dimethoate. Methamidophos residues were not found in any of milk samples. The contamination rate of profenofos residues was 100% in two zones of milk collection. All milk samples were found contaminated but were below their MRL (Maximum Residual Limit). This study provides database to the government to establish their own MRL.

Biography

Muhammad Wasim Sajid has completed his PhD from University of Agriculture Faisalabad Pakistan and 6 months Pre-doctoral studies from Newcastle University, UK. He is working as an Assistant Professor in COMSATS IIT Pakistan. He has published more than 11 papers in reputed journals, two book chapters and recently writing book on Food Safety. He has been serving as Head of new scientific organization, "International Association of Researcher in Applied Sciences (IARASC)".

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ANTIBACTERIAL ACTIVITY OF NEROLIDOL IN FREE AND ENCAPSULATED FORMS IN ORANGE JUICE

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Universite Claude Bernard Lyon I, France

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Fresh fruit juices are commonly susceptible to spoilage by acid-tolerant microorganisms among which lactobacilli, such as *Lactobacillus fermentum*. In this study, *L. fermentum* survival and growth in culture medium (MRS) and in fresh orange juice were challenged by the addition of a naturally occurring sesquiterpene alcohol, nerolidol. This compound is used as a food-flavouring agent. Its potent antibacterial activity had been demonstrated against several microorganisms. However, nerolidol is poorly soluble in water and photolabile, and is therefore unstable in aqueous media. To overcome this limitation, different formulations of nerolidol, in cyclodextrin (CD), drug-in-cyclodextrin-in liposome (DCL) and conventional liposome were considered. Free nerolidol, added with DMSO as a co-solvent at 0.5% in final culture, exhibited a strong antibacterial activity within 22 hours in MRS at 37°C , with low minimal inhibitory (25 µM) and bactericidal (50 µM) concentrations. However, under refrigerated conditions (4°C), nerolidol showed no bactericidal activity within 22 hours in MRS, even at 200 µM. In orange juice, stored at 4°C, nerolidol had only shown a total bactericidal activity when added at 2000 µM, after 96 hours of incubation. At this concentration, CD/Ner inclusion complex showed a total bactericidal activity after 168 hours. The delay in activity could be due to the slow release of nerolidol incorporated into the inclusion complex. Our preliminary results have also shown that nerolidol encapsulated in DCL and conventional liposomes exhibited no antibacterial activity for up to 20 days of incubation. This could be due to the strong retention of nerolidol within DCL and conventional liposome systems. Current studies are being conducted to optimize DCLs and liposome formulations to enhance the release of nerolidol in fruit juice.

Biography

Elissa Ephrem has received her Master's degree in Bio-health: Bioactive Molecules from the Lebanese University in 2013, with a thesis focusing on the effective encapsulation of rosemary essential oil, which was conducted at Laboratoire d'Automatique et de Génie des Procédés at the University of Claude Bernard Lyon I, France. She is currently a third-year PhD student working on the encapsulation of antibacterial agents for fruit juice preservation. Her PhD project is being conducted in collaboration between the Bioactive Molecules Research Laboratory at the Lebanese University and Laboratoire d'Automatique et de Génie des Procédés at the University of Claude Bernard Lyon I, France.

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SUPERCRITICAL CO_2, AN ALTERNATIVE DRYING TECHNIQUE FOR FOOD TREATMENT

Filippo Michelino, Giovanni Lorenzon, Matteo Tobia Vizzotto, Marta Toffoletto, Gabriele Poloniato, Alessandro Zambon, Marina De Bernanrd, Stefano Dall'Acqua, Sara Spilimbergo

University of Padova, Italy

Food drying is one of the oldest processes for food preservation. Lowering the water content from foodstuff reduces enzymatic activity and microbial proliferation, thus improving food shelf life. Thermal treatment is the most widely used process for food drying; however, high temperatures induce losses of the matrix's original properties, mainly physical/chemical and sensorial. Therefore, the development of alternative drying techniques has always been one of the main objectives of the industry. The present work investigates a newly-developed technology for food drying in mild conditions using carbon dioxide at supercritical state (SC-CO_2). SC-CO_2 extracts water from food matrixes at low temperatures, guaranteeing the preservation of both nutritional content and sensorial properties. SC-CO_2 can be recycled within the process with a drastic reduction of CO_2 consumption, hence cutting costs. Process optimization is dependent on the food matrix, as well as process parameters: temperature, pressure, CO_2 flowrate, and treatment time influence the final sample's weight loss and water activity. Overall, this study demonstrates that SC-CO_2 is a promising alternative to traditional food drying methods.

Biography

Filippo Michelino is a temporary Research Assistant at the University of Padua, where he has worked since 2016. His research is focused on the study of alternative processes for food drying and pasteurization under the supervision of Prof. Sara Spilimbergo. He attended the 2016 European Summer School in High Pressure Technologies. In 2016 he earned the Master degree in Chemical and Process Engineering, with a dissertation on"In situ Raman monitoring of dense CO_2 drying of biological matrices". He is first author of two papers in international peer reviewed journals.

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ALTERNATIVE PRODUCTION OF MICROBIOLOGICALLY SAFE FOODSTUFF WITH HIGH NUTRITIONAL VALUE BY SC-CO_2 DRYING PROCESS

Sara Spilimbergo, Filippo Michelino, Giovanni Lorenzon, Matteo Tobia Vizzotto, Marta Toffoletto, Gabriele Poloniato, Alessandro Zambon, Marina De Bernanrd and Stefano Dall'Acquac

University of Padova, Italy

Introduction: The present work investigates the feasibility of an innovative mild drying process using CO_2 at supercritical state (SC-CO_2).The efficiency of the process was proven in terms of microbiological and enzymatic stability, micronutrients preservation, water activity and colour in the treated products. Moreover, the possibility of further processing the dried samples into powder was investigated, in order to produce innovative food ingredients and additives.

Materials & Methods: Experiments were carried out on different food products using a high-pressure cell at 10-14 MPa, different temperatures, never higher than 50°C, and drying times to establish the influence of each parameter on the final results. SC-CO_2-dried samples were evaluated in terms of (i) mesophilic bacteria, pathogens, yeast and molds inactivation through standard plate count, (ii) enzymatic content through spectroscopic techniques, (iii) carotenoid, anthocyanin, vitamin and flavonoid concentration through HPLC and GC-mass instrumentation, (iv) water activity and (v) total color difference through reflectance probe.

Results & Conclusion: The results demonstrated that SC-CO_2 drying was a promising green drying technology that combines drying and pasteurization in just one single step with a significant impact on both safety and costs.

Biography

Giovanni *Lorenzon* is a Chemical Engineer graduated in 2017 with a master thesis on environmental-friendly strategies for the exploitation of beer's industrial residues through anaerobic digestion and nanocellulose synthesis. Since then, he worked as a Research Fellow in the Department of Chemical Engineering of the University of Padua, under the supervision of Prof. Sara Spilimbergo and Prof. Andrea Santomaso. His main research focus regards the optimization of the supercritical-CO_2 drying process, its exploitation for powder production and the subsequent particle analysis by means of computer-based simulations.

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OXIDATIVE STABILITY OF PUFAS UNDER FOOD PROCESSING CONDITIONS

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[2]NutriAct – Competence Cluster Nutrition Research Berlin, Germany

In this day and age, nutrition plays an essential role in our lives. There is an increasing desire for foods which have a health-promoting and disease-preventing effect. The attention of consumers is brought to the ratio of unsaturated ω-3 and ω-6 fatty acids (PUFAs) within food. Rapeseed oil has a higher content of linolenic acid in comparison to other vegetable oils. In conjunction with the research project (NutriAct), we are investigating the oxidative stability of rapeseed oil in various food matrices and under different process conditions. Unsaturated fatty acids rapidly degrade to volatile compounds. Hence, the stability of oil in food systems must be investigated, especially if food is enriched with ω-3 and ω-6 fatty acids, so that the health promoting effects remain. The degradation products formed by lipid oxidation are of interest because they decisively influence the quality of food. By using various analytical methods, the oxidative deterioration can be observed. For example the volatile compounds are analysed by using GC-MS and the technique of Headspace (HS). The rancidity of rapeseed oil is characterized by certain marker substances: Hexanal, 2-Hexenal, 2, 4-Decadienal, among others. The research focus is on the various influences on lipid oxidation. The external parameters consider temperature, storage time or water content, whilst the internal parameters consider the composition of oil and interactions with other food compounds. The rate of oxidative deterioration is predominantly affected by temperature and the content of antioxidants, such as tocopherols and sinapinic acid. The aim of the study of the food matrix is to ensure the highest possible oxidative stability of the essential ω-3 and ω-6 fatty acids during the production, storage and treatment of foods as well as to characterise the chemical interactions of degradation products of lipid oxidation with other food ingredients.

Biography

Sandra Grebenteuch has studied Food Chemistry at the Technical University of Munich. Presently, she is doing a PhD at the Berlin Institute of Technology. As part of the NutriAct cluster, she investigates the oxidative stability of polyunsaturated fatty acids in model and food systems. "NutriAct" means: Nutritional Intervention for Healthy Aging: Food Patterns, Behavior, and Products. Its ambitious aim is to transform research results on consumer's food choices and its consequences into a substantial improvement of dietary intake of the adult population through both, a behavioral strategy and new products.

