

Wed. Sep 4, 2019

Hall A

Keynote Lecture | Postharvest/Food Technology and Process Engineering

[4-0900-A] Keynote Lecture 4th

Chair:Amauri Rosenthal(Embrapa Food Technology, Brazil)

9:00 AM - 10:15 AM Hall A (Main Hall)

[4-0900-A-01] Biotransformation in Changing World: New Challenges for Food Scientists

*Alaa El-Din Ahmed Bekhit¹ (1. University of Otago(New Zealand))

9:00 AM - 9:30 AM

[4-0900-A-02] Postharvest Technology and Food Engineers' role in Agribusiness Value Chain in Africa

*Akindele Folarin Alonge¹ (1. University of Uyo(Nigeria))

9:30 AM - 10:00 AM

Thu. Sep 5, 2019

Hall A

Keynote Lecture | Food Safety

[5-0900-A] Keynote Lecture 5th

Chair:Olaniyi A. Fawole(Stellenbosch University, South Africa)

9:00 AM - 10:15 AM Hall A (Main Hall)

[5-0900-A-01] Microbiological Risk of Nonthermal Food Preservation Technologies: outputs from High Hydrostatic Pressure studies and state of art

*Amauri Rosenthal¹ (1. Embrapa Food Technology(Brazil))

9:00 AM - 9:30 AM

[5-0900-A-02] Microbial Safety of Traditionally Fermented Foods in East and South Asia

*Anthony Mutukumira¹ (1. Massey University(New Zealand))

9:30 AM - 10:00 AM

Fri. Sep 6, 2019

Hall A

Keynote Lecture | Food Function/Nutrition

[6-0900-A] Keynote Lecture 6th

Chair:Rosires Deliza(Embrapa Food Technology, Brazil)

9:00 AM - 10:15 AM Hall A (Main Hall)

[6-0900-A-01] An Integrative R&D Approach for

Addressing Ever-Increasing Consumer Demands for Food Nutrition and Safety

*Dongxiao Sun-Waterhouse^{1,2} (1. South China

University of Technology(China), 2. The New

Zealand Institute of Food Science and

Technology, New Zealand(New Zealand))

9:00 AM - 9:30 AM

[6-0900-A-02] Biosensing Platforms for DNA, Viruses, Food Toxicants and Environmental Contaminants

*Geoffrey Waterhouse¹ (1. The University of Auckland(New Zealand))

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[4-0900-A-01] Biotransformation in Changing World: New Challenges for Food Scientists

*Alaa El-Din Ahmed Bekhit¹ (1. University of Otago(New Zealand))

Keywords: Biotransformation

Current and future production trends are focussed on minimizing waste generation by improving processing conditions and developing novel technologies that enable the use of materials that have been traditionally discarded. There are obvious economic, environmental, and in many cases nutritional benefits to be gained by transforming food waste and by-products into better utilised and value added products. However, with the diversity of by-products generated (for example ranging from soft unstable material such as fruit pulps to hard stable seafood shells and wool slips), represents a major technological challenge for both industry and researchers. Furthermore, changes in consumer attitudes toward food consumption (high protein diet, low carbohydrate diet, alternative protein, alternative food, plant-based diet and so on) creates a paradigm shift in the type and quantities of what is considered as waste or by-products. This changing trend in food production and consumption, requires food scientists to be more adaptable and have wider range of skills to meet future challenges. This presentation aims to highlight some of challenges that are faced during the transformation of food waste/by-products and discusses skills that may be required by future food scientists.

9:30 AM - 10:00 AM (Wed. Sep 4, 2019 9:00 AM - 10:15 AM Hall A)

[4-0900-A-02] Postharvest Technology and Food Engineers' role in Agribusiness Value Chain in Africa

*Akindele Folarin Alonge¹ (1. University of Uyo(Nigeria))

Keywords: Agribusiness, Value Chain, Africa

Agriculture and investment in the agribusiness space has been identified as the single greatest potential source of inclusive growth in Africa. Nigeria population is currently about 190 million. Nigeria's population expected to be 250+ million by 2030 and over 400+ million by 2050. This requires an urgent planning and aggressive execution of programmes that will bring about growth in key elements of the economy. The government has identified agriculture as one of the areas to diversify economic to avoid decline in economic growth of the nation. Agricultural sector is the dominant sector contributing a lot to Gross domestic product and crop production remains the major driver of the sector for a large percent of nominal agriculture GDP. There is need to modernize agriculture such the dominant smallholder farmers can be motivated to do more. Innovations and technologies, value addition and good government policies will enhance productivity. Postharvest and Food Process Engineers will play a major role in helping to add value through processing, storage, packaging of the agricultural crops livestock and food produce.

