

**SOUVENIR PROGRAMME**

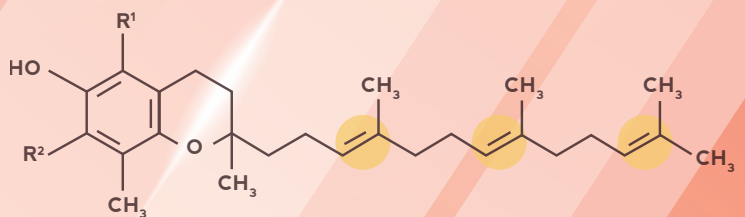
**Palm International Nutra-Cosmeceutical  
Conference**

**PINOC 2023**

**Unlocking the Potential of Palm  
Bioactives in Nutra-Cosmeceutical**



**Date : Tuesday, 22 August 2023**  
**Venue : Le Meridien Putrajaya**



**For more information, please visit [www.mpoc.org.my](http://www.mpoc.org.my)**

**ORGANISED BY**



**M P O C**

**Gold Sponsor**

**KLK OLEO**

**Silver Sponsor**

**wilmar**

**Sponsor**

**hovid**  
Continuous Innovation & Quality

**Exhibitors**





## *A Message from The*

**Chief Executive Officer,**  
*Malaysian Palm Oil Council (MPOC)*

On behalf of the PINC 2023 Organising Committee, I would like to extend a warm welcome to all participants attending the 7th Palm International Nutra-Cosmeceutical Conference (PINC 2023). This biennial conference, hosted by MPOC, aims to disseminate the latest scientific developments and evidence related to the health attributes of palm oil and bioactives, in both the nutraceutical and cosmeceutical industries.

Given the numerous current and emerging challenges in the fields of health, nutrition, and downstream markets, it is imperative to continuously engage and offer updates to the Malaysian palm oil industry. Therefore, this year's conference will focus on exploring the potential and health benefits of palm oil bioactives, including palm tocotrienols and carotenes, as well as the potential and market challenges of downstream products, including palm tocotrienols and palm-based oleochemicals in the cosmeceutical and personal care industries.

The PINC conference is set to provide a collaborative forum that will bring together distinguished local and international researchers along with industry representatives, and this comprehensive approach is designed to facilitate impactful interactions among diverse stakeholders, thereby enhancing comprehension of significant topics. These topics include crucial subjects such as the association between palmitic acid and cancer risk, the presence of process contaminants, and the persistent challenges posed by saturated fats. The conference aims to foster a deeper understanding of these issues and to pinpoint effective solutions through constructive discussions and engagements.

Lastly, I would like to express my gratitude to the conference sponsors, namely KLK OLEO, Wilmar, and Hovid, for their valuable support and contributions. Additionally, I extend my heartfelt appreciation to all the speakers, participants, and exhibitors for their active involvement. I encourage everyone to take full advantage of the presentation sessions, discussions, and the networking opportunity to enhance your experience and knowledge.

In conclusion, I wish each one of you a successful and productive conference ahead. Thank you for being a part of PINC 2023.

**Belvinder Sron**  
CEO  
Malaysian Palm Oil Council (MPOC)

# DavosLife E3 TOCOTRIENOLS

Antioxidation | Anti-Inflammation | Gene Modulation



- ✓ The Extraordinary Vitamin E
- ✓ High-Performance Bioactive
- ✓ Natural Source, Natural Ingredient

## Real People, Real Results

### Testimonial from Ms. Yvette Overberg



I have been on a journey for the **past 8 to 10 years trying to get rid of hyperpigmentation / melasma** due to many years of sun exposure while road running and also now being post menopausal. I have **tried various face creams and treatments but without significant results.**

I am so excited as my skin has really improved so much and **a notable decrease in the melasma / hyperpigmentation in just two months**, and I am feeling really great.



**Before**  
(14<sup>th</sup> December 2021)



**After**  
DavosLife E3  
Softgel & Skincare  
(7<sup>th</sup> February 2022)



**DavosLife E3 Tocotrienols** helped Yvette to achieve:

- ✓ Lightening of hyperpigmentation spots
- ✓ Younger-looking skin

Get Expert Insight



Visit our booth to redeem a free gift

While stocks last

info@davoslife.com | www.klkoleo.com/DavosLife

**Time Programme\***

- 8.00 am** Registration
- 9.00 am** Opening Remarks by Ms. Belvinder Sron, CEO, Malaysian Palm Oil Council (MPOC)
- 9.10 am** Plenary Paper 1: Will Palm Oil be Replaced by Synthetic Palmitic Acid?  
*Dr. Roger Clemens, University of Southern California, USA*
- 9.40 am** Plenary Paper 2: Global Overview of Oleochemicals and Bioactives  
*Chris de Lavigne, Deloitte APAC, Singapore*
- 10.10 am** Morning Coffee Break / Exhibition & Networking

**SESSION 1: PALM OIL BIOACTIVES AND HEALTH BENEFITS**

- 10.30 am** **Palm Tocotrienols in Enhancing Immune Function for Optimal Health**  
*Professor Dr. Ammu K Radhakrishnan, Monash University Malaysia*
- 11.00 am** **Effect of Carotenes Against Oxidative Stress Induced Age-Related Macular Degeneration in Human Retinal Pigment Cells**  
*Associate Professor Dr. Mai Chun Wai, UCSI University, Malaysia*
- 11.30 am** **Palm TRF (Tocotrienols) – Updates on Legislation, Challenges and Market Potentials**  
*WH Leong, Industry Consultant, Australia*

**SESSION 2: POTENTIAL OF PALM DOWNSTREAM PRODUCTS IN BEAUTY AND COSMECEUTICAL INDUSTRY**

- 12.00 pm** **Potential of Palm-Based Oleochemicals in the Cosmetic and Personal Care Industry**  
*Norashikin Ahmad, Malaysian Palm Oil Board (MPOB)*
- 12.30 pm** **Market Challenges and Opportunities of Palm Vitamin E Tocotrienols in Beauty Industry**  
*Marianne Loong, Davos Life Science Sdn. Bhd., Malaysia*