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ZINC CONTENT IN BREAST MILK: REPORT FROM LATVIA

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[3]Institute of Food Safety, Animal Health and Environment "BIOR", Latvia

Zinc is essential component and plays crucial role in metabolism processes; therefore insufficient zinc intake at young age can detrimentally affect growth and development. More than half of the infants in Latvia (~57%) are exclusively breastfed for the first six months of life. The aim of this research was to determine zinc content in mature breast milk among lactating women in Latvia. The study was conducted from November 2016 until December 2017. In total, 64 mature milk (at least 1 month *postpartum*) samples pooled within 24 h were collected. Participants (64 mothers with singleton deliveries of 34 boys and 31 girl) were 23 to 38 years old. Babies were 1.5 to 21 month old. More than half of the participants (n=39) were exclusively breastfeeding during the study, while 25 mothers had started the weaning. Zinc content was determined using inductively coupled plasma mass spectrometry (ICP MS Agilent 7700x, Japan). In total, zinc content in breast milk varied from 0.01 to 0.34 mg 100 ml-1 with a mean content 0.12±0.08 mg 100 ml-1. Arranging results according to child's age, we observed that zinc content in breast milk significantly decreases after six months (see Table 1). Comparing our data to prescribed AI (adequate intake) and RDA (recommended daily allowance) for zinc (see Table 1), we conclude that infants in Latvia might not receive sufficient zinc intake with breast milk. To draw further conclusion, mother's dietary habits during lactation period should be analysed as they may reveal some influence on zinc content in breast milk. In addition, zinc serum levels should be assessed, both mothers and children.

Table 1

Amount of zinc transferred in breast milk, depending on child's age

Age group (months)	Zinc content in breast milk (mg 100 ml^{-1})	Sample count, n	The mean amount of breast milk consumed depending on age (ml per day)[c]	Nutritional requirements for zinc (mg per day)
1-2	0.16±0.04[a]	11	679±150	2.0 (0-6 months)[d] 5.0 (7-12 months)[e] 6.0 (12-36 months)[e]
3-5	0.14±0.09[a]	29	745±152	
6-8	0.07±0.04[b]	11	688±156	
9-11	0.07±0.02[b]	9	529±230	
12-21	0.07±0.04[b]	4	448±251	

a, b - values with the same letter is not significantly different (p>0.05) c - Data from Brown et al., 1998. Complementary feeding of young children in developing countries: a review of current scientific knowledge, WHO/NUT/98.1. Geneva: WHO d - Adequate Intake (AI). Source – Institute of Medicine (US) Panel on Micronutrients. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. Washington (DC): National Academies Press (US), 2001. e - Recommended Dietary Allowances (RDA) for the people of Latvia. Approved by the Ministry of Health of the Republic of Latvia. No. 212. November 24, 2017.

Biography

L Aumeistere has a professional Bachelor's Degree in Health Care (Dietitian) and also earned a Master of Engineering Degree in Food Science (Mg.Sc.ing.). Currently she is a PhD student in Food Science programme at Latvia University of Agriculture and also a Researcher in the Research Institute of Food Safety, Animal Health and Environment "BIOR".

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THE EFFECTS OF LEMON PEEL ESSENTIAL OIL COATING ON QUALITY OF PACIFIC WHITE SHRIMP (LITOPENAEUS VANNAMEI) STORED AT 4ºC

Elham Nasiri[1,2], Seyed Shahram Shekarforoush[2], Fatemeh Rezaei[3] and Amin Gholam Hosseini[3]

[1]Tabriz University, Iran

[2]Friedrich-Alexander-University, Erlangen-Nurnberg, Germany

[3]Shiraz University, Iran

Shrimps are nutritious foods that are highly susceptible to microbial and physicochemical deteriorations, such as Shrimp melanosis (black spot). Sulphiting agents are widely used to prevent melanosis and microbial deterioration in shrimp; but the hazards related to sulphated foods, have created a necessity to find the effective natural alternatives. Lemon peel is the waste product of juice industry which is usually disposed in landfills or used as animal feed in small quantities. In the other investigation we observed the antityrosinase effect of lemon peel essential oil (LPEO) on shrimp. Essential oil application as food preservatives is often limited due to flavouring considerations. So by incorporation in coatings smaller amounts of EOs would be needed due to a gradual release on food surfaces; moreover nanoemulsions of EOs have more stability and efficiency. The objective of this study was to assess the combined effect of Lemon peel Nano EO (LPNEO) and carboxymethyl-cellulose (CMC) coating on improving postharvest quality of pacific white shrimp (Litopenaeus vannamei) during 10 days of storage at 4°C. Shrimps were immersed in CMC (1%) and CMC (1%) containing 0.5% LPNEO (Shrimp:CMC ratio 1:1 w/v), while sodium metabisulfite (SMS) and water were used as positive and negative controls respectively. The lower rate of the increase in Enterobacteriaceae, mesophilic, psychrophilic and lactic acid bacterial counts were observed in shrimps treated with LPNEO. The increase in thiobarbituric acid level, total volatile basic nitrogen and trimethylamine content were retracted as well in these samples compared to the other groups. The lowest melanosis formation was observed in LPNEO treated shrimps followed by CMC and SMS groups. Shrimps treated with LPNEO had also the significant higher sensory score for odour, colour and texture. The results suggest that the LPNEO incorporated in CMC may be promising as a new eco-friendly preservative to extend the shelf life of shrimps during refrigerator storage.

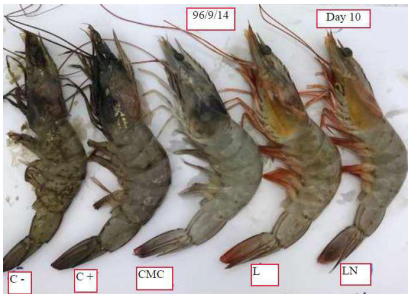


Fig. 1. Appearance of untreated shrimps. (C) and treated shrimps with: Sodium metabisulfite (1.25%) (C+), Carboxymethyl-cellulose (CMC), CMC containing 0.5% Lemon peel EO (L), CMC containing 0.5% Lemon peel Nano EO (LN), after 10 days of storage at 4°C.

Biography

Elham Nasiri has completed her MSc from Food Technology Department of Shiraz University and is currently pursuing her PhD in Technology of Food Science in Tabriz University. She was a Teaching Assistant in Sarvestan Azad University for 2 years and has been a Research Assistant in FAU University of Erlangen (Germany) since 2017. She has published 3 papers in reputed journals and presented one speech and 20 papers in valid congress.

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Abstracts



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M V Ghica et al., J Food Nutr Popul Health 2018, Volume: 2
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A STATISTICAL APPROACH TO INVESTIGATE THE EFFECTS OF BIOTECHNOLOGICAL PARAMETERS ON THE OBTAINING AND PROCESSING OF BREWING YEAST BIOMASS

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Extensive studies related to the introduction of yeast products, yeast-derivatives and yeast-containing ingredients in animal feeds were conducted. Thus, yeasts are nowadays used as alternative supplements in animal feeds due to their important nutritional value consisting in an appreciable content in proteins, amino acids, nucleic acids, vitamins (especially B-complex vitamins) and minerals. Brewing yeast biomass, one of the main product resulted from brewing industry, proved benefits for ruminants showing its potential in improving animal growth performance and health. Brewing yeast products are used in dried or wet forms. Wet yeasts may cause some issues (short preservation time, high contamination risks, and large shipping and storage costs), therefore, one of the most used yeast biomass preservation technique is the lyophilisation was used. The major lyophilisation advantage consists in product properties recovery after rehydration. In this study we targeted the modelling and optimization at pilot level of yeast biomass obtaining process through a fermentation mediated by yeast strain *Saccharomyces pastorianus spp. carlsbergensis* W34/70. The biotechnological parameters monitored, designed according to a Taguchi fractional experimental plan with four factors at three levels, were: temperature, pH, carbon source and nitrogen source. The following system responses were set as dependent variables: yeast biomass amount in wet form (g/L), yeast biomass amount in dried form obtained by lyophilisation (g/L), yeast viability quantified through colony forming units (CFU) per gram, dried yeast biomass wettability quantified though contact angle, protein content (%) and dry matter content (%). The response surface methodology allowed the visualization of the cultivation conditions effects on responses in the tridimensional space. Taguchi approach was further used to select the combination of biotechnological parameters that ensure the process of quality and robustness. This modern statistical approach could be applied for optimization on industrial scale of the fermentation process to obtain brewing yeast biomass, with potential use in ruminant nutrition.

Biography

M V Ghica is Professor at Physical and Colloidal Chemistry Department, Faculty of Pharmacy, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania. She has graduated at Faculty of Pharmacy (2000), holds a PhD in Pharmacy (2008) and a Master's degree at Faculty of Chemistry, University of Bucharest (2004). Her main research focus is on: (i) drug delivery systems design and development; (ii) use of experimental statistic design techniques combined with response surface methodology and Taguchi approach for the optimization of pharmaceutical systems formulation and technological processes. Her scientific activity was materialized in: 13 books, 2 book chapters, 81 articles (46 ISI), 148 studies presented at scientific meetings, 1 patent and 3 patent applications, and 15 awards. She was Project Manager for 2 national research projects, as well as partner responsible for 3 research projects (2 international/1 national). She was also a member of some scientific committees and experienced reviewer for various journals.

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SAMPLE IRRADIATION COUPLED TO ELECTRONIC SPIN RESONANCE ANALYSIS FOR IDENTIFYING A MECHANICALLY SEPARATED MEAT

Iammarino M, Tomaiuolo M, Chiaravalle A E and Mangiacotti M

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Introduction: In accordance with Regulations (EC) No 853/2004 and No 999/2001, a mechanically separated meat (MSM) is defined as the product obtained by removing meat from flesh-bearing bones after boning or from poultry carcasses, using mechanical means resulting in the loss or modification of the muscle fiber structure. The quantification of calcium content has been suggested as a technique for identifying a MSM. However, European Food Safety Authority (EFSA) recommended the development of innovative analytical methods for this identification, as alternative/complementary tools of investigation.

