

THAILAND HALAL ASSEMBLY 2025



“Green Halal: Beyond Sustainability”
กรีนฮาลาล สู่นวัตกรรมแห่งความยั่งยืน

BOOK OF ABSTRACTS

The International Halal Science
and Technology Conference
(IHSATEC) 2025

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Book of Abstract Conference Proceeding

**The International Halal Science and
Technology Conference 2025 (IHSATEC):
18th Halal Science Industry and Business
(HASIB)**

**International Conference (Hybrid)
Venue: Al Meroz Hotel, Bangkok, Thailand
December 18-19, 2025**



Book of Abstract Conference Proceeding
The International Halal Science and Technology Conference 2025
(IHSATEC): 18th Halal Science Industry and Business (HASIB)

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FOREWORD

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PREFACE

Thailand Halal Assembly 2025 covering International Halal Science and Technology Conference (IHSATEC) 2025, the 18th Halal Science Industry and Business (HASIB) Conference are organized by the Halal Science Center Chulalongkorn University (HSC-CU) in collaboration with the Halal Standard Institute of Thailand and the Research Synergy Foundation (RSF) as well as other esteemed organizations. The 18th HASIB conference, scheduled for December 18-19, 2025, will be a groundbreaking hybrid event, featuring both online and onsite participation at the Al Meroz Hotel, Bangkok, Thailand. The overarching theme of the conference is "Green Halal Economy: Beyond Sustainability."

This booklet contains the curriculum vitae and abstracts of keynote speakers, offering insights into the content presented during the nine plenary sessions at IHSATEC 2025: the 18th HASIB conference. Notably, as of December 15, 2025, the conference attracted active participation from 396 professionals and international attendees. Keynote speakers and 28 esteemed experts from 20 countries and an international organization, including Thailand, Malaysia, Qatar, Oman, New Zealand, Philippines, Saudi Arabia, Japan, Oman, India, Indonesia, Pakistan, Switzerland, Australia, as well as The Standards and Metrology Institute for Islamic Countries (SMIIC), all contributed to the success of the event.

The academic session also featured 14 notable sessions, including: HASIB (4 sessions) Onsite oral presentations on science, technology, and innovation (3 sessions), Onsite oral presentations on AI, Blockchain and Business (2 sessions), Online oral presentations on science, technology, and innovation, Online oral presentation on AI, Blockchain and Business (1 session), Poster academic presentations (4 sessions). Furthermore, there were 17 judging committee members, and a total of 53 academic presenters from ten nations, namely Malaysia, Brunei, Indonesia, Philippines, Pakistan, India, Hongkong, Trinidad and Tobago, Sri Lanka and Thailand.

Participants had the opportunity to engage in discussions and share their knowledge, experiences, and new ideas related to Halal science, technology, innovation, industry, AI, Blockchain and Business. I extend my deepest gratitude to our dedicated staff committees for their unwavering devotion, enthusiasm, and tremendous efforts in ensuring the conference's success and creating lasting memories. Special thanks are extended to all speakers, session chairmen, judging committee members, and presenters. Your invaluable contributions to this conference are acknowledged with sincere gratitude.

.....
Dr. Pornpimol Mahamad
Chairman of the Organizing Committee
Thailand Halal Assembly 2025

Editor IHSATEC2025; 18th HASIB Book of Abstracts



The Halal Science Center Chulalongkorn University (HSC-CU)

Climate change, resource depletion, and growing sustainability expectations have transformed the global halal industry from a system focused primarily on religious compliance into one that must also demonstrate environmental responsibility, scientific credibility, and social accountability. In response to these emerging challenges, the Halal Science Center, Chulalongkorn University (HSC), presents a science-driven Green Halal paradigm that integrates halal integrity, advanced verification technologies, and green innovation across the entire halal ecosystem.

Established through a national policy mandate, HSC has pioneered the application of scientific methods to halal verification and assurance. Its multidisciplinary structure-encompassing halal forensic science, big data analytics, innovation incubation, and community learning-provides a unique foundation for advancing sustainable halal systems. Central to this framework are internationally accredited analytical laboratories (ISO/IEC 17025), the HAL-Q halal assurance and quality management system, the H Numbers scientific ingredient database, and their integration with artificial intelligence and blockchain technologies. Together, these platforms enable transparent verification, ingredient traceability, and risk-based decision-making while reducing unnecessary laboratory testing, chemical consumption, and resource waste.

Beyond verification, HSC actively advances green halal research and innovation through applied projects that align halal principles with environmental stewardship. These include smart halal agriculture with sensor-based resource optimization, green ingredient screening and substitution, waste-to-value product development, biodegradable and bio-based material design, and halal-compliant circular economy models. Through its Business Incubator of Halal Products and innovation learning networks, HSC translates scientific research into market-ready halal innovations that support SMEs, enhance product sustainability, and strengthen consumer trust.

This Green Halal ecosystem positions halal not merely as a certification mechanism, but as a science-based pathway toward sustainable production, resilient halal supply chains, and long-term competitiveness. By aligning halal integrity with green innovation and digital transformation, the Halal Science Center, Chulalongkorn University, contributes to Thailand's strategic role as a global leader in sustainable and trustworthy halal systems, in line with the vision and objectives of Thailand Halal Assembly 2025.



Research Synergy Foundation is a digital social enterprise platform that focuses on developing the Global Research Ecosystem towards outstanding global scholars. We build collaborative networks among researchers, lecturers, scholars, and practitioners globally for the realization of knowledge acceleration and to contribute more to society and humanity. As a social enterprise, our aim is to provide a good research ecosystem and platform for researchers to share, discuss, and disseminate their ideas. In addition, it helps you to improve your research and contribute to the knowledge. Therefore, creating social value and impact is our priority.

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There are various agendas (work and program) that we have already done since 2017 up to present. The agendas are coming from all the support systems in the Global Research Ecosystem, named: Scholarvein, ReviewerTrack, Research Synergy Institute, Research Synergy Press, and Global Research Community. Research and publication cannot be seen as a separate part. Otherwise, we should take both as a comprehensive program. Moreover, the quality of the paper is the biggest concern for publication. To achieve the Organization/University/ Institution goal, we provide some agendas that can support you in research and publication enhancement. Some of the prominent agendas are:

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2. Scientific and Academic Writing Coaching Clinics: It aims to provide a targeted and intensive learning strategy for publishing papers in high-impact Scopus/ WOS international journals.
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4. Learning and Knowledge Sharing Programs: It aims to provide the best practice and guide from the experts, editors, and publishers' perspectives in research and publication enhancement.
5. Social Programs: It aims to empower and encourage society to share the value of creating an impactful program with us.

Research Synergy Foundation welcome all individuals, organizations/institutions (universities, governments, and private sectors) to be part of our Global Research Ecosystem.

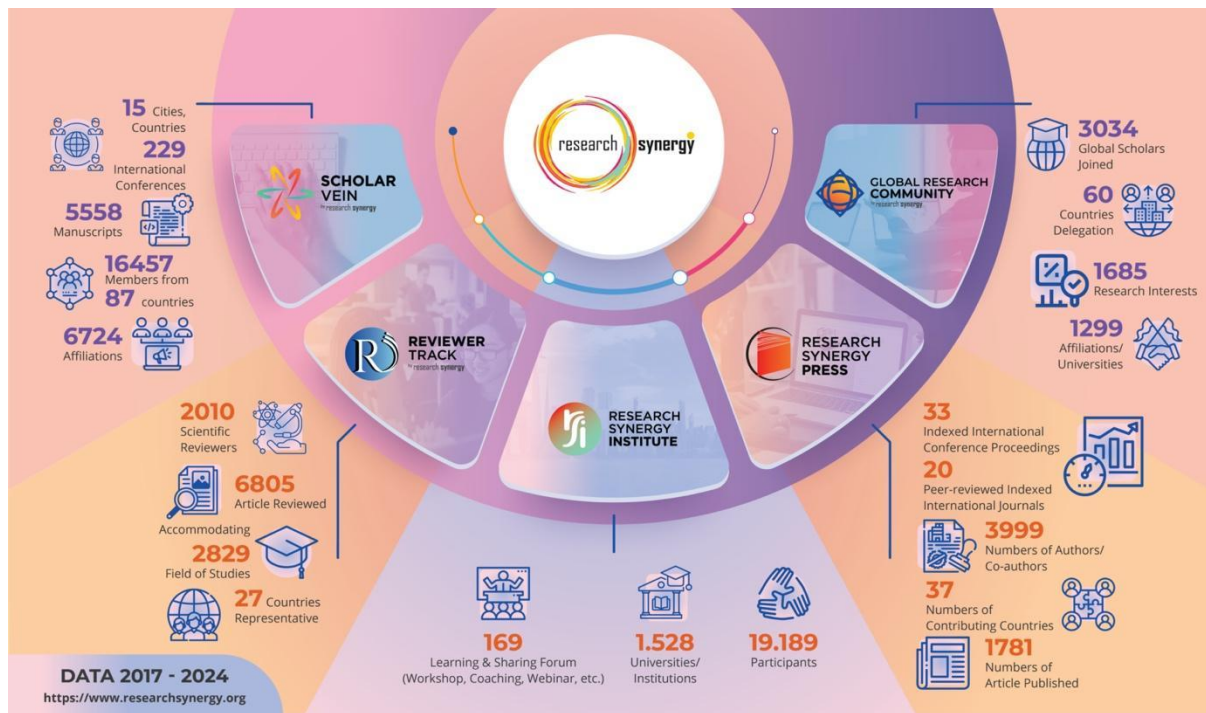


Figure: Global Research Ecosystem owned by Research Synergy Foundation (data from 2017 – 2024)

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Director General Islamic Tourism Center, Malaysia

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Vice chairman of National Standard Committee & Member of Pakistan Standard Quality Control Authority (PSQCA), Pakistan

Dr. Hendrati Dwi Mulyaningsih

Research Synergy Foundation, Indonesia

CONFERENCE CHAIR MESSAGE

The International Halal Science and Technology Conference 2025 (IHSATEC): 18th Halal Science Industry and Business (HASIB) is an international conference organized by The Halal Science Center Chulalongkorn University, Thailand and Research Synergy Foundation that is held hybrid on 18-19 December 2025, Onsite from Al Meroz Hotel, Bangkok, Thailand, and virtual through Zoom platform. Supported by Scholarvein, Reviewer Track, Research Synergy Institute, Research Synergy Press, Global Research Community, and F1000 Research,

We are delighted to welcome all participants of IHSATEC 2025: 18th HASIB, both onsite and virtually. This conference is designed to facilitate the exchange and sharing of thoughts and findings across various aspects of Halal Science and Technology, both in industry and business. Participants are welcome to present their work either physically or virtually during the Academic Session of Thailand Halal Assembly 2025.

We encourage all researchers, lecturers, students, practitioners, and academicians are to join this event to share insights and discoveries in the diverse subjects of Halal Science and Technology Management. This conference provides a global platform for the exchange of ideas, research, and collaborative opportunities, fostering a broader network and research ecosystem. Exclusive opportunities will be extended to all participants attending the conference.

We warmly greet you at this conference and hope that this year's conference will present both challenges and inspiration, encouraging the development of fresh knowledge, collaborations, and friendships.

Best regards,

Dr. Pornpimol Mahamad
Conference Chair of IHSATEC 2025: 18th HASIB

CONFERENCE CHAIR



Dr. Pornpimol Mahamad

**Director, The Halal Science Center, Chulalongkorn University
(HSC-CU)**

Area of expertise:

Halal Science, Recombinant DNA technology, Molecular cloning, Gene expression, Bacterial transformation, DNA extraction and purification, Protein extraction and purification, DNA amplification, and Gel electrophoresis

Qualification & Education

- PhD. in Biotechnology, Faculty of Science, Mahidol University (2015)
- M.Sc. Clinical Biochemistry and Molecular Medicine, Faculty of Allied Health Science, Chulalongkorn University (2006)
- B. Sc. Microbiology, Faculty of Science, Srinakharinwirot University (2003)

CO- CONFERENCE CHAIR



Dr. Hendrati Dwi Mulyaningsih, S.E., M.M.

Founder & Chairperson of Research Synergy Foundation

Dr. Hendrati Dwi Mulyaningsih has shown great commitment on creating Global Network and Research Ecosystem which has been developing since 2017 up to the present and having increasing numbers of the member up to more than 30.000 from all around the globe. Thus, her work in this area has made her as the Nominee of Impactful Leadership Awards from Tallberg Foundation Sweden 2024. As lecturer, she has been working in the University since 2008 – at present in Indonesia as assistant professor and she hold her Doctoral Science of Management graduated from School of Business and Management Institute of Technology Bandung (SBM-ITB). Her research expertise are in Social Entrepreneurship, Social Innovation and Knowledge Management. In addition, she had published books chapters, research papers and contemporary scientific articles in Springer, Emerald, Taylor and Francis and in many reputable international publishers and journals.

As researcher, her work studies and research on this research field made her be invited as reviewer in many reputable Scopus and WOS indexed journals and as keynote speaker in many International Conferences in Philippines, Thailand, Malaysia, Indonesia, Australia, Japan, and US. The terrific association between her professional experiences as researcher, lecturer, the certified Trainer & Coach combined with her wider horizon on networking in the research area made her establish the strong commitment on having global learning platform to accelerate knowledge through many workshops and research coaching in Research Synergy Institute as one of RSF's support system.

WELCOMING REMARKS



Assoc. Prof. Dr. Pradermchai Kongkam

**Assistant to the President of Chulalongkorn University,
Thailand**



Police Major General Surin Palarae

**Secretary General of the Central Islamic Council of Thailand
(CICOT)**

OPENING REMARKS



H.E. İhsan ÖVÜT

Secretary General, The Standards and Metrology Institute for the Islamic Countries (SMIC)



H.E. Arun Boonchom

the Sheikhu Islam of Thailand



Mr. Surapong Numchairujipong

Vice Minister for Industry, Thailand

KEYNOTE SPEAKER



Assoc. Prof. Dr. Winai Dahlan

**Founder and Advisor to the Director,
The Halal Science Center, Chulalongkorn University (HSC-
CU), Thailand**

Associate Professor Dr. Winai Dahlan is the Founding Director of The Halal Science Center at Chulalongkorn University (HSC). Concurrently, he is also the Vice President for the The Central Islamic Council of Thailand (CICOT) and the Chairman of the Halal Standard Insititue of Thailand (HSIT. He obtained his Ph.D. in Applied Medical Biology with a Magna Cum Laude from The Faculty of Medicine and Pharmacy St-Pierre Hospital, Université Libre de Bruxelles, Brussels, Belgium in 1989. Prior to that, he obtained the degree of M.S. Nutrition from the Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand in 1982. Meanwhile, his B.Sc. Biochemistry was obtained from his study at Faculty of Science, Chulalongkorn University, Bangkok, Thailand in 1976.

His past experiences including:

- Member, The National Reform Steering Assembly (NRSA)
- Member, the National Reform Council (NRC)
- Dean, Faculty of Allied Health Sciences, Chulalongkorn University
- Member, The National Directive Board of Food, Ministry of Public Health
- Member, The Advisory Board of Food, FDA, Ministry of Public Health
- Chairman, Subcommittee on Carbohydrates and Proteins, The National Committee of Thailand Recommended Dietary Allowances, Ministry of Public Health
- Nutrition Advisor in International Events: The 13th Asian Games, The 7th Fespig Games, The 20th World Scout Jamboree, The 24th Summer Universiade Games
- Member, The Advisory Board of Deputy Prime Minister and Ministers

SCIENTIFIC/ACADEMIC TRAININGS & VISITS:

- > 300 visits and trainings in 50 countries.

PUBLICATIONS:

- ~ 350 books (in Thai)
- > 3,000 pieces of documentary articles in science/technology, food/nutrition in several Thai magazines since 1989
- > 50 reviewed scientific articles published internationally/locally
- > 40 original research articles published internationally/locally,

AWARDS & HONOURS:

- World Halal Day Lifetime Achievement Award 2017, London, United Kingdom by the United World Halal Development
- Listed as “The 500 Most Influential Muslims” of the years by the Royal Islamic Strategic Studies Centre, Jordan for 9 consecutive years of 2010-2019
- The National Award of Best Innovative Civil Services, Office of Public Sector Development Commission 2013
- The Royal Thai Decoration and Awards:
- The Bravery Medal, The Dushdi Mala. (2425 B.E.) esteemed achievement in science
- Knight Grand Cordon of the Most Noble Order of the Crown (Major General rank)
- The Chakrabarti Mala Medal (2436 B.E.)
- Best Innovation award, Halal Science & Innovation Excellence, World Halal Research Summit 2011, 2012, Kuala Lumpur, Malaysia
- Listed as “The 500 Most Influential Muslims” of the years by the Royal Islamic Strategic Studies Centre, Jordan for 8 consecutive years of 2010-2017
- Philippines’ IDCP Recognition Award of Halal Achievement in Halal Science 2009
- Malaysia’s Halal Journal Award of Best Innovation in Halal Industry 2006
- Alumnus of the Year 2009, Graduate Studies, Mahidol University, Bangkok, Thailand
- Alumnus of the Year 2005, Faculty of Science, Chulalongkorn University, Bangkok, Thailand

Lecturer of the Year 2001, Chulalongkorn University, Bangkok, Thailand



Dr. Pornpimol Mahamad

Director, The Halal Science Center, Chulalongkorn University (HSC-CU), Thailand

Science Driven Approach to the Sustainable Green Halal Ecosystem

Abstract

Climate change and environmental degradation have transformed sustainability from a voluntary initiative into a global requirement, directly affecting food security, public health, and economic stability. In response to these challenges, the halal industry is increasingly expected to demonstrate not only compliance with religious principles but also responsibility across environmental, social, and governance dimensions. This paper presents the concept of Green Halal as a science-driven system that integrates halal integrity, scientific verification, and environmental stewardship throughout the entire supply chain.