- 1.00 pm** **Lunch / Exhibition & Networking**

**SESSION 3: FORUM – CURRENT ISSUES AND EMERGING CHALLENGES IN PALM INDUSTRY**

- 2.00 pm** **Moderated by: WH Leong, Industry Consultant, Australia**
1. Palmitic Acid and Cancer Risk  
*Dr. Roger Clemens, University of Southern California, USA*
  2. The Public Health Stand on Saturates - Are Perceptions Beyond the Facts?  
*Professor Dr. Tilakavati Karupaiah, Taylor's University, Malaysia*
  3. Process Contaminants: Are We Prepared to Deal with Stricter Regulations?  
*Ir. Shyam Lakshmanan, IOI Edible Oils Sdn. Bhd., Malaysia*
  4. Palm Mixed Carotene - Challenges and Opportunities  
*Bryan See, PhytoGaia Sdn. Bhd., Malaysia*

- 3.30 pm** **End of PINC 2023 / Coffee Break / Exhibition & Networking**



# Functional Foods

**WILFARESTER MCT** is a medium-chain triglycerides made from palm kernel oil through fractionation

## Benefits of MCT in your food:

- Extra energy for exercise
- Helps with weight loss
- Improves nutrients absorption
- Appetite control
- Prevents inflammation

*\*Reference from British Journal of Nutrition*



**WILFARIN Glycerin** is a sugar alcohol made from palm oils is odourless and has a mild sweet taste with a syrup-like consistency.

## Uses in food :

- It prevents ice crystals forming in frozen foods
- Emulsifiers of oil and water
- Moistening and sweetening foods

## **WILFARESTER GMS** **Glycerol Monostearate**

is non-toxic, odourless, vegetable based ester.

It adds "body" to the food which provides cream products the smooth texture

GMS is also an anti-staling agent in bread

The background features a large photograph of two women jogging on a paved city walkway. The woman on the left is wearing a bright teal jacket and black leggings, while the woman on the right is wearing a red and black jacket and black leggings. They are both wearing earbuds and running shoes. A large, semi-transparent purple banner with white text is overlaid on the image. To the right, there is a smaller, tilted inset image showing the same two women running, providing a different perspective of their activity. The overall aesthetic is vibrant and energetic, with a pink and purple color palette.

# ABSTRACTS & SPEAKERS PROFILE

## Plenary Paper 1: Will Palm Oil be Replaced by Synthetic Palmitic Acid?

Dr. Roger Clemens,  
University of Southern California, USA



### Abstract

The unique fatty acid profile and low price of palm oil and palm kernel oil make them technically challenging and inefficient to replace. For certain applications, direct replacement might be possible using existing conventional vegetable oils; however, this is not an option when considering the unique combination of saturated fats, carotenoids, tocotrienols, and squalene that vary among genetic and geographic diversity. These are key characteristics to consider in finished product composition and function. There is neither an economic nor an environmental case for the substitution of palm with vegetable oils or synthetic products on a large scale. Agriculturally and industrially, the environmental, economic, and technical costs associated with palm oil replacement are significant barriers to synthetic replacement. Global intolerance of the admittedly significant unregulated segments of the palm oil industry especially before 2010, and despite nearly 40% of the approximately 4,700 industry members and only about 20% of the global production being committed, including unfortunately just 13% in Indonesia and 63% in Malaysia, to the RSPO responsible and sustainable goals and standards. Clearly, additional producers and countries must address these RSPO criteria in terms of harmonized and enforced policies and practices that prioritize sustainability and ecological health while thwarting the synthetic palm oil movement.

Dr. Clemens is part-time faculty within USC's School of Pharmacy where he enjoys adjunct appointments in Pharmacology and Pharmaceutical Sciences and Regulatory and Quality Sciences, an adjunct appointment at Michigan State University, College of Law, and is a project manager for the USDA. Dr. Clemens is an elected Fellow in the American Society for Nutrition, American College of Nutrition, Institute of Food Technologists, and International Academy of Food Science and Technology. Dr. Clemens is a past president of the Institute of Food Technologists (IFT), is a former president the International Academy of Food Science and Technology, and currently serves on the scientific council for the International Union of Food Science & Technology.

## Plenary Paper 2: Global Overview of Oleochemicals and Bioactives

Chris de Lavigne,  
Deloitte APAC, Singapore

### Abstract

Oleochemicals are specialty chemicals for Food, Detergent, Personal Care, and Industrial Products, and can be produced either via a synthetic route (typically C13- 15 chain), or via a natural route (mainly C8-10, C12-14, and C16-18 cuts), and without which our products would not have critical functional properties imparted. Oleochemicals predominantly comprise fatty acids and alcohols, and other more minor components, but also products such as glycerine. Their growth is very much tied to their end-use markets and global GDP. Whilst natural products are favoured synthetics still play a role in the market. Much additional capacity has come onstream recently due to a variety of factors and this always impacts the market. As such the outlook for oleochemicals and bioactives will be discussed!



Chris works in the Financial Advisory practice in Southeast Asia specializing in Corporate Strategy & M&A. He brings 25 years of experience in growth strategies, M&A, turnaround and operational excellence, focused on providing advisory services to Corporates, Financial Institutions and Governments. and has been in Southeast Asia for over 18 years. His particular area of focus covers the Agricultural sector and its associated value chain, and has conducted over 50 engagements in the palm oil sector covering upstream cost optimization, refining optimization, trading, biodiesel, fatty alcohols, fatty acids, fatty esters, speciality fats and oils and soap noodles.



## Palm Tocotrienols in Enhancing Immune Function for Optimal Health

Professor Dr. Ammu K Radhakrishnan,  
Monash University Malaysia



### Abstract

The host immune system plays a pivotal role in protecting the body from infectious agents and cancers. The immune responses may be classified as innate or adaptive. The innate arm of the immune system offers the first line of defence against foreign antigens by directly targeting and eliminating the foreign antigen as well as facilitating the activation of the adaptive immune system. The T- and B-lymphocytes are the key players in the adaptive arm of the immune system. These leucocytes need to be activated before they can exert their effects. Once activated, the lymphocytes will elicit a more efficient and specific response as well as develop immunological memory. Nutritional interventions have powerful effects on activating the host immune system. One such compound is vitamin E from palm oil, known as the tocotrienol-rich fraction (TRF). Palm TRF contains a mixture of tocotrienols (70%) and tocopherols (30%) and there are several studies that show that daily supplementation of TRF can promote the host's immune response to vaccines and cancer, which will be shared during this presentation.

