International Symposium on

Role of Science in Food Reformulation

Key Takeaways

Outline

- Opening Remarks- CEO, The Ceylon
 Chamber of Commerce
- Context Setting- CEO, Food Industry Asia
- Keynote- Prof. Terrance Madhujith, University of Peradeniya
- Technical Sessions 01- Food Reformulation; Opportunities and Public Health Need
- 02- Role of Codex in Setting Science based Standards
- 03- Food Labelling: Key to Informed Consumer Choice
- 04- Safety Aspects of Food Additives: Global Perspective
- Panel Discussion: Food Reformulation for Healthier Choices, Diet and Lifestyle Management

On the 2nd April 2024 at the Hilton Colombo Residencies

Opening Remarks



Mr. Buwanekabahu Perera CEO The Ceylon Chamber of Commerce (CCC)

- Global food systems are evolving due to changes in socio-economic needs, demographics, and lifestyle patterns.
- The CCC is dedicated to fostering a robust food safety ecosystem for safe, affordable, and nutritious diets.
- Thus, CCC is organizing Public-Private dialogues in 2024 facilitated by science-based dialogues through a government-academia-private partnership.
- These dialogues aim to unlock knowledge sharing and bring global perspectives in food science & technology, food labeling, reformulations, and sustainable packaging.
- This Symposium is the first step in facilitating expert deliberations and sharing global perspectives on food science and technology.
- These Discussions aim to provide valuable insights and pave the way for collaborative efforts among stakeholders.

Context Setting The Role of Reformulation



Mr. Matt Kovac CEO Food Industry Asia (FIA)

- Food reformulation is the process of altering the processing or composition of a food or beverage product, to improve its nutritional profile or to reduce its content of ingredients or nutrients of concern.
- Food reformulation can contribute to ensuring access to safe and nutritious food for all, and shifting towards healthier and sustainable consumption patterns.
- There are three ways of reformulation;

1. Remove or reduce ingredients/ nutrients to limit like salt, fat, sugar to Improve nutrition quality

- 2. Add or fortify with ingredients/ technologies, to improve nutrition quality
- 3. Modify or change ingredients/ processes/ packaging to to improve nutrition quality and environmental footprint
- Unhealthy diets, a significant risk factor for Non-Communicable Diseases (NCDs), not only incur substantial economic costs but also underscore the importance of reformulation as a highly effective nutritional policy intervention in offering choices to consumers for healthier food offerings.

"From an economic perspective reformulation is one of the most effective policy, in terms of intervention, in creating healthier choices for consumers"

- Several countries have undertaken reformulation initiatives. A few of them are, Healthier Ingredient Development Scheme (HIDS), and Industry Sodium Reduction Pledge by Singapore, Food Reformulation Task Force by Ireland.
- Considering food fortification, there are three key types as, mass fortification, targeted fortification and market driven fortification.
- Portion control, recognized as one of the effective ways for consumers to manage their calorie intake, and using less packaging contribute to reducing environmental footprint.
- Reformulation presents challenges such as the necessity for a structured process to ensure product iteration for success, the importance of maintaining familiar taste, the versatility of ingredients and additives in fulfilling various roles, and the need for appropriate timeframes to execute reformulation effectively.
- Reformulation necessitates a collaborative effort involving policymakers, regulators, consumers, academia, and industry stakeholders to deliver the intended benefits to consumers.

Keynote Address **Reformulation of Food for Better Health**



Prof. Terrance Madhujith Chair Professor of Food Science and Technology Deputy Vice Chancellor University of Peradeniya

- NCDs are on the rise worldwide, and Sri Lanka is also experiencing this trend. Given this, the food industry has an immense role to play in addressing the issue.
- Salt is pivotal in food processing as it aids in preservation, imparts and enhances flavor, and influences texture. However, as per statistics, most people consume more than 2-3 times the required amount of salt.
- Despite the availability of numerous reduced-sodium, low-sodium, and sodium-free products in the international market, such options are not available in the Sri Lankan market.
- Considering the options available to reduce salt usage:
 - Potassium is used in low-sodium formulations but isn't suitable for dry food applications; it can be used in sports drinks, pickles, etc.
 - Salt substitutes are suitable for a wide variety of product applications.
 - Taste potentiators improve the taste of existing reduced-sodium products without increasing sodium content. Additionally, low-sodium foods can be flavored using spice and botanical extracts.
 - A blend of sodium and potassium can be used as table salt, while another option is a blend of potassium and iodine.