The Green Halal framework proposed by the Halal Science Center, Chulalongkorn University, emphasizes responsible sourcing, low-impact production, transparent verification, and evidence-based decision-making. Central to this approach is the integration of the HAL-Q system, H-Numbers database, Halal Forensic Science Laboratory, and the Thailand Diamond Halal Blockchain, which together provide structured verification, ingredient transparency, traceability, and risk-based analytical testing. Rather than increasing laboratory intervention, credible ISO/IEC 17025–accredited testing is applied selectively to reduce redundant analyses, unnecessary chemical use, and resource waste.

The framework is further demonstrated through practical implementations, including smart halal agriculture with sensor-based resource management, green ingredient selection, waste-to-value product innovation, and biodegradable product design. Case studies such as upcycled banana peel extracts, perilla seed antioxidant lip balm, taro-based functional snacks, and anti-acne biodegradable films illustrate how Green Halal principles can be translated into tangible products that meet both market expectations and sustainability goals.

This science-driven Green Halal ecosystem positions halal not merely as a compliance requirement, but as a credible pathway toward sustainable production, consumer trust, and long-term resilience in global halal markets.

Keywords: Green Halal, Sustainability, Halal integrity, Scientific verification

SPEAKERS



Prof. Dr. Abdelaziz Bouras

**Professor at College of Engineering,
Qatar University, Qatar**

Professor A. Bouras has been conferred the HONORIS-CAUSA PhD in ICT and Knowledge Management by Her Royal Highness Princess Maha Chakri Sirindorn of Thailand in 2011.

He is currently the Director of the Research Support Office of Qatar University. He is also Professor in Computer Science and the current Chair of the IFIP (International Federation of Information Processing) working group 5.1 on ICT for lifecycle management. Dr. Bouras was the holder of the ICT-Qatar Ministry Chair position and has been working at the Digital Incubation Center of the Ministry until Sept. 2016. Prior to that he was the Deputy Director of the DISP Research Laboratory at University of Lyon - France, and the Manager of the Innovation and Technology Transfer Center of the university. He coordinated dozens of international projects in Europe and in the Middle East and helped incubating Start-ups in both France and Qatar. His current research interests deal with Software Lifecycle Management and Information Systems, including Information Security and Blockchain for Supply Chains.



Mr. Munzel Fahd K. Almutairi
Kingdom of Saudi Arabia

Area of expertise:

- Innovation management & technology incubation
- Intellectual property (IP) and patent law consulting
- Engineering education, entrepreneurship & project management

Qualification & Education

- M.S. in Service Leadership and Innovation, Rochester Institute of Technology (RIT), Branch of RIT, USA.
- LL.M. in Intellectual Property & Competition Law, Munich Intellectual Property Law Center (MIPLC), Germany
- B.S. in Mechanical Engineering, California State University, Fresno, CA



Prof. Rafia Mumtaz
Vice Chancellor, Kohsar University Murree, Pakistan

Area of expertise:

- Remote sensing, satellite image processing & GIS
- Internet of Things (IoT)
- Applications of AI and Machine Learning.

Qualification & Education

- PhD in Remote Sensing & Satellite Image Processing, University of Surrey, UK (2010)
- MS in Software Engineering, National University of Sciences and Technology (NUST), Islamabad, Pakistan (2006)
- BE in Software Engineering, Fatima Jinnah University, Rawalpindi, Pakistan (2004)



Prof. Dr. Irwandi Jaswir

Dean for Academic, Research, and Publication at INHART, the International Islamic University Malaysia (IIUM), Malaysia

Prof. Dr. Irwandi Jaswir is a distinguished academic and researcher in the field of Food Chemistry and Biochemistry, currently serving as a Professor at the International Islamic University Malaysia (IIUM). With a career that spans over two decades, he has held various leadership roles, including Director and Deputy Dean of the International Institute for Halal Research and Training (INHART) at IIUM. Prof. Dr. Irwandi is also the Secretary of the IIUM Council of Professors and serves on numerous international boards, reflecting his prominent role in the academic and halal research communities.

He earned his Bachelor's degree in Food Technology and Human Nutrition from Bogor Agricultural University, Indonesia, followed by an M.Sc. in Food Science and Biotechnology from Universiti Pertanian Malaysia (UPM), and a Ph.D. in Food Chemistry and Biochemistry from UPM. Additionally, he has completed a Postdoctoral Fellowship in Lipid Biochemistry at the National Food Research Institute in Japan and participated in exchange programs at the University of British Columbia, Canada. His academic qualifications are complemented by a diploma in Islamic Revealed Knowledge from IIUM.

Prof. Dr. Irwandi has a wealth of research experience, focusing on halal science, food safety, and biochemistry. His work has led to significant contributions to the development of halal food standards and the detection of non-halal adulterants. He is the leader of several ongoing projects, including the development of portable halal detection devices and the production of halal fish collagen nanoparticles. Prof. Dr. Irwandi has been instrumental in securing and leading numerous research grants, contributing to the advancement of halal food technologies and food safety research.

As a consultant, Prof. Dr. Irwandi has worked with institutions such as the Saudi Food and Drugs Authority (SFDA) and various halal certification bodies, including his role as Chairman of the Korea-INHART Halal Certification Authority. His expertise extends to international collaborations, where he has contributed to research and industry partnerships across Malaysia, Saudi Arabia, Japan, and beyond. Prof. Dr. Irwandi's leadership and contributions continue to shape the future of halal food science and biochemistry globally.



Prof. Dr. Nazimah Hamid

Professor of Centre for Future Foods at Auckland University of Technology, New Zealand

Area of expertise:

Food and Sensory Science, Food Technology, Food Chemistry

Qualification & Education:

- PhD in Food Science, University of Strathclyde, UK
- MSc in Food Biotechnology, University of Strathclyde, UK
- BSc (Hons) in Food Science, University of Nottingham, UK



Prof. Ir. Dr. Yus Aniza Yusof

Deputy Director, Halal Products Research Institute, Universiti Putra Malaysia (UPM), Malaysia

Area of expertise:

- Food Material Engineering
- Halal Products Development
- Functional Foods

Qualification & Education:

- PhD, DIC in Chemical Engineering, Imperial College London, UK (2006)
- MSc. Chemical and Process Engineering, Universiti Kebangsaan Malaysia (2001)
- B. Eng. (Hons) Chemical and Process Engineering, Universiti Kebangsaan Malaysia (1999)



Dr. Nuttavut Kosem

Researcher Assistant Professor, Kyushu University, Japan

Area of expertise:

- Genetic engineering for biocatalyst development
- Enzyme immobilization in metal-organic framework
- Solar-to-chemical conversion through microbial biocatalytic activities
- Photobiocatalytic H₂ production
- Photobiocatalytic NH₃ production

Qualification & Education:

PhD in Biopharmaceutical Sciences, Department of Microbiology, Faculty of Pharmacy, Mahidol University, Thailand (2003–2008)



Professor Dr. Mariko ARATA

College of Gastronomy Management Director, Research Center for Gastronomic Arts and Sciences, Ritsumeikan University, Japan

Area of expertise:

- Culinary anthropology and food culture research
- Halal food certification systems & Muslim dietary practices in Japan
- Gastronomy management and sustainable food systems

Qualification & Education:

- Ph. D. (Literature) from Sokendai (The Graduate University for Advanced Studies).
- M. A. (Linguistics) from Tokyo University for Foreign Studies.
- B. A. (Liberal Arts) from International Christian University.



Dr Mohammed Najmuddin

Chief Researcher, Halal Research Laboratory, Chief Darul Hikma Tibb Nabawi, Founder Halal Herbal Remdies, CEO Dr Herbist LLP, India

Chief Researcher Halal Research Laboratory, Chief Darul Hikma Tibb Nabawi, Founder Halal Herbal Remdies, CEO Dr Herbist LLP

Area of expertise:

- Halal pharmaceuticals & herbal product development
- Halal standards implementation and certification auditing
- Prophetic medicine (Tibbe Nabawi) research & training

Qualification & Education:

- Ph.D. in Islamic Sciences, Trinity University
- Master's Degree in Islamic Studies, Osmania University
- Bachelor of Unani Medicine and Surgery (BUMS), BRABU



Mr. Aleem Guiapal

DTI Halal Industry Development Office, Philippines

Area of expertise:

- Halal industry ecosystem development
- International trade promotion & investment missions
- Economic development & government partnerships

Qualification & Education

- Master's Degree in Development Management, Asian Institute of Management
- Executive education & fellowships: Michigan State University, American University, and National University of Singapore



H.E. İhsan ÖVÜT

Secretary General, The Standards and Metrology Institute for the Islamic Countries (SMIIC)

Area of expertise:

OIC/SMIIC Standard, Standardization

Qualification & Education

B.Sc., The Department



Eng. Moteb Al-Mezani

Director General, GCC Accreditation Center (GAC), Saudi Arabia

Area of expertise:

- Halal Accreditation & Assessment of Certification Bodies
- Laboratory & Inspection Body Evaluation
- International Training

Qualification & Education

- Master's degree in Instrumentation and Control Systems Engineering



Assist. Prof. Dr. Zahra Al-Kharousi

Lecturer, Food Microbiology and Biotechnology, College of Agricultural and Marine Sciences, Sultan Qaboos University, Oman

Area of Expertise

- Food Science and Nutrition
- Food Microbiology & Food Safety
- Antimicrobial Resistance

Qualification & Education:

- Bachelor of Science: College of Science, Department of Biology, Sultan Qaboos University, 2004
- Master of Science (M.Sc.): College of Agricultural and Marine Sciences, Food Science and Nutrition, Sultan Qaboos University, 2011
- Doctor of Philosophy (Ph.D.): College of Agricultural and Marine Sciences, Food Science and Nutrition, Sultan Qaboos University, 2017.

SESSION CHAIRS



Assist. Prof. Dr. Paradorn Sureepong
the Halal Science Center,
Chulalongkorn University (HSC-CU), Thailand

Dr. Pradorn Sureepong is appointed as Assistant Director, The Halal Science Center Chulalongkorn University, Thailand. He received his Bachelor of Engineering (Computer Engineering), from Faculty of Engineering, Chiang Mai University, Thailand and pursued to another level and received his Master of Economics from Faculty of Economic, Chiang Mai University, Thailand. He received his PhD for Dual Degree Program from Université Lumière Lyon 2, France and Chiang Mai University, Thailand in 2009. He has published many academic articles and remarkable writings.



Prof. Ts. Dr. Suraini Abd Aziz
Professor at Faculty of Biotechnology & Biomolecular Sciences,
Universiti Putra Malaysia

Area of expertise:
Biochemical Engineering specializing in Enzyme Technology & Industrial Biotechnology

Qualification & Education

- Doctor of Philosophy Research Programme in Biochemical Engineering, University of Wales Swansea, United Kingdom (October 1993 – February 1997)
- Master of Science Programme in Biochemical Engineering, University of Wales Swansea, United Kingdom (October 1992 – September 1993)
- Bachelor of Clinical Biochemistry, Universiti Kebangsaan Malaysia (June 1988 – April 1992)



Prof. Ir. Dr. Shahrir Abdullah

Universiti Kebangsaan Malaysia

Department of Mechanical and Materials Engineering, Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia

Area of expertise:

- Computational Fluid Dynamics
- Automotive Engineering
- Thermal Systems

Qualification & Education

- Ph.D. in Mechanical Engineering, University of Wales Swansea, U.K. (1997 – 1993)
- M.Sc. in Design & Economic Manufacture, University of Wales Swansea, U.K. (1992 – 1993)
- B.Eng. in Mechanical Engineering, Universiti Kebangsaan Malaysia. 1988 – 1992



Asst. Prof. Dr. Pakpum Somboon

**Lecturer, Bio-Electronic Research Laboratory (BERL),
Department of Electrical Engineering,
Chulalongkorn University, Thailand**

Area of expertise:

Biomedical Engineering, Electrical Engineering

Qualification & Education:

- Ph.D. - Physical Electronics, Tokyo Institute of Technology, Japan, 2007
- Master of Engineering - Electrical Engineering, Chulalongkorn University, Thailand, 2000
- Bachelor of Engineering - Electrical Engineering, Chulalongkorn University, Thailand, 1997



Prof. Dr. Muhammad Umair Arshad

**Professor / Chairperson, Department of Food Science
Government College University, Faisalabad, Pakistan**

Area of expertise:

- Regulations related to Health claims and Food labeling
- Food Intake, Appetite and glycemic responses of foods with special focus on dairy products and Components
- Food fortification strategies and related consultancies at national and international level

Qualification & Education

- Postdoctorate Food and Nutrition, University of Toronto, Canada, 2016
- Ph.D. Food Science & Technology, University of Agriculture, Faisalabad, 2008
- M.Sc. (Hons.) Food Science & Technology, University of Agriculture, Faisalabad, 2003
- B.Sc. (Hons.) Agriculture (Food Technology), University of Agriculture, Faisalabad, 2001



Dr. Jirachaya Yeemin

Ramkhamhaeng University, Thailand

Area of expertise:

- Molecular basis of plant-microbe interactions,
- Plant Bacteriology, Plant Physiology,
- Plant Immunity, Plant Diseases,
- Stomatal Immunity

Qualification & Education

- Bachelor of Science in Biology, Chulalongkorn University, Bangkok, Thailand (2015)
- Ph.D. in Horticulture and Agronomy, Department of Plant Sciences, University of California, Davis, USA (2023)



Dr. Adil Siripatana

University of Edinburgh, United Kingdom

Research Associate in Flood Modelling, School of Engineering,
University of Edinburgh, United Kingdom

Area of expertise:

- Uncertainty quantification for flood and ocean modelling
- Data assimilation techniques
- AI and hybrid modeling for environmental prediction systems

Qualification & Education:

- Ph.D., Earth Sciences & Engineering, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia
- M.S., Earth Sciences & Engineering, KAUST, Thuwal, Saudi Arabia
- B.Sc. (Hons.), Computational Sciences, Walailak University, Thailand



Assist. Prof. Dr. Pradorn Sureepong

**the Halal Science Center, Chulalongkorn University (HSC-CU),
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Research Associate in Flood Modelling, School of Engineering,
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Dr. Pradorn Sureepong is appointed as Assistant Director, The Halal Science Center Chulalongkorn University, Thailand. He received his Bachelor of Engineering (Computer Engineering), from Faculty of Engineering, Chiang Mai University, Thailand and pursued to another level and received his Master of Economics from Faculty of Economic, Chiang Mai University, Thailand. He received his PhD for Dual Degree Program from Université Lumière Lyon 2, France and Chiang Mai University, Thailand in 209. He has published many academic articles and remarkable writings.



Prof. Dr. Abdelaziz Bouras

**Professor at College of Engineering,
Qatar University, Qatar**

Professor A. Bouras has been conferred the HONORIS-CAUSA PhD in ICT and Knowledge Management by Her Royal Highness Princess Maha Chakri Sirindorn of Thailand in 2011.

He is currently the Director of the Research Support Office of Qatar University. He is also Professor in Computer Science and the current Chair of the IFIP (International Federation of Information Processing) working group 5.1 on ICT for lifecycle management. Dr. Bouras was the holder of the ICT-Qatar Ministry Chair position and has been working at the Digital Incubation Center of the Ministry until Sept. 2016. Prior to that he was the Deputy Director of the DISP Research Laboratory at University of Lyon - France, and the Manager of the Innovation and Technology Transfer Center of the university. He coordinated dozens of international projects in Europe and in the Middle East and helped incubating Start-ups in both France and Qatar. His current research interests deal with Software Lifecycle Management and Information Systems, including Information Security and Blockchain for Supply Chains.