Prof. Dr. Ammu Radhakrishnan, currently at Monash Univ. Malaysia, joined in 2019. She earned a First-Class Honours B.Sc. in Biochemistry from UM, Kuala Lumpur (1987) and an MSc from the same institution. She completed her PhD in Immunology at Univ. of Cambridge as a recipient of the Shell-Cambridge Commonwealth Trust Scholarship and the UK government's ORS Award. She also conducted post-doctoral research at the Univ. of Oxford.

Upon her return to Malaysia in 1994, she worked in biotech and academia at IMC/IMU for 22 years. Her research focuses on cancer immunology and immunotherapy, including natural compounds to boost immune responses. She's supervised numerous post-graduates and has a strong publication record in prestigious journals. She's a Fellow of the Royal Society of Biology, Cambridge Commonwealth Trust, and Cambridge Philosophical.

## **Effect of Carotenes against Oxidative Stress Induced Age-Related Macular Degeneration in Human Retinal Pigment Cells**

Associate Professor Dr. Mai Chun Wai,  
UCSI University, Malaysia



### **Abstract**

Oxidative stress is caused by an imbalance between accumulation of reactive oxygen species (ROS) and their elimination. Excessive accumulation of ROS leads to inflammation that causes many chronic diseases and accelerates the aging process. A well-established example is age-related macular degeneration (AMD), an irreversible eye condition commonly affecting the aged population. Carotenoids are antioxidants that have demonstrated protective effect in managing AMD. This study determined the efficacy of carotenes in modulating molecular targets in a hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) induced AMD in vitro model. To evaluate cytotoxicity, a panel of 17 human cancer cells and noncancerous human retinal pigment epithelial cells (ARPE-19) were treated with carotenes. A polymerase chain reaction (PCR) array study was conducted to evaluate the efficacy of carotenes in modulating oxidative stress, and their underlying molecular targets were also studied using bioinformatic analyses through Reactome Pathway Analysis and targeted cell-based reporter assays. Carotene treatment was found neither to induce significant cancer cell proliferation nor to be cytotoxic to ARPE-19, suggesting no potent anticancer effect and likelihood of safe therapeutic intervention. The protective effect of carotenes was observed at concentrations of 1.56–25 µg/mL in ARPE-19 cells challenged with 500 µM H<sub>2</sub>O<sub>2</sub>. In the PCR array, carotenes significantly reversed H<sub>2</sub>O<sub>2</sub> induced damage by modulating several key genes such as TIMP and C5. We further confirmed that carotenes also showed similar activation as GW3965, a synthetic agonist for liver-X-receptor (LXR) in a targeted cell-based reporter assay, suggesting that their protective effect could be related to LXR but independent of p53, nuclear factor kappa B (NF-κB), and peroxisome proliferator-activated receptor-gamma (PPARγ). These findings indicated that carotenes should be explored further as a nutraceutical in managing AMD by mitigating the ill-effects of oxidative stress and inflammation.

Dr. Mai is currently the Head of Pharmaceutical Chemistry of Faculty of Pharmaceutical Sciences, UCSI University. He has over 10 years of cancer research experience and has managed more than RM3.6 million research grants in total. To date, he has published >90 research publication (H-index: 24) with > 200 cumulative impact factors and > 1000 citations. He was Head of, Centre for Cancer and Stem Cells Research International Medical University (IMU) before he undertakes his sabbatical leave at Shanghai Jiao Tong University affiliated Renji Hospital, China. He received many international and national awards. Currently, his research team is working on targeting immune evasion in cancer and drug discovery from both natural and synthetic compounds.

## **Palm TRF (Tocotrienols) – Updates on Legislation, Challenges and Market Potentials**

WH Leong,  
Industry Consultant, Australia

### **Abstract**

The pandemic's effects are fading. The nutraceuticals market is seeing a recovery with reported strong demand from consumers. But is that demand translating to increase demand for dietary supplement ingredients and new product launches? Are brands still feeling confident in the market to launch new products?

This short presentation will cover (as much as possible) the legislation, challenges and market potential of Palm TRF, specifically in the United States, the main driver and market for cutting-edge phytonutrients

With regards to vitamin E per se, the global vitamin E market is anticipated to grow from a value of USD 2.2 billion in 2023 to USD 3.7 billion by 2033, expanding at a CAGR of 5.3%. As per MPOB, the global market size of tocotrienols was valued at US\$321.5 million (RM1.45 billion) in 2018 and tocotrienols' potential value in 2025/2026 is expected to reach USD 522 million. Malaysia exported Palm TRF to a tune of some RM21.55 million or 19.45MT from January to July 2022 or an average of 2.8MT of Palm TRF per month (approx. 35MT per year) (MPOB's Data).

The reality is that the current economic challenges have resulted in higher prices and lower margins, putting a squeeze on natural product retailers and brands, which in turn significantly affect dietary supplement ingredients suppliers worldwide (domino effect).

On the legislative side – the US FDA is not pulling back on its responsibility to effectively regulate dietary supplements and dietary supplement ingredients. In the past 2-3 years, there have been a slew of FDA's new proposed bills and legislation (a mine field so to speak) that are affecting the entire supply chain especially in navigating legislative requirements for dietary supplement ingredients. These pose significant challenges to a relative unknown ingredient such as Palm TRF.

Find out how all these market dynamics and challenges (economy, legislation, science, awareness, etc) affect the outlook for tocotrienols, specifically Palm TRF, which is, unfortunately, still a relative unknown ingredient in the market. What market potential and opportunities are there for Palm TRF and how best to navigate these challenges and opportunities with the aim of finding the path of least resistance, for companies and brand owners who are interested in tocotrienols



Mr. Leong graduated with a Bachelor of Applied Science in Fermentation Technology with first class honours from Universiti Sains Malaysia. He was the recipient of the Chancellor's Gold Medal Award for the graduating cohort. Having worked with FELDA, Proctor & Gamble Sdn. Bhd., Pahang, Malaysia as an engineer responsible for the commissioning of the largest oleochemical plant for P&G outside of the US, he then joined Carotech Sdn. Bhd. as its first employee in 1993 and went on to set-up and commissioned Carotech to become the first plant in the world to commercially extract palm phytonutrients from virgin crude palm oil. In 1999, he moved to New Jersey, USA to open up and pave the way for palm phytonutrients especially the tocotrienols, in the US and Canada and thereafter establishing palm-based tocotrienol complex as the most sought after tocotrienols source in the US. During the restructuring of Carotech – he was asked to return to Malaysia to take over ExcelVite Sdn Bhd (formerly known as Carotech) as its CEO in 2015. He spearheaded and turned around financially-distressed company to profitability within the 1st year, and achieving RM 178 million annual revenue for FY 2020. In addition to being the CEO, he was also in-charge of the worldwide sales and marketing activities of ExcelVite. WH Leong left ExcelVite in 2021.