Materials & Methods: The method proposed in this study has been developed within the activity of "MPSQA" Project, in progress at Italian National Reference Centre for the Detection of Radioactivity in Feed and Foodstuff. It is based on the use of ionizing radiation on MSM samples, followed by Electronic Spin Resonance (ESR) analysis. Fresh chicken meat and Würstel (with MSM) samples were tested. The interfering signals were removed through sample ashing at 600°C. The ashes were then irradiated by a biological irradiator at 3 kGy (150 kV, 45 mA, 40 Gymin-1) and analyzed by ESR in X-band, after 24 hours. Ashes of chicken bones were analyzed as well, and different percentages of these ashes were added to meat ashes for validation purpose.

Results & Conclusion: The ESR spectra obtained from chicken bone resulted more complex, if compared to that obtained from chicken meat, and several characteristic signals were identified. These signals were detected in meat samples with added bone ashes. These results were confirmed by analyzing different chicken meat samples. A final "blind test" was carried out. The analytical method developed in this work allowed to identify the samples with MSM declared on the label (Würstel), and the samples added with different percentages of chicken bone ashes. At the same, the samples with no MSM (chicken fresh meat) were identified as "no MSM", confirming method reliability.

Biography

Iammarino M is a Food Technologist and Chemical Surveyor. Since 2002, he is a Researcher at Istituto Zooprofilattico Sperimentale della Puglia e della Basilicata (IZS-PB) of Foggia (Italy). Currently, he is employed as Principal Investigator at National Reference Centre for Detection of Radioactivity in Feed and Foodstuff of IZS-PB. He deals about food quality and safety, analytical chemistry applied to food analysis, research & development and analytical methods validation. In particular, he has developed several analytical methods (HPLC, HPIC, CE, LSC, TLC, ELISA) for the determinations of food additives (nitrites, nitrates, sulphites, polyphosphates, organic acids, etc.), radionuclides, mycotoxins, pesticides and drug residues in foods and feed materials. He has published more than 100 articles in peer-reviewed and Academic Journals, Congress Proceedings and books. The H index has reached 10 and citation exceeded 235 (source: Scopus). He was a reviewer for 49 international journals.

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A MOLECULAR STUDY ON THE GUT SURVIVAL PROPERTIES OF BULGARIAN AMYLOLYTIC LACTOBACILLUS PLANTARUM STRAINS

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Consumers' trend towards employing functional foods to achieve better quality of life and the insights on the health properties of cereals opened a new field for functional food development through combining the valuable composition of cereals and the health-promoting properties of probiotic lactic acid bacteria (LAB). LAB with amylolytic properties can assimilate starch in a single step process and could successfully be applied as starter cultures for the efficient nutritional conversion of cereal matrices into healthy foods. Amylolytic lactic acid bacteria are quite rare, and the probiotic potential of such strains has not been investigated so far. The first step of probiotic screening aim is to assess the ability of the strains to survive the passage through the gastro-intestinal tract (GIT). The present study focused on the molecular screening of five *amylolytic Lactobacillus plantarum* strains for genes coding tolerance to high acid and bile salts concentrations as basic GIT survival characteristics for the selection of probiotic bacteria strains. In vitro tests for acid and bile tolerance were also performed to test the expression of the genes under the effect of two factors – growth stage of the culture and available carbon source in the medium (glucose or starch). Results showed excellent correspondence between the genetic screening and the phenotypic tests performed. Survivability at high acidity and bile salts presence was strain-specific, with significant positive effect observed for cultures in stationary phase compared to those in exponential phase. Effect of starch in the medium proved most important to ensure viability of the amylolytic strains, which reveals the excellent potential of amylolytic lactic acid bacteria for commercially-relevant probiotic applications. Among the five tested strains, L. *plantarum* Bom2 showed the best probiotic potential.

Biography

Velitchka G Gotcheva is an Associate Professor at the Department of Biotechnology and the Centre for Food Quality and Safety, University of Food Technologies, Plovdiv, Bulgaria. She has completed her PhD studies on Functional Foods in 2003 at the same university. Her teaching and research activities are focused on functional food development, food biotechnology, food safety, food quality management systems, food legislation and labelling, food authenticity. She has expertise in food microbiology, food biotechnology and molecular methods at the University of Manchester (UK), University of Vermont and Texas A & M University (USA), and China National Research Institute of Food and Fermentation Industries. She has also worked with food and biotechnology companies and with the Quality Management Certification sector. She has participated in a number of researches, educational and networking projects. She is a member of the Management Board of the ISEKI Food Association (IFA) and the representative of Bulgaria at IFA.

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EFFECT OF SALT CONTENT ON MICROBIOLOGICAL QUALITY OF DRIED BEEF SLICES

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In this study, the effect of salt content (0, 5, 10, 15 and 20 g/100 g dry basis) on the microbiological quality of beef slices was investigated. Beef slices were salted and vacuum-dried at 70°C, until a moisture content of 32% (dry basis). For microbiological analysis, a 10 g sample was homogenized with 90 mL peptone under aseptic conditions. Appropriate dilutions were prepared, and inoculation was performed by the pour plate method. After incubation, total aerobic mesophilic bacteria, total aerobic psychrophilic bacteria, Micrococcus/Staphylococcus, lactic acid bacteria, Enterobacteriaceae, yeast and molds were enumerated. Enterobacteriaceae were not detected in all dried samples as a result of their sensitivity to heat and low water activity. The bacterial counts were below 5-log cfu/g in all dried samples, which indicating a general acceptance level of hygienic dried meat slices. The microbiological quality of the dried slices was affected (P<0.05) by the salt content. The increasing salt content from 0 to 20 g NaCl/100 g d.b, led to a significant decrease in the counts of total aerobic mesophilic and psychrophilic. Additionally, the counts of Micrococci-Staphylococci were higher in almost all samples than those of lactic acid bacteria and yeast-molds.

Biography

Elif Aykin Dinçer has graduated from Ankara University, Faculty of Engineering, Department of Food Engineering in 2010. She has completed her MA from Süleyman Demirel University in 2013. Now, she is working as Research Assistant in Akdeniz University, Faculty of Engineering, Department of Food Engineering. Her research interests are Meat Science and Technology. She is working on her PhD thesis entitled, "Designing a cold dryer for producing a minimally processed dried meat and determining the drying and quality characteristics of obtained dried meat product".

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VALORIZATION OF MINOR OLIVE CULTIVARS AND OLIVE OIL FROM DIFFERENT ITALIAN REGIONS: A PHYSICOCHEMICAL AND THERMAL APPROACH

Maria Paciulli[1], Francesco Caponio[2], Carla Di Mattia[3], Antonio Piga[4], Vito Michele Paradiso[2], Federica Flamminii[3], Paola Conte[4], Roberto Cabizza[4], Paola Pittia[3] and Emma Chiavaro[1]

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The project Sustainability of the Olive-oil System – S.O.S., founded by the Ager foundation (AGER 2 Project, grant no. 2016-0105), presents a multidisciplinary approach, aimed to produce transferable contributes for the improvement of quality and quantity of the Italian extra virgin olive oil, and to support its promotion through cultural outcomes. One of the planned activities was the biological, chemical, physical and thermal characterization of minor olive cultivars and related extra virgin olive oils, coming from three different Italian regions where the project partner Universities were located. Eight minor cultivars were analyzed: two from Apulia (*Oliva Rossa* and *Cima di Melfi*), three from Sardinia (*Corsicana da Olio, Semidana and Sivigliana*) and three from Abruzzo (*Dritta, Tortiglione* and *Gentile de L'Aquila*). From each of the selected cultivar, the drupes were harvested at three different ripening times, at intervals of 15 days, starting about one month before the traditional harvest time, and submitted to the determination of water content, oil percentage, phenol content, total soluble solids content (sugars) and antioxidant activity. To characterize the cultivars, the oil yield and quality were also assessed in terms of fatty acid composition, volatile profile, chlorophylls, oxidative and hydrolytic degradation other than antioxidant content. For each of the oils, at any harvest time, a physical and thermal characterization was also performed: viscosity and colour, other than the measurement of the phase transitions upon cooling and heating, and the heat capacity by means of differential scanning calorimetry were assessed. Several differences were evidenced between varieties and harvesting time of olives and oils, with good correlations between the chemical, physical and thermal measurements, suggesting the robustness and the effectiveness of the investigation method. The experimentation will be conducted over the three years project, opening a good way for the characterization, recovery and valorization of the minor olive cultivars, botanical heritage of the Italian regions.

Biography

Maria Paciulli has completed her MSc and PhD in Food Science and Technology at the University of Parma, Italy. She is currently working as a Postdoctoral Fellow in the Department of Food and Drug of the same University, in the area of Food Technology. Her research activity is primarily focused on the investigation of the effect of processing and formulation on the physio-chemical and thermal properties and stability of food products, with a particular focus on oil and fats, bakery products and vegetables. She is an author of 24 papers in reputed journals and 3 book chapters, along with participation in several national or international conferences.