Dr. Simab Kanwal

**Researcher at the Institute of Biotechnology and Genetic
Engineering, Chulalongkorn University, Thailand**

Area of expertise:

Biochemistry, Molecular Biology, Fundamentals of Biotechnology,
Enzyme Technology, Microbial Biotechnology

Qualification & Education

- Post-Doctorate., (Pharmacognosy and Pharmaceutical Botany) – Chulalongkorn University, Thailand, Period: 2021 – 2023
- Post-Doctorate., (Molecular Biosciences/Structural Biology) – Mahidol University, Thailand, Period: 2019 – 2021
- Post-Doctorate., (Biochemistry/Molecular Biology) – Chulalongkorn University, Bangkok, Thailand. Period: 2014 – 2016
- Ph.D., (Biochemistry/Molecular Biology) – Chulalongkorn University, Bangkok, Thailand. Period: 2010 – 2014, Status: Degree Awarded.
- M.Phil., (Biochemistry/Molecular Biology) – Quaid-i-Azam University Islamabad, Pakistan. Period: 2007 – 2009, Grade A
- M.Sc., (Biological sciences) – Quaid-i-Azam University Islamabad, Pakistan. Period: 2005 – 2007, Rank scored: First class.
- B.Sc., (Biology) – University of Azad Jammu & Kashmir, Pakistan. Period: 2003 – 2005, Division 1



Prof. Dr. Jawad Alzeer

University of Zurich, Dübendorf, Zurich, Switzerland

Area of expertise:

- Nucleic Acid Chemistry
- Medicinal & Organic Chemistry
- Natural Products & Halalopathic Research

Qualification & Education

- PhD in Organic Chemistry, Carbohydrate (1996)
- Postdoc in Medicinal Chemistry (1998)
- Research Scientist
University of Michigan, Ann Arbor, Michigan, USA. (2000)
Institute of Molecular Cancer Research, Zurich, CH (2006)



Asst. Prof. Dr. Muhammad Sajid Arshad

**Department of Food Science Government College University,
Faisalabad, Pakistan**

Area of expertise:

Food chemistry, Functional foods, Halal Authentication,
Sustainable food packaging technologies

Qualification & Education

- Postdoctoral Research Associate, Food Science and Nutrition (Food Chemistry), School of Agriculture, Food and Ecosystem Sciences, The University of Melbourne
- Ph.D. Food Science, NIFSAT, University of Agriculture, Faisalabad, Pakistan, 2013
- MS Food Science and Technology, NIFSAT, University of Agriculture, Faisalabad, Pakistan, 2009
- BS Agriculture Major Food Technology, NIFSAT, University of Agriculture, Faisalabad, Pakistan, 2007

JUDGING COMMITTEE



Asst. Prof. Dr. Muhammad Sajid Arshad

**Department of Food Science Government College University,
Faisalabad, Pakistan**

Area of expertise:

Food chemistry, Functional foods, Halal Authentication,
Sustainable food packaging technologies

Qualification & Education

- Postdoctoral Research Associate, Food Science and Nutrition (Food Chemistry), School of Agriculture, Food and Ecosystem Sciences, The University of Melbourne
- Ph.D. Food Science, NIFSAT, University of Agriculture, Faisalabad, Pakistan, 2013
- MS Food Science and Technology, NIFSAT, University of Agriculture, Faisalabad, Pakistan, 2009
- BS Agriculture Major Food Technology, NIFSAT, University of Agriculture, Faisalabad, Pakistan, 2007



Prof. Dr. Nancy Dewi Yuliana

**Food Science and Technology, Bogor Agricultural University,
Indonesia**

Area of expertise:

- Food Metabolomics for Food Quality Control
- Bioactive Compounds Exploration
- Halal Food Authentication

Qualification & Education

- Ph.D. in Pharmacognosy, Leiden University, The Netherlands (2011)
- M.Sc. in Pharmacognosy, Leiden University, The Netherlands (2007)
- Postdoctoral Research, National Food Research Institute, Tsukuba, Japan (2014–2015)



Prof. Ir. Dr. Muhamad Nadratuzzaman Hosen
Syarif Hidayatullah State Islamic University, Indonesia

Area of expertise:

- Islamic Economics & Islamic Social Finance
- Sharia Governance & Supervision in Islamic Banking and Finance

Qualification & Education

- Bachelor Degree Faculty of Animal Husbandry, Bogor Agricultural University (1984)
- Postgraduate School of Regional and Rural Development Planning, Bogor Agricultural University, (1990)
- Post-graduated Advanced Studies in Human Ecology, VUB Brussels (1994)
- Master of Economics, University of New England, Australia (1996)
- Doctor of Philosophy in Economics, University of New England, Australia (2001)



Dr. Hendrati Dwi Mulyaningsi, S.E., M.M.
Founder & Chairperson of Research Synergy Foundation

Dr. Hendrati Dwi Mulyaningsih has shown great commitment on creating Global Network and Research Ecosystem which has been developing since 2017 up to the present and having increasing numbers of the member up to more than 30.000 from all around the globe. Thus, her work in this area has made her as the Nominee of Impactful

Leadership Awards from Tallberg Foundation Sweden 2024. As lecturer, she has been working in the University since 2008 – at present in Indonesia as assistant professor and she hold her Doctoral Science of Management graduated from School of Business and Management Institute of Technology Bandung (SBM-ITB). Her research expertise are in Social Entrepreneurship, Social Innovation and Knowledge Management. In addition, she had published books chapters, research papers and contemporary scientific articles in Springer, Emerald, Taylor and Francis and in many reputable international publishers and journals.

As researcher, her work studies and research on this research field made her be invited as reviewer in many reputable Scopus and WOS indexed journals and as keynote speaker in many International Conferences in Philippines, Thailand, Malaysia, Indonesia, Australia, Japan, and US. The terrific association between her professional experiences as researcher, lecturer, the certified Trainer & Coach combined with her wider horizon on networking in the research area made her establish the strong commitment on having global learning platform to accelerate knowledge through many workshops and research coaching in Research Synergy Institute as one of RSF's support system.



Prof. Dr. Ir. Damat, MP, IPM

University of Muhammadiyah Malang, East Java, Indonesia

Area of expertise:

- Islamic Economics & Islamic Social Finance
- Sharia Governance & Supervision in Islamic Banking and Finance

Area of expertise:

- Functional Foods products
- Halal Food Certification Support for Food & Beverages

Qualification & Education

- Bachelor (B.Sc.) Agricultural Industrial Technology, Bogor Agricultural University (IPB) (1989)
- Master (M.Sc.) Plantation Product Technology, Gadjah Mada University (UGM) (1996)
- Doctor (Ph.D.) Food Science, Gadjah Mada University (UGM) (2009)



Mr. Çağrı Cankurtaran

Secretary of the SMIIC Committee on Standards for Conformity Assessment

Area of expertise:

- Halal Standards & Conformity Assessment
- ISO Management Systems Auditing (ISO 9001, ISO 14001, ISO 45001, ISO 22000)
- Food Safety & Quality Inspection

Qualification & Education

- Ph.D. (Candidate) in Business Administration
- M.A. in Management, 2007
- B.Sc. in Food Engineering, Ege University, 2004



Prof. Ir. Dr. Shahrir Abdullah

Universiti Kebangsaan Malaysia

Department of Mechanical and Materials Engineering, Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia

Area of expertise:

- Computational Fluid Dynamics
- Automotive Engineering
- Thermal Systems

Qualification & Education

- Ph.D. in Mechanical Engineering, University of Wales Swansea, U.K. (1997 – 1993)
- M.Sc. in Design & Economic Manufacture, University of Wales Swansea, U.K. (1992 – 1993)
- B.Eng. in Mechanical Engineering, Universiti Kebangsaan Malaysia. 1988 – 1992



Asst. Prof. Dr. Pakpum Somboon

**Lecturer, Bio-Electronic Research Laboratory (BERL),
Department of Electrical Engineering,
Chulalongkorn University, Thailand**

Area of expertise:

Biomedical Engineering, Electrical Engineering

Qualification & Education:

- Ph.D. - Physical Electronics, Tokyo Institute of Technology, Japan, 2007
- Master of Engineering - Electrical Engineering, Chulalongkorn University, Thailand, 2000
- Bachelor of Engineering - Electrical Engineering, Chulalongkorn University, Thailand, 1997

CONFERENCE PROGRAM

Thursday – Friday | December 18-19 2025

THAILAND
HALAL
ASSEMBLY 2025



INTERNATIONAL CONFERENCE

งานประชุมวิชาการด้านวิทยาศาสตร์ และนวัตกรรมฮาลาลนานาชาติ

18-19 DECEMBER 2025 at Al Meroz Hotel Bangkok

Tentative Conference Program

Day 0: December 17, 2025 (WEDNESDAY)	
14:00 – 20:00	Arrival of delegates
Day 1: December 18, 2025 (THURSDAY)	
Time	Grand Meroz Room IHSATEC2025; 13th HASIB
08:00 – 09:00	Registration of delegates
Grand Opening Ceremony	
09:00 – 09:05	<ul style="list-style-type: none"> Welcoming Remarks by the MC to the Thailand Halal Assembly 2025 (THA2025) The Royal Portrait of Her Majesty Queen Sirikit the Queen Mother is displayed, and a one-minute moment of silence in profound remembrance of Her Majesty.
09:05 – 09:15	<ul style="list-style-type: none"> Recitation of the Holy Al-Quran
09:15 – 09:20	<ul style="list-style-type: none"> Opening Ceremony presentation
09:20 – 09:30	<ul style="list-style-type: none"> Welcoming Remarks by Assoc. Prof. Dr. Pradermchai Kongkam, Assistant to the President of Chulalongkorn University, Thailand
09:30 – 09:40	<ul style="list-style-type: none"> Welcoming Remarks by Police Major General Surin Palarae, Secretary General of the Central Islamic Council of Thailand (CICOT)
09:40 – 09:50	<ul style="list-style-type: none"> Report Notes by Chairman of THA2025, Dr. Pornpimol Mahamad, Director, The Halal Science Center, Chulalongkorn University (HSC-CU)
09:50 – 10:00	<ul style="list-style-type: none"> Opening Remarks by Co-Chairman of the Ceremony, H.E. Mr. Ihsan ÖVÜT, Secretary General, The Standards and Metrology Institute for the Islamic Countries (SMIIC)
10:00 – 10:10	<ul style="list-style-type: none"> Opening Remarks by Co-Chairman of the Ceremony, H.E. Arun Boonchom, the Sheikhu Islam of Thailand
10:10 – 10:20	<ul style="list-style-type: none"> Opening Remarks by Chairman of the Ceremony, Mr. Surapong Numchairujipong, Vice Minister for Industry, Thailand
10:20 – 10:30	<ul style="list-style-type: none"> Opening Ceremony Chairman of the Ceremony receiving a token of appreciation Photo Sessions
10:30 – 10:45	<ul style="list-style-type: none"> Signing Ceremony of MOU/MOA
10:45 – 11:00	<p>Exhibition visit by the Chairman of the Ceremony</p> <p>Tea/Coffee Break</p>
Keynote Session Topic: Green Halal: Beyond Sustainability	
11:00 – 11:15	<p>Keynote Speaker: Assoc. Prof. Dr. Winai Dahlan, Founder and Advisor to the Director, The Halal Science Center, Chulalongkorn University (HSC-CU), Thailand</p> <p>Title: "Infrastructure Development of the World's First Halal Science Institution: Progressing Green Halal Research & Innovation"</p>
11:15 – 11:30	<p>Keynote Speaker: Dr. Pornpimol Mahamad, Director, The Halal Science Center, Chulalongkorn University (HSC-CU), Thailand</p> <p>Title: "Science Driven Approach to the Sustainable Green Halal Ecosystem"</p> <p>Group Photo session</p>

Day 1: December 18, 2025 (THURSDAY)

Day 1: December 18, 2025 (THURSDAY)					
11:30 – 12:45	<p align="center">Session 1: Green Halal and Artificial Intelligence - Shaping a Sustainable and Smart Halal Industry</p>				
11:30 – 11:35	<p>Chairperson: Assist. Prof. Dr. Pradorn Sureephong, Assistant Director, the Halal Science Center, Chulalongkorn University (HSC-CU), Thailand</p>				
11:35 – 11:50	<p>Speaker 1: Prof. Dr. Abdelaziz Bouras, Professor, College of Engineering, Qatar University, Qatar Title: "Sustainable Intelligence: Integrating Green Digital Twins within Lifecycle Frameworks"</p>				
11:50 – 12:05	<p>Speaker 2: Prof. Dr. Rafia Mumtaz, Vice Chancellor, Kohsar University Murree, Pakistan Title: "From Compliance to Innovation: Accelerating Green Technologies in the Halal Ecosystem through IoT and AI"</p>				
12:05 – 12:20	<p>Speaker 3: Assist. Prof. Dr. Pradorn Sureephong, Assistant Director, the Halal Science Center, Chulalongkorn University (HSC-CU), Thailand Title:</p>				
12:20 – 12:35	<p>Panel Discussion, Question and Answer session Group Photo session</p>				
12:35 – 14:00	Lunch and Dhuhr Prayer				
Time	Grand Meroz Room IHSATEC2025; 18th HASIB	Time	Rifaae Room IMT-GT Workshop	Time	Exhibition Zone Young Halal Innovators Project
14:00 – 15:00	<p align="center">Session 2: Green Science and Technology – Driving Sustainable Innovation</p>				
14:00 – 14:05	<p>Chairperson: Prof. Ts. Dr. Suraini Binti Abd Aziz Professor at Faculty of Biotechnology & Biomolecular Sciences, Universiti Putra Malaysia</p>				
14:05 – 14:20	<p>Speaker 1: Prof. Dr. Nazimah Hamid, Professor of Centre for Future Foods at Auckland University of Technology, New Zealand Title: "Green Valorisation: Driving Sustainable Innovation through Food Processing Waste Transformation"</p>				
14:20 – 14:35	<p>Speaker 2: Prof. Ir. Dr. Yus Aniza Yusof, Deputy Director, Halal Products Research Institute, Universiti</p>				
13:30 – 16:00	<p align="center">International Workshop on Targeted Halal Products and Services (WGHAPAS) Indonesia–Malaysia–Thailand Growth Triangle (IMT-GT) Framework</p>				
13:30 – 14:30	<p align="center">Young Halal Innovators Project Presentation</p> <p>Mentor 1: Professor Dr. Mariko ARATA, College of Gastronomy Management Director, Research Center for Gastronomic Arts and Sciences, Ritsumeikan University, Japan Mentor 2: Prof. Dr. Muhammad Umair Arshad, Professor / Chairperson, Department of Food Science Government College University,</p>				

Time	Grand Meroz Room HSATEC2025; 13th HASIB	Time	Rifaae Room IMT-GT Workshop	Time	Exhibition Zone Young Halal Innovators Project
14:35 – 14:50	Putra Malaysia (UPM), Malaysia Title: "Green Science and Technology: Integrating Sustainability, Halal Integrity, and Functional Food Innovation" Speaker 3: Dr. Nuttavut Kosem , Researcher Assistant Professor, Kyushu University, Japan				Faisalabad, Pakistan
14:50 – 15:00	Title: "Hydrogenase: Unlocking Nature's Secret for Green Hydrogen" Panel Discussion, Question and Answer session, Group Photo session				
15:00 – 15:45	Session 3: Oral Presentation (OP)-1 AI, Blockchain and Business (8 min presentation + 2 min Q&A)				
15:00 – 15:10	Global Research Ecosystem Introduction by Assoc. Prof. Dr. Hendrati Dwi Mulyaningsih , Chief Executive Officer, Research Synergy Foundation, Indonesia Chairperson 1: Prof. Ir. Dr. Shahrir Abdullah , Department of Mechanical and Materials Engineering, Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia Chairperson 2: Asst. Prof. Dr. Pakpum Somboon ,				

Time	Grand Meroz Room HSATEC2025; 13th HASIB	Time	Rifae Room IMT-GT Workshop	Time	Exhibition Zone Young Halal Innovators Project
15:10 – 15:20	<p>Lecturer, Bio-Electronic Research Laboratory (BERL), Department of Electrical Engineering, Chulalongkorn University, Thailand</p> <p>Academic presenter: 1. Paper ID: HST25162 Presenter: Pg Siti Rozaidah Pg Hj Idris, Universiti Brunei Darussalam, Brunei Darussalam Title: Halal Integrity in Heavy Industry: A Governance-Leadership-Sustainability Model for Hengyi Petrochemical Complex</p>				
15:20 – 15:30	<p>2. Paper ID: HST25133 Presenter: Dr.Siti Fatimahwati Pehin Dato Musa, Universiti Brunei Darussalam, Brunei Darussalam Title: Halal and Tayyiban Food Security: Towards an Ethical and Sustainable Global Food System</p>				
15:30 – 15:40	<p>3. Paper ID: HST25132 Presenter: Mr. Dion Aditya, Institut Teknologi PLN, Indonesia Title: Multi-Scene Vision-Language and Local LLM Pipeline for Suspicious Behavior Detection in Mosques</p>				
15:40 – 15:45	Group Photo session				

Time	Grand Meroz Room HSATEC2025; 13th HASIB	Time	Rifae Room IMT-GT Workshop	Time	Exhibition Zone Young Halal Innovators Project
15.45 – 16.00	Tea/Coffee Break	15.00 – 15.15	Tea/Coffee Break/ Poster Viewing		
Time	Grand Meroz Room HSATEC2025; 13th HASIB	Time	Rifae Room IMT-GT Workshop		
16.00 – 17.00	<p>Session 4: Oral Presentation (OP)-2 Science, Technology, and Innovation (8 min presentation + 2 min Q&A)</p>	13:30 – 16:00	<p>International Workshop on Targeted Halal Products and Services (WGHAPAS) Indonesia–Malaysia–Thailand Growth Triangle (IMT-GT) Framework (Continuous)</p>		
16:00 – 16:05	<p>Welcoming Academic Presentation</p> <p>Chairperson 1: Prof. Dr. Muhammad Umair Arshad, Professor / Chairperson, Department of Food Science Government College University, Faisalabad, Pakistan</p> <p>Chairperson 2: Dr. Jirachaya Yeemin, Department of Biology, Faculty of Science, Ramkhamhaeng University, Thailand</p>				
16:05 – 16:15	<p>Academic presenter:</p> <p>4. Paper ID: HST25127 Presenter: Dr. Maharani Retna Duhita, UIN Maulana Malik Ibrahim Malang, Indonesia Title: An Integrated Computational Approach to Identify Xanthine Dehydrogenase (XDH) Inhibitors from <i>Ardisia elliptica</i>: Network Pharmacology and Molecular Simulation in The Context of Halal Herbal Therapy</p>				
16:15 – 16:25	<p>5. Paper ID: HST25106 Presenter: Mrs. Syahrul Anis Hazwani Mohd Baroyi, The Halal Products Research Institute, Universiti Putra Malaysia, Malaysia Title: Hybrid Extraction Optimization of <i>Moringa oleifera</i> Leaves Protein</p>				
16:25 – 16:35	<p>6. Paper ID: HST25116 Presenter: Ms. Laiba Pervez, Chulalongkorn University, Thailand Title: Comparative Analysis of Gut Microbiota in Post-Mortem Chronic Alcoholics versus</p>				

Time	Grand Meroz Room IHSATEC2025; 13th HASIB	Time	Rifae Room IMT-GT Workshop
16:35 – 16:45	Minimal to No Alcohol Users in the Thai Population 7. Paper ID: HST25138 Presenter: Assoc Prof. Nor Qhairul Izzreen Mohd Noor , Universiti Malaysia Sabah, Malaysia Title: Development and Validation of HPLC-UV Method for Umami Nucleotides Analysis for Halal Ingredient Development using <i>Hericium erinaceus</i>		
16:45 – 16:55	Group Photo session		
19:00 - 20:30	Welcoming Dinner		

Day 2: December 19, 2025 (FRIDAY)