## Potential of Palm-Based Oleochemicals in the Cosmetic and Personal Care Industry

Norashikin Ahmad,  
Malaysian Palm Oil Board (MPOB)



### Abstract

Oleochemicals have great potential for use as ingredients in cosmetic and personal care (CPC) products. Due to their origin, oleochemicals are often referred to as natural oleochemicals, which clearly indicates their environmental compatibility and sustainability. Nowadays, consumers tend to prefer products of plant origin, which are considered more environmentally friendly and renewable. Basic oleochemicals and derivatives are often used as emollients, humectants, emulsifiers and thickeners in the manufacture of CPC products. Dihydroxystearic acid (DHSA) is derived from palm oleic acid. DHSA can be used as a coating material in colour cosmetics and as a transparency enhancer in transparent soap. In addition, it provides gelling properties in deodorant sticks and forms three-dimensional networks to entrap and gel oil in organogel systems. Zinc glycerolate (ZnGly) is an oleochemical derivative prepared by heating zinc oxide and glycerol. ZnGly can be a versatile ingredient in CPC products as it has anti-microbial properties. The use of DHSA and ZnGly from sustainable resources in CPC products is expected to benefit the cosmetics, personal care and palm oil industries.

Norashikin Ahmad is a Senior Research Officer, Advanced Oleochemical Technology Division, Malaysian Palm Oil Board. She obtained her Master's degree in oleochemical from Universiti Putra Malaysia in 2013 and is currently pursuing her Ph.D at Universiti Kebangsaan Malaysia. She has more than 20 years of professional experience in the research and development of palm-based cosmetics and personal care products. She has filed 1 patent, published 7 research articles in indexed and peer-reviewed journals, presented 10 oral and 10 poster presentations. Her innovations have won various invention, innovation, and technology awards (8 awards). Her recent publication is on dihydroxystearic acid as an organogelator for vegetable oils in the organogel system.

## Market Challenges and Opportunities of Palm Vitamin E Tocotrienols in Beauty Industry

Marianne Loong,  
Davos Life Science Sdn. Bhd., Malaysia



### Abstract

The beauty industry is seeing a global surge in demand for natural and effective skincare products as consumers prioritise holistic well-being and sustainability. Responding to this trend, tocotrienols, a potent Super Vitamin E variant derived from palm oil, gain momentum due to its proven efficacy in addressing various skin concerns. However, its broader adoption faces significant hurdles in the lack of awareness and education among consumers and skincare professionals. To increase acceptance, vital actions include effective consumer outreach strategies and educational initiatives targeting industry professionals. Additionally, the costs associated with palm tocotrienols' production and sourcing pose challenges. Aligning with consumer preferences for environmentally-friendly products requires sustainable and ethical sourcing practices, while maintaining competitive pricing without compromising quality is essential for market success. Moreover, regulatory compliance demands careful consideration, with meeting necessary regulations and obtaining certifications being prerequisites for consumer trust. Navigating the complex regulatory landscape can be daunting, especially for smaller companies or newcomers. The beauty industry's vast array of active ingredients intensifies competition. To stand out, palm tocotrienols must showcase their unique advantages over existing solutions. Future-proofing palm tocotrienols in the beauty industry necessitates dedicated research and development efforts. Continuous studies to validate efficacy and explore novel applications are vital to stay ahead of evolving beauty trends and consumer preferences. In conclusion, palm tocotrienols possess immense potential in the beauty industry due to their proven efficacy and multifunctional properties. To overcome challenges like limited awareness, cost constraints, regulatory compliance, and fierce competition, concerted efforts are required. Educating consumers, establishing strategic partnerships, adhering to regulatory standards, and investing in R&D can secure a prominent position for palm tocotrienols in the global beauty market and meet the growing demand for natural and efficacious skincare solutions.

Marianne is someone who is passionate about translating science and technology into practical applications. She has worked in the oil palm industry for 15 years, and started off her career doing crop improvement research in oil palm. She has been with Davos Life Science for 5 years, giving global technical support to customers from different industries (dietary supplements, functional food and beverages, and personal care). She assists customers to translate the science of Tocotrienols into practical applications in these industries.

## Palmitic Acid and Cancer Risk

Dr. Roger Clemens (Presenter),  
University of Southern California, USA

Dr. Peter Pressman (Co-author),  
University of Maine, USA



### Abstract

In 2021, a report was published that suggested that malignant tumor cell lines were more likely to metastasize when exposed to palm oil or palmitic acid. Despite being published in a prestigious medical/science-based journal, the presented work was simplistic, significantly flawed methodologically, and irresponsible. The publication had a significant and destructive impact on the global palm oil industry, yet the presented research conclusions were unfounded. Importantly, the research findings have yet to be corroborated. In the short presentation, we offer a primer on palmitic acid metabolism and attempt to explain why the research in question is unsubstantiated theoretically and in terms of clinical reality.

Dr. Clemens is part-time faculty within USC's School of Pharmacy where he enjoys adjunct appointments in Pharmacology and Pharmaceutical Sciences and Regulatory and Quality Sciences, an adjunct appointment at Michigan State University, College of Law, and is a project manager for the USDA. Dr. Clemens is an elected Fellow in the American Society for Nutrition, American College of Nutrition, Institute of Food Technologists, and International Academy of Food Science and Technology. Dr. Clemens is a past president of the Institute of Food Technologists (IFT), is a former president the International Academy of Food Science and Technology, and currently serves on the scientific council for the International Union of Food Science & Technology.

Dr. Peter Pressman is a Professor of Sociology and Medicine at the University of Maine. He is a former Professor of Clinical Medicine at Saba Medical College for which he continues to consult. He is a graduate of Bowdoin College, the University of Chicago, and Northwestern University Medical School, and was trained at the University of Wisconsin and Rush-Presbyterian St. Luke's Medical Center. He served as Assistant Professor of Medicine, Director of Educational Programs of the Pacific Center for Health Policy & Ethics, and Associate Director of the Internal Medicine Residency Program at the University of Southern California/Keck School of Medicine, as well as an attending physician at Cedars-Sinai Medical Center in Los Angeles. Dr. Pressman remains active in both internal medicine and surgical education, focusing on special topics in nutritional support as an integral component of healthcare.

