

Keynote Forum



3rd International Conference on
FOOD SCIENCE AND TECHNOLOGY

November 11-12, 2019 | London, UK



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International Food Information Council Foundation, USA

Consumer perceptions on Food production, safety and sustainability

Statement of the Problem: Consumers are evolving more and more into “engaged eaters” that want to know more about how their food is produced, want to understand food ingredients and want their food to be “natural.” As we look to learn more about what impacts consumer choices for food and beverage purchases, we see that sustainability, safety and label attributes are emerging key factors of influence (beyond taste and price).

Methodology & Theoretical Orientation: Online survey of 1,012 Americans ages 18 to 80. March 22 to April 9, 2019. The survey took approximately 21 minutes to complete. The results were weighted to ensure that they are reflective of the American population ages 18 to 80, as seen in the 2019 Current Population Survey. Specifically, they were weighted by age, education, gender, race/ethnicity and region.

Findings: The findings from this year’s online survey of 1,012 Americans have significant insights on:

- Consumer confusion around environmental sustainability
- Food and beverage purchase drivers
- Plant-based diets and eating patterns generally
- Beliefs about food production and food technologies
- Views on food safety and sources of information about safety issues

Conclusion & Significance: While consumers have a significant desire to make sustainable purchases, many struggles to know how to recognize environmentally sustainable sources. Akin to this, many have a desire to know more about plant-based eating and note that they eat plant-based foods. However, the definition of a plant-based diet varies. In addition, while taste remains the top driver of food/beverage purchases, trust in a brand and recognizing the ingredients that go into a product are surprisingly impactful. Also, while many are confident in the safety of the food supply, foodborne illness from bacteria, chemicals in food and carcinogens remain the top concerns for consumers.

Biography

Tamika Sims is the Director of Food Technology Communications for the International Food Information Council (IFIC) Foundation in Washington, DC. She is also adjunct faculty at Morehouse School of Medicine in Atlanta, GA where she assists with the master’s in biotechnology program. She holds a BS in Biology from Spelman College, a MS in Biomedical Sciences from Georgia State University and a PhD in Virology/Immunology from Morehouse School of Medicine. Prior to joining IFIC, she worked for several years at the International Bottled Water Association (IBWA) and CropLife America (CLA).

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Nader G Abraham

New York Medical College, USA

Beneficial effects of thymoquinone on metabolic function and fatty liver in a murine model of Obesity

Aim: Nigella Sativa seeds contain a high amount of Thymoquinone (TQ), an antioxidant. We therefore hypothesized that Nigella Sativa oil would, through the antioxidant, properties of TQ ameliorate obesity-induced hyperglycaemia, and decrease blood pressure and OX-LDL in obese mice.

Methods: Commencing at eight weeks of age, C57B16 male mice were fed a high fat diet (HF) for 20 weeks. Mice were divided into three groups of five animals each as follows: group 1) Lean, group 2) HF diet, group 3) HF diet treated for the last 8 weeks with 3%TQ. Inflammatory biomarkers, antioxidant biomarkers, mitochondrial biogenesis and tissue fat accumulation and hepatic steatosis were determined.

Results: 3% TQ treatment resulted in an increase of oxygen consumption decreased fasting glucose and blood pressure ($P<0.05$) as compared in obese mice. TQ treatment increased both the quantity of hepatic HO-1, and HO activity in response to 3%TQ. Additionally, mitochondrial Mfn2, PGC1 α , insulin receptor phosphorylation in response to TQ while decreased LDL and OX-LDL ($P<0.05$) and hepatic lipid accumulation.

Conclusions: Fundamentally, TQ intervention attenuated the obesity-mediated decrease of oxygen consumption, fasting glucose, improved mitochondrial biogenesis through an increase and in levels of HO-1 that is associated with ablated HF-induced LDL. Our findings indicate a potential clinical role for TQ in the prevention of obesity-related steatosis (fatty liver) in metabolic disease.