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EFFECT OF AQUEOUS EXTRACT OF MYRTLE LEAVES (MYRTUS COMMUNIS) ON QUALITY CHANGES OF FARMED GUTTED RAINBOW TROUT (ONCORHYNCHUS MYKISS) DURING CHILLED (4± 1°C) STORAGE

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Rainbow trout fish is highly susceptible to microbial and hydrolytic spoilage as well as oxidative rancidity. Therefore, it is essential to use preservatives to extend the shelf life of this product. Myrtle leaf extract has significant antibacterial and antioxidant properties. This research was conducted to investigate the effect of aqueous extract of myrtle (*Myrtus communis*) leaves on farmed rainbow trout fish (*Oncorhynchus mykiss*) quality during chilled (4±1°C) storage. The amounts of total phenolic compounds through Folin-Ciocalteu method, free radical scavenging by 2,2-diphenyl-1-picrylhydrazyl (DPPH) solution and metal scavenging ability of the extract through spectrophotometric method, were determined. Rainbow trout have been washed and gutted immediately after fishing. Then, with regard to primary tests results, samples were immersed in aqueous extract of myrtle leaves with concentration of 0.5% for 5 minutes. Sampling has been done at days 0, 5, 10 and 15 during chilled (4±1°C) storage. Antimicrobial effects of mentioned extract were evaluated by enumeration of psychrophilic bacterial counts through the pour plate method, using plate count agar (PCA). Furthermore, the effects of extract on chemical properties of samples have been investigated through, pH measurement, spectrophotometric evaluation of thiobarbituric acid reactive substances (TBARS) and total volatile basic nitrogen (TVB-N) content determination using Kjeldahl method. Sensory evaluation determined by 10 trained panelists who were asked to evaluate the appearance and color, odor, texture and eye appearance of the samples. Total phenolic compounds, free radical scavenging (IC50) and metal scavenging ability of aqueous extract of myrtle were 49.6±0.33 mg GA/ml, 20±0.03 µg/ml and 0.042 mg/ml, respectively. Dipping the fish in the aqueous extract reduced the psychrophilic bacterial count immediately after the treatment and significantly retarded the microbial deterioration of treated fishes. So that, the psychrophilic bacterial count of control and treated samples on day 10 of storage were, 7.29 and 5.91 log cfu/g respectively. Moreover, lipid oxidation and production of volatile nitrogen compounds reduced in treated samples and sensory characteristics improved compared to control samples. Thus, the myrtle aqueous extract can be used to extend the shelf life of rainbow trout during chilled storage. The use of water as a solvent, the low required concentration of extract and abundance of evergreen myrtle bushes in Iran, provides the possibility of economic use of this extract as a natural preservative and suitable substitute for chemical compounds.

Biography

Elham Nasiri has completed her MSc from Food Technology Department of Shiraz University and is currently pursuing her PhD in Technology of Food Science in Tabriz University. She was a Teaching Assistant in Sarvestan Azad University for 2 years and has been a Research Assistant in FAU University of Erlangen (Germany) since 2017. She has published 3 papers in reputed journals and presented one speech and 20 papers in valid congress.

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Sirangelo T M et al., J Food Nutr Popul Health 2018, Volume: 2
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MICROBIOTA OF FRESH PORK SAUSAGE IN MODIFIED ATMOSPHERE

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A comprehensive analysis of microbial population was performed on 9 lots of fresh pork sausage, sampled in a lapse of time of 6 months from a sole production plant. Sausages packaged in MAP (Modified Atmosphere Packaging - 30% CO2 - 70% O2) were stored at 7°C in order to mimic temperature abuse in the supply chain. Microbiota was analyzed both at the beginning (T0) and after 12 days, at the end of shelf-life (Tf). Total cultivable bacteria, lactic acid bacteria (LABs), Enterobacteriaceae, coagulase-positive staphylococci, and *Pseudomonas* were enumerated. The mean charge (Logs of CFU/g) of cultivable aerobic and aerotolerant bacteria was 5.0 at T0 and reached 7.2 after 12 days at 7°C, with a concomitant drop of pH from 5.9 to 5.5. LABs showed the highest increase starting from 4.1 and reaching 8.6 Logs, followed by staphylococci (4.0 to 6.5 Logs), and by Enterobacteriaceae (3.2 to 6.2 Logs). Randomly selected colonies were subjected to RAPD-PCR clustering, and each biotype was taxonomically characterized through 16S rRNA gene partial sequencing. The dominant stains identified on PCA (Plate Count Agar) at the end of shelf life generally belonged to the genera *Brochothrix, Leuconostoc, Staphylococcus, Serratia, Carnobacterium, Lactobacillus*. Less frequent isolates were ascribed to *Kluyvera, Macrococcus, Bacillus, Weissella, and Lactococcus*. The metataxonomic data confirmed the dominance of these recurrent genera. *Brochothrix* and *Lactobacillus* were identified at Tf in all lots, representing up to 72% and 69% of the total reads, respectively. Furthermore, bacteria belonging to the genera *Bacillus, Shewanella, Helicobacter, Acinetobacter, Psychrobacter*, and Vibrio were detected as major colonizers at the end of the shelf-life, albeit not detected among the isolates.

Biography

Sirangelo T M has graduated in Biology at University of Calabria, Italy. She worked as a Tutor in different biology fields and carried out activities in several research projects. She is a third year PhD student in Sciences, Technology and Biotechnology at University of Modena and Reggio Emilia, Italy, and her research focus is on Food Microbiology. Her study concern particularly is on the characterisation of the microbiota of different kinds of meat through traditional and Meta taxonomic approaches and already has several paper publications on the topic.

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ZN CHELATE APPLICATION ON ZN DEFICIENT SOIL CULTIVATED WITH MAIZE UNDER GREENHOUSE

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The zinc is a micronutrient that helps in the production of the maize in Brazil, but is a very common deficiency found in all the regions of the country. With the objective of evaluating the effect of the zinc rates in micronutrients concentration in soil, in plants and maize shoot dry matter production, an experiment was done in pots containing Haplustox (Latossolo Vermelho). It was used as a complete randomized design, with three replications of treatments; in a factorial arrangement 6x3 (six rates of zinc and three sources). It was used at following rates of zinc: 0; 0.5; 1; 2; 4 and 6 mgkg-1, and sources: Zn-EDTA, Zn-lignosulfonate (Zn-LS) and zinc sulfate. It was observed zinc application increases the initial growth of maize crops, with the 90% of maximum production in 0.9 mgkg-1 zinc concentrations in soil and 16 mgkg-1 in plants. The source of Zn-lignosulfonate proportioned the highest Zn concentration in soil and plant; therefore it isn't observed difference among the sources in nutrients absorption and dry matter production. The increased zinc rates increased concentration in plants, in soil and Zn accumulated. It was observed a few answers in dry matter production with rates application above 2 mgkg-1.

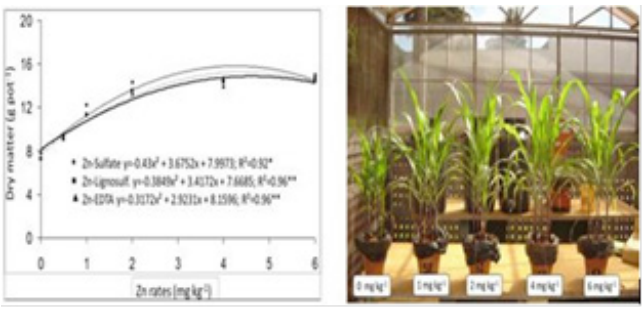


Figure 1 and 2: Effect of the zinc rates in dry matter production.

Biography

Roberto Savério Souza Costa has completed his graduation from University State of São Paulo in Brazil (Unesp – campus Ilha Solteira) and Master's studies form University State of São Paulo (Unesp – campus Jaboticabal). He is an Agronomist Engineer in Coordenadoria de Assistência Técnica Integral (CATI) and he works with family farmers in projects of São Paulo State Government. He has experience as an extensionist in the area of Plant Science, with emphasis on Management and Cultural Treatments, Plant Nutrition and Fertilization and also in the area of Topography and Rural Engineering. He is also a University Professor at Centro Universitário Unifafibe, in Bebedouro city, in the Agronomic Engineering course. He has published more than 8 papers in scientific journals and has 29 presentations of the work.

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AMPK MODULATORY ACTIVITY OF POLYPHENOLS FROM LIPPIA CITRIODORA: A DIETARY STRATEGY AGAINST OBESITY

Olivares-Vicente Marilo[1], Herranz-Lopez Maria[1], Cadiz-Gurrea Maria de la Luz[2], Barrajon-Catalan Enrique[1], Segura-Carretero Antonio[2] and Micol Vicente[1,3]

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Introduction: Natural dietary products as polyphenols derived from plants have been considered by their potential for the prevention and treatment of several diseases for years. Nevertheless, many of these compounds exert beneficial effects through mechanisms that remain unclear. Recent evidences are postulating AMP-activated protein kinase (AMPK) as an important molecular target for the management of diseases related to obesity. In this study, we aimed to fractionate a commercial extract of *Lippia citriodora* and investigate the capacity of its polyphenolic compounds to modulate AMPK on a hypertrophied adipocyte model.

Materials & Methods: HPLC semi-preparative purification method and reverse phase high performance liquid chromatography coupled to time-of-flight mass detection with electrospray ionization (RP-HPLC-ESI-TOF/MS) were used to obtain the compounds from *Lippia citriodora* extract. AMPK activity was measured by immunofluorescence assay on hypertrophied 3T3-L1 adipocytes, which were previously obtained by incubating cells with high levels of glucose for 17 days. A total of 29 compounds have been tentatively identified in L. *citriodora*, being phenylpropanoids the major class of compounds found. Phenylpropanoids such as verbascoside, iridoids such as gardoside and flavonoids such as luteolin-7-diglucoronide were the best candidates to account for activating AMPK on adipocytes.

Results & Conclusion: To conclude, specific phenylpropanoids, iridoids and flavones from L. citriodora may be responsible for activating AMPK. Further research may be required to obtain combinations of the bioactive compounds that could be used as a nutraceutical for the management of obesity-associated diseases.

Biography

Olivares-Vicente Mariló is a graduate in Biotechnology at the Miguel Hernández University of Elche (Spain) and is currently a PhD student at the Institute of Molecular and Cell Biology (IBMC) of this university, with a PhD contract from VALi+d Programme of Comunidad Valenciana. She has been working since 2013 on the effect of natural polyphenols against obesity in the research group of "Natural Bioactive Compounds" headed by Dr. Vicente Micol.