## The Public Health Stand on Saturates - Are Perceptions Beyond the Facts?

Professor Dr. Tilakavati Karupaiah,  
Taylor's University, Malaysia



### Abstract

Saturated fats (SaFa) in the human diets have been under the lens of public health for over 60 years proceeding from the Keys hypothesis that SaFa has the ability to raise blood cholesterol, and therefore poses a risk to cardiovascular health. Many human experimental trials have lent credence to the fact that the serum cholesterol raising ability of dietary fats was driven by the carbon chain length and saturation or unsaturation of the predominant fatty acids, and specifically pinpointed to SaFa's capacity to raise LDL-cholesterol as a component of serum cholesterol. Moreover, LDL-cholesterol lowering is aligned to medical management in both cardiovascular disease (CVD) and its prevention. Much of the experimental evidence was driven by diets that were perfectly designed to contrast the protagonist fatty acids to test the scientific constructs. The translation of this science to public health messaging comes through dietary guidelines (DGs) developed first through the US Department of Agriculture, whilst the National Cholesterol Education Program guidelines of the American Heart Association for the management of CVD also evolved to take a public health stand for CVD prevention. These DGs unanimously recommend limiting saturated fats to 10% or less of total energy intake to 10% or less of total energy intake.

In the 60-year span of time the single-nutrient approach of DGs have changed to food-based DGs as the important effects of the food matrix and the overall dietary pattern in which SaFa is consumed are underappreciated when other nutrients are also involved in cardiometabolic health. Further, exclusion of observational and RCT data not included as evidence in the process of the development of DGs is inconclusive evidence for continuing the public health messaging on limiting SaFa. This presentation aims to provide an understanding on the persisting public health stand on SaFa, and the scope of public health policy in limiting a population's consumption SaFa through DG messaging and front-of-package-labelling warnings.

Prof Tilakavati Karupaiah was formerly Professor and Head of the Dietetics Program, Universiti Kebangsaan Malaysia. She was appointed as Strategic Research Interests (SRI) Professor at the School of BioSciences, Faculty of Health & Medical Sciences, Taylor's University in 2017. She is Adjunct Faculty at Wayne State University, Detroit, USA. Professionally she is an Accredited Practicing Dietitian (APD) with the Dietitians' Association of Australia.

Prof Karupaiah's contributes towards legislation, clinical practice, education and research in the field of cardiovascular and renal nutrition in Malaysia. Her agenda is to address 'doable' issues related to prevention of non-communicable diseases such as generating ethnic-based dietary evidence on cardiometabolic risk and technical reports on government performance as well as food industry commitments towards population nutrition and a 'healthy' food environment. In recognition for the leadership, practice and research activity shown in the field of renal nutrition in Malaysia, Prof Karupaiah was the recipient of the United States National Kidney Foundation- Council on Renal Nutrition (CRN)'s Joel D Kopple International Award for 2017. She was the 1st Asian to win this award, for which beneficiaries have been nephrologists, dietitians or pharmacists.

Prof Karupaiah is experienced in conducting investigator-initiated clinical trials. Given her experience of the causative factors for NCDs in Malaysia she is now integrating skills in food environment analysis with INFORMAS (International Network for Food and Obesity / non-communicable diseases Research, Monitoring and Action Support). Prof Karupaiah is still engaged in research with new international and local grants.

## Process Contaminants: Are We Prepared to Deal with Stricter Regulations?

Ir. Shyam Lakshmanan,  
IOI Edible Oils Sdn. Bhd., Malaysia



### Abstract

Palm oil is widely used today for various applications, the major ones being for food (> 60%), cosmetics and for many daily use household items (>15%) and around 15% as biofuel. In recent years, new regulations have been formulated to limit the amount of certain contaminants found in edible oils. Some of these contaminants of current concern include 3-monochloropropane 1,2-diol ester, glycidyl esters, mineral oil saturated hydrocarbons and mineral oil aromatic hydrocarbons as well as the formation of trans fatty acids in processed oils.

While the mineral oil hydrocarbons are inadvertently mixed into the edible oil, the others are heat induced contaminants that are formed with respective precursors present during the palm oil refining process. Due to its broad use for food and personal care products, there is increasing concern regarding the contaminants contained. This has forced legislators to review and specify new limits for the contaminants, and for producers and technology providers to strive to minimize or eliminate these process contaminants, often through process modifications and new technology development. This short presentation touches on these contaminants and shows efforts being taken for their mitigation.

Ir. Shyam is currently General Manager of IOI Edible Oils Sdn Bhd based in Sandakan. He manages an integrated palm oil refining complex which houses refineries, fractionation plants, kernel crushing plants, water and waste water treatment plant and a biomass boiler and cogeneration power plant (8MW). He oversees R&D and is involved in 3-MCPDE, GE and MOSH-MOAH mitigation studies.

He started his career as a Process Engineer in the edible oil industry after leaving college and then moved to the chemical industry, handling various operating centres. His international experience include handling a 40,000 t/y Bleaching Earth plant project in China. He next handled a 50,000 t/y bleaching earth plant project in Indonesia followed by a mineral processing plant in Western Australia

His current focus is on reducing the complex's carbon footprint.



## Palm Mixed Carotene - Challenges and Opportunities

Bryan See,  
PhytoGaia Sdn. Bhd., Malaysia



### Abstract

Palm carotene is a valuable natural pigment derived from oil palm fruit that is rich in beta-carotene, alpha-carotene, gamma-carotene, and lycopene. In addition to being a provitamin A, it offers other significant health benefits including potent antioxidant properties, as well as a natural coloring agent for food and beverages. This short talk aims to shed light on the challenges and opportunities of palm carotene in relation to various competing sources of beta-carotene, regulations, research, and applications.

One of the main challenges for palm carotene lies in its high price compared to other sources of beta-carotene. High palm carotene price can significantly impact its market viability, especially when compared to alternative natural sources such as fermentative beta-carotene (*Blakeslea trispora*) and algae-derived beta-carotene (*Dunaliella salina*). These alternatives are seen as more sustainable and economical sources of beta-carotene.

Legislatively, palm carotene is, unfortunately not an approved food colorant by the United States Food and Drug Administration (FDA). This restricts its use in food and beverages within the large United States (US) market. Additionally, manufacturers in Europe have been hesitant in embracing Palm Carotene as a colorant due to the anti-palm sentiment.