Time	Grand Meroz Room I HSATEC2025; 18th HASIB	Time	Grand Meroz Room II HSATEC2025; 18th HASIB	Time	Rifae Room Green Halal Workshop
08:30 – 09:00	Registration of delegates				
09:00 – 10:30	<p>Session 5: Global Perspectives – Halal Experiences from Non-Muslim Countries</p> <p>Chairperson: Dr. Adil Siripatana, Research Associate in Food Modelling, School of Engineering, University of Edinburgh, United Kingdom</p> <p>Speaker 1: Professor Dr. Mariko ARATA, College of Gastronomy Management Director, Research Center for Gastronomic Arts and Sciences, Ritsumeikan University, Japan Title: "Serving Foods to Muslim Tourists in Japan: Practical Challenges and Understanding of Halal in the Japanese Context"</p> <p>Speaker 2: Dr Mohammed Najmuddin, Chief Researcher, Halal Research Laboratory, Chief Darul Hikma Tibb Nabawi, Founder Halal Herbal Remedies, CEO Dr Herbist LLP, India Title: "Non-Halal Ingredients in Herbal Formulations and Possible Alternatives"</p> <p>Speaker 3: Mr. Aleem Guiapal DTI Halal Industry Development Office, Philippines Title: "Halal Friendly Philippines: Gateway to ASEAN"</p> <p>Panel Discussion, Question and Answer session</p> <p>Group Photo session</p>	09:00 – 10:30	<p>Session 6: Oral Presentation (OP)-3 AI, Blockchain and Business (6 min presentation + 2 min Q&A)</p> <p>Welcoming Academic Presentation Chairperson 1: Assist. Prof. Dr. Pradorn Sureephong, Assistant Director, the Halal Science Center, Chulalongkorn University (HSC-CU), Thailand Chairperson 2: Prof. Dr. Abdelaziz Bouras, Professor, College of Engineering, Qatar University, Qatar</p> <p>Academic presenter: 8. Paper ID: HST25147 Presenter: Mr. Andi Subhan Husain, Chulalongkorn University, Thailand Title: From Purity to Justice: Rethinking Digital Halal Governance as a Political-Theological Project in the IMT-GT Corridor</p> <p>9. Paper ID: HST25109 Presenter: Mr. Fajar Azhari Julian, Universitas Ary Ginanjar, Indonesia Title: Optimizing Halal Zone Layouts in Industrial Estates for Warehousing and Distribution: A Spatial Modeling Approach Utilizing QGIS</p>	09:00 – 12:00	<p>Green Halal Workshop</p> <p>"Green Halal Make-Your-Own Beauty"</p> <p>Lecture: Fundamentals of Oil-Based Skin Care, Aroma Body Oil and Lipstick Formulation</p> <p>Workshop Sessions: •Aroma Anti-aging Body Oil Workshop •Personalized Organic Lipstick Workshop</p> <p>Speaker: Ms. Warinda Sricharoen, Chief Executive Officer, Herbal-Studio Co., Ltd.</p> <p>Note: Limited to registered participants with workshop fee.</p>

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Time	Grand Meroz Room I HSATEC2025; 18th HASIB	Time	Grand Meroz Room II HSATEC2025; 18th HASIB	Time	Rifaae Room Green Halal Workshop
		09:25 – 09:35	10. Paper ID: HST25163 Presenter: Mr. Muhammad Audrian , LPPOM MUI, Indonesia Title: Application of Descriptive and Discriminative Sensory Analysis for Halal Verification: A Case Study of Commercial Grape Juice and Non-Alcoholic Wine Analog in the Indonesian Market		
		09:35 – 09:45	Group Photo session		
10:30 – 10:45	Tea/Coffee Break/ Poster Viewing	10:00 – 10:15	Tea/Coffee Break	10:30 – 10:45	Tea/Coffee Break
10:45 – 12:00	Session 8: Oral Presentation (OP)-4 Science, Technology, and Innovation (8 min presentation + 2 min Q&A)	10:15 – 12:00	Session 9: Oral Presentation (OP)-5 Science, Technology, and Innovation (8 min presentation + 2 min Q&A)	09:00 – 12:00	Green Halal Workshop (Continuous)
10:45 – 10:50	Welcoming Academic Presentation Chairperson 1: Prof. Ts. Dr. Suraini Binti Abd Aziz Professor at Faculty of Biotechnology & Biomolecular Sciences, Universiti Putra Malaysia Chairperson 2: Dr. Simab Kanwal , Researcher at the Institute of Biotechnology and Genetic Engineering, Chulalongkorn University, Thailand	10:15 – 10:25	Welcoming Academic Presentation Chairperson 1: Prof. Dr. Jawad Atzeer , Lecturer & Senior Researcher, University of Zurich, Dübendorf, Zurich, Switzerland Chairperson 2: Asst. Prof. Dr. Muhammad Sajid Arshad , School of Agriculture, Food and Ecosystem Sciences, The University of Melbourne, Australia		<i>Note: Limited to registered participants with workshop fee.</i>
10:50 – 11:00	Academic presenter: 11. Paper ID: HST25107 Presenter: Ms. Nor Atikah Husna Nasir , The Halal Products Research Institute, Universiti Putra Malaysia, Malaysia Title: Development and Characterization of Halal	10:25 – 10:35	Academic presenter: 16. Paper ID: HST25143 Presenter: Assoc Prof. Paula Mariana Kustiawan ,		

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Time	Grand Meroz Room I HSATEC2025; 18th HASIB	Time	Grand Meroz Room II HSATEC2025; 18th HASIB	Time	Rifaae Room Green Halal Workshop
11:00 – 11:10	<p>Caulerpa 'entillifera-Fortified Jelly with Enhanced Nutritional and Antioxidant Properties</p> <p>12. Paper ID: HST25139 Presenter: Ms. Umi Hartina Mohamad Razali, Universiti Malaysia Sabah, Malaysia Title: Advancing Halal Functional Ingredients through Green Production of ACE-Inhibitory Peptides from Marine Collagen</p>	10:35 – 10:45	<p>Universitas Muhammadiyah Kalimantan Timur, Indonesia Title: Halal Integrity Challenges in Stingless Bee Derived Products: A Review of Processing, Solvents, and Supply Chain Risks</p>		
11:10 – 11:20	<p>13. Paper ID: HST25117 Presenter: Mr. Ameer Muhammad Khan, Chulalongkorn University, Thailand Title: Comparative Analysis of Gut Microbial Diversity in Early Decomposition Stages of Human Cadavers in Thai Population</p>	10:45 – 10:55	<p>17. Paper ID: HST25148 Presenter: Ms. Rahil Aufa, Gadjah Mada University, Indonesia Title: Paramylon Production Optimization of <i>Euglena gracilis</i> Using The Response Surface Methodology (RSM) Approach in Palm Oil Mill Effluent Medium</p>		
11:20 – 11:30	<p>14. Paper ID: HST25118 Presenter: Mr. Samsuri Djamal, Gadjah Mada University, Indonesia Title: Genetic Diversity of Eel Fish Using Random Amplified Polymorphhism Dna (Rapid) Method in North Maluku Waters, Indonesia</p>	10:55 – 11:05	<p>18. Paper ID: HST25154 Presenter: Dr. Bambang Dwi Wijatniko, Universitas Gadjah Mada, Indonesia Title: Development and Application of Plant-Based Binder from Protein Concentrate of Pigeon pea (<i>Cajanus cajan L. Millsp.</i>)</p>		
11:30 – 11:40	<p>15. Paper ID: HST25160 Presenter: Mr. Sheraz Ali, University of the West Indies, Trinidad and Tobago Title: Determinants of halal food purchase intention among Muslims in Barbados</p>		<p>19. Paper ID: HST25159 Presenter: Mr. Naved Alam, Aligarh Muslim University, Aligarh, India Title: Integrating AI and Adaptive Learning in Islamic Education: Ethical Perspectives for the Digital Era 5.0</p>		
11:40 – 11:50	Group Photo session	11:05 – 11:15	Group Photo session		

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Exhibition Zone

HSATEC2025; 18th HASIB

Poster session

09:00 – 12:00		#HSATEC2025; 18 th HASIB Poster session	
09:00 – 09:10		Welcoming Academic Presentation	
09:10 – 10:30	<p>Cluster 1: Science, Technology, and Innovation (SP-1) (8 min presentation + 2 min Q&A)</p> <p>Chairperson 1: Asst. Prof. Dr. Muhammad Sajid Arshad, School of Agriculture, Food and Ecosystem Sciences, The University of Melbourne, Australia Chairperson 2: Prof. Dr. Nancy Dewi Yuliana, Food Science and Technology, Bogor Agricultural University, Indonesia</p> <p>Academic presenter:</p>	09:10 – 10:30	<p>Cluster 2: AI, Blockchain and Business (BP-1) (8 min presentation + 2 min Q&A)</p> <p>Chairperson 1: Assoc. Prof. Dr. Hendrati Dwi Mulyaningsih, Universitas Islam Bandung and Research Synergy Foundation, Indonesia Chairperson 2: Prof. Ir. Dr. Muhamad Nadratuzaman Hosen, Syarif Hidayatullah State Islamic University, Indonesia</p> <p>Academic presenter:</p>
09:10 – 09:20	<p>1. Paper ID: HST25137 Presenter: Dr. Mohd Hazim Mohd Yusop, Universiti Malaysia Sabah, Malaysia Title: Porcine DNA Detection in Soy Sauce Using Real-Time PCR porcine DNA Detection in Soy Sauce Using Real-Time PCR</p>	09:10 – 09:20	<p>6. Paper ID: HST25111 Presenter: Mr. Tri Wahyu Nugroho, Bandung Islamic University, Indonesia Title: Halal Certification as a Trust Signal in Muslim Consumers' Purchase Intentions for Boochoa Booms KombuchaD</p>
09:20 – 09:30	<p>2. Paper ID: HST25146 Presenter: Mr. Muhammad Eriansyah Al Hakim, Food Innovation Nutrition and Health / Asian Institute of Technology, Thailand Title: Characterization of Nutritional and Bioactive Properties of Coffea canephora Pulp and Its Aqueous Extract Using Conventional and Ultrasonic Assisted Extraction</p>	09:20 – 09:30	<p>7. Paper ID: HST25108 Presenter: Dr. Raja Madihah Raja Alias, Universiti Sultan Zainal Abidin, Terengganu, Malaysia Title: Trade-Based Money Laundering: Assessing Risks and Compliance for the Halal Agricultural and Food Supply Chain</p>
09:30 – 09:40	<p>3. Paper ID: HST25164 Presenter: Ms. Salida Ali, The University of Hong Kong, Hong Kong Title: CTCF regulation of CEMIP: Novel and Translational target for drug resistant prostate cancer</p>	09:30 – 09:40	<p>8. Paper ID: HST25104 Presenter: Dr. Mohamed Syazwan Ab Talib, Universiti Brunei Darussalam, Brunei Carussalam Title: Bibliometric Insights into Halal Tourism and Supply Chain Management Nexus</p>
09:40 – 09:50	<p>4. Paper ID: HST25173 Presenter: Mr. Hasam Chebako, The Halal Science Center, Chulalongkorn University (HSC-CU), Thailand</p>	09:40 – 09:50	<p>9. Paper ID: HST25144 Presenter: Mr. Prasetyo Notonegoro, Bandung Islamic University, Indonesia Title: Islamic Value-Based Healthcare and Financial Risk Efficiency in Chronic Disease Management:</p>



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Poster session

09:50 – 10:00	Title: Preliminary Survey and Profiling of Food Additives in Ultra-Processed Foods (UPFs) from Convenience Stores in Bangkok 5. Paper ID: 427138 Presenter: Mrs. Firadao Boonmalert , The Halal Science Center, Chulalongkorn University (HSC-CU), Thailand	09:50 – 10:00	Integrating Maqasid al-Shariah and Value-Based Care Perspectives Group Photo session
10:00 – 10:10	Title: A Study on the Physical Properties of Banana Flour as a Functional Ingredient for Food Applications Group Photo session		
10:00 – 10:30	Tea/Coffee Break/ Poster Viewing		
10:30 – 11:30	Cluster 3: Science, Technology, and Innovation (SP-2) <i>(8 min presentation + 2 min Q&A)</i> Chairperson 1: Prof. Dr. Ir. Damat, MP, IPM Lecturer of Food Technology Department, Faculty of Agriculture and Animal Science, University of Muhammadiyah Malang, East Java, Indonesia Chairperson 2: Mr. Çağrı Cankurtaran , Secretary of the SMIIC Committee on Standards for Conformity Assessment Academic presenter: 10. Paper ID: HST25145 Presenter: Ms. Salsabilla Nadifah , Universitas Ary Ginanjar, Indonesia Title: Challenges and Motivation of Daughters in Continuing Family Business Roles 11. Paper ID: HST25161 Presenter: Dr. Abdul Sattar Shah , Khyber Pakhtunkhwa Food Safety & Halal Food Authority (KPFS&HFA), Pakistan Title: Advancing Halal Food Safety through Science-Based Governance and ISO 17025 Systems: The KPFS&HFA Experience Subtitle: A Model of Integrated Regulation, Laboratory Excellence, and	10:30 – 11:30	Cluster 4: AI, Blockchain and Business (BP-2) <i>(8 min presentation + 2 min Q&A)</i> Chairperson 1: Prof. Ir. Dr. Shahrir Abdullah , Department of Mechanical and Materials Engineering, Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia Chairperson 2: Asst. Prof. Dr. Pakpum Somboon , Lecturer, Bio-Electronic Research Laboratory (BERL), Department of Electrical Engineering, Chulalongkorn University, Thailand Academic presenter: 14. Paper ID: HST25110 Presenter: Dr. Ahmad Maulidizen , Aligarh Muslim University, India Title: Faith-Driven Consumer Choices: Exploring the Role of MUI Fatwa in Moderating the Effect of Boycott Motivation on Gen Z's Purchasing Behavior 15. Paper ID: HST25135 Presenter: Mr. Muhammad Rafi Thoriq , Universitas Muhammadiyah Jakarta, Indonesia Title: Reframing Corporate Sustainability through Maqashid Syariah: Evidence from Indonesia's Green Industry

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Exhibition Zone

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Poster session

10:50 – 11:00	Sustainable Food System Transformation in Pakistan 12. Paper ID: HST25179 Presenter: Ms. Wila Munaowaroh , The Halal Science Center, Chulalongkorn University (HSC-CU), Thailand Title: Plant-Based Probiotic Beverage from Date Juice: A Preliminary Study on Fermentation-Related and Sensory Characteristics	10:50 – 11:00	16. Paper ID: HST25162 Presenter: Dr. Pg Dr Siti Rozaidah Pg Hj Idris , Universiti Brunei Darussalam, Brunei Darussalam Title: Halal Integrity in Heavy Industry: Legal and Leadership Perspectives from Brunei's Hengyi Petrochemical Complex
11:00 – 11:10	13. Paper ID: HST25124 Presenter: Ms. Fatin Fitriah , Halal Products Research Institute, Universiti Putra Malaysia Title: Rapid Pork Adulteration Detection Using Colour and Texture Analysis Coupled with Machine Learning	11:00 – 11:10	17. Paper ID: HST25128 Presenter: Ms. Amalia Mohd Hashim , Universiti Putra Malaysia, Malaysia Title: Machine Learning-Based Detection of Lard Adulteration from IRMS and TAG Chromatographic Data
11:10 – 11:20	Group Photo session	11:10 – 11:20	Group Photo session

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Virtual

HSATEC2025; 18th HASIB

Virtual Oral Presentation session

09:00 – 12:00	Science, Technology, and Innovation (10 min presentation + 5 min Q&A)
11:00 – 11:10	Welcoming Academic Presentation and Chairperson Introduction Chairperson 1: Dr. Aifa Rozaini Mohd Radzol - Universiti Teknologi Mara (UITM), Malaysia Chairperson 2: Setyowati Triastuti Utami, Ph.D. - Universitas Gadjah Mada, Indonesia
11:10 – 11:20	Academic presenter: 1. Paper ID: HST25172 Presenter: Dr. Nor Surilawana Sulaiman , Halalan Thayyiban Research Centre, Universiti Islam Sultan Sharif Ali, Brunei Darussalam Title: Exploring the Nexus between Digital Marketing and Halal Consumer Behavior: A TikTok-Based Study

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Virtual

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Virtual Oral Presentation session

11:20 – 11:30	<p>2. Paper ID: HST25115 Presenter: Dr. Jalaloden Marohom, University of Southern Mindanao, Philippines Title: Positioning Strategies and Consumer Behavior toward Processed Halal Chevron Products: A Structural Equation Modeling Approach</p>
11:30 – 11:40	<p>3. Paper ID: HST25130 Presenter: Prof. Anthony Mark Silong, STI College - Gen. Santos, Inc., Philippines Title: HalalGuide: Halal Certification Portal with Establishment Finder</p>
11:40 – 11:50	<p>4. Paper ID: HST25142 Presenter: Mr. Hj Muhammad Ruzaini bin Hj Mohd Daud, Archaeology Officer at Sultan Haji Hassanal Bolkiah Islamic Khazanah Hall, Brunei Darussalam Title: Sultan Haji Hassanal Bolkiah Islamic Khazanah Hall: Showcasing the Power of Islamic Faith and Scientific Insight in Brunei Darussalam</p>
11:50 – 12:00	<p>5. Paper ID: HST25121 Presenter: Mr. Muhammad Abubakar, Contech Group, Pakistan Title: Halal Industry Sustainability Index: ESG-Aligned Framework for Integrated Resilience</p>
12:00 – 12:10	<p>6. Paper ID: HST25150 Presenter: Ms. Indriyanti Widyaratna, University of Darussalam Gontor, Indonesia Title: FTIR Spectroscopy Analysis of Organosulfur Compounds from Garlic Extra</p>
12:10 – 12:20	<p>7. Paper ID: HST25131 Presenter: Assoc Prof. Muhammad Sohaib, University of Veterinary & Animal Sciences (UVAS), Lahore, Pakistan Title: Metabolite profiling using Spectroscopy for the identification of omics markers correlated with different meats quality</p> <p>Group Photo & Sharing Session Certificate Distribution Post Conference Information</p>
12:20 – 12:30	<p>Lunch and Friday Prayer Break</p>

Day 2: December 19, 2025 (FRIDAY)	
Time	Grand Meroz Room IHSATEC2025; 18 th HASIB
12:00 – 14:00	Lunch and Jumaat prayer at the Islamic Center of Thailand
14:00 – 15:00	Session 7: Shariah and Science for Green Halal Integrity
14:00 – 14:05	Chairperson: Dr. Simab Kanwal, Researcher at the Institute of Biotechnology and Genetic Engineering, Chulalongkorn University, Thailand
14:05 – 14:20	Speaker 1: H.E. Mr. Ihsan ÖVÜT, Secretary General, The Standards and Metrology Institute for the Islamic Countries (SMIIC) Title: "Green Halal"
14:20 – 14:35	Speaker 2: Eng. Moteb Al-Mezani, Director General, GCC Accreditation Center (GAC), Saudi Arabia Title:
14:35 – 14:50	Speaker 3: Prof. Dr. Irwandi Jaswir, Dean for Academic, Research, and Publication at INHART, the International Islamic University Malaysia (IIUM), Malaysia Title: "Islamic Food Laws: Philosophical Basis and Practical Implications in Halal Authentication"
14:50 – 15:05	Speaker 4: Assist. Prof. Dr. Zahra Al-Kharousi, Lecturer, Food Microbiology and Biotechnology, College of Agricultural and Marine Sciences, Sultan Qaboos University, Oman Title: "Innovating Halal Fermentation: Sustainable Starter Culture Development for Date Vinegar Production"
15:05 – 15:20	Panel Discussion, Question and Answer session
15:20 – 15:30	Group Photo session
15:15 – 15:30	Tea/Coffee Break
15:30 – 16:30	Award Ceremony
16:30 – 17:00	Closing Ceremony

--- End of The Conference---

Track: Food Safety

Supported by :



Trade-Based Money Laundering: Assessing Risks and Compliance for the Halal Agricultural and Food Supply Chain

| Raja Madihah Raja Alias

Faculty of Law and International Relations, Universiti Sultan Zainal Abidin, Terengganu, Malaysia

Abstract

Background – Agricultural and food supply chains are among the economic sectors and products that are vulnerable to trade-based money laundering (TBML). The Financial Action Task Force (FATF) has highlighted that TBML remains a significant money laundering (ML) risk due to its exploitation of illicit trade transactions that can affect the global agricultural and food supply chain, including the Halal sector.