"In 1990s the diabetic population in Sri Lanka, was estimated to be between 2-6% while it has gone after about 8-15%. And right now we don't have updated data. I'm sure it is reaching 17-18%"

- Sri Lankans generally prefer more sugar in beverages, baked goods and confectioneries. High glycemic carbohydrates are quickly digested and sharply raise blood glucose.
- It is important to use natural low glycemic ingredients such as unrefined cereals (wheat, rice), atta flour, whole wheat flour, rice bran, native millet flour, ground pulses etc.
- Use of low glycemic preparations, resistant starch and sugar free coatings are another few options.
- Coconut oil, lard, tallow, butter and palm pil are a few of the saturated oils/fats. Canola, sesame, peanut and olive oil are rich in monounsaturated fatty acids. Polyunsaturated fatty acid is rich in sunflower, corn, soybean, fish oil and cottonseed oil.
- Trans fat is the worst type of fat, generated during processing.
- Considering antioxidants, there are two types such as natural and synthetic. In terms of synthetic antioxidants, BHT, TBHQ, gallates, are a few examples.
- Key challenges in food reformulation include high production costs, competition, production challenges, maintaining the taste palatability, and product quality retention.

Technical Session 01 Food Reformulation: Opportunities and Public Health Need



Dr. Renuka Jayatissa Vice Chancellor Head- Faculty of Food and Nutrition International Institute of Health Sciences Multiversity

- Malnutrition poses a universal challenge, affecting a third of the world's population in various forms. In the context of Sri Lanka, one in three individuals is at risk of malnutrition. Additionally, 80% of annual deaths in Sri Lanka are attributed to NCDs, with around four in ten people living with hypertension not being reached by existing treatment programs.
- The Multi-sectoral Strategic Action Plan on Injury Prevention and Management, along with the National Nutrition Policy, emphasize the importance of reducing salt, fat, and sugar consumption. Reformulation strategies can play a significant role in achieving this objective.
- Unhealthy diets are a primary cause of NCDs, contributing to organ damage resulting from hypertension. Key risk factors for hypertension, such as high dietary sodium intake, obesity, and inadequate consumption of vegetables, fruits, and dairy products, are largely diet-related.
- Sodium is used is processed food industry to enhance flavor, to preserve freshness and to improve texture and appearance.

"In 2030, 20% of our population is ageing. Older consumers will think about healthy snacks, because they need more protein"

- Reducing sugar consumption is also crucial, given that 23% of the Sri Lankan adults has diabetes and another 30% are in the pre-diabetes stage.
- Diabetes stands as a primary cause of blindness and contributes to strokes, heart attacks, kidney failure, as well as non-traumatic leg and foot amputations. Moreover, heart disease ranks as the foremost cause of death among individuals with diabetes.
- Reduction in fat consumption is similarly important, as around 23% of deaths in Sri Lanka are caused by cardiovascular diseases.
- Thus food reformulation is very much important. Reduction of fat, salt and sugar, reduction of calories/ portion size, increase fibre, fruit and vegetable, replace ingredients with healthier alternatives, and improve consumer information can be done through reformulation.

Technical Session 01 cont'd Food Reformulation: Opportunities and Public Health Need

- Sugar replacement solutions in food reformulation are, .no/low/ reduced sugar, low GI sugar, no added sugar and Fat replacement solutions are, inulin and rice starch
- It is important to meet the needs of the ageing population, such as their snacking needs, unsweetened soda drinks to provide refreshment while preventing dehydration.
- Manufacturers can generate ideas for new, healthier products by analyzing consumer trends, conducting market research to identify gaps, targeting specific consumer groups, recognizing fashions, convenience and trends,, organizing brainstorming sessions, responding to government initiatives, policies, or guidelines, and modeling nutrient content to meet specific targets.
- However, food reformulation is a challenging exercise, there are numerous reasons for the failure of new products, including lack of differentiation from existing products, intense competition, inadequate distribution, increasing costs of ingredients, production, and packaging, low profitability, ineffective advertising, unappealing packaging, food safety concerns, political factors, environmental issues, timing issues, improper product positioning on shelves, and product not meeting the consumer expectations on taste and palatability.