Nevertheless, several opportunities still exist. Palm carotene contains significant amounts of alpha-carotene, which exhibits stronger antioxidant and unique biological activities, such as effects on macular pigment density and skin health. Future and additional research/human clinical trials should emphasize on exploring alpha-carotene within palm carotene to understand its benefits and differentiate it from other competing sources which predominantly contain only beta-carotene.

The advantageous regulatory status of palm carotene enhances its market viability as a plant-derived coloring agent in various industries. To fully capitalize on these advantages, stakeholders should offer a wide range of stable forms of palm carotene, including oil extract, water dispersible powder, and emulsion liquid, at competitive prices to meet industry demands, and to enhance its overall appeal in the marketplace.

Lastly, collaboration between policymakers and stakeholders is crucial to file a CFR color petition with FDA for palm carotene, especially considering the growing demand and awareness of natural products in the US market.

Mr. Bryan See, the Vice President of PhytoGaia Sdn. Bhd., holds a Bachelor's Degree in Science (Food Technology) from University Science Malaysia. His professional journey began at GNC (now known as LAC). Subsequently, he transitioned to ExcelVite, assuming the role of Regional Product Manager for Asia Pacific and the US. In this capacity, he successfully promoted various palm phytonutrients to Cosmetic Products, Health Foods, and Dietary Supplement companies in the US over nearly a decade.

Presently, he plays a crucial role in the Phytonutrient Business Division, leveraging over 18 years of diverse experience encompassing operations, new product development, clinical research, regulation, sales, marketing, and business development within the health foods and dietary supplements sector.

He provides comprehensive scientific and technical support, oversees sales and marketing endeavors, and drives the growth and triumph of the TocoGaia™, STGaia™, and CaroGaia™ range of palm phytonutrients. Mr. See's contributions have propelled PhytoGaia to the forefront of the global palm nutraceutical industry.

The background features a soft-focus image of a white pill bottle with its cap removed, spilling numerous yellow, oval-shaped capsules onto a light-colored surface. The lighting is warm, creating a golden glow. A blue banner with white text is overlaid on the left side of the image.

# SPONSORS' PROFILE

**Gold Sponsor**



At KLK OLEO, we are committed to providing the best sustainable oleochemical solutions in the global marketplace through RISE – Reliable, Integrated, Sustainable, and Efficient.

We are a global oleochemicals producer, with manufacturing facilities strategically located across Malaysia, China, Indonesia, Germany, Netherlands, Switzerland, Belgium and Italy, offering an array of high quality, innovative and sustainable products and solutions. KLK OLEO's production portfolio includes basic oleochemicals, fine, and specialty chemicals, as well as phytonutrients. We offer ingredients that cater to diverse applications, such as Beauty & Personal Care, Home Care and I & I Cleaning, Food & Nutrition, Lubricant, Polymer and Pharmaceuticals.

KLK OLEO provides an array of high quality bioactives that are natural and sustainable for nutraceuticals and cosmeceuticals, as well as functional ingredients for beauty & personal care and food & nutrition applications. These ingredients host a wide range of functional benefits ranging from antioxidation, healthy ageing, energy enhancement to cardiovascular health and many more.

Product portfolio includes:

1. **DavosLife E3 Tocotrienols** is a natural Vitamin E with strong antioxidative and anti-inflammatory properties.  
Application: Nutraceuticals, Nutricosmetics, Functional Food and Beverages, Personal Care
2. **PALMESTER MCT** (Oil and Powder) is a versatile single or blend of saturated medium chain length caprylic/capric fatty acids derived from renewable natural raw materials.  
Application: Energy Booster, Weight Management, Gut Health, Cognitive Health
3. **DavosLife Biocarotene**: A natural mixed carotene complex. It contains predominantly  $\alpha$ - and  $\beta$ -carotene that are scientifically proven to promote various health benefits.
4. **PALMERA Glycerine**: A natural sweetener and solvent.
5. **PALMESTER Triacetin**: An excellent solvent or carrier for flavours, colours, vitamins or other oil-soluble ingredients.

Find out more about natural source, natural ingredients for food and nutrition industry offered by KLK OLEO here: [www.klkoleo.com/markets/food-nutrition](http://www.klkoleo.com/markets/food-nutrition)

**KLK OLEO & Davos Life Science**  
Level 8, Menara KKK,  
No.1, Jalan PJU 7/6, Mutiara Damansara,  
47810 Petaling Jaya, Selangor, Malaysia  
Tel: +603 7809 8833  
Email: [foodnutrition@klkoleo.com](mailto:foodnutrition@klkoleo.com)

**Silver Sponsor**



Wilmar International Limited, founded in 1991 and headquartered in Singapore, is today Asia's leading agribusiness group. Wilmar is ranked amongst the largest listed companies by market capitalisation on the Singapore Exchange.

At the core of Wilmar's strategy is an integrated agribusiness model that encompasses the entire value chain of the agricultural commodity business, from cultivation and milling of palm oil and sugarcane, to processing, branding and distribution of a wide range of edible food products in consumer, medium and bulk packaging, animal feeds and industrial agri-products such as oleochemicals and biodiesel. It has over 500 manufacturing plants and an extensive distribution network covering China, India, Indonesia and some 50 other countries and regions. Through scale, integration and the logistical advantages of its business model, Wilmar is able to extract margins at every step of the value chain, thereby reaping operational synergies and cost efficiencies.

Supported by a multinational workforce of about 100,000 people, Wilmar embraces sustainability in its global operations, supply chain and communities.

**Address :**

Singapore Corporate Office  
28 Biopolis Road  
Singapore 138568  
Tel: (65) 6216 0244  
[info@wilmar.com.sg](mailto:info@wilmar.com.sg)

# **hovid**

**Continuous Innovation & Quality**

## **Company profile**

Dating back to early 1940s, Hovid's only commodity was Ho Yan Hor Herbal Tea, concocted by its founder, Dr. Ho Kai Cheong. With the intention of helping people, Dr. Ho Kai Cheong formulated a unique concoction of 24 specially chosen herbs and developed Ho Yan Hor Herbal Tea. It was a popular alternative to western medicine during post World War II with its cooling and anti-viral properties. The Ho Yan Hor Herbal Tea was the most sought after solution during the worldwide flu epidemic in 1950s. After 70 years, Ho Yan Hor Herbal Tea remains a favorite among many as a natural herbal beverage.