Purpose – This study aims to examine the risks of ML with a specific focus on the Halal agricultural and food supply chain, due to its factors that often attract launderers, given the nature of market saturation and perishable items. Consequently, this study analyses anti-money laundering (AML) compliance requirements in ensuring the integrity of the Halal agricultural and food supply chain from being a conduit for illicit funds.

Design/methodology/approach – This study employs a qualitative research approach by adopting a doctrinal legal method to analyse international standards and Malaysia's domestic laws and regulations related to AML compliance, with a special focus on the Halal agricultural and food supply chain. This method enables an in-depth analysis to identify loopholes and challenges in current AML compliance and Malaysian statutory provisions related to TBML risks in the Halal sector.

Findings – This study finds that TBML is increasingly exploited for ML through the use of low-value and high-volume perishable goods. The misuse or falsification of Halal certifications and related documents further facilitates the embedding of illicit funds to disguise as legitimate import and export activities.

Research limitations – The scope of this study is limited to the examination of the risks involved for ML and the preventive measures requirements to deter TBML activities in the Halal agricultural and food supply chain based on international standards and Malaysian law. Further research should focus on best-practice countries in AML compliance within the Halal economy against TBML risks.

Originality/value – This study contributes to the existing literature on TBML, which emphasises AML compliance requirements for Halal agriculture and the food supply chain. This study will benefit policymakers and the Halal industry in ensuring that Malaysia safeguards the integrity of the financial system and protects food security in the Halal sector from exploitation by criminals for illicit crimes.

Keywords: Trade-Based Money Laundering; Preventive Measures; Illicit Financial Flows; Food Security

Metabolite profiling using Spectroscopy for the identification of omics markers correlated with different meats quality

| Muhammad Sohaib¹, Sanaullah Iqbal¹

¹University of Veterinary and Animal Sciences (UVAS), Lahore, Pakistan

Abstract

Background – The consumption of meat around the globe is increasing, which also results in increasing opportunities and motivations for fraud in meat supply chain. Thus, it is vital that quality along with authenticity of meat and meat-based products need to be determined to ensure safe, healthy and authentic meats supply for human consumption

Purpose – Accordingly, present study conducted to explore possibilities of using metabolomics to differentiate meats (chicken, beef, pork and lamb) for meat authenticity along with examining potential of untargeted metabolomic fingerprinting to distinguish meats from major meat animal species.

Design/methodology/approach – For the study, meats of selected animals including chicken, beef, pork and lamb were subjected to five different extraction methods to optimize suitable method for extraction of polar and non-polar metabolites. Afterwards, meat samples were analyzed in real time using non-targeted metabolomics through (LCMS 9030-Q-TOF) to differentiate meats based on the basis of metabolites

Findings – The results indicated generation of useful information by non-targeted metabolomics and pre-processing of data completed by MS dial and then data processing using SIMCA 18 software. With the use of multivariate data analysis through principal component analysis (PCA) and orthogonal partial least square-discriminant analysis (OPLS-DA), differentiation between meats from different animals was achieved.

Research limitations – The study involves use of non-targeted metabolomics which generate a huge set of data as well as validation of the different markers which is also a laborious task for the differentiation of meat species based on metabolomics

Originality/value – The study also showed combination of non-targeted LC-MS QTOF metabolomics and chemometrics could differentiate meats from different animal species that is helpful for authentication of meats for consumers concern as well as meat supply chain integrity

Keywords: Food safety, Meat quality, Metabolomics, Spectroscopy, Identification of meat species

Determinants of halal food purchase intention among Muslims in Barbados

| Sheraz Ali

University of the West Indies

Abstract

Background – Barbados is a non-Muslim majority country where the halal food industry remains in its early stages of development. Halal food consumption represents a key concern for Muslim consumers and provides a valuable area for behavioral research.

Purpose – This study aims to address the existing gap in the literature concerning the purchasing behavior of the Muslim minority in Barbados.

Design/methodology/approach – Guided by Ajzen’s Theory of Planned Behavior (TPB), this research aimed to examine the attitudes, subjective norms, and perceived behavioral control influencing the purchase intentions of halal-labeled food products. A quantitative survey design was employed, involving 200 questionnaires distributed to Muslim consumers residing in Barbados.

Findings – Multiple regression analysis results indicated that all TPB variables have a positive and significant influence on the intention to purchase halal-labelled products.

Research limitations – The research is limited to the original antecedents of the Theory of Planned Behavior

Originality/value – This study aims to address the existing gap in the literature concerning the purchasing behavior of the Muslim minority in Barbados. The findings offered valuable guidance for policymakers, marketers, and halal food producers in formulating strategies to enhance consumer confidence and engagement with halal-certified products

Keywords: Theory of Planned Behavior, Non-Muslim majority, purchase intention

Application of Descriptive and Discriminative Sensory Analysis for Halal Verification: A Case Study of Commercial Grape Juice and Non-Alcoholic Wine Analog in the Indonesian Market

| Muhammad Audrian¹, Heryani¹

¹LPPOM MUI

Abstract

Background – The proliferation of non-alcoholic wine analogs in the Indonesian market presents a significant challenge to Halal assurance. While these products are alcohol-free, their sensory resemblance to khamr (alcoholic wine) creates shubhah (doubt) for Muslim consumers. Standard methods for Halal verification using instrumental analysis, which only confirms the absence of alcohol, is insufficient to address the critical issue of sensory imitation (tashabbuh).

Purpose – This study aimed to apply the use of descriptive and discriminative sensory analysis as a scientific method for Halal verification, specifically to provide an empirical method for addressing the risks of tashabbuh.

Design/methodology/approach – The study employed a case study methodology, examining commercially products available in Indonesia including certified-halal grape juices, a non-alcoholic wine analog, and a reference alcoholic wine (khamr). A consumer sensory panel was utilized to conduct two forms of analysis: Quantitative Descriptive Analysis (QDA) to profile and quantify eight key sensory attributes, and a Discriminative Test to assess the overall perceptible differences between the product categories.

Findings – The results demonstrated that sensory analysis could effectively differentiate the product categories. The Discriminative Test revealed a significant difference between the non-alcoholic analogs and both the halal juices and the reference khamr. The Quantitative Descriptive Analysis showed that attributes like 'fermented aroma,' 'alcoholic sensation,' and 'lingering aftertaste' were significantly more intense in the analogs and khamr compared to the juices. Conversely, 'fresh grape aroma' was the defining characteristic of the halal juices.

Research limitations – The scope of the study was limited to wine-type alcoholic beverages analysis. Therefore, the findings may not be directly applicable to other non-alcoholic analogs categories, such as beer or spirits.

Originality/value – The study concludes that sensory analysis is a robust and reliable tool that complements instrumental methods. It provides crucial empirical data on sensory profile conformity, offering a practical solution to mitigate the risks of tashabbuh. This approach strengthens the integrity of the Halal supply chain and enhances Muslim consumer confidence.

Keywords: Halal Verification, Sensory Analysis, Non-Alcoholic Wine Analogs, Tashabbuh, Quantitative Descriptive Analysis.

Halal Integrity Challenges in Stingless Bee Derived Products: A Review of Processing, Solvents, and Supply Chain Risks

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Abstract

Background – Stingless bee derived products such as honey, propolis, and bee bread, along with newly developed nano formulated derivatives, are increasingly used in food, nutraceutical, and cosmetic industries. Their growing popularity in Southeast Asia reflects the rapid expansion of stingless bee cultivation. Although these products originate from naturally permissible sources, their halal integrity may be affected by several factors including processing techniques, the use of solvents, alcohol formation during natural fermentation, adulteration, and vulnerabilities in traditional harvesting and supply chain practices.

Purpose – This review aims to analyze the halal related risks associated with stingless bee products and to identify scientific and regulatory gaps related to processing technologies, solvent applications, authentication methods, and traceability systems.

Design/methodology/approach – A structured narrative review was conducted by searching peer-reviewed studies, reference literature, and halal regulatory documents published between 2010–2025 in databases such as Scopus, Web of Science, and Google Scholar. Relevant publications were identified using keywords related to extraction methods, solvent systems, nanoformulation, authentication tools, fermentation, and supply chain issues. Eligible sources were screened for relevance and their findings were synthesized into a concise narrative.

Findings – The review shows that several stages of processing may compromise halal integrity. Ethanol based extraction of propolis, as well as certain nanoencapsulation carriers and surfactants, may introduce non halal components. Natural fermentation in stingless bee honey can lead to alcohol formation, making clear handling guidelines and acceptable halal thresholds necessary. Adulteration remains a major concern, including dilution with sugar syrups, addition of synthetic resins, and mislabeling. Supply chain issues such as traditional harvesting techniques, non-hygienic containers, poor storage conditions, and insufficient documentation also present risks. Although advanced analytical techniques such as FTIR, HPLC, metabolomics, and DNA based assays can support authenticity testing, their application in halal verification remains limited. Significant gaps persist regarding halal specific processing guidelines, halal compliant solvent alternatives, and permissible alcohol limits.

Research limitations – The review is limited by the lack of consistent halal focused research on stingless bee products.

Originality/value – This review provides one of the earliest comprehensive assessments of halal integrity challenges specific to stingless bee products and offers guidance for future halal standards and industry practices.

Keywords: Stingless bee products, halal integrity, processing and solvent risks, adulteration detection, supply chain traceability

Preliminary Survey and Profiling of Food Additives in Ultra-Processed Foods (UPFs) from Convenience Stores in Bangkok

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Abstract

Background – Ultra-Processed Foods (UPFs) undergo extensive industrial processing and incorporate various food additives. They are typically characterized by high total energy but low nutritional value. The continuous consumption of UPFs is associated with increased risks of chronic diseases and metabolic dysfunction.

Purpose – This study aimed to quantitatively survey and analyze the profile of food additives (INS numbers) and nutritional information displayed on commercial UPF products available in local convenience stores. A key objective was to compile a database of food additives frequently found in UPFs to support future research and analysis.

Design/methodology/approach – A cross-sectional survey methodology was employed to collect data on 102 UPF products, including snacks (56 types) and quality-defined foods (46 types). Samples were collected from major convenience store chains for three months in 2025. Recorded data included product ingredients, INS numbers, functional classes of additives, and key nutrition facts.

Findings – The survey of 102 UPFs identified the presence of 73 distinct types of food additives. In the snack category (56 types), the most frequently detected additives were INS 621 and INS 330. Nutritional analysis generally indicated that these products contained high levels of energy, sugar, and sodium. Specifically, hidden sodium was detected in 53 types of snacks and 30 types of quality-defined foods. Additionally, artificial sweeteners were present in 7 snack items and 2 bakery items. The average total energy content was found to be 159.1 ± 86.1 kcal per serving for snacks (n=56) and 209.0 ± 308.8 kcal per serving for quality-defined foods (n=46).

Research limitations – Limitations included constraints on amount of samples, time and some products displayed incomplete nutritional information or lacked explicit numerical data for food additive quantities, necessitating that risk assessment rely on general standard information.

Originality/value – This study systematically compiled a preliminary database regarding the food additive profiles and nutritional data of UPFs available in Bangkok convenience stores. It offers evidence regarding the prevalence of various food additives and suboptimal nutritional components in widely consumed commercial products. This data serves as a crucial foundation for future in-depth research, supports efforts to promote consumer education on reading nutritional labels, and provides grounds for suggesting the development of nutritional warning labels or improved product formulations.

Keywords: Ultra-Processed Foods (UPFs), Food Additives, INS Numbers, Thai Markets

Advancing Halal Food Safety through Science-Based Governance and ISO 17025 Systems: The KPFS&HFA Experience

Subtitle: A Model of Integrated Regulation, Laboratory Excellence, and Sustainable Food System Transformation in Pakistan

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Abstract

Background – Halal integrity and food safety are mutually reinforcing pillars of consumer protection and ethical food trade. In Pakistan, challenges such as fragmented regulatory frameworks, limited laboratory accreditation, and weak traceability mechanisms have historically undermined public trust. The Khyber Pakhtunkhwa Food Safety & Halal Food Authority (KPFS&HFA) has pioneered a science-based model that integrates halal assurance with modern laboratory systems under ISO/IEC 17025:2017, advancing both regulatory effectiveness and market competitiveness.

Purpose – This study aims to document and analyze the KPFS&HFA’s institutional innovations that strengthen halal food safety governance through accredited testing, risk-based inspections, and digital traceability mechanisms, fostering alignment with global food safety and halal assurance standards.

Design/methodology/approach – A qualitative case study approach was employed, drawing on institutional data, laboratory performance reports, and policy frameworks from 2018–2025. The analysis focuses on the establishment of the Provincial Food Testing Laboratory & Centre for Research (PFTLCR) and the deployment of 12 mobile food testing laboratories, examining their role in ISO 17025 compliance, capacity enhancement, and enforcement outcomes.

Findings – The KPFS&HFA model demonstrates a significant improvement in analytical reliability, transparency, and stakeholder trust. ISO 17025 implementation enhanced international recognition of testing data, while mobile labs strengthened surveillance and rapid response. Integration of halal verification within scientific systems led to improved conformity, reduced food adulteration, and more consistent regulatory enforcement, contributing to sustainable food systems and consumer confidence.

Research limitations – The study focuses on a single provincial framework without extensive longitudinal consumer perception or economic analysis. Broader cross-provincial and regional comparisons are recommended to evaluate national scalability and socio-economic impacts.

Originality/value – This is the first provincial experience in Pakistan to institutionalize halal food safety governance through an ISO 17025-compliant system. The KPFS&HFA framework serves as a replicable model for developing economies, illustrating how science-driven halal governance can underpin ethical trade, food system resilience, and public health protection within the broader vision of sustainable development.

Keywords: Keywords: Halal Food Safety; ISO/IEC 17025; KPFS&HFA; Laboratory Accreditation; Risk-Based Inspection; Sustainable Food Systems; Regulatory Governance; Pakistan

Track: Bioactive Compounds

Supported by :



An Integrated Computational Approach to Identify Xanthine Dehydrogenase (XDH) Inhibitors from *Ardisia elliptica*: Network Pharmacology and Molecular Simulation in The Context of Halal Herbal Therapy

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Abstract

Background – Hyperuricemia is a metabolic disorder characterized by elevated serum uric acid levels due to impaired purine metabolism. Although allopurinol is widely prescribed as a xanthine oxidase (XO) inhibitor, its adverse effects highlight the need for safer, plant-based alternatives.

Purpose – In response to the increasing demand for halal-certified natural medicines, this study explored the potential of bioactive compounds from *Ardisia elliptica* as natural inhibitors of xanthine dehydrogenase (XDH) using an integrated computational approach

Design/methodology/approach – Bioactive compounds were curated from PubChem and KNApSAcK, while their biological activities and potential protein targets were predicted through PASS Online, SuperPred, and SwissTargetPrediction. Network pharmacology analysis, including protein–protein interactions (PPIs), Gene Ontology (GO), and KEGG enrichment, was performed using STRING and visualized with Cytoscape. Molecular docking was conducted with PyRx, and molecular dynamics simulations were analyzed using CABS-flex 2.0 and iMODS.

Findings – Several compounds demonstrated strong binding affinity to XDH ($P_a > 0.7$), with myricetin-3-O-rutinoside showing the highest affinity (-11.4 kcal/mol). Molecular dynamics confirmed stable interactions at the catalytic residues, and PPIs identified XDH and albumin (ALB) as central targets.