Biography

Nader G. Abraham, Ph.D., Dr.h.c., FAHA obtained his doctorate degree in 1975 from Mount Sinai School of Medicine, NY and post-doctoral training at The Rockefeller University in 1976 and an honorary doctorate degree in Pharmacy, 2010 and Fellow of American Heart association in 2006. He joined New York Medical College in 1978 as Assistant Professor and rose to the rank of full professor of Medicine and Pharmacology by 2009. In 2009, he appointed as Chair of Physiology and Pharmacology in Ohio State Medical School at Toledo, Ohio and in 2012 accepted position as Vice Dean of the Joan C. Edwards Medical School in West Virginia. He is currently dedicated full time in translational research at New York Medical College. The research program in his laboratory are focused on the role of natural (Thymoquinone oil, Pomegranate oil), and pharmacological agents on obesity and metabolic diseases including cardiovascular disease, hypertension and diabetes, more specifically, Apo-A-mimetic peptide, resveratrol, high fat diets and calorie restriction diets on human disease models, in the regulation of inflammation and CVD. Currently He is utilizing gene targeting approaches, transgenic animal and human epicardial fat to fully elucidated the pathophysiological significance of pharmacological molecules in the pathogenesis of vascular dysfunction, hypertension and left ventricle function. The major focus of his laboratory is the investigation of the participation of the antioxidant gene in the regulation of stem cell and vascular system in human and animal models of obesity. He published more than 350 manuscripts in peer-reviewed journals including Science, J. Clinical investigation, Circ. Research and PNAS. He has lectured extensively throughout the world. He is editor of seven books and also serves on several NIH Study sections. He is a recipient of numerous awards including NIH research Career Development award in 1981, Dean distinguished research award from New York Medical College and The University of Catania, Catania, Italy. Professor the year in 2008 in Japan. He has served as a member of National Institutes of Health study sections and has held continuous NIH funding from 1981 to 2020.

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Morris Zelkha

TriNutra Ltd, USA

Standardized black cumin seed oil cold press efficacy and bioavailability

Black seed (*Nigella sativa*) is an annual flowering plant native to southwest Asia. It is used primarily in candies and liquors, as well as medicinally. Secondary sources report the seeds of the *Nigella sativa* plant have also been used medicinally for over 2000 years in the Middle East and in Southeast Asia. In many Arab, Asian, and African countries, black seed oil is used as a natural remedy for a wide range of diseases, including various allergies. The main potent active in the NS oil is the Thymoquinone (TQ). Orally, black seed is used for treating gastrointestinal conditions including gas, colic, diarrhoea, dysentery, constipation and haemorrhoids. It is also used orally for respiratory conditions, including asthma, allergies, cough, bronchitis, emphysema, flu, swine flu, and congestion. Additionally, it is used orally for hypertension, hyperlipidemia, cancer, and intestinal worms. Traditionally, black seed has been used for headache, toothache, nasal congestion, and intestinal worms. It has also been used for conjunctivitis, abscesses, and parasites. Topically, black seed is used for inflammatory conditions including rheumatism, and skin conditions. In foods, black seed is used as a flavouring or spice.

Biography

Morris Zelkha hold B.Sc. in Chemical Engineering from Ben Gurion University Over 30 years heading process and innovation groups at Chemicals, Fertilizers and Nutraceuticals manufacturers in Israel and South Africa. At 1995 construct LycoRed, the tomato Lycopene leading manufacturer. and up to the end of 2014 was the President and CEO of the LycoRed Group. During this period, he was the company leader, leading the company developing unique processing and extraction patented technologies, product innovation, market development, building the consumer awareness to the branded Lyc-O-Mato product (tomato lycopene composition) product. Over 35 registered patents. From 2015 to present partner TriNutra Ltd and Grace Breeding Ltd.

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Claude Billeaud

Association for Pediatric Education in Europe, Germany

A new high hydrostatic pressure destroyed all pathogens including spores while preserving the bioactive proteins of donated human milk

Background: The main process used to pasteurize human milk is the low-temperature, long-time Holder method (HOLDER and recently investigated, the high-temperature, short-time method. Both processes lead to an appropriated inactivation of vegetative forms but are ineffective versus the bacterial spores.

Research Aims/Questions: Find a method accomplish two main objectives: inactivation of all pathogens, including spores, and preservation of the activity of milk components.

Design/Methods: Recently, a novel approach of the High Hydrostatic Pressure processes have been developed by HPBioTECH. We compared the effect of Human Milk treatment on the same samples (raw Human milk, Holder and our novel High Hydrostatic Pressure) on vegetative and spores forms of pathogens and on bioactive components (Lipase activity, Immunes proteins).

Results: a) Pathogens destructions: two main microbial strains have been selected: Staphylococcus aureus (as reference for the vegetative forms) and Bacillus cereus (as reference for spores). This research led process adapted to the a) microbial decontamination of 6 log., either for Staphylococcus aureus or Bacillus cereus, b) Human Milk bioactive components: the main components of human milk is preserved. Activity of the lipase after this treatment (close to 80%) and that of several additional components (α -lactalbumin: 96-99%; Casein: 98-100%, Lysozyme :95-100%; lactoferrin: 93-97%; sIgA: 63-64%).

Conclusions: this novel high Hydrostatic process generate microbiologically safe human milk could potentially result in important benefits for preterm infants: (i) improved assimilation of human milk, leading to daily weight and (ii) improved resistance to infections(iii) to avoid discarding 10% of contaminated by Bacillus Cereus human milk collected.