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SOME QUALITY CHARACTERISTICS OF PRODUCED AND MARKETED HUNGARIAN SALAMI IN TURKEY

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Turkey is producing a lot of different varieties of salami, and some main varieties are Hungarian salami, Mortadella salami, Spanish salami and pistachio salami. In this study, the moisture content, pH, color, textural (hardness, springiness, adhesiveness, cohesiveness and chewiness) and sensory (appearance, color, odor, flavor, structure and general acceptance) properties of Hungarian salami samples which were taken from the local market were investigated ın two replications. Salami samples were randomly coded with the letters A, B, C, G, H, K, L, O and P. The moisture contents and pH values of the samples were between 38.46-60.31% and 6.32-6.69, respectively. It was determined that L* values of the samples were in the range of 53.02-59.97, a* values were in the range of 27.49-31.68 and the b* values were in the range of 8.82-15.68. According to the Textural Profile Analysis (TPA) results; hardness, springiness, adhesiveness, cohesiveness and chewiness of salami samples were found to be 0.085-0.840 N, 0.875-23.500, 0.001-0.105 Nxs, 0.790-1.640 and 0.070-28.095 N, respectively. According to that, a sensorial panel using a scale of 10 scores by educated panelists; P coded samples were evaluated highest (6.63) general acceptance score and the O coded samples were evaluated lowest (3.13) general acceptance score. The moisture content was 53.11%, the pH value was 6.49, the L* value was 54.40, the a* value was 29.58, the b* value was 8.82, hardness was 0.305 N, springiness was 0.960, adhesiveness was 0.056 Nxs, cohesiveness was 0.790 and chewiness was 0.230 N for the most favorite P coded samples.

Biography

Elif Aykin Dincer has graduated from Ankara University, Faculty of Engineering, Department of Food Engineering in 2010. She has completed her MA from Süleyman Demirel University in 2013. Now, she is working as Research Assistant in Akdeniz University, Faculty of Engineering, Department of Food Engineering. Her research interests are Meat Science and Technology. She is working on her PhD thesis entitled, "Designing a cold dryer for producing a minimally processed dried meat and determining the drying and quality characteristics of obtained dried meat product".

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EFFECTS OF HIBISCUS AND LEMON VERBENA POLYPHENOLS IN OVERWEIGHT VOLUNTEERS: THE ROLE OF APPETITE RELATED HORMONES

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Introduction: Obesity has become a major global health problem with epidemic proportions. Calorie restriction, physical exercise or psychologic supports have failed to achieve efficient long-term weight loss maintenance or metabolic control. Plant-derived polyphenols have shown potential to alleviate obesity-related pathologies by a multi-targeted mechanism in animal models and human intervention studies.

Materials & Methods: A dietary supplement based on a combination of *Lippia citriodora* (LC) and *Hibiscus sabdariffa* (HS) *polyphenolic* extracts was assayed in a double blind and placebo-controlled intervention study with 54 overweight volunteers having an isocaloric diet for two months.

Results: The results showed an improvement of decreased hunger and appetite compared to the placebo group. These satiety changes in the intervention group correlated with a reduction in circulating resistin and normalization of leptin expression, while regulating ghrelin levels. A positive perception of the consumer´s health status was reflected using the SF-36 questionnaire. Contrary to the weight regain effect expected upon calorie restriction, we observed that plant polyphenols increased anorexigenic hormones (GLP-1) and decrease orexigenic hormones (ghrelin), leading to the compensation between hunger and energy expenditure and narrowing energy gap.

Conclusions: Although further research may be required, we propose that the polyphenolic combination may be used for weight management by increasing long-term weight loss maintenance through the modulation of appetite biomarkers.

Biography

Marina Boix Castejón is a PhD student at the Miguel Hernández University. She has graduated in Human Nutrition and Diabetics, has a Master's Degree in Clinical and Community Nutrition and Expert Course in Sports Nutrition from the University of Alicante, Spain.

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DEVELOPMENT OF FUNCTIONAL FOOD PRODUCTS FROM BREWERY SPENT GRAIN RECOVERY

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Food industry production is among the biggest human environmental impacting activities, generating an unsustainable system with a multitude of climate impacts on society that need to be addressed. In particular, the brewing industry generates large quantities of waste products, among which, the most abundant is the brewery spent grain (BSG), the residue left after separation of the wort during the brewing process. Despite its high value nutritional composition, nowadays BSG is mainly used as animal feed and landfilled. The idea of the project BreweReuse (www.eatcircular.com), one of the winner projects of the Climate-KIC's Greenhouse Programme 2017, was to valorize BSG, starting from a pilot brewery, by using it in formulation for functional products. In particular recipes of cereal bars were developed, testing three increasing percentage of BSG addition, in comparison to a control without BSG. Two different binding systems were also tested: one containing honey, sugar syrup and margarine and another, more complex, containing chocolate, milk powder, sugar, margarine, sunflower oil and cornflour. Analysis of texture, color, water content and water activity were performed on each of the formulated bars, and during a period of 20 days, to control the main modifications occurring during the first period of storage. A sensory measurement of the cereal bars was also performed, to examine their interrelationship for product differentiation and to explore how the role of information about such 'sustainable snack' drives consumers' expectations and actual perceived taste quality. The results of the current research will be exposed, giving more insights on the recycling of the brewery spent grain field and the relative by-food product formulations to achieve a better sustainability of the whole sector.

Biography

Maria Paciulli has completed her MSc and PhD in Food Science and Technology at University of Parma, Italy. She is currently post-doc in the Department of Food and Drug of the same University, in the area of Food Technology. Her research activity primarily focuses on the investigation of the effect of processing and formulation of the physico-chemical and thermal properties and stability of food products, with a particular focus on oil and fats, bakery products and vegetables. She is author of 24 papers in reputed journals and 3 book chapters. She participated in several national or international conferences.

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PLANT POLYPHENOLS FOR WEIGHT MANAGEMENT: POTENTIAL ROLE OF AMPK

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Introduction: Obesity is one of the most pervasive in chronic diseases where therapeutic approaches have failed. Emerging scientific evidence indicates that dietary therapies may be an alternative in the treatment of obesity and other metabolic disorders. AMP-activated protein kinase (AMPK), a master energy regulator, has been proposed as a molecular target in the capacity of plant-derived polyphenols to ameliorate obesity-related diseases. Thus, dietary therapies with bioactive compounds acting on adipose tissue and targeting AMPK, such as polyphenols, may have potential benefits. Previous evidences have exhibited that plant polyphenolic extracts containing anthocyanins, flavonols and phenylpropanoids were able to reduce triglyceride accumulation, oxidative stress and inflammation in the adipose cell model, and prevented fatty liver disease and improved lipid management in hyperlipidemic animal model.

Materials & Methods: We aimed to develop a combination of the above-mentioned polyphenols that reduced triglyceride accumulation and showed AMPK-activating capacity in a hypertrophied insulin-resistant 3T3-L1 adipocyte model. The efficacy of this combination in the management of weight control was assessed in overweight volunteers.

Results: The volunteers consuming 500 mg/day of the dietary supplement (*Lippia citriodora extract + Hibiscus sabdariffa extract*) for two months decreased weight, improved anthropometric parameters, decreased systolic blood pressure and heart rate, as well as normalized their blood lipid profile.

Conclusion: Therefore, the consumption of 500 mg/day of LC-HS, in combination with an isocaloric diet, may be considered as a dietary supplement for weight management and the prevention of metabolic syndrome. Further research is required to corroborate these facts, but the increase in basal metabolic rate and modulation of fat metabolism, probably mediated by AMPK activation, are proposed as the major causes for such effects.

Biography

María Herranz-Lopez has graduated in Human Nutrition and Dietetics and Food Science in the Miguel Hernández University (UMH) of Elche (Spain). She is a PhD at the Institute of Molecular and Cell Biology (IMCB) and is currently collaborating in the research group of "Natural Bioactive Compounds" of this institute. The research group studies the biological activity and the mechanism of polyphenols in relation to various human pathologies such as obesity, cancer and some infectious diseases.

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THE EFFECT OF GELLAN GUM ON COOKED RICE DIGESTIBILITY

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The effort to create low GI rice has increased among food technologists and plant breeders. Various genetically modified and selected breeding of rice varieties with low GI property have been released. Red rice, unpolished rice (brown rice), black rice also being believed has slower glucose release when they are consumed. However, one of the drawbacks of that kind of rice is regarding their organoleptic acceptance. The addition of hydrocolloids might be an alternative way to reducing GI of rice while keep maintaining rice physical properties. Gellan gum is a commercially viable food ingredient occurring hydrocolloid with useful properties. It has been previously reported that gellan gum alters food bolus structure in human gastric impacting the satiety and its nutritional released. The aim of this study was to investigate the effect of additional gellan gum on in vitro cooked rice digestibility. The amount of 1% (w/w) gellan gum was added onto rice grain before the cooking process. The formation of gel covered cooked rice were investigated using light microscope and scanning electron microscope. Under simulated human gastric environment, bolus disintegration of rice-gellan gum was slower than intact rice bolus. Further study on in vitro hydrolysis of starch by -amylase enzyme, addition of gellan gum significantly inhibits starch hydrolysis of cooked rice. The inhibitory effect of gellan gum on gelatinization of starch and gel formation with coating effect of gellan gum were hypothesised to be responsible for the reduced starch digestibility of cooked rice.

Biography

Syahrizal Muttakin is a young Researcher at Indonesian Agency for Agricultural Research and Development having expertise in Food Engineering. He graduated from Bogor Agricultural University, Indonesia and hold Bachelor of Science in Agro-industrial Technology. After years of work helping farmers by increasing value added of their post-harvest product, he tried to improve his capability by studying abroad. He received Master of Science in Food Science and Technology from Chung-Ang University, Republic of Korea. Recently, he started pursuing PhD in Chemical Engineering from University of Birmingham. He also acts as Associate PhD student and conducts his PhD research project at Food Engineering Laboratory, University of Nottingham. His current research interest is on development of food digestion model (in vitro).