- In food reformulation, it is crucial to preserve or substitute functional requirements, ensure cost-effectiveness for the manufacturer, conduct batch trials to verify compatibility with production processes sensitive to change, and ensure consumer acceptability of the reformulated product.
- The top four challenges companies face in reformulation are budgetary constraints, consumer acceptance, preserving taste, and sourcing suitable ingredients.
- To secure a sustainable provision of nutritious food for both present and future populations, it is imperative to ensure collaboration and engagement with multiple stakeholders-government, academia, food industry, consumer organizations, thus brining together the diverse perspectives and relying on science, evidence and technology deliver on effective reformulation strategy.

Technical Session 02 Role of Codex in Setting Science based Standards



Mr. Sanjay Dave International Food Safety Consultant | FAO | WHO Former Chairperson: Codex Alimentarius Commission Former Advisor : Food Safety and Standards Authority of India *"99% of the world population is a member of Codex. So that is how the world is moving towards international standards"*

- The integration of the World Trade Organization's (WTO) Trade Facilitation Agreement with its Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) agreements enhances global trade efficiency, ensures adherence to health and safety standards, and minimizes technical barriers, thereby fostering smoother international commerce.
- When considering the role of the Codex, the SPS agreement is very much important. Members of the WTO are entitled to establish SPS measures for the protection of human health.
- Members are urged to ensure that their Sanitary and Phytosanitary (SPS) measures are science-based, not constituting disguised restrictions on international trade, and are encouraged to align them with existing international standards, guidelines, or recommendations.
- Thus there are three International Standard Setting Organizations-International Plant Protection Convention (IPPC) for plant health, World Organization for Animal Health (WOAH) and Codex for food safety.

- The mandate of the Codex is to establish science- based international standards to protect the health of consumers and to ensure fair practices in the food trade.
- 189 countries in the world are the members of the Codex Alimentarious. Sri Lanka became a member in 1972.
- Given the organizational framework of the Codex, it comprises various Codex committees, an Executive Committee, and the Codex Alimentarius Commission.
- Codex committees set standards by: Drawing up a list of priorities within their Terms of Reference; considering the types and scope of products to be covered by standards; deliberating on safety and quality elements to be addressed; preparing draft Codex standards; reporting progress to each committee work the Commission; and periodically reviewing and revising standards and related texts.
- There is an accelerated procedure in case of new scientific information; new technology; urgent health or trade issue and revision.

Technical Session 02 cont'd Role of Codex in Setting Science based Standards

- There are long term joint expert committees to give scientific advices in the areas of food additives, pesticide residues, nutrition and microbiological risk assessment.
- There are four principles of food safety risk assessment: Codex decisions regarding health and safety aspects are grounded in risk assessment, relying on sound scientific evidence and functional separation between risk assessment, risk management and communication moreover, risk assessment should utilize quantitative information to the fullest extent feasible.
- International Risk assessment is done by joint expert committees and the international risk management is done by the Codex Alimentarious commission.
- Codex procedural manual serves as a compass guiding risk assessors, managers, and communicators toward evidence-based decisions that safeguard public health, and promote safe food practices.

- Since Sri Lanka is a member of the WTO as well as of Codex, it is important to,
 - Improve participation in Codex sessions
 - Strengthen NCCP with requisite infrastructure and manpower
 - Develop and implement strategy for harmonization of standards with Codex in a scientific manner
 - Establish Working Groups of experts, industry, scientists, academia and students
 - Establish Technical committees and Scientific Advisory Committee within the regulatory framework.

Ms. Jie Ling Senior Regulatory Affairs Executive Food Industry Asia (FIA)

- According to the Codex General Standard on the Labelling of Prepackaged Food, a food label encompasses any tag, brand, mark, pictorial representation, or other descriptive material affixed to or associated with a food container. Food labeling serves a crucial role in offering general information, ensuring food safety, and facilitating traceability.
- The label on a food package serves a dual purpose: it convey message to consumers and supports public health initiatives.
- Regarding public health efforts, labeling promotes healthier choices and also conveys risks, such as allergen information.
- Regarding conveying message to consumers, food labelling provide essential information about the product which make informed decisions, food safety, marketing strategy and traceability.
- Science based food labelling regulations, harmonized food labelling regulations to a significant extent and collaborative efforts amongst stakeholders are important in empowering consumers to make informed food choices.