Biography

Claude Billeaud received his MD degree from the Medical University of Bordeaux (France) in 1979 after a graduation in human cytogenetics (1976). He then studied pediatrics and has been the Clinical Assistant Director of Bordeaux University in the departments of Pediatrics, Neonatology and Intensive Care since 1983. He currently serves as a pediatrician in the neonatal unit at the Children's Hospital of Bordeaux, as a scientific manager of Bordeaux-Marmande human milk bank, as a lecturer and head of research (HDR : Habilitation to direct research) in neonatal nutrition at the Medical University of Bordeaux. Along his career he has often been invited as a guest professor specialised in nutrition and neonatology in various universities abroad (Montreal, Corrientes in Argentina). He has also been very involved in the French human milk banking association (ADLF) for more than 10 years, sharing his academic knowledge focused in nutrition and his long clinical experience in neonatology. He is currently carrying out several researches on the composition of human milk. As an expert in nutrition and perinatal medicine, he is also the author and co-author of numerous scientific publications.

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Raphaël Candelier

Sorbonne University, France

A semi-automatic dispenser for solid and liquid food in aquatic facilities

We present a novel, low-footprint and low-cost semi-automatic system for delivering solid and liquid food to zebrafish, and more generally to aquatic animals raised in racks of tanks. It is composed of a portable main module equipped with a contactless reader that adjusts the quantity to deliver for each tank, and either a solid food module or a liquid food module. Solid food comprises virtually any kind of dry powder or grains below two millimetres in diameter, and, for liquid-mediated food, brine shrimps (*Artemia salina*) and rotifers (*Rotifera*) have been successfully tested. Real-world testing, feedback and validation have been performed in a zebrafish facility for several months. In comparison with manual feeding this system mitigates the appearance of musculoskeletal disorders among regularly feeding staff, and let operators observe the animals' behaviour instead of being focused on quantities to deliver. We also tested the accuracy of both humans and our dispenser and found that the semi-automatic system is much more reliable, with respectively 7-fold and 84-fold drops in standard deviation for solid and liquid food.

Biography

Raphaël Candelier is a biophysicist specialized in neuroscience. He has been working for the last 10 years on larval zebrafish, for which he has developed new ways of recording behaviour and imaging whole-brain activity with single cell-resolution during various tasks. His main research interests are the multi-scale mechanisms of the sensory-motor feedback loop and the general features of multi-sensory processing. He has recently started a research project on chemotaxis (i.e. attraction/repulsion of animals with chemical cues) aiming at exploiting the unique features of zebrafish to reveal general mechanisms of the vertebrate brain.

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Mohammad Kamil

Zayed Complex for Herbal Research & Trad. Medicine, UAE

Plants with special reference to flavonoids and their role in Nutrition and Obesity prevention

The plant kingdom offers a rich source of structural biodiversity in the form of a variety of Natural Products. As we know natural products continue to play an important role especially in & food and pharmaceutical industries. Besides medicament, plants have always been a common source of food and nutrition either as such or as dietary supplements. The unique nutrient richness of every whole, natural food can be showcased in a variety of ways. But there is no better way to highlight the unique nutrient richness of foods than to focus on their flavonoid content. Flavonoid, one of the largest nutrient families known to scientists, covers a large group of naturally occurring, low molecular phenolic compounds found practically in all parts of the plant, include over 6,000 already-identified family members. Many novel flavonoids and biflavonoids have been isolated from medicinal plants. Some of the best-known flavonoids include quercetin, kaempferol, catechins, and anthocyanidins. Obesity is the most prevalent nutritional disease and a growing public health problem worldwide. In this talk the anti-obesity potential of diverse plants such as: Aloe vera , Camellia sinensis, Hibiscus sabdariffa, Hypericum perforatum, Phaseolus vulgaris, Capsicum annum, Rosmarinus officinalis, Citrus limon, Punica granatum and some other common plants will be discussed. Researchers consider the potential of these plants as natural alternative treatments of some metabolic alterations associated with obesity. Market dietary supplements for obesity frequently contain undeclared /hidden active ingredients that could be harmful to public health; the laboratory experience on this intentional adulteration will be dealt in detail.

Biography

Mohammad Kamil, Ph.D., D.Sc. Chartered Chemist (London); Fellow of Royal Society of Chemistry London, Head TCAM Research, Zayed Complex for Herbal Research & Trad. Medicine, Healthcare Licensing & Medical Education Division, Department of Health –Abu Dhabi, UAE. He is recipient of Commonwealth Award-London; Convention Award of Chemical Society-India; Fellowship from Association of Commonwealth Universities -London; Global award on Unani Medicine and various other prestigious honours & awards. Worked as in charge of Drug lab. MoH India, Professor, Jamia Hamdard University. More than 360 papers and abstracts in reputed journals and conferences are at his credit; chaired a no. of Scientific sessions and presented talks as plenary and invited speaker at various International conferences/symposia. Associated with publication of many books; Author of books and chapters in different books; His research work is cited widely in books e.g. Advance in research, Chapman and Hall, London, New York.