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EFFECT OF FREE OR IMMOBILIZED KEFIR CULTURE ON THE PROFILE OF VOLATILES IN LOW-ALCOHOL WINES

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Nowadays, low alcohol wines (alcohol content <10 % vol) represent a new steadily rising trend in the global wine market driven by social, environmental and economic reasons. However, in order to achieve low alcohol concentrations, wines are being treated with harsh physicochemical methods that affect the wine quality negatively. To achieve high wine quality, malolactic (ML) fermentation is applied worldwide, resulting in reduction of beverage acidity, microbial stability, and organoleptic improvement. Nevertheless, it is a difficult and time-consuming process that may lead to delay or even failure. On the other hand, it is well documented that cell immobilization may offer numerous technological advantages, such as enhanced fermentation productivity, ability for cell recycling, application of continuous configurations, enhanced cell stability and viability, and improvement of quality. Hence, the aim of the present study was to evaluate the effect of kefir culture on the profile of volatiles in low-alcohol wines, since it was successfully used in simultaneous alcoholic and ML cider fermentations recently. Fermentation efficiency of free or immobilized cells on natural supports (apple pieces, delignified cellulosic material, and grape skins) was tested in repeated batch fermentations at a wide temperature range (5-30 C). Ethanol content ranged 4.5-10.5% (v/v) depending on fermentation temperature and malic acid conversion up to 59.3% was recorded. The main volatiles identified by HS-SPME GC/MS analysis were esters, organic acids, alcohols, carbonyl and miscellaneous compounds. Application of Principal Component Analysis clearly showed that the fermentation temperature had a significant effect instead of the nature of kefir culture. Noticeably, all products were accepted by the sensory panel during the preliminary organoleptic evaluation.

Biography

Associate Professor Yiannis Kourkoutas has completed his PhD at the age of 27 years from University of Patras, Greece, and postdoctoral studies from University of Ulster, N. Ireland, UK. He is the director of the Laboratory of Applied Microbiology & Biotechnology at the Department of Molecular Biology & Genetics, Democritus University of Thrace, Greece. He has published more than 80 papers in peer-reviewed journals, numerous abstracts in international conference proceedings including several invited talks, and has been serving as a Lead Guest Editor and an editorial board member in many special issues and reputed scientific journals.

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BIO-VALORIZATION OF OLIVE MILL WASTEWATERS AND CRUDE GLYCEROL BLENDS WITH THE USE OF A YARROWIA LIPOLYTICA STRAIN TO PRODUCE CITRIC ACID, POLYOLS AND LIPIDS

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In the present study, crude glycerol waste discharged from bio-diesel production was used as substrate for screening eleven natural *Yarrowia lipolytica* strains when grown in nitrogen-limited submerged shake-flask experiments. In media with initial glycerol concentration of 40 g/L, all strains presented satisfactory microbial growth and almost complete glycerol uptake. The principal metabolic product was citric acid (Citmax~30.0 g/L, yield 0.30–0.80 g per g of glycerol consumed) simultaneous with the accumulation of storage lipid. Polyols mannitol, arabitol and erythritol were also synthesized as strain dependent compounds. Y. *lipolytica* strain ACA-YC 5031 produced sufficient amount of citric acid and presented the highest (amongst the screened strains) production of the polyol erythritol (~4.0 g/L, YEry/Glol~0.18 g/g) as also non negligible amounts of the polyols mannitol (~5.6 g/L, YMan/Glol~0.25 g/g) and arabitol (~2.2 g/L, YAra/Glol~0.15 g/g). This strain was further grown on increased concentration of crnitude glycerol nitrogen-limited experiments of ~70 g/L (blank experiment) and on blends of crude glycerol and olive mill wastewaters (OMW). Specific volume of OMW was used with the rationale to partially substitute process tap water, thus giving initial phenolic compounds concentration of 1.0 g/L. The metabolism seemed to be shifted towards citric acid production at expense of erythritol production, due to the addition of OMW into the medium. The maximum production of biomass (Xmax=10.2 g/L, YX/Glol=0.14 g/g) as also the accumulation of both citric acid (Citmax=37.1 g/L, YCit/Glol=0.51 g/g) and cellular lipids (Lmax=2.8 g/L, YL/X=0.25 g per g of dry cell weight) was favored by OMW addition, compared to blank experiment. On the other hand erythritol production presented significantly lower values with OMW addition (Erymax=7.4 g/L, YEry/Glol=0.11 g/g) whereas mannitol and arabitol production showed no significant difference (Manmax=11.6 g/L, YMan/Glol=0.16 g/g; Aramax=2.6 g/L, YAra/Glol=0.04 g/g) compared to blank experiment. Finally, removal of medium color occured (up to ~20%).

Biography

Dimitris Sarris has completed his PhD in Food Biotechnology and 3 Post-doctoral research projects at Agricultural University of Athens, Greece. He is currently an Adjunct Lecturer in Food Microbiology in Agricultural University of Athens, Greece. He has published 11 papers in reputed journals and has been serving as a reviewer in more than 10 journals. Amongst his scientific interests are the treatment and valorization of agro-industrial by-products and wastes (and in general food industry effluents) via biotechnological methods for the production of (high-) added value products.

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VALUE CHAIN ANALYSIS OF BEEF CATTLE PRODUCTION IN WOLAITA ZONE: THE CASE OF DAMOT GALE DISTRICT, WOLAITA SODO AND AREKA TOWN, SOUTHERN ETHIOPIA

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Beef cattle production and value addition practices are known as major income earning activities and economic stay of the farmers, brokers, traders, hotels and restaurants and also provide huge financial support town for administrative in Wolaita area, yet attention given to the sector is not comparable to the economic value the sector owns. This study, therefore, was initiated to identify value chain actors and their function in the chain, to investigate factors affecting value added in beef production and economic role beef value chain for districts. Both primary and secondary data were used for this study. Primary data were collected from 102 sampled farmers, 21 hotels and restaurants, 3 town administratives (Wolaiyta Sodo, Areka, Bodity) and 15 experts from different strata. Before the household survey, key informant interview and focus group discussions were conducted using 20 small scale farmers, 5 hotels and restaurants, 1 town administrative and 1 expert. Descriptive statistics and econometric data analysis techniques were employed to analyse socioeconomic information; extents of value added in meat production and identify determinants of value added in beef production. The study results indicated that farmers, hotels and restaurants, government, brokers, traders and consumers were the major beef value chain actors. The economic value of meat produced annually in Wolaita and Areka town exceeds 3.9 billion Ethiopian Birr (equivalent to 165.8 million USA dollars) and 52 million Ethiopian Birr (equivalent to 2.2 million USA dollars) respectively. The total number of beef cattle slaughtered in one fiscal year was more than 10000 and 2300 in Wolaita Sodo and Areka Town, respectively. The study confirmed that number of beef cattle slaughtered in towns varies across season in relation to informal institutions celebrated (Meskel and other festivals occurrences) and income earning capability of communities in the district. The major source of beef cattle of small scale farmer for beef value addition through fattening were beef cattle purchased from market (82.5%) and ox kept at home (32.5%). The study indicated that livestock plays vital role by supporting town administrative as revenue source that calculated to be more than one million Ethiopian Birr in Areka annually. The econometric regression result justified that extent of value added in beef production depends on total land owned, amount off-farm and agricultural income earned annually at household level, amount of brokers payment for market facilitation service, extent of costs incurred in informal institutional circumstances. From explanatory variables regressed over level of value added, amount of off-farm and agricultural income and extent of payment made to brokers positively affected the extent of value added in beef production, while amount cost incurred for informal institutional cases and total land owned negatively affected value added by producers in beef production. Hence, training and capacitating farmers, giving due attention and policy supporting to livestock sector in general and beef value chain in particular that is comparable to the role they play, optimizing the informal institutional cases linked positively with beef value chain, improving credit access, market infrastructure development, linking producers to market and its benefits and establishing in cooperatives believed play a significant role for maximization of the sector productivity.

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RAPID DETECTION OF SHIGA TOXIN PRODUCING ESCHERICIA COLI USING VERO CELL-BASED ASSAY

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In this study, we investigated if CARD (Cell-based assay for rapid high-throughput detection of Shiga-toxin producing Escherichia coli) could be used for rapid screening and detection of Shiga-toxin producing Escherichia coli (STEC) by measuring release of lactate dehydrogenase from Vero epithelial kidney cells as a biomarker for cytotoxicity to differentiate these from non-STEC. After evaluating two phage induction treatments, four growth media, and two cell culture platforms, uninduced bacterial cells resuspended in Luria-Bertani broth (LB) were found to be suitable for building 3D CARD in generating high percent cytotoxicity similar to induced cells by Mitomycin C (2 ug/ml) and Ciprofloxacin (100 ng/ml) treatment. CARD can detect STEC after 6 h post infection with percent cytotoxicity ranging from 33%-79%, which is 10 h faster than the traditional 2D platform we modified previously, when tested against known laboratory strains of Shiga-toxin producing Escherichia coli. The percent cytotoxicity against non-STEC, *Salmonella*, and *Listeria* spp. is below the established cytotoxicity cutoff value of 15%, showing high specificity against STEC. Ground beef samples (n=27) were tested for application potential, and CARD detected STEC with 38-46 percent cytotoxicity in artificially contaminated samples. Isolates (n=42) were further confirmed by stx1 and stx2 gene-specific multiplex PCR and traditional plating method on SMAC. CARD-based identification of samples resulted low false-positive results. This is the first screening technology against viable STEC relying on host pathogen interaction that can complement other genomic and proteomic detection in isolating and detecting STEC from food samples as a preventative control for foodborne outbreaks.