"Codex standards serve as a benchmark for harmonisation efforts globally, ensuring consistency and transparency in food labelling practices"

- Science-based food labelling regulations are required in order to, prevention of misinformation, building trust and credibility, promote public health agenda and facilitate international trade.
- The Codex Committee on Food Labelling (CCFL) serves as the subsidiary body within Codex responsible for setting standards and guidelines applicable to all food labelling practices. Codex standards are widely adopted by countries as a reference for harmonisation efforts and often serve as the foundation for new labelling policies.
- Asian countries are mostly reply on Codex standards.
- Recommended next steps for Science-based food labelling are,
 - Promote Science-based Food labelling Regulations
 - harmonized food labelling regulations to a significant extent
 - Engage stakeholders when localizing international standards

Technical Session 04 Safety Aspects of Food Additives: Global Perspective



Dr. Ashley Roberts President- AR Toxicology Inc. US FDA Expert

- Food Additives are any functional substance that is normally neither consumed as a food itself but is intentionally added to food (usually in small quantities) to enhance its processing or to improve aroma, color, consistency, taste, texture, or shelf life.
- Food Additives are using in order to maintain product consistency, improve or preserve nutrient value, increase shelf life, maintain wholesomeness of foods, control the acidity, provide colour and enhance flavor.
- The major types of food additives include preservatives, emulsifiers, thickeners, flavours, colours and sweeteners. The use of these additives in food and beverages necessitates a safety review by regulatory authorities.
- All food additives undergo a comprehensive premarket safety evaluation before approval, with data independently reviewed by worldwide regulatory authorities like the joint FAO/WHO Expert Committee on Food Additives (JECFA), who assess information presented in food additive petitions and establish safe usage levels.

"While I can understand the concerns about Ultra process food, all I can say is that there's no such thing as a bad food, but there is such thing as a bad diet. So, if you're only consuming Ultra process food on a day-to-day basis, then I would consider that to be not ideal"

- Numerous scientific and toxicological studies conducted in humans and animals are used to support the safety of food additives. These studies are of a high quality conducted to internationally accepted guidelines thus supporting their scientific rigor. These data are thoroughly reviewed and authorized for use by numerous regulatory authorities around the world including US FDA, EU, FAANZ and many others.
- Safety outcome is determined through the derivation of an "Acceptable Daily intake (ADI). ADI is "An estimate of the amount of a food additive, expressed on a bodyweight basis, that can be ingested over a lifetime without appreciable health risk".
- Exposure during reproduction as well as the juvenile period is taken into account and so the ADI does apply to children and pregnant and lactating mothers.
- As food additives in general are some of the least toxic substances and show little if any acute toxicity. Day to day variations in intake above the ADI are therefore of little concern for human health and safety.
- While food additive controversies are frequently reported regarding food additives, constant re-evaluations assessing their safety are conducted by organizations like the JECFA and EFSA.

Panel Discussion Food Reformulations for Healthier Choices, Diet and Lifestyle Management

Moderator: Mr. Delano Dias- President, Sri Lanka Food Processors Association

Panel members:

Prof. Terrence Madujith Dr. Renuka Jayatissa Mr. Matt Kovac Mr. Ruwan Kumara -Corporate and Regulatory Affairs, Fonterra Brands & Chairman – Food & Beverage sector committee, The Ceylon Chamber of Commerce

- Importance of Food Industry on the Sri Lankan Economy
- Contributed to the economy by 6% and contributed to 6% of the total employment in the country.
- There are around 400 large and medium and more than 5,000 micro scale players in the food industry.
- World population is expected to reach 9.7 billion in 2050 and this itself an opportunity for the food industry to cater this population.
- The private sector should focus on the global demographic and food trends, such as healthy ageing, mental well-being ect.
- Opportunities for Sri Lanka includes, based on boosting tourism sector, make Sri Lanka a destination for food; culinary powerhouse; given the vast bio-diversity of Sri Lanka, develop new food products as well as export value added products.

Focus more of clean labeled products due to growing concerns of food additives; use artificial intelligence to minimize food waste/ food loss and develop new products,

- Creating an enabling environment for the food industry is vey much important, and thus, harmonization is vital, In addition, creating consumer awareness on healthy choices is similarly important.
- How to promote food reformulation amongst Asian countries,
- Role of multinationals and domestic companies: Multinationals are often the first movers, but local companies can quickly follow suit, contributing significantly to the reformulation agenda.
- Importance of capacity building and awareness: capacity building through workshops and raising awareness about the business benefits of reformulated products are deemed crucial. This involves educating companies about the advantages of reformulation and demonstrating how it can positively impact their business.
- Export opportunities and Economic challenges: leveraging reformulation can be taken as an export opportunity, particularly focusing on value-added products. However, economic challenges such as inflation and the overall strain on the Sri Lankan economy may lead companies to adopt more conservative approaches. Nevertheless, the potential for export growth and the opportunity to tap into new markets are emphasized as drivers for reformulation efforts.
- Academic research, particularly with postgraduate students, serves a pivotal role in assisting industries with product development challenges, highlighting the importance of academia's understanding of market viability and business sustainability.