In the 1980s, along with his father's success, Mr David Ho, as a well trained pharmacist, led Hovid into a new chapter of manufacturing excellence. Armed with expertise in pharmacy with strong passion of entrepreneurship, David grew Hovid to become one of Malaysia's leading pharmaceutical manufacturers of high quality and innovative medicinal preparations and health supplements with more than 400 products distributed over 50 countries globally.

## **Product info**

Tocovid is a health product brand with Mixed Palm Tocotrienols manufactured under the license of Hovid Pharmaceutical.

Developed with SupraBio™ technology, it increases the absorption of Palm Tocotrienols by more than 300%, palm tocotrienols are absorbed faster and reach vital organs more efficiently compared to conventional preparations.

Many clinical studies were published in renowned journals showing palm tocotrienol, which is 40-60x stronger than conventional Vitamin E (Tocopherol), exerts beneficial effects in supporting brain, liver, nerve, kidney, eyes, heart and skin health.

TOCOVID SupraBio™ 50mg is formulated to promote better skin health naturally by reducing free radicals buildup, reduces wrinkles and pigmentation, as well as protecting the skin against cellular aging and oxidative damages. Each softgel of TOCOVID SupraBio™ 50mg increases collagen production by 140% and increases collagen type 1 production by increasing skin's fibroblast cells.

## **Address :**

C-06-3A & 05, Block C, Oasis Square, 2A  
Jalan PJU 1A/7A, Ara Damansara, 47301  
Petaling Jaya, Selangor, Malaysia.



**MOSTA**

### **ABOUT MOSTA**

The Malaysian Oil Scientists' and Technologists' Association or MOSTA is an association of scientists, technologists and other professionals who are involved in science, technology and economic of oils and fats. Inaugurated on 7 September 1989, MOSTA aims to promote the advancement in science, technology and commerce of oils and fats.

### **OUR MISSION**

MOSTA's mission is to be the leading non-profit organization in the region in the advancement of science, technology, quality and trade matters related to oils and fats including other lipid associated substances.

#### **Address :**

C3A-10, 4th Floor, Block C, No. 1, Jalan  
SS20/27, Damansara Intan, 47400  
Petaling Jaya, Selangor



The Malaysian Sustainable Palm Oil (MSPO) started from a humble beginning in 2016 as a voluntary scheme for sustainable palm oil certification in Malaysia. To demonstrate its commitment towards production of sustainable palm oil, the Malaysian Government announced in May 2017 the mandatory implementation of MSPO beginning 1st January 2020. This means that all oil palm plantations, organised smallholdings and palm oil mill must be certified against the requirements of the MSPO Standards by aforementioned date.

The first version of the MSPO standards (MS2530:2013) have undergone a multi-stakeholder review process from 2019 – 2021, which culminated with the launching of the revised MSPO standards (MS2530:2022) in March 2022. The MSPO 2022 standards have improved and strengthened the environmental, social and economic requirements to be in line with global sustainability norms. Besides certification requirements for smallholders, plantations and mills, the MSPO 2022 standards now includes requirements for processing facilities and dealers to become certified and part of the MSPO traceability.

The development of MSPO 2022 standards took into consideration the changes in the global sustainability requirements and has considered its applicability to the Malaysian palm oil industry. Requirements such as the United Nation Sustainable Development Goals (UNSDG) were considered and incorporated into the MSPO requirements. This resulted in the inclusion of High Conservation Value (HCV) which address environmental and social aspects that should be conserved. Besides that, a cut-off date of 31 December 2019 has been introduced to discourage conversion of natural forest, protected areas, and HCV areas to oil palm plantings.

The MSPO 2022 standards also highlights the ILO Forced labour indicators and prohibits any forms of discrimination in the palm oil industry. Other social requirements that were strengthened is the prohibition of child labour, the introduction of decent living conditions and avoidance of triangular employment.

Malaysia will continue with the journey towards full implementation of MSPO certification. In addition, MPOCC will also embark on promotional measures in major importing markets on the benefits of MSPO certified palm oil. As a long-term measure, we will continue strengthening the principles and criteria of the MSPO Standards to reflect evolving international best practices.

MPOCC welcome any idea and collaboration from interested parties for the continuous improvement towards achieving our objectives as sustainability driver for Malaysian palm oil industry.

**Address :**

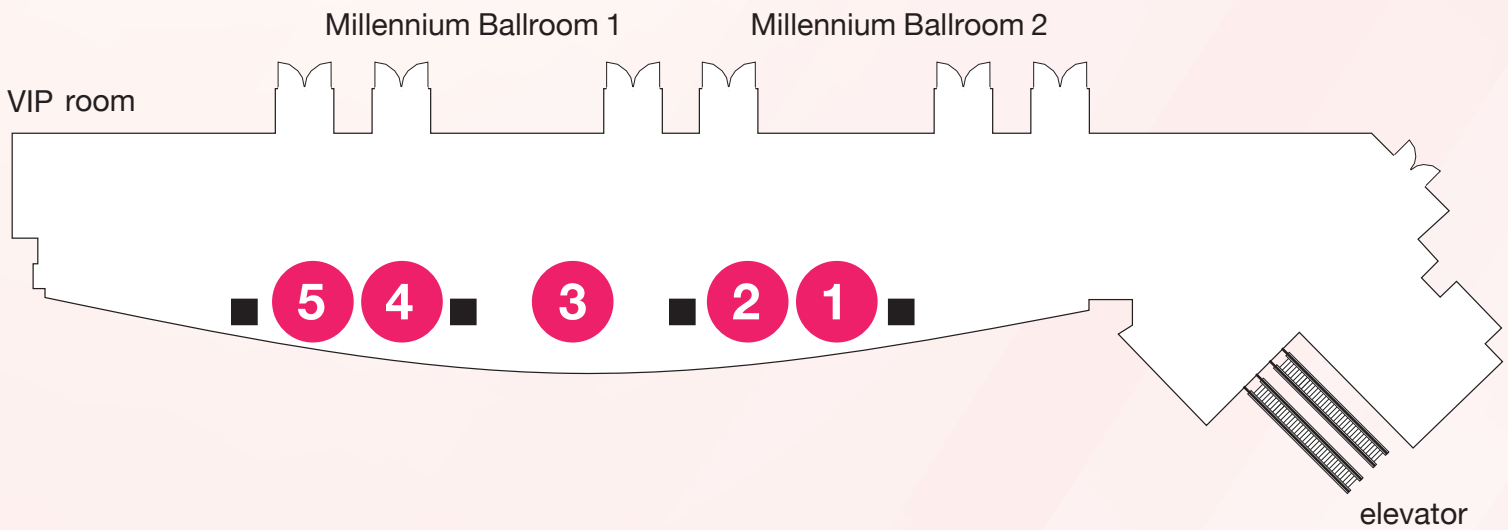
MALAYSIAN PALM OIL CERTIFICATION COUNCIL (MPOCC)  
Unit 2-1, Level 2, Tower 2B, UOA Business Park,  
No 1, Jalan Pengaturcara U1/51A,  
Seksyen U1, 40150, Shah Alam,  
Selangor, Malaysia.