Research limitations – The findings are based entirely on *in silico* analyses (network pharmacology, molecular docking, and molecular dynamics). No *in vitro* or *in vivo* experimental validation was performed to confirm biological activity. In addition, the selection of bioactive compounds relied on secondary databases (PubChem, KNApSAcK, etc.).

Originality/value – These findings indicate that myricetin-3-O-rutinoside from *Ardisia elliptica* is a promising halal-derived candidate for the development of safe, plant-based therapy for hyperuricemia. This work emphasizes the role of halal natural products in advancing alternative therapeutics and contributes to the growing body of evidence supporting halal-based pharmaceutical innovation.

Keywords: Ardisia elliptica, hyperuricemia, in silico studies, xanthine dehydrogenase (XDH), halal herbal therapy.

Characterization of Nutritional and Bioactive Properties of *Coffea canephora* Pulp and Its Aqueous Extract Using Conventional and Ultrasonic Assisted Extraction

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Abstract

Background – Coffee pulp has been an agro-industrial waste that produces massively across coffee-producing countries, such as Indonesia. Coffee pulp shows potential as a sustainable functional food ingredient with health-promoting properties. However, scientific data on its nutritional and bioactive composition are remain limited, especially for region-specific *coffea canephora* materials.

Purpose – This study aims to evaluate the nutritional composition and functional properties of dried *coffea canephora* pulp and to characterize the bioactive properties through different two extraction methods and assess its effects of the ultrasound activity using water as solvent for halal and greener approaches.

Design/methodology/approach – Dried coffee pulp was collected from Pagar Alam, South Sumatra, and analyzed using standard AOAC procedures for moisture, ash, crude protein, crude fat, and total soluble sugars. Aqueous extracts were prepared using conventional extraction at 70°C and UAE at different amplitude and cycle settings. Total phenolic content, total flavonoid content, antioxidant activity (IC₅₀), and total soluble sugars were measured using spectrophotometric methods to evaluate the extraction performance and functional properties.

Findings – UAE has shown higher phenolic and flavonoid contents compared to the conventional method. Antioxidant activity also has different results between the extraction approaches, with UAE showing more stronger radical-scavenging power. Differences between UAE amplitudes and cycles is indicating that ultrasound intensity can influence the stability and solubility of compounds present in coffee pulp. Total soluble sugars also showing variation across treatments, indicating difference solubilization efficiency during extractions.

Research limitations – This study strictly limited to *coffea canephora* coffee pulp from Pagar Alam City, South Sumatra, Indonesia and the solvent is focused on aqueous extraction and only basic bioactive analysis assays. Additional analysis such HPLC Phenolic profiling, antidiabetic enzymatic assays, or extraction optimization were not included. The findings are representing specific sample and may vary on coffee pulp variety, maturity, drying process, and processing conditions.

Originality/value – This study provides baseline scientific information on *coffea canephora* pulp from Pagar Alam City, It demonstrates how UAE can enhance the extraction of the bioactive compounds and supports the potential use of coffee pulp as a value-added ingredient for functional food applications. The findings contribute to efforts in utilizing coffee by-products within sustainable and circular bioeconomy frameworks.

Keywords: Coffee Pulp, Coffea Canephora, Ultrasonic Assisted Extraction, Bioactive Compounds

FTIR Spectroscopy Analysis of Organosulfur Compounds from Garlic Extract (*Allium sativum L.*) and Cytotoxic Activities Against T47D Cell Line

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Abstract

Background – Garlic (*Allium sativum L.*) has been used as a traditional medicinal plant. In Islamic prophetic tradition (hadith), garlic is mentioned as a vegetable prohibited for consumption by individuals who are about to perform prayer in the mosque due to its strong aroma. This cultural reference reflects long-standing awareness of garlic's characteristic smell, which is now understood to arise from its organosulfur constituent.

Purpose – Organosulfur, as the main bioactive compound in garlic, has anticancer properties; however, it is chemically unstable, so the extraction method needs to be carefully considered. This research aimed to analyse the organosulfur components extracted using wet and dry extraction methods and to determine their cytotoxic activity against T47D cell lines.

Design/methodology/approach – The methodology of this study involves extracting the compounds in both wet and dry extraction methods using maceration and direct crushing techniques. An FTIR spectrophotometer was used to analyse organosulfur compounds in the garlic extract, with an absorbance range of 650–4000 cm^{-1} . Cytotoxic activity was assessed against the T47D cell lines using the MTT assay, and its IC_{50} value was measured.

Findings – The results showed that the garlic extract contained the following compounds: S–S (stretched disulfide) groups at 722.18 cm^{-1} in the wet extract as the main organosulfur compound; and C–S extended sulphides (997.81 cm^{-1}) in the dry extract. Both extracts contained C=C alkenes, S–H sulphonamide, aldehyde groups, and evidence of hydrogen bonding. These findings were compared with the William and Fleming FTIR Dictionary (1989) as the main reference for compound identification. The cytotoxic test showed that the wet extraction method exhibited cytotoxic activity against T47D cell lines, with an IC_{50} value of 94.384 $\mu\text{g/ml}$. This result can be used to initiate further research on cancer therapy using halal material.

Research limitations – The acknowledged limitation of this research is that FTIR spectroscopy identifies functional groups but cannot confirm molecular structures or quantify specific compounds; therefore, techniques such as HPLC, LC–MS/MS, or GC–MS would provide more comprehensive chemical profiling.

Originality/value – The originality of the study lies in its direct comparison of wet versus dry extraction methods and their influence on the presence of organosulfur compounds.

Keywords: cytotoxic, FTIR, garlic, Islamic tradition, organosulfur compound

Track: Biotechnology

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Genetic Diversity of Eel Fish Using Random Amplified Polymorphism Dna (RAPD) Method in North Maluku Waters, Indonesia

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Abstract

Background – Eels (*Anguilla* spp.) are economically and ecologically important fish species in Indonesia, supporting both capture fisheries and aquaculture sectors. However, increasing exploitation and habitat degradation have raised concerns about their population sustainability. Understanding the genetic diversity of eel populations is essential not only for conservation but also for supporting sustainable and halal-certified aquaculture systems that ensure product integrity and animal welfare.

Purpose – This study aimed to analyze the genetic diversity and phylogenetic relationships of eels based on phenotypic and genotypic characteristics using the Random Amplified Polymorphic DNA (RAPD) method, with data analyzed through clustering and similarity index approaches to clarify population relationships and support sustainable, halal-certified aquaculture practices.

Design/methodology/approach – This study aimed to assess the genetic diversity of eel populations in North Maluku waters using the Random Amplified Polymorphism DNA (RAPD) method. Samples were collected from multiple locations, and RAPD markers were used to evaluate genetic variation through clustering and similarity index analyses to describe genetic relationships among populations.

Findings – The results revealed high levels of polymorphism among populations, indicating substantial genetic diversity. This high degree of variation is crucial for selective breeding and conservation programs, helping to maintain adaptive potential and resilience in eel populations.

Research limitations – This study was limited by the relatively small sample size and the use of RAPD markers, which may offer lower reproducibility compared to more advanced molecular tools such as microsatellites or single nucleotide polymorphisms (SNPs). Moreover, sampling was restricted to four locations in North Maluku, which may not fully capture the genetic variation of eel populations across Indonesia; therefore, future studies should include broader sampling and more robust genetic markers to enhance resolution and accuracy.

Originality/value – The findings provide valuable insights for conservation initiatives, the development of selective breeding programs, and the implementation of sustainable and halal-certified management strategies for eel resources in Indonesia.

Keywords: Eel fish, genetic diversity, RAPD marker, sustainable aquaculture, halal certification

Track: Food Science and Technology

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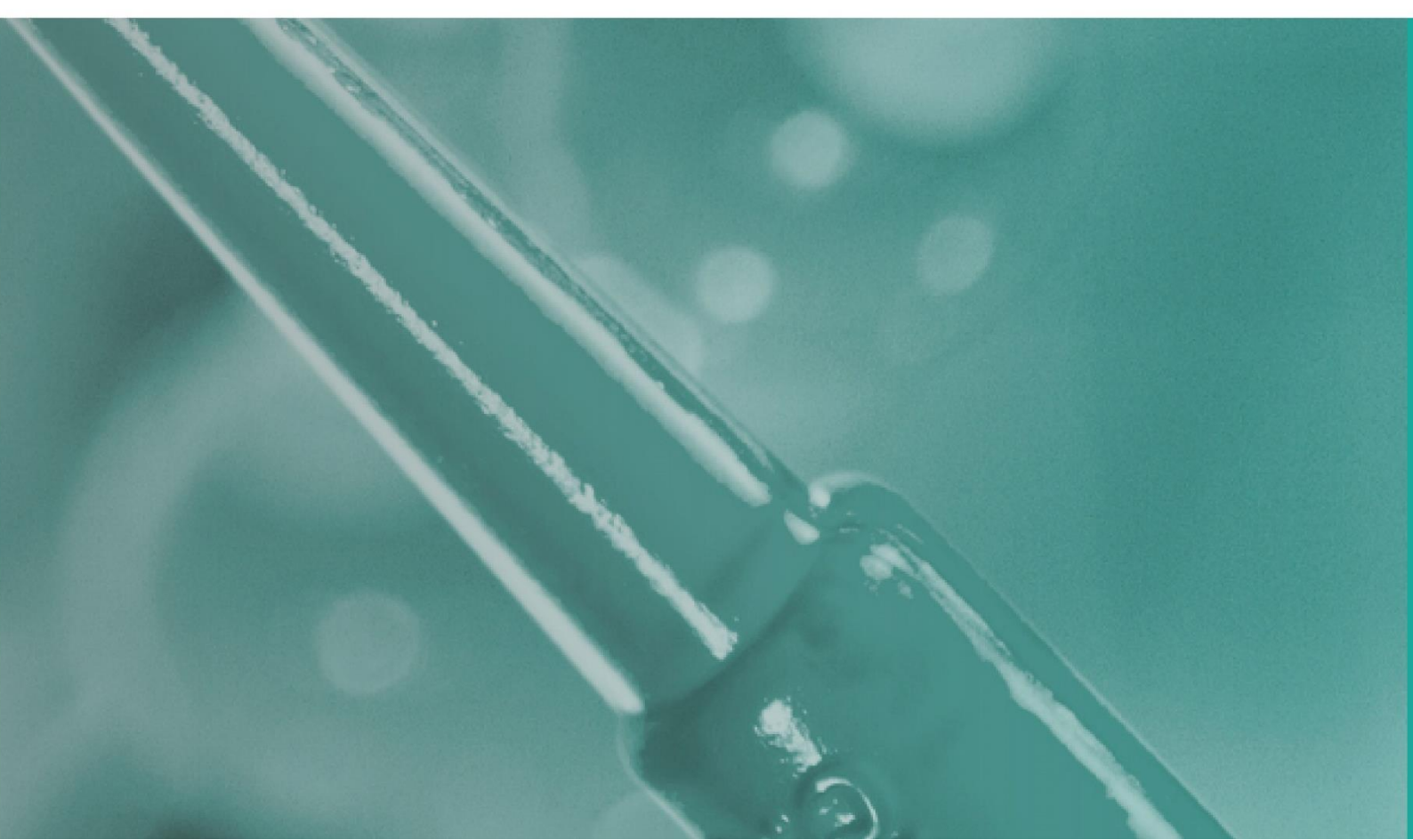


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Development and Characterization of Halal *Caulerpa lentillifera*-Fortified Jelly with Enhanced Nutritional and Antioxidant Properties

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Abstract

Background – The demand for clean-label and halal-compliant confectionery is gaining attention as consumers seek healthier and more sustainable food options. *Caulerpa lentillifera*, a mineral-rich edible green algae, offers potential as a fortifying ingredient to enhance the nutritional and antioxidant properties of jelly products.

Purpose – This study aimed to develop a halal, non-gelatin, and preservative-free jelly product with *C. lentillifera* and compared its nutritional properties, mineral content, and antioxidant activity with those of commercial and control jelly.

Design/methodology/approach – Principal Component Analysis (PCA) was applied to mineral and antioxidant analyses for the comprehensive nutritional properties analysis.

Findings – The fortified *C. lentillifera* jelly exhibited higher antioxidant activity (68% and 45% for DPPH and ABTS scavenging activity, respectively), increased levels of magnesium, zinc, and iron, and a lower sodium content. The moisture content of the fortified jelly is 38% lower than that of the commercial jelly, resulting in a denser, nutrient-rich product with potential for a longer shelf life. The PCA explained 97.4% of the total variance and successfully distinguished the jellies based on the nutritional advantages.

Research limitations – Although this study was conducted on a laboratory scale and focused on compositional parameters, further research on sensory evaluation, stability, and scale-up studies is imperative for practical application.

Originality/value – The incorporation of *C. lentillifera* represents an innovative approach that utilizes marine-based functional ingredients within the food industry. Overall, this research introduces a novel halal, preservative- and colouring-free confectionery with fortified *C. lentillifera*, demonstrating potential for health-oriented, halal-certified functional foods that align with global wellness initiatives and the evolving demand for clean-label, sustainable products.

Keywords: antioxidant, Caulerpa lentillifera, jelly, halal, Principal Component Analysis

Hybrid Extraction Optimization of *Moringa oleifera* Leaves Protein

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Abstract

Background – The growing global demand for halal, sustainable, and plant-based alternatives to animal-derived gelatin has escalated the search for novel protein sources suitable for functional and clean-label food applications. *Moringa oleifera* leaves, containing approximately 30% protein and a balanced nutritional profile, represent a promising candidate for the development of halal protein ingredients.

Purpose – This study aimed to develop and optimize an integrated extraction process to obtain high-purity *Moringa oleifera* protein concentrate, suitable for use as a potential halal alternative to gelatin in food and nutraceutical applications.

Design/methodology/approach – This study reports the laboratory-scale optimization of a novel hybrid extraction method combining ultrasound-assisted extraction (UAE), alkaline-acid solubilization, and ammonium sulphate precipitation, aimed at producing a moringa leaf protein concentrate with enhanced purity and recovery. Preliminary experiments identified key factors influencing protein recovery, followed by a Box–Behnken experimental design under response surface methodology (RSM) to investigate the effects of sonication time, pH, and ammonium sulphate concentration. The process was optimized at 60 minutes sonication, pH 9.5, and 70% (NH₄)₂SO₄, using a 1:10 (w/v) solute-to-solvent ratio.

Findings – Under these conditions, the optimized process achieved a protein recovery of 12.39%, an extraction yield of 5.54%, and a protein content of 61.63 ± 2.51%, demonstrating substantial improvement in both recovery and purity compared with conventional methods. The integrated process enhanced protein solubilization, minimized impurity co-extraction, and improved overall extraction efficiency.

Research limitations – The current study focused primarily on extraction optimization and yield characterization. Further work is needed to evaluate the functional properties (such as foaming capacity, emulsifying capacity and gelling ability) and structural integrity of the extracted proteins to confirm their suitability as gelatin substitutes in specific food systems.

Originality/value – This work introduces a newly optimized ultrasound–salt-assisted extraction technique that bridges the purity–recovery trade-off in moringa protein extraction. The method provides a scalable, halal-compliant, and sustainable pathway for producing plant-based protein concentrates with potential applications in halal confectionery, functional foods and nutraceutical, contributing to the growing clean-label food movement.

Keywords: *Moringa oleifera*, protein extraction, ultrasonication, protein yield, plant protein.

Optimizing Halal Zone Layouts in Industrial Estates for Warehousing and Distribution: A Spatial Modeling Approach Utilizing QGIS

| Fajar Azhari Julian¹, Ahmad Nur Ihsan Purwanto¹, Muhammad Roihan Zainuddin¹

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Abstract

Background – The rapid growth of the halal industry underscores the urgent need for logistics and industrial infrastructures that comply with halal standards. Although Indonesia aspires to become a global halal hub, its industrial estates still lack spatial integration of halal principles. This study addresses that gap by applying Geographic Information System (GIS)—particularly QGIS—to model and optimize halal zone layouts. The approach strengthens Indonesia’s Masterplan Ekonomi Syariah by ensuring halal integrity, environmental safety, and spatial efficiency in industrial planning.

Purpose – The research aims to develop a QGIS-based spatial modeling framework for designing and optimizing halal zones in industrial estates. It focuses on identifying strategic locations for halal warehousing and distribution, designing segregation systems to prevent contamination, and offering spatially informed policy recommendations aligned with the national halal industrial roadmap.

Design/methodology/approach – This study employs a mixed-methods design, combining qualitative insights from regulatory documents and stakeholder interviews with quantitative spatial modeling using QGIS and Multi-Criteria Decision Analysis (MCDA). The case study in West Java, a key logistics hub, evaluates land suitability based on accessibility, contamination risk, and environmental criteria to ensure both efficiency and compliance with halal principles.

Findings – The analysis identifies four candidate halal sites (KM42, KM62, KM71B, and KM72A), with KM72A emerging as the most suitable due to its connectivity, low contamination potential, and supportive infrastructure. The developed spatial model provides a visual and data-driven basis for policymakers to integrate halal zoning into regional development plans. It demonstrates that QGIS-based modeling enhances transparency, traceability, and Sharia-compliant logistics governance.

Research limitations – The model does not fully capture socio-political and institutional challenges influencing halal industrial policy. Future studies should integrate Participatory GIS (PGIS) to strengthen stakeholder collaboration and regulatory harmonization.

Originality/value – This study pioneers an interdisciplinary framework that merges Islamic ethical principles with spatial analysis, introducing halal zoning as a model for sustainable industrial governance. It provides both theoretical innovation and practical guidance for embedding halal assurance into Indonesia’s spatial and economic development agenda.

Keywords: Halal Logistics, Industrial Estate, Spatial Modeling, QGIS, Halal Zone Planning.