Panel Discussion cont'd Food Reformulations for Healthier Choices, Diet and Lifestyle Management

- The reformulation of food products plays a crucial role in addressing issues of malnutrition and undernutrition. While it's essential to respect consumer preferences, the ultimate goal is to ensure people consume a healthy diet. This requires collaboration across various sectors, including food production, regulation, and standards. Additionally, combating misinformation and myths about food safety and nutrition is vital, as it can impact people's dietary choices. To improve population health, it's imperative for stakeholders to work together, share information transparently, and minimize political influences.
- Disparity persists in the availability of healthier food options, notably fresh frozen vegetables, between Sri Lanka and countries like Australia, impacting vegetable consumption patterns and contributing to non-communicable disease prevalence.
- Factors influencing low vegetable consumption include convenience, culinary preferences, and price sensitivity, highlighting the need for a shift in consumer habits and pricing strategies to promote healthier dietary choices.
- Concerns regarding hygiene and processing standards for vegetables sold in local markets underscore the importance of ensuring food safety regulations and practices to mitigate health risks associated with microbial contamination.
- Packaged food options which are healthier alternatives to meeting consumer's needs, while providing convenience, safety, quality and essential nutrients can play an active role in impacting the diet of people in a passive way,

"It is not easy to reformulate - you need a lot of research, evidences, ingredients and raw materials. But still I think under your research development. You have to continuously work on food innovations because in the future people will really look for these all the healthy products. Especially the with the new kind of teenagers and the ageing population will really demand for this type of food"

Dr. Renuka Jayatissa

"We can promote Sri Lanka as a destination brand for food. We have a rich culinary legacy and very profound gastronomic tradition in Sri Lanka. So why not promote this"

Mr. Ruwan Kumara

"The price is one of the prime factors at least in Sri Lanka. So, when it comes to healthy food, it's nightmare if you don't think of the pricing policy"

Prof. Terrance Madhujith

Presentations

You can access the presentations using the links provided below.

1. Role of Food Reformulation by Mr. Matt Kovac

https://chamberlk-my.sharepoint.com/:p:/g/personal/saumya_chamber_lk/EQe_WIRTnBtJt4nGVisc_9EBsghudh1A1NEXBvZAuYNUMw?e=FhGbOn

2. Reformulation of Food for Better Health by Prof. Terrance Madhujith

https://chamberlk-my.sharepoint.com/:p:/g/personal/saumya_chamber_lk/Ed3AYgiDBfBMiZwKi29PeOUB4nfetQWZfipkj2Jq6Watew?e=YgoORH

3. Food Reformulations: Opportunities and Public Health Needs by Dr. Renuka Jayatissa https://chamberlk-my.sharepoint.com/:p:/g/personal/saumya_chamber_lk/EQTIQRMLWo1JtPmA9zuiGxEBMzdE5yWuR0izmoR1749HIQ?e=C0Ifi2

4. Role of Codex in Setting Science based Standards, by Mr. Sanjay Dave <u>https://chamberlk-my.sharepoint.com/:p:/g/personal/saumya_chamber_lk/EcKPXtuyX3pLIATOUMA0e5UB5pJh_6RuI0PcpcrDIdoN2w?e=58rPBZ</u>

5. Food Labelling: Key to Informed Consumer Choice, by Ms. Jie Ling https://chamberlk-my.sharepoint.com/:p:/g/personal/saumya_chamber_lk/EeswSmYZ2bFKkDLcGa2fVo0BXz5BhEeY_w9DQPSbuPH0Zg?e=kvrYU9

6. Safety Aspects of Food Additives: Global Perspective, by Dr. Ashley Roberts <u>https://chamberlk-my.sharepoint.com/:p:/g/personal/saumya_chamber_lk/EdJh04aMnBFNil3QNEvEpW0B0fjaWsr0KoF_7jUp0vYiTQ?e=yAZpJU</u> Compiled by, Economic Intelligence Unit The Ceylon Chamber of Commerce



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