Website [www.mpocc.org.my](http://www.mpocc.org.my)

Telephone:  
+603 5569 9676

Email: [info@mpocc.org.my](mailto:info@mpocc.org.my),  
[hellomspo@mpocc.org.my](mailto:hellomspo@mpocc.org.my)

## Millennium Ballroom Foyer



### Exhibition Booth:

- |   |                                   |   |   |
|---|-----------------------------------|---|---|
| 1 | KLK OLEO                          | 4 | Malaysian Palm Oil Certification Council (MPOCC)                  |
| 2 | Wilmar International              | 5 | Malaysian Oils Scientists' and Technologists' Association (MOSTA) |
| 3 | Malaysian Palm Oil Council (MPOC) |   |   |



Malaysian Sustainable  
Palm Oil Certification  
Scheme

# MS2530 :2022

**T**he Malaysian Sustainable Palm Oil (MSPO) started from a humble beginning in 2016 as a voluntary scheme for sustainable palm oil certification in Malaysia. To demonstrate its commitment towards production of sustainable palm oil, the Malaysian Government announced in May 2017 the mandatory implementation of MSPO beginning 1st January 2020. This means that all oil palm plantations, organised smallholdings and palm oil mill must be certified against the requirements of the MSPO Standards by aforementioned date.

The first version of the MSPO standards (MS2530:2013) have undergone a multi-stakeholder review process from 2019 – 2021, which culminated with the launching of the revised MSPO standards (MS2530:2022) in March 2022. The MSPO 2022 standards have improved and strengthened the environmental, social and economic requirements to be in line with global sustainability norms. Besides certification requirements for mills, smallholders and plantations, the MSPO 2022 standards now includes requirements for processing facilities and dealers to become certified and part of the MSPO traceability.

The development of MSPO 2022 standards took into consideration the changes in the global sustainability requirements and has considered its applicability to the Malaysian palm oil industry. Requirements such as the United Nation Sustainable Development Goals (UNSDGs) were considered and incorporated into the MSPO requirements. This resulted in the inclusion of High Conservation Value

(HCV) which address environmental and social aspects that should be conserved. Besides that, a cut-off date of 31 December 2019 has been introduced to discourage conversion of natural forest, protected areas, and HCV areas to oil palm plantings.

The MSPO 2022 standards also highlights the ILO Forced labour indicators and prohibits any forms of discrimination in the palm oil industry. Other social requirements that were strengthened is the prohibition of child labour, the introduction of decent living conditions and avoidance of triangular employment.

Malaysia will continue with the journey towards full implementation of MSPO certification. In addition, MPOCC will also embark on promotional measures in major importing markets on the benefits of MSPO certified palm oil. As a long-term measure, we will continue strengthening the principles and criteria of the MSPO Standards to reflect evolving international best practices.



**MALAYSIAN PALM OIL CERTIFICATION COUNCIL (MPOCC)**

**WEBSITE**  
[www.mpocc.org.my](http://www.mpocc.org.my)

**TELEPHONE**  
+603 5569 9676

**EMAIL**  
[info@mpocc.org.my](mailto:info@mpocc.org.my)

**ADDRESS**  
Unit 2-1, Level 2, Tower 2B, UOA Business Park,  
No 1, Jalan Pengaturcara U1/51A Seksyen U1,  
40150, Shah Alam, Selangor, Malaysia





# OFIC™ 2024

OILS AND FATS INTERNATIONAL CONGRESS 2024

**22-23  
OCTOBER**

KUALA LUMPUR CONVENTION CENTRE  
HYBRID (PHYSICAL & VIRTUAL)  
CONFERENCE

**1ST ANNOUNCEMENT**

## **PALM OIL INDUSTRY TOWARDS CIRCULAR ECONOMY**

CO<sub>2</sub> EMISSION REDUCTION • O<sub>2</sub> PRODUCTION • SUSTAINABILITY • RAW MATERIALS CONSERVATION • INNOVATION • DURABLE & VERSATILE PRODUCTS • JOBS • EFFICIENCY



**MOSTA**

Malaysian Oil Scientists' and  
Technologists' Association  
[www.mosta.org.my](http://www.mosta.org.my)

ORGANISED BY: Malaysian Oil Scientists' and Technologists' Association (MOSTA)

C3A-10, 4th Floor, Block C, Damansara Intan, 1 Jalan SS 20/27, 47400 Petaling Jaya, Selangor, Malaysia Tel: 603-71182064/66 Email: [mosta.secretariat@gmail.com](mailto:mosta.secretariat@gmail.com); [secretariat@mosta.org.my](mailto:secretariat@mosta.org.my)



# MALAYSIAN PALM OIL COUNCIL



The Malaysian Palm Oil Council (MPOC) is an agency dedicated to positioning Malaysia as the global leader in certified sustainable palm oil. With a strong focus on promoting market access for certified sustainable Malaysian palm oil, MPOC aims to increase awareness of the technological, economic, and environmental benefits associated with this versatile commodity.

The Council has a network of regional offices in China (Shanghai), India (Mumbai), the Middle East (Jeddah and Istanbul), Europe (Brussels and Russia) and Africa (Cairo and Johannesburg). Through its head office in Kuala Lumpur and the regional offices, MPOC plays a vital role in facilitating the Malaysian palm oil industry in the expansion of their trade by constantly identifying and capitalizing on the latest market trends and opportunities.

The plantation industry, particularly palm oil, is one of the main pillars of the Malaysian economy. The palm oil sector has contributed significantly towards providing a continuous inflow of export earnings by exporting raw commodities and value-added products to the global market.

# 9

## OFFICES COVERING

# 6

## REGIONS