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[5-0900-A-02] Microbial Safety of Traditionally Fermented Foods in East and South Asia*Anthony Mutukumira¹ (1. Massey University (New Zealand))

9:30 AM - 10:00 AM

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[5-0900-A-01] Microbiological Risk of Nonthermal Food Preservation Technologies: outputs from High Hydrostatic Pressure studies and state of art

*Amauri Rosenthal¹ (1. Embrapa Food Technology(Brazil))

Keywords: Microbiological risk, Nonthermal, Hydrostatic pressure

Nonthermal emerging technologies have been industrially applied or studied for food preservation as an alternative thermal processes for obtaining products with better nutritional and sensory attributes. Several issues may be considered for designing the process to avoid microbiological risks, such as food composition and other characteristics, baroresistant variability of target microorganisms, sub lethal injuries and recovery capacity, storage conditions, inactivation and growth kinetics after microbial recovery. Furthermore, the matter turns even more complex when involving hurdle technologies by combining other technologies with high pressure for food preservation. This presentation discusses the main aspects to be considered in process design and validation based on different studies and commercial examples with different food products.

9:30 AM - 10:00 AM (Thu. Sep 5, 2019 9:00 AM - 10:15 AM Hall A)

[5-0900-A-02] Microbial Safety of Traditionally Fermented Foods in East and South Asia

*Anthony Mutukumira¹ (1. Massey University(New Zealand))

Dr Tony Mutukumira gained his Doctor Scientarium Degree (PhD) in Food Science and Technology at The Norwegian University of Life Sciences in Norway, Ås, where he worked on the development of lactic fermented milks using novel cultures. His current research includes food safety, food preservations and food fermentations with a special interest in the development of fermented functional foods. Tony also has particular interest in preservation using emerging technologies such as HPP and UV. He is, however, passionate about using natural food preservatives. Tony is a Fellow of the New Zealand Institute of Food Science and Technology and several other professional bodies which include The South African Association of Food Science and Technology (SAFoST), South African Society of Dairy Science and Technology (SASDST), and The International Union of Food Science and Technology (IUFoST) Committee on Distance Education. Tony is presently the Secretary of the Food Safety Working Group of the International Commission of Agricultural and Biosystems Engineering (CIGR). Tony is a scientific reviewer to several international peer-reviewed journals which include the International Journal of Food Microbiology, Food Science and Technology International, Journal of Natural and Mathematical Sciences, and Food Pathogens and Diseases. Tony has published more than 70 papers in scientific journals in addition to presenting and chairing sessions at several international conferences.

Keywords: Food safety, Traditional fermentation, Asian foods and beverages

Traditionally fermented food and beverages of East and South Asia play a dominant role in the culture and heritage of the region. For centuries, Asians have been practicing traditional food fermentations generating a wide diversity of products with unique attributes. Typical indigenous fermented products in East and South Asia include cereals and legumes, fruits and vegetables, milk, meat, fish and sea-foods, condiments and beverages. All these products are renowned for their appealing sensory profiles and are considered

nutritious, thus contributing to food security. Their specific recipes and sensitive preparation methods are highly depended on the indigenous knowledge of the native communities which is transmitted through generations with little, if any documentation. Traditional fermentation generally involves the use of an undefined microflora which naturally developed as the dominant starter culture through traditional fermentation techniques such as back-slopping and repeated use of fermenting vessels. Each fermented food is characterised by a group of distinct microflora and typical examples of the most common microorganisms used are lactic acid bacteria, yeasts and moulds. The mode of action of traditional fermentation ensure the safety of fermented foods through synthesis of numerous antimicrobial compounds, and removal or destruction of harmful substances. However, improper handling, low quality raw materials, incorrect processing conditions, poor hygiene and sanitation enable pathogens and their toxic metabolites to impart a potential risk on food safety. Synergistic interactions among beneficial microflora, antagonistic effects on undesirable microbiota and the utilisation of certain natural antimicrobial ingredients in food preparation contribute to safeguard the safety of the products further. The paper provides a background to the traditional fermented foods in East and South Asia, associated microbial hazards and assuring microbial safety.

[6-0900-A] Keynote Lecture 6th

Chair: Rosires Deliza (Embrapa Food Technology, Brazil)

Fri. Sep 6, 2019 9:00 AM - 10:15 AM Hall A (Main Hall)

[6-0900-A-01] An Integrative R&D Approach for Addressing Ever-Increasing Consumer Demands for Food Nutrition and Safety

*Dongxiao Sun-Waterhouse^{1,2} (1. South China University of Technology (China), 2. The New Zealand Institute of Food Science and Technology, New Zealand (New Zealand))

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Keywords: Food nutrition, Food safety

The terms "nutrition &health" and "food quality &safety" are constantly evolving due to changes in food resource production and utilization, food preparation and handling preferences, human lifestyles and eating behaviors. Modern consumers expect technological advances to deliver personalized nutrition and convenient eating experiences, while simultaneously seeking functional/wellness foods to counteract psychological and physical stresses caused by fast-paced modern lifestyle and environmental influences. This speech examines the shift of the global food industry from high-speed development to high-quality development, and emphasizes the inseparability of food safety and food nutrition. This speech also demonstrates how to ensure food nutrition and safety while satisfying both physical and emotional needs of consumers during the development of wellness/functional foods.

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Keywords: Biosensing, DNA, Virus, Contaminant

Global concerns about food safety and human health motivate the development of new and improved technologies for the detection of food adulterants, point of care diagnostics (POCD) and disease treatment. This speech will overview some recent collaborative work involving the successful application of nanotechnology in these three areas. Through a series of case studies, the vast potential of nanotechnology in the food, biotechnology and health sectors will be demonstrated.