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Mahabaleshwar Hegde

Bharati Vidyapeeth Deemed University, India

A road map to Agriculture, Nutrition and Health

Man is crippled in Evolution. Human Genome Project has revealed that he has only 19 thousand genes. Plants have over 50 thousand genes. They can synthesize all vitamins and amino acids and the two omega fatty acids that we can't. Therefore, the dependency. Plants fix carbon dioxide synthesize our food, using solar energy, evolve oxygen. We breath oxygen to live and inevitably produce free radicals, responsible for disease and death. Vegetarian food, depleted of oxygen, rich in antioxidants are healthier. Man lived as hunter gatherer for nearly 10 lakh years and only recently, 10 thousand years ago shifted to agriculture. His genes have been conditioned for hunter-gatherer's lifestyle for very long time. and in last 200 years he has further added processed food in his lifestyle. Today we have very clear knowledge of the limitation of our dynamic body and its finite needs of bulk food, carbohydrate, protein, fat. and essential micronutrients, vitamins, amino acids, omega fatty acids. But the tragedy is that we irrationally grow crops and feed our population with very high carbohydrate rich, protein poor agriculture-produce to feed our masses. The most telling effect on our health has been because of excessive intake of omega-6 fat and the paucity of omega-3 fat in our diet. Man, as hunter gatherer consumed less fat and equal amount of omega-6 and omega-3 fat for very long and today suddenly started consuming more fat that too lots of omega 6 fat and very little omega-3 fat. Omega-6 is inflammatory and omega-3 is anti-inflammatory. This disease prone dominance of inflated inflammation in human body is largely responsible for the recent rise in several noncommunicable disease (Figure 1). Innovative FLAX BIOVILLAGE concept developed by us, to enrich egg and milk to attain omega-3 nutritional security, to combat Non-communicable disease will be presented.

Biography

Mahabaleshwar Hegde, Director of Centre for Innovation in Nutrition Health Disease, at Bharati Vidyapeeth (deemed to be) University, India, He has taught biochemistry at post graduate level for 33 years, guided 20 PhD students, published 80+ papers in international journals, worked as visiting scientist at Sloan Kettering Cancer Centre and Albert Einstein College of Medicine, New York. He has presented his work in several international forum. post retirement he has focused his research on the role of omega-3 fatty acid on human health and on getting this crucial molecule back into the food chain. He developed unique innovative FLAX BIO-VILLAGE concept and validated it under ICAR. NAIP projects, to establish backward linkage with linseed growing farmers and forward linkage with market through omega-3 enriched health products such as milk egg bread, chocolates, flour mix etc. to achieve omega-3 nutritional security and thereby combat non communicable diseases.

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Jyoti D Vora

Dhirang Consultants, India

Biochemical link between biodiversity and Nutraceuticals: A case study of *carica papaya* & organoleptic assessment of the novel product developed

Human civilization for achieving progress has created a major catastrophe threatening the foundations of biodiversity. Elimination of biodiversity directly questions the survival of our species too in the long run. Thus the need of the hour is to preserve biodiversity, so that its valuable products, like the nutraceuticals are harnessed for the benefit of human life. The research study undertaken focuses on the biochemical link between biodiversity and nutraceuticals emphasizing on the sensorial acceptance of the novel product developed. Regarded as one of the 'Healthiest fruit' used for various health therapies and disease management conditions, ripe Papaya fruit is like a wonder. Novel product development is an emerging concept, making the food that we eat interesting and appealing. The idea of development of a novel recipe with the use of ripe papaya was to present this valuable fruit in an alluring form, which can be enjoyed by all. Ripe pulp or the fruit has been consumed since ages, in different forms in order to maintain optimum health conditions. The presented research endeavor exhibits a novel product developed with use of ripe papaya fruit. The aim of this research was to develop a gastronomical product, maintaining the nutritive margins and develop a novel recipe, which can be wholesome and nutritious. The sensory evaluation of this developed product was carried out by a trained panel and the observations were recorded and evaluated using self-administered questionnaires. The results displayed that the novel product was favored by the panelists and it can be beneficial for promoting the use of ripe papaya in an innovative form, promoting health in a disguised concept. The novel product can be further used as a nutraceutical, promoting optimum health and nutrition.

Biography

Jyoti D Vora is an Academician, Head of the department, Consultant, Trainer, Research Guide and Researcher in Biochemistry and Food Science and Quality Control and her qualifications are M.Sc, PhD, F.S.Sc., MASFFBC, CME (USA), NET Cleared, Nutritional consultant at Raleigh Medical Centre, North Carolina, Certified Functional Foods Scientist(FFC,USA).

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