Porcine DNA Detection in Soy Sauce Using Real-Time PCR

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Abstract

Background – Soy sauce is a common fermented condiment used especially in East and Southeast Asian cooking. Yet, food adulteration, or the inclusion of porcine ingredients, is still a point of concern for consumers following halal food regulations.

Purpose – This study aims to analyze the quality and quantity of DNA extracted from soy sauce, to determine specificity, sensitivity, and efficiency of PCR assay for porcine DNA detection and to screen porcine DNA in commercial soy sauce in the market.

Design/methodology/approach – Real-time PCR analysis was utilized for the rapidity, sensitivity, and specificity in detection and quantification of porcine DNA in soy sauce products. Specifically designed primers were constructed from the cytochrome b gene (*S. scrofa domestica*). DNA samples were extracted using Qiagen DNeasy Mericon Food. SYBR Green-based real-time PCR was conducted for DNA detection of 11 samples, two raw meat samples, one soybean sample, and eight soy sauce samples. PCR amplification was performed with an initial pre-denaturation at 95°C for 60 seconds, followed by 35 cycles of denaturation at 95°C for 15 seconds and combined annealing and extension at 60°C for 45 seconds.

Findings – Primer specificity was confirmed since the positive amplification was found to be for porcine DNA alone with a Ct value of 19.78 at 35 cycles. The technique possessed a detection limit of 0.001 ng/μL of porcine DNA. The efficiency of the real-time PCR assay from the regression analysis of the standard curve was 79.8% with a high R² value of 0.9986. There was no amplification of the DNA in any of the soy sauce samples, whereas in the spiked sample, amplification occurred at 33.19 Ct value.

Research limitations – Soy sauce sample is a highly process and fermented food which contains mixture of ingredients that can interfere with DNA extraction. Besides, presence of polyphenolic compounds in soy-derived products can inhibit PCR reactions and limit the quality DNA extracted from the sample. Thus, we suggest optimizing DNA extraction methods and using inhibitor removal steps to minimize PCR inhibition in future studies.

Originality/value – This study highlights real-time PCR as a powerful, fast, and sensitive method for detecting porcine DNA in processed food for halal food law enforcement and verification of food label authenticity.

Keywords: Porcine DNA, soy sauce, real time PCR

Development and Application of Plant-Based Binder from Protein Concentrate of Pigeon pea (*Cajanus cajan L. Millsp.*)

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Abstract

Background – Pigeon pea (*Cajanus cajan L. Millsp.*) is a legume widely cultivated in Indonesia, however, its utilization as a dietary source remains limited due to the presence of toxic compounds (HCN) and anti-nutritional factors such as phytic acid and trypsin inhibitors. Despite its demerits, protein isolate from pigeon pea can be extracted and utilized as a halal food ingredient, particularly in meat-emulsified products, to enhance their functional and quality attributes.

Purpose – This study aimed to improve the nutritional quality of pigeon pea protein, characterize its functional properties, and assess its potential as a plant-based halal binder for meat products.

Design/methodology/approach – Pigeon pea flour was prepared with various pretreatments and analyzed for HCN and anti-nutritional compounds, followed by defatting and protein extraction. Extraction was performed at alkaline pH, and precipitation was conducted at the isoelectric point determined from protein solubility.

Findings – The resulting high-protein fraction was then evaluated for key functional properties. The most effective pretreatment was soaking in a 5% NaHCO₃ solution for 48 hours without boiling, reducing HCN to 3.28 ppm, phytic acid to 9.94 mg/g, and trypsin inhibitor activity to 4.15 mg/g. Protein extraction at pH 12 with precipitation at pH 4 produced a protein concentrate containing 64.47% protein (db), with a concentrate yield of 5.91%, protein yield of 58.26%, and recovery of 46.19%. Functional properties included a water-holding capacity of 2.50 ml water/g solid, oil-holding capacity of 3.06 ml oil/g solid, emulsion capacity of 39.33%, emulsion stability of 89.02%, foam capacity of 40.16%, and foam stability of 83.11% after 4 hours.

Research limitations – The protein concentrate was not integrated directly in meat product formulations, even though its potential as a plant-based halal binder was suggested. Without application testing, its actual performance in texture enhancement, binding strength, and thermal stability remains unknown. Further research is required to validate its functionality in real food systems, including formulation trials using cowpea protein concentrate as a binder in meat products and comparing its performance with commercial soy-based binders.

Originality/value – These functional characteristics indicate a strong potential for pigeon pea protein concentrate to serve as a plant-based halal binder in meat products, supporting clean-label and sustainable food innovation.

Keywords: Pigeon pea, protein concentrate, functional properties, halal binder, anti-nutritional factors

A Study on the Physical Properties of Banana Flour as a Functional Ingredient for Food Applications

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Abstract

Background – Bananas (*Musa spp.*) are fast-growing plants that can be cultivated year-round throughout all provinces of Thailand. Banana flour is derived from natural raw materials and is considered to have a low glycemic value. Consumption of bananas or banana flour has been associated with potential benefits in reducing the risk of diabetes, cancer, and cardiovascular diseases. In addition, it possesses a characteristic aroma and exhibits favorable physical properties. Investigating the physical properties of banana flour may highlight its potential as an alternative ingredient in various food applications. Moreover, such knowledge can contribute to value addition and enhanced its utilization.

Purpose – To determine the bioactive properties and functional characteristics of unripe banana flour (UBF) by evaluating its total phenolic content, antioxidant activity, resistant starch content, and water- and oil-holding capacities, in order to assess its potential use as a functional ingredient with prebiotic potential.

Design/methodology/approach – Unripe bananas from Nakhonnayok, Thailand, were dried at 60 °C for 48 h, ground, and sieved (80–100 mesh) to obtain unripe banana flour (UBF). The flour was extracted with 80% ethanol at a 1:10 (w/w) ratio at 70 °C, filtered through Whatman No. 1 filter paper, and the solvent was removed under reduced pressure. Total phenolic content was determined using the Folin–Ciocalteu method, while antioxidant activity was assessed by the DPPH assay. Water-holding capacity (WHC) and oil-holding capacity (OHC) of UBF were also evaluated. Resistant starch content was determined by enzymatic hydrolysis using α -amylase and glucoamylase, followed by centrifugation to separate the resistant starch (sediment) from the digestible fraction (supernatant) for further analysis.

Findings – The total phenolic content of unripe banana flour (UBF) extracted with 80% ethanol was 228 mg GAE/100 g. Antioxidant activity showed an IC₅₀ value of 32.02 mg/mL. The water-holding capacity and oil-holding capacity of UBF were 134 g water/100 g UBF and 78.5 g oil/100 g UBF, respectively, indicating its potential to enhance moisture retention, texture, and viscosity in food products. In addition, the resistant starch content of UBF was 36% on a dry weight basis, which can function as a prebiotic substrate for beneficial gut microbiota.

Research limitations – This study is limited by the use of a single in vitro antioxidant assay (DPPH), and further characterization of individual phenolic compounds would provide a more comprehensive understanding of the bioactive profile of UBF.

Originality/value – The findings demonstrate that UBF possesses substantial phenolic content, notable antioxidant activity, and favorable hydration and lipid-binding properties, highlighting its potential as a multifunctional ingredient for food formulation.

Keywords: unripe banana flour, Functional ingredient, antioxidant, Functional food, alternative flour

Plant-Based Probiotic Beverage from Date Juice: A Preliminary Study on Fermentation-Related and Sensory Characteristics

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Abstract

Background: Growing interest in plant-based probiotic products has stimulated the search for non-dairy substrates capable of supporting probiotic growth while providing additional functional benefits. Date palm fruit (*Phoenix dactylifera* L.) is naturally rich in fermentable carbohydrates, phenolic compounds, and antioxidants, making it a promising medium for producing functional probiotic beverages.

Purpose: This preliminary study aimed to develop a plant-based probiotic beverage from date juice and to examine the effects of juice concentration and probiotic inoculum levels on fermentation-related characteristics and sensory outcomes.

Design/Methodology/Approach: Date juice prepared at 20, 25, and 30% (w/w) was fermented with *Lactobacillus plantarum* at two inoculum levels (10 and 50 mg/100 mL) for 24 h at 37°C. Physicochemical properties, viable cell counts, sensory acceptability, and Just-About-Right (JAR) profiles of the fermented date juice (FDJ) were assessed to identify promising formulations for subsequent optimization.

Findings: After 24 h of fermentation, FDJ showed a decrease in pH, with the greatest reduction at the lowest juice concentration, while total soluble solids remained unchanged. Probiotic viability increased from 7 to 8 log CFU/mL at 10 mg/100 mL inoculum but remained at approximately 8 log CFU/mL at higher inoculum levels. Preliminary sensory evaluation revealed no significant differences in sensory attributes or overall acceptability among FDJ samples; however, JAR analysis indicated that samples prepared with 50 mg/100 mL inoculum at 25 and 30% (w/w) juice concentration had the highest proportion of “just-right” ratings for sweetness and sourness, with acceptable Net Effect values. Overall, these findings suggest that date juice is a suitable substrate for probiotic beverage development and that the higher inoculum level tested may be a preferable condition for further development.

Research Limitations: Sensory evaluation was conducted with a small panel (n = 11) as a preliminary screening for optimization.

Originality/Value: This study provides initial evidence that date juice can serve as a viable plant-based substrate for probiotic fermentation without added sugars or additives. A combination of natural date-derived nutrients and probiotic fermentation presents a promising approach for developing clean-label functional drinks. Metabolite production and bioactive compounds should be further investigated to better characterize the functional potential of probiotic date juice.

Keywords: Lactic acid fermentation, Functional beverage, Probiotics, Date fruit, Lactobacillus

Development of HPLC-UV Method for Umami Analysis for Halal Ingredient Development using *Hericium erinaceus* mushroom.

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Abstract

Background – The increasing need for rapid, dependable, and halal-compliant analytical methods is important to identify and quantify compounds responsible for flavour, especially umami taste.

Purpose – A high-performance liquid chromatography coupled with ultraviolet detection (HPLC–UV) technique was established and validated to determine disodium guanylate (GMP) and disodium inosinate (IMP). These two nucleotides contribute to the umami taste, especially in mushrooms. These nucleotides from halal sources act as natural flavour enhancers that improve palatability. At the same time, it can reduce sodium levels in formulated foods. These findings align with current trends in developing healthier and halal-certified food products.

Design/methodology/approach – Chromatographic conditions were optimised to achieve clear separation of GMP and IMP using a Kromasil 100–5-C18 column (4.6 × 250 mm, Sigma-Aldrich) under isocratic elution and different buffer conditions. Extraction of GMP and IMP was performed using deionized H₂O, 0.1 M HCl, and 6% AcOH.

Findings – The method displayed excellent $R^2 = 0.9989$ for GMP and 0.9958 for IMP, excellent RSD of 1.07% for GMP and 2.16% for IMP, and a good detection limit (LOD): 3.61 ppm and 7.30 ppm; quantification limit (LOQ): 10.93 ppm and 22.12 ppm for GMP and IMP, respectively. These results obtained high recovery rates from 91.4% to 95.0% confirming good accuracy and precision.

Research limitations – The proposed method was accurate and reproducible, but the use of UV detection remains a limiting factor. It may not effectively detect trace amounts of IMP and GMP components when compared to LC–MS-based approaches. Furthermore, this work focused exclusively on this type of mushroom; therefore, additional validation across other mushroom species and processed foods is necessary to ensure matrix stability and broader applicability.

Originality/value – The validated HPLC–UV method provides a reliable analytical tool for assessing umami-related nucleotides from halal sources such as mushroom matrices. It offers potential applications in flavour standardization and halal product formulation, thus supporting the development of nutritionally balanced and halal-compliant food products.

Keywords: food flavour, halal ingredients, lion mane mushroom, disodium guanylate (GMP), disodium inosinate (IMP)

Track: Marketing

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Positioning Strategies and Consumer Behavior toward Processed Halal Chevron Products: A Structural Equation Modeling Approach

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Abstract

Background – The increasing demand for Halal-certified foods drives local enterprises to develop value-added chevon products like Kagikit (flakes) and Cracklings. In the emerging Halal market of Region XII, understanding consumer behavior and acceptance is vital for creating effective positioning strategies and enhancing market competitiveness.

Purpose – This study aimed to examine consumer behavior, product acceptability, and positioning strategies for Halal Chevron Kagikit and Cracklings. Specifically, it sought to identify the socio-demographic profile, product characteristics, and behavioral determinants influencing purchase intention and to develop a validated structural model that explains these relationships.

Design/methodology/approach – A quantitative research design employing Structural Equation Modeling (SEM) was used to analyze the determinants of consumer behavior toward Halal Chevron products. Data were gathered through a structured survey administered to 410 respondents across Region XII, selected through stratified probability sampling. The instrument assessed respondents' socio-demographic profile, preferred product characteristics, buying behavior, consumer acceptability, and purchase intention.

Findings – Results revealed that students and mothers emerged as a significant consumer segment for Halal Chevron products. Their purchase decisions were largely driven by product quality, taste, packaging, and flavor, while price, ingredients, and safety further shaped how they perceived and valued the products. Both Halal Chevron Kagikit and Cracklings received generally favorable acceptance among consumers, reflecting a positive sensory appeal and market potential. Moreover, consumers expressed strong intentions to purchase these products, indicating confidence in the quality and Halal integrity. The behavioral model demonstrated a good overall fit, confirming that the proposed framework effectively captured the key factors influencing consumer behavior toward Halal Chevron products.

Research limitations – The focus on Region XII limits generalizability to other regions and cultural contexts. Future research should include cross-regional studies and qualitative approaches to gain deeper insights into cultural values, religious motivations, and attitudes influencing consumer behavior toward Halal food products.

Originality/value – This study offers empirical insights into consumer behavior toward locally produced Halal chevon products in the Philippines, guiding the development of positioning strategies that highlight quality, safety, and integrity to enhance consumer trust, brand reputation, and market competitiveness.

Keywords: Halal Chevron, Positioning, Acceptability, Intention, Modeling

Bibliometric Insights into Halal Tourism and Supply Chain Management Nexus

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Abstract

Background – Halal tourism has become an increasingly important segment within the global tourism industry, driven by the rising demand from Muslim travellers seeking products and services that comply with Islamic principles. Despite the growing academic interest in halal tourism and halal supply chain management, studies often treat these fields separately, with limited research exploring their intersection.

Purpose – This study aims to provide a comprehensive bibliometric assessment of existing scholarship at the intersection of halal tourism and supply chain management. By analysing publication patterns, collaboration networks, and thematic developments, the research identifies the intellectual structure, key contributors, and emerging trends shaping the field.

Design/methodology/approach – The study employs a quantitative bibliometric approach using the Scopus database as the primary data source. 491 publications from 2000 to 2025 were retrieved using keywords related to “halal tourism,” “halal hospitality,” and “halal supply chain management.” After data cleaning and refinement, the dataset was analysed using VOSviewer to perform co-authorship, co-citation, bibliographic coupling, and keyword co-occurrence analyses. Network visualisation techniques were used to uncover thematic clusters, collaboration patterns, and research evolution within the field.

Findings – Analysis reveals a growing academic interest in halal tourism and its linkages with supply chain management, particularly in recent years. Research is concentrated within a limited number of countries and institutions, with notable collaboration emerging among scholars from Southeast Asia and the Middle East. Thematic mapping identifies several dominant clusters, including halal certification and logistics, consumer behaviour, sustainability, and destination management. However, the intersection between halal tourism operations and supply chain governance remains underexplored.

Research limitations – The study is limited to publications indexed in Scopus and to works published in English. Despite this limitation, the results provide a valuable reference point for future research directions, particularly for scholars seeking to expand the conceptual and methodological scope of halal tourism and supply chain research.

Originality/value – This study represents one of the first bibliometric analyses examining the nexus between halal tourism and supply chain management. By mapping the intellectual landscape and identifying emerging research frontiers, it contributes to a clearer understanding of how halal tourism and supply chains intersect.

Keywords: Halal, Halal Tourism, Supply Chain Management; Bibliometric Analysis, VOSViewer

Halal Certification as a Trust Signal in Muslim Consumers' Purchase Intentions for BooCha Booms KombuchaD

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¹ Bandung Islamic University ² Universitas Islam Bandung ³ Independent Researcher

Abstract

Background – Kombucha, a fermented tea with probiotic benefits, is increasingly popular in Indonesia but remains controversial due to its natural ethanol content. Although MUI permits beverages with <0.5% ethanol (v/v), many Muslim consumers remain uncertain because of limited awareness and trust in halal certification. Existing studies mostly address conventional halal foods quantitatively, leaving a research gap on how halal certification and trust shape purchase intentions for emerging fermented products like kombucha.

Purpose – This study explores how halal certification and consumer trust affect purchase intention toward BooCha Booms kombucha, a local SME product lacking formal certification. It also extends the Theory of Planned Behavior by introducing trust as a mediator between halal certification and purchase intention in fermented functional beverages.

Design/methodology/approach – This study uses a qualitative case study approach on BooCha Booms kombucha in Indonesia, involving 12 Muslim consumers through interviews, observations, and document analysis. Data were thematically analyzed using NVivo, following Braun and Clarke (2006), with validity ensured through triangulation, member checking, and an audit trail.

Findings – The study found three consumer views on ethanol in kombucha—strict rejection, conditional acceptance, and unawareness. Trust mediates the link between halal certification and purchase intention, strengthened by MUI credibility, brand transparency, and community support. Lab tests showed 0.07% ethanol, confirming halal compliance. SMEs can build trust through clear labeling, education, and formal certification.

Research limitations – The study's limitations include a small sample size (12 participants). The findings are exploratory and may not be generalizable to all Muslim consumers in Indonesia. Future research could employ quantitative or mixed-method approaches to statistically validate the relationships between halal certification, trust, and purchase intention.

Originality/value – This study contributes to the literature by extending the Theory of Planned Behavior with the mediating role of trust in the halal purchase context. It offers empirical insight into how Muslim consumers perceive halal credibility in an emerging functional beverage category. Practically, it provides guidance for SMEs to strengthen consumer trust through integrated halal communication, transparency, and formal certification strategies.