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HALOMONAS LEVAN AS FUNCTIONAL FOOD INGREDIENT FOR BAKING INDUSTRY

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Functional food ingredients and dietary fibers gained escalating popularity due to increasing number of conscious consumers. Functional food ingredients have many features like prebiotic, antipathogenic, anticancer and immunostimulative activities. These natural and functional ingredients have many features like shelf life extension, product deterioration and waste prevention and improve product quality. Fructans have the biggest market among other functional food ingredients. Levan is a β (2→6)-linked fructose polymer and it is the most common fructan in nature synthesized by both plant and bacteria. This water soluble, nontoxic, highly adhesive film former polymer has many application fields in cosmetics, food industry, medicine, pharmacy and chemistry. *Halomonas* Levan (HL) is produced by a halophilic *Halomonas smyrnensis* AAD6T, isolated from İzmir Çamaltı saltern area, and identified by our research group as the first levan producing extremophile. According to current research on food industry about functional food and dietary fiber activities, HL can be used as a dietary fiber and functional food ingredient with features like dough rheology and bread quality enhancer, antipathogenic sweetener, shelf life extender and edible food packaging. Current studies performed by our research group are mainly focused on the dietary fiber activity, dough rheology and bread quality enhancer activities of HL in baking industry.

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PHYTOCHEMICAL PROFILE AND ANTIOXIDANT POTENTIAL OF ANVILLEA RADIATA COSS. & DUR. VAR. GENUINA M.

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The present study aimed to evaluate the potential of *Anvillea radiata* Coss. & Dur. var. genuina M. (Asteraceae) as a source of antioxidant compounds. The preliminary evaluation of the phytochemical composition of the different organs highlighted the presence of some chemical groups. This was confirmed by a quantitative analysis based on the measurement of total phenolics, flavonoids, flavonols and condensed tannins content. We have shown that aqueous methanol is the best extractor of flavonoids, while acetone has the ability to extract more of tannins. Considering organs, flowers of *A. radiata* have the highest levels of these compounds. Thus, in order to obtain an extract enriched with metabolites of interest - flavonoids, we opted for a liquid-liquid extraction using different solvents with increasing polarity. The quantitative determination of total flavonoids by the aluminum trichloride method revealed that butanol and ethyl acetate fractions were the richest with respective holders of (55.910±1.022 mg CE/g DW) and (47.394±1.497 mg CE/g DW) for *A. radiata* flowers. These fractions showed also remarkably strong antioxidant activities on 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging, ABTS radical scavenging and reducing power, which were almost comparable to capacities of the positive controls (Vit E and BHT). Conversely, a very high inhibition of lipid oxidation was obtained in the hexane fraction of *A. radiata* flowers (IC50 < 0.094 mg/ml), yet very low concentrated on polyphenols. This is probably due to the presence of other substances which may act independently or synergistically. HPLC analysis of the most active fraction revealed the presence of eleven compounds, including procatechuic acid (3.21%), caffeic acid (3.83%), naringenin-7-O-glucoside (1.46%), morin (27.09%) and coumarin (1.64%), some of them not previously reported in *A. radiata*. In conclusion, these results indicate that Anvillea radiata organic extracts can be considered as a promising source of phenolic acids and flavonoid compounds, with remarkable antioxidant properties.

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WHOLE GENOME SEQUENCING: FOOD SAFETY MANAGEMENT TOOL AND PUBLIC HEALTH PROTECTION

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Food safety is a global concern, and consumers have the right to safe and nutritious food. However, the estimated annual burden of foodborne diseases at global level remains unacceptably high, including the related social and economic costs (hospitalization, loss of income, employment and market access). For instance, 600 million foodborne illnesses and 420,000 deaths from 31 major food safety hazards are reported annually at global level; in the USA around 48 million people acquire a foodborne disease each year, 128,000 are hospitalized, with 3,000 reported deaths; in the EU, around 400,000 confirmed human illnesses and 463 deaths from the five major food safety hazards (Listeriosis, Salmonellosis, Campylobacteriosis, STEC infections, Yersiniosis) are annually registered. Tracking the foodborne pathogens along the food chain, e.g. on farm – food processing – distribution – retail – consumer continuum is of utmost importance for prevention of foodborne outbreaks and facilitation of outbreak investigation. Whole Genome Sequencing (WGS) recently emerged as a new tool which offers great potential in the way we investigate, assess and manage microbiological food safety risks and illnesses. The use of WGS can facilitate the understanding of contamination/colonization routes of foodborne pathogens within the food production environment and can enable efficient tracking of pathogens` entering routes and distribution from farm – to – consumer. Therefore, WGS is a powerful tool for obtaining genomic data, which gives a higher level of resolution discrimination, i.e. better information about genetic similarity between isolates than conventional molecular typing such as Fluorescent Amplified Fragment Length Polymorphism (fAFLP) or Pulsed Field Gel Electrophoresis (PFGE); such molecular methods only determine if isolates are the same or different but not how closely related they are genetically. Implementation of WGS is likely to be beneficial for many countries in a foreseeable future, in support of food safety management systems and foodborne outbreak investigations.

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EFFECTS OF A PASTURE-BASED PORK PRODUCTION SYSTEM ON THE EXPRESSION OF GENES INVOLVED IN LIPID METABOLISM AND MEAT QUALITY CHARACTERISTICS

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Studies have shown that pasture-raised pork is fresher and of higher nutritional value than its conventional counterpart. This study was to determine the effect of grazing systems on meat quality, carcass traits, and on lipid metabolism gene expressions. Control pigs were fed 100% commercial diet. Fifty/fifty (50/50) group was placed on 50% of the diet consumed by control group plus free access to rye grass-clover pasture. The twenty five/seventy five (25/75) group was fed 25% of the diet consumed by the control plus access to free pasture. The overall meat quality (flavor, overall acceptability and carcass traits (marbling, color) were scored significantly higher ($P<0.05$) in the 25/75 group than in control or 50/50 group. Back-fat thickness was lower in 25/75 group ($P<0.05$) than in control and 50/50 group. No differences were observed between the controls and 50/50 in meat and carcass qualities. Real-time PCR revealed that peroxisome proliferator-activated receptor α (PPARα), peroxisome proliferator-activated receptor γ (PPARγ), lipoprotein lipase (LPL), and sterol-regulatory-element binding protein 2 (SREBP-2) responded differently in muscle and adipose tissues. The results indicated that pasture-based pork production could positively influence lipid metabolism genes important in meat and carcass quality traits, with pasture exposure and feed allowance.

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GLUTEN-FREE PASTA PRODUCTION WITH HIGH PROTEIN VALUE

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Buckwheat is a gluten-free pseudocereal included in the Polygonaceae family. It is rich in polyunsaturated essential fatty acids, minerals and vitamins, dietary fibre, starch, antioxidant compounds and protein of high nutritional value. Buckwheat has great potential for various foods due to its gluten-free structure and functional features. Furthermore, buckwheat has various health benefits such as antioxidant and free radical scavenging activities. Pasta production is one of the best alternatives for the use of this high nutritional value grain. Gluten-free products are of great importance for people who are suffering celiac disease. The disease is found in individuals who are genetically susceptible and it is caused by an immune deficiency triggered by ingestion of gluten or related prolamines. The only known cure for this intolerance is a strict life-long diet with gluten-free products. Corn and rice are the most abundant grains that are used for gluten-free products, however, considering their chemical nature they serve a lower nutritional value. Thus, ancient grains containing high protein, vitamins and minerals, such as buckwheat and teff, are very good alternatives for both individuals with celiac disease and for the ones who choose to have a vegetarian or vegan life style. Buckwheat pasta offers a cheap and safe alternative for the target groups. Buckwheat pasta supplemented with two different gluten-free flours obtained from legume and cereal grains and a biological food additive as a natural thickener were tested for gluten-free pasta production. Box-Behnken Design of Experiments was used in three levels in order to reach enhanced nutritional values together with desirable pasta qualities. Iron and protein values were enhanced with the supplementation of tested flours. The results of the experiments revealed that the suggested formula for gluten-free pasta production is a nutritious alternative for gluten-free products with a significant contribution to the food industry.

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FUNCTIONAL FOOD: WITH A FOCUS ON HEALTH AND SPORT PERFORMANCE

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Objectives: The overall purpose was to examine the acute effect of consuming sport nutrition bars/meals, varying in glycaemic index (GI), on continuous and intermittent endurance exercise performance and markers of cardiovascular health.

Materials, Methods & Results: In the 1st study, eleven endurance-trained individuals consumed 1.5 g/kg available carbohydrate (CHO) from a low-GI (LGI) bar and a moderate-GI (MGI) bar, as well as a placebo, 1 h before endurance cycling (75 min at 65% VO2 peak, followed by a 7 km time trial). There is a 77% chance that the low-GI bar condition was superior to the moderate-GI bar condition. There was also a 98% and 100% chance that low-GI bar improved performance against the moderate-GI bar and control during recovery from the initial exercise session. In the 2nd study, eight male recreational soccer players consumed 1.5 g/kg available CHO from a LGI bar or high-GI (HGI) bar 2 hours before a 90-min simulated soccer match, and 0.38 g/kg during a 15-min half-time break. Insulin level 2 hours after consumption was lower in the LGI than HGI condition, which might have contributed in lower rate of CHO oxidation during the simulated soccer match in the LGI condition versus HGI condition ($p<0.05$). Participants performed better during the LGI rather than the HGI bar condition on agility and heading ($p<0.01$) late in the soccer match. In the 3rd study, 23 overweight or obese individuals (BMI≥25 kg/m2) performed: Walking exercise (90 min) at 6pm followed by no meal (EX); exercise followed by a meal with LGI carbohydrates (i.e. lentils, EX-LGI); exercise followed by a meal with HGI carbohydrates (i.e. instant potatoes, white bread, EX-HGI); and, a control condition with no exercise or meal. After a 10 hour overnight fast, participants were given a standardized high fat meal. Triglyceride total area under the curve was 18-32% lower with EX and EX-LGI compared to control and EX-HGI, respectively.

Conclusion: Low-GI foods can provide metabolic and performance benefits during and after a variety of different endurance exercise sessions.

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NUTRITIONAL AND TECHNOLOGICAL ADVANCEMENTS IN PROMOTION OF ETHNIC AND NOVEL FOODS OF 'LITTLE MILLET': A REGIONAL STAPLE CEREAL FOOD AND FEED IN INDIA

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Food processing is an integral part of agriculture production and utilization system. It also plays a key role in value addition, thereby increasing the income of the farmers, creating employment opportunities, diversifying the economy and foster rural industrialization. The processed food sector is expected to reach newer dimensions in future for providing better 'ready to use' and 'ready to eat' health foods, ethical foods, and traditional festival foods for better food and nutrition security. Further, well managed food processing units ensure that the producer gets remunerative price for his product and the consumer pays for higher and assured quality. Cereals and millets provide the cheapest source of calories in people's diet, but unfortunately the support for production and consumption of rice and wheat through Public Distribution System (PDS) has resulted in neglect of significant number of small rain fed farmers engaged in cultivation of various small millets. This has led to reduction in conservation, cultivation and consumption of these crops. The study was undertaken to better understand the traditional food processing technologies and religious beliefs towards consumption of little millet and their application in the fabrication of novel food by optimizing food ingredients and processing conditions. Small seeded little millet showed an advantage over other cereals due to several inherent technological, nutritional, therapeutic and sensory benefits in developing and promoting traditional fermented breakfast food "*paddu*", indigenous *papads* such as *nere happala* and *mudde happala* as side adjunct, fried snack *chakali*, sour dough bread as functional food for management of diabetes and gluten free bread as natural nutria dense food for celiac patients. Hydrothermal treatment improved the milling, cooking and nutritional quality and also enhanced the therapeutic benefits. Millet incorporated foods were highly acceptable by the consumers and also showed good market potential in introducing millet as functional foods, fried snacks and fermented foods in bakeries, snack industry, catering centers and other food industries. Several training programs organized on value addition to millets, packaging, marketing of products and management of accounts and exposure visits contributed substantially to the knowledge level of the farmers, changing their outlook on the agricultural practices and the overall self-confidence of the individuals, in particular the women and the community.

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DOES HEALTHY FOOD PROMOTION POSSIBLE WITH AN APP?

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We question how connected devices could provide an effective method to promote healthy food. Whereas the literature on healthy-diet programs based on the use of connected device(s) include numerous surveys, nearly all studies reported a decrease in program usage throughout the intervention period. Behavioural changes have been observed in a certain amount of studies but small and on short periods, conclusions remaining rather unclear. Moreover most studies concentrated on extrinsic factors and hardly took into account intrinsic factors such as participants' motivations and barriers to engaging themselves in a long term healthy diet program. We conducted a qualitative research with 4 focus-groups (27 participants) to explore the motivations and barriers which strengthen or threaten the effectiveness of a digital device targeting a healthier diet. We targeted both men and women having tried to lose weight in the last 5 years. We used a probing approach for co-exploring which device and which design could better help the participants in a long term, considering them as collaborative stakeholders. Data analysis is based on a text-analysis and a content analysis. The results highlight motivation as the major factor compared to the type of devices used (website, app or connected devices such as Fitbit or Hapifork) and the type of messages. They suggest that self-determination is a major factor to participants' motivations and compliance to digital tailored prompt messages. Clearly, a friendly app is their favorite tool. Participants consider it as their best ally to follow a diet program. Our results indicate this importance of maintaining motivation in a long term which could be obtained by gamification mechanisms. Eventually, all the participants point out the need for being nudged, not judged.

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TOTAL PARENTERAL NUTRITION FOLLOW UP BY DIETICIANS IS BETTER AND CHEAPER

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Introduction: Total parenteral nutrition (TPN) costs and malnutrition are a big financial burden for hospitals. In our hospital increasing TPN usage and costs and untreated malnutrition in patients had to be addressed. In 2009 a dietician was appointed for malnutrition screening and monitoring of intramural patients with TPN and a nutritional management team was assembled. In the current study a procedure has been developed to assure optimal clinical nutritional care for all patients (oral, enteral and parenteral nutrition) and screening on malnutrition by EB practice tools.

Purpose: Reduction of TPN use and cost savings of 10% in 2010 or 20% in 2010-2011.

Method: TPN usage and costs over the years prior to 2010 were calculated. Causes for improper prescription of TPN were identified. TPN usage guidelines according to EB ASPEN/ESPEN guidelines and procedures were developed. Proper administration and follow up of TPN and EN usage in patients was given as training to the Nursing staff and dieticians. TPN-EN instruction tools for caregivers (physicians/dieticians) were presented, including risk for refeeding syndrome, and training on the job for dietician teams/nutrition teams in other hospitals started. Inclusion of enteral and parenteral nutrition expertise in the job description of dieticians follows in 2017.

Results: TPN usage decreased by 50%, cost savings on TPN usage of 48% was obtained and the number of TPN users declined by 39% in 2016 compared to 2010. In 2016 92% of TPN patients were followed up by dieticians and a dietary treatment plan was available in the medical records. In 2016 malnutrition risk screening of 79% of hospital admissions > 2 days was realized.

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THE NUTRITIONAL GENOMICS EVIDENCE-BASE AND ITS PRACTICAL APPLICATIONS

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Examples of the emerging nutritional genomics evidence-base will be described (e.g., nutrigenetics, nutrigenomics, epigenetics, etc.), along with online tools for increasing both awareness and utility of the increasingly actionable information. This can be helpful to the entire spectrum of potential users, including students and other members of the public. Such tools are increasingly important as the body of literature continues to expand rapidly, making it progressively more difficult to identify and manage the evidence-base for making more fully informed choices. Online resources will be described, including the usefulness of standardized terminology which allows creation of subtopic listings for any given topic, or for any given combination of topics – including for genes and gene variants. Beyond diagnosis and treatment alone, such approaches also allow identification and exploration of prevention opportunities, and well as optimizations for both physical and mental health. Gene-environment examples include nutrition, pharmaceuticals, pollution, lifestyle, social environment, etc. Because nutrition applies to everyone without exception, it can become a useful introductory "archetype" for promoting greater engagement, and greater genetics/ health literacy.

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PHYSICAL AND FUNCTIONAL CHARACTERIZATION OF THE BYPRODUCTS OF THE PROCESS OF OBTAINING PROTEIN CONCENTRATES FROM COMMON BEAN

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Common bean (Phaseolus vulgaris) is a legume that has nutritional properties, such as high content of protein, carbohydrates, and minerals. It has been carried out an extraction process to obtain protein concentrates from common bean Azufrado Higuera by wet milling and isoelectric precipitation, to obtain peptides with nutraceutical properties. During the protein concentrates process three by-products (flours) that have not been characterized. The aim of this work is to determinate the physically characterize and the tech-functional protein of by-products obtained in the process of extracting protein concentrates bean Azufrado Higuera. The color of the three by-products have high brightness, two by-products have a suitable particle size are generated to flour, an index of water absorption of 2.13, 2.83 and 0.97 mL water/g of flour milling by-product (SM), the precipitation product of alkaline extraction (SEA) and the by-isoelectric precipitation occurs (SPI), respectively, the valued determinate for oil absorption capacity were 1, 2.06 and 1.33 mL of oil/g of flour to SM, and SPI SEA, respectively. According to foaming, only this property in SPI, indicating that it can be used in making desserts, using SM is recommended and SEA in products where the formation of an emulsion is required is presented, such as sauces, creams, fat analogs. Our results indicate the potential application of by-products as a functional food ingredient.

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ULTRASOUND IN WET BIOLOGICAL MATERIALS SUBJECTED TO DRYING

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The aim of this article is to present the effect of external action of air-borne ultrasound (US) upon biological wet materials subjected to drying. The study allows determining the drying effectiveness of such products like fruits and vegetables by convective drying with ultrasound enhancement. The vibration and heating effects induced by power ultrasound are considered. The mathematical model of drying is developed and validated experimentally using the data obtained from the experimental tests carried out on the hybrid dryer equipped with ultrasonic generator. The obtained results prove that the vibration effect induced by ultrasound has a great impact on the acceleration of mass transfer without significant elevation of product temperature, and thus on the drying efficiency with respect to energy utilization and the quality of dried products like fruits and vegetables.

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THE 24-HOUR URINARY SODIUM EXCRETION METHOD COMPARED TO THE 24-HOUR DIETARY RECALL METHOD FOR ESTIMATING THE DAILY SALT INTAKE OF MOROCCAN ADULTS

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Introduction: Hypertension is a public health problem in Morocco. The objective of this pilot study was to estimate the daily salt intake of Moroccan adults by measuring the 24-hour urinary sodium excretion and a nutritional survey using a standardized 24-hour recall.

Materials & Methods: A total of 132 participants (64 men and 68 women aged from 25 to 65) were recruited in four different regions in Morocco (Casablanca, Errachidia, Meknes, Mountain of High Atlas). All participants collected their 24-hour urine in plastic containers. The samples were stored at -20°C until analysis. We also recorded the food intake using a 24h recall of each participant. The calculation of the nutritional intake was carried out by combining the data of the SU-VI-MAX catalogue and the book of Foods and Preparations typical of the Moroccan population.

Results & Discussion: Urinary excretion results showed that the daily intake of salt was 7 g/day, in which 7.4 g/day in males and 6.8 g/day in women. The average salt intake by region was 7.7, 7.7, 6.8 and 6.7 g/day in Casablanca, Haut Atlats Village, Errachidia and Meknes, respectively. Regarding the results of the 24-hour dietary recall, the daily salt intake estimate was 8 g/day. In addition, the High Atlas mountain area had the highest intake, followed by Casablanca, Meknes and Errachidia with means of 8.6, 7.9, 7.9 and 7.3 g/day, respectively. Measurement of 24-hour urinary sodium excretion underestimates dietary salt intake due to extra-renal losses (10-15%). Taking into account these losses the average of the daily salt intake would be 8 g/day.

Conclusion: Both methods indicated high daily salt intakes compared to the recommendations (5 g/day), but the 24-hour urinary excretion method would not be taken into account due to non-renal sodium losses.

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