Keywords: Halal Certification, Kombucha, Consumer Trust, Purchase Intention, Muslim Consumers

Sultan Haji Hassanal Bolkiah Islamic Khazanah Hall: Showcasing the Power of Islamic Faith and Scientific Insight in Brunei Darussalam

| Hjmuhammadruzaini Binjhmohtaud

Archaeology Officer at Sultan Haji Hassanal Bolkiah Islamic Khazanah Hall

Abstract

Background – The Sultan Haji Hassanal Bolkiah Islamic Khazanah Hall is a premier gallery in Brunei Darussalam that bridges Islamic faith and scientific knowledge. Through exhibits on paleontology, gemology, astronomy, and Brunei’s biodiversity, it highlights how natural phenomena reflect Allah’s greatness, as affirmed in the Qur’an. The gallery also features artefacts belong to His Majesty Sultan Haji Hassanal Bolkiah, underscoring national heritage and commitment to learning. Traditional astronomical instruments demonstrate how Muslims historically determined the qibla, prayer times, and navigation. The gallery further recognises women’s contributions to Islamic science, notably Mariam al-Ijliya, a 10th-century astronomer and astrolabe maker, inspiring visitors and affirming women’s roles in advancing knowledge.

Purpose – The gallery offers a unique gallery where science and Islamic faith converge, positioning it as a premier Islamic tourism destination. It showcases Brunei’s rich flora and fauna, traces the development of Islamic astronomy, and highlights women’s roles in crafting astronomical instruments. The exhibition integrates scientific exploration with Qur’anic teachings, underscoring the enduring harmony between knowledge and faith.

Design/methodology/approach – The study adopts a qualitative, practice-based approach, drawing on the author’s experience as an Archaeology Officer. Methods include systematic exhibition observations, curation and display analysis, and informal visitor engagement assessment conducted during science- and spirituality-related activities.

Findings – Exhibitions effectively integrate science and Islamic teachings, enhancing spiritual and intellectual learning. Interactive displays increase visitor engagement, awareness of Islamic heritage and scientific knowledge. Biodiversity exhibits foster appreciation for Brunei’s ecological richness. Showcasing figures like Mariam al-Ijliya promotes awareness of women’s contributions. Effective use of traditional artefacts and modern exhibition techniques enhances understanding and engagement. The gallery promotes Brunei as a hub for faith-based, cultural, and educational tourism.

Research limitations – The study’s focus on gallery allows for deep, context-specific insight, but this narrow scope also means its findings have limited generalisability to other settings.

Originality/value – This research illustrates the integration of science and Islamic spirituality, highlights women’s historical contributions to knowledge, and shows how strategically curated exhibitions engage visitors while positioning Brunei as a leading destination for faith-based and educational tourism.

Keywords: marketing, gallery, tourism, heritage, Brunei Darussalam

Exploring the Nexus between Digital Marketing and Halal Consumer Behavior: A TikTok-Based Study

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Abstract

Background – The rapid growth of social media platforms like TikTok has transformed marketing strategies, particularly in niche markets such as halal businesses.

Purpose – This research explores how TikTok influences consumer behaviour, brand perceptions, and purchase intentions in the halal business sector, focusing on halal cosmetics, fashions, and food products. By examining variables such as influencer credibility, content marketing, social media interaction, and customer engagement, the study seeks to identify key factors that drive purchase intentions among Muslim consumers on TikTok.

Design/methodology/approach – The research will employ qualitative methods, including surveys and interviews with TikTok users, to analyse the impact of the company's marketing strategies on halal product consumption.

Findings – The findings are expected to offer practical recommendations for halal business marketers to optimise their social media presence and engagement to enhance brand trust and consumer loyalty.

Research limitations – The limitations of the study only focus on TikTok mobile commerce, not including other mobile commerce platforms.

Originality/value – The novelty of this study lies in being among the first to systematically analyse TikTok as a platform for halal product promotion, integrating perspectives from digital marketing, Islamic consumer behaviour, and consumer engagement, thereby filling a gap in both theory and practice.

Keywords: Consumer Behaviour, Halal, Marketing, Mobile Commerce, TikTok

Track: Artificial Intelligence

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Multi-Scene Vision–Language and Local LLM Pipeline for Suspicious Behavior Detection in Mosques

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¹ITPLN

Abstract

Background – Detecting harmful or suspicious behaviors such as theft, sexual harassment, and gun violence remains a critical challenge in public spaces, particularly in sensitive environments like mosques. Vision language models (VLMs) such as Moondream can recognize multi-frame actions but require reasoning support to evaluate interactions across time.

Purpose – This study develops a multimodal surveillance pipeline for mosques using multi-scene montage images or single-frame prompts. The pipeline processes these inputs with a VLM and interprets the outputs with a local language model to detect suspicious behaviors efficiently and accurately.

Design/methodology/approach – Video frames from mosque CCTV footage are sampled at one or two scenes per second. The frames are then organized into either single-scene prompts, where each frame is processed individually, or eight-scene montage prompts, where eight frames are combined into a two-by-four layout. Montage images are processed with Moondream-1B to generate structured descriptions of observed actions. Local reasoning is performed using Phi-4 Instruct Q8 GGUF or Gemma-2B Q2, which produce final verdicts on suspicious behavior. Ablation experiments examine the impact of sampling rate and montage layout and optionally compare results to larger VLMs such as GPT-5.

Findings – Preliminary results suggest that multi-scene montages improve contextual understanding and the detection of theft, harassment, and gun-related threats in mosque settings. Single-scene prompts offer higher granularity, while local LLM reasoning enhances decision-making by balancing reasoning quality and inference speed.

Research limitations – Future research will explore the integration of advanced VLMs, optimization of montage and sampling strategies, and the implementation of privacy-preserving measures to ensure responsible deployment in sensitive environments.

Originality/value – This work introduces the combination of temporal montage-based VLM inputs with local LLM reasoning for multi-frame behavioral monitoring in mosques. The ablation study of sampling rate and montage layout provides insights into the trade-offs between temporal resolution, contextual understanding, and computational efficiency.

Keywords: Mosque surveillance, Vision–language models, Suspicious behavior detection, Multi-scene montage, Local language models

Integrating AI and Adaptive Learning in Islamic Education: Ethical Perspectives for the Digital Era 5.0

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Abstract

Background – Adaptive learning technologies and artificial intelligence (AI) are transforming education in the Digital Era 5.0, providing innovative opportunities for Islamic education. This research investigates how AI-powered adaptive platforms can respect moral standards based on Maqasid al-Shariah while balancing contemporary digital technologies with traditional Islamic education. By providing individualized education based on students' cognitive capacities, language proficiency, and cultural backgrounds, adaptive learning improves accessibility, comprehension, and engagement. Using a multidisciplinary approach that combines cognitive science, educational technology, and Islamic studies, the study looks at real-world applications in Southeast Asia, such as Thailand, Malaysia, and Indonesia, where AI helps with Arabic language learning, Quranic studies, and Islamic jurisprudence. Additionally, the study highlights key challenges, including data privacy, cultural sensitivity, and fair access, and proposes solutions based on moral AI frameworks. Studies show that AI can close the gap between innovation and tradition, creating a digital environment for Islamic education that is morally sound, adaptable, and sustainable. This study also explores how AI-powered adaptive learning can enhance Islamic education, enabling Muslim learners to bridge the gap between tradition and contemporary educational demands throughout the world.

Purpose – 1. To investigate how AI and adaptive learning are used in Islamic education. 2. To include Maqasid al-Shariah, or Islamic ethical precepts, in AI-powered learning platforms. 3. To recognise problems and provide fixes for morally sound digital Islamic education.

Design/methodology/approach – Qualitative Analysis

Findings – The findings show that when AI-enabled adaptive learning is governed by moral frameworks derived from the Qur'an and Sunnah, it improves engagement, personalization, and efficiency in Islamic education.

Research limitations – The study is limited to secondary data and is mostly conceptual in nature. Future research should test these theoretical ideas with real case studies from Islamic colleges and institutions using AI-based adaptive systems.

Originality/value – This paper presents a moral framework for incorporating AI into Islamic education that encourages harmony between tradition, faith, and technological advancement.

Keywords: Islamic Education, Artificial Intelligence (AI), Adaptive Learning, Maqasid al-Shariah, Digital Era 5.0

Machine Learning-Based Detection of Lard Adulteration from IRMS and TAG Chromatographic Data

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Abstract

Background – The authentication of fish feed ingredients is critical for ensuring compliance with Halal standards, particularly the absence of lard-derived fats.

Purpose – This study compares the analytical performance of high-performance liquid chromatography, and isotope ratio mass spectrometry (IRMS) for detecting lard adulteration in fish feed formulations

Design/methodology/approach – Triacylglycerol (TAG) and Delta C (C) were analyzed and integrated with chemometric and machine learning approaches to classify samples containing different proportions of lard and palm oil. Principal Component Analysis (PCA) and Partial Least Squares–Discriminant Analysis (PLS-DA) were employed for pattern recognition and exploratory classification, while Support Vector Machine (SVM) and Random Forest (RF) models were optimized using stratified cross-validation for predictive validation.

Findings – The SVM model achieved an overall accuracy of 82%, effectively distinguishing feed formulations containing as low as 2–6% lard. Variable Importance in Projection (VIP) and feature importance analyses consistently identified key discriminatory fatty acids, including POL, PPO, and C18:1, which contributed significantly to class separation.

Research limitations – Small dataset (54 replicates)

Originality/value – These results confirm that integrating chromatographic data with chemometrics and machine learning provides a reproducible, data-driven workflow for reliable and scalable authentication of Halal fish feed ingredients.

Keywords: TAG, Delta C, lard, oil, fish feed

Rapid Pork Adulteration Detection Using Colour and Texture Analysis Coupled with Machine Learning

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Abstract

Background – Food adulteration is a serious crime that violates consumers’ trust, public health and religious dietary practices. This raises concern for the population with dietary restrictions, such as Muslims, since pork is prohibited in Islam. The colour similarity between pork and chicken and the textural resemblance between beef and pork facilitate the adulteration since the original morphological characteristics were destroyed. The conventional methods, like PCR and chromatography, are accurate, but it impractical for rapid, onsite adulteration detection due to the lengthy and tedious procedures.

Purpose – This study aims to develop a rapid, low-cost method for pork adulteration detection in minced beef and chicken by integrating colour and mechanical texture features with supervised machine learning models.

Design/methodology/approach – Fresh minced beef and chicken were adulterated with pork at five concentration levels (0%, 25%, 50%, 75%, and 100%). Colour features were extracted using a machine vision system, while texture parameters were obtained using a texture analyzer. Three machine learning algorithms, including Random Forest (RF), Decision Tree (DT), and K-Nearest Neighbour (KNN) were trained, tested, and validated using the same dataset for a multiclass classification. Model performance was evaluated based on the model accuracy.

Findings – Among the models tested, Random Forest achieved the highest classification accuracy (92.59%), followed by KNN (87.04%) and Decision Tree (81.48%). These high-accuracy model performance results indicate that the colour and texture data combination has high discriminatory power.

Research limitations – This study was conducted under controlled laboratory conditions using a limited number of meat sources. Sensitivity testing at lower adulteration levels (<25%) was not performed, limits the assessment of the model’s detection threshold.

Originality/value – This study demonstrates the potential of integrating image-based colour analysis and mechanical texture profiling with machine learning, highlighting the underutilized potential of texture features in halal authentication studies. The results indicate that colour and texture parameters contain high discriminatory information for detecting pork adulteration levels. The proposed approach provides a practical foundation for developing low-cost, reliable, portable tools for scalable field applications, enabling rapid on-site screening and inspection to support halal integrity and food traceability.

Keywords: Pork adulteration detection, machine vision, texture analysis, supervised machine learning, halal authentication

Track: Green Technology

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Halal and Tayyiban Food Security: Towards an Ethical and Sustainable Global Food System

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Abstract

Background – Food security is traditionally defined by four key pillars—availability, accessibility, utilisation, and stability. However, from an Islamic perspective, the concept extends beyond physical and economic access to encompass moral, spiritual, and ethical dimensions, as represented in the Halalan Tayyiban framework. This principle emphasises that food must not only be lawful (halal) in accordance with Shariah law but also wholesome (tayyiban), ensuring cleanliness, safety, and ethical integrity throughout the supply chain. Growing global concerns over sustainability, climate change, and food system resilience have renewed interest in exploring how Halalan Tayyiban values can complement conventional approaches to food security.

Purpose – This study aims to explore how Halal and Tayyiban principles can be integrated into the broader discourse on food security to promote a more sustainable, ethical, and spiritually conscious global food system. It seeks to identify the potential of these principles to enhance resilience, trust, and inclusivity within food supply chains.

Design/methodology/approach – This paper employs a systematic literature review approach, synthesising findings from peer-reviewed publications, institutional reports, and policy documents that address the intersections between halal assurance, sustainability, and food security. The review identifies key themes, conceptual relationships, and policy implications that emerge from the literature.

Findings – The analysis reveals that Halalan Tayyiban food security strengthens traditional food security models by incorporating ethical, environmental, and social justice dimensions. Upholding tayyiban standards promotes responsible production and consumption, enhances consumer confidence, and encourages sustainable resource management. The findings underscore the importance of multi-stakeholder collaboration, effective halal governance, and transparency in ensuring that food systems remain both secure and spiritually meaningful.

Research limitations – This study is based on secondary data and conceptual analysis. Future empirical research is needed to test the operationalisation of Halalan Tayyiban principles across different cultural and institutional contexts.

Originality/value – This paper contributes to the emerging global dialogue on Islamic perspectives in sustainable food systems. It offers a holistic conceptual framework that integrates Halal and Tayyiban values into the broader agenda of global food security, promoting an ethical, resilient, and spiritually aligned approach to feeding the world.

Keywords: Halal, Tayyiban, food security, sustainability, ethical food systems

Advancing Halal Functional Ingredients through Green Production of ACE-Inhibitory Peptides from Marine Collagen

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Abstract

Background – The rising global demand for Halal-certified functional ingredients has amplified interest in marine-derived bioactive compounds. Barramundi collagen, sourced from aquaculture by-products, represents a sustainable and Halal-compliant biomaterial rich in amino acids known to yield bioactive peptides. Among these, angiotensin-converting enzyme (ACE)-inhibitory peptides are of relevance due to their potential antihypertensive effects. However, the development of Halal, clean-label peptide ingredients is often limited by conventional extraction techniques that rely on chemical reagents or non-Halal enzymatic processes.

Purpose – This study aimed to identify peptide fractions with the strongest ACE-inhibitory potential and evaluate their characteristics.

Design/methodology/approach – Barramundi collagen was hydrolysed using subcritical water treatment at 200 °C and 70 bar for 5 min, an environmentally friendly method that eliminates the need for chemical or enzymatic hydrolysis. The resulting hydrolysate was then fractionated via ultrafiltration into three molecular-weight groups (>10 kDa, 3–10 kDa, and <3 kDa). ACE-inhibitory activity was assessed for each fraction, and the most active fraction was further evaluated for its stability against simulated gastrointestinal digestion and its inhibition pattern. Peptide sequences and molecular sizes were subsequently identified using mass spectrometry.

Findings – The <3 kDa fraction (F3) exhibited the highest ACE-inhibitory activity, which was strongly associated with its enriched bioactive amino acid composition. Hydrophobic residues (proline, hydroxyproline) and aromatic amino acids (tyrosine, phenylalanine) contributed to strong interactions with the ACE active site, while positively charged amino acids (arginine, lysine) enhanced electrostatic binding. Mass spectrometry revealed peptide sizes ranging from 400 Da to 2 kDa. The combination of subcritical water hydrolysis and ultrafiltration effectively concentrated these low-molecular-weight peptides.

Research limitations – The study was limited to in vitro ACE-inhibitory activity and peptide characterization. In vivo evaluation was not conducted, yet it is crucial to verify the antihypertensive effects in a living system.

Originality/value – This research establishes a Halal-compliant green process for producing ACE-inhibitory peptides from marine collagen, offering sustainable bioactive ingredients for incorporation into nutraceuticals and functional food formulations aimed at supporting hypertension management. However, as the findings are based solely on in vitro ACE-inhibition, further in vivo and formulation studies are required to confirm physiological efficacy and product stability before commercial application.

Keywords: subcritical water hydrolysis; ultrafiltration; barramundi collagen; antihypertensive peptides

Track: Molecular Biology

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Comparative Analysis of Gut Microbiota in Post-Mortem Chronic Alcoholics versus Minimal to No Alcohol Users in the Thai Population

| Laiba Pervez¹, Wikanda Worrakitirungsri², Poonyapat Sukawutthiya², Kornkiat Vongpaisarnsin²

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Abstract

Background – Chronic alcohol consumption contributes to liver disease, alcohol use disorder, and gut dysbiosis. However, post-mortem microbiome changes remain understudied, especially in Thai population. Exploring these alterations can offer insights relevant to clinical and forensic investigations of alcohol-related deaths.

Purpose – This study investigated the impact of chronic alcohol consumption on gut microbiota by comparing post-mortem cecal and fecal samples from alcoholic and non-alcoholic individuals. Microbial differences between intestinal sites were also examined within each group to assess spatial variation in gut communities.

Design/methodology/approach – Cecum and fecal samples were collected from 24 post-mortem cadavers (12 chronic alcoholics and 12 controls). The bacterial 16S rRNA gene (V3–V4 regions) was sequenced on the Illumina MiSeq platform, and taxonomic classification was performed in QIIME. Alpha diversity (ACE, Chao1, Shannon) and beta diversity (PCoA) analyses were conducted to assess microbial richness and community composition. Statistical differences between groups and intestinal sites were evaluated using t-tests and PERMANOVA (adonis).

Findings – In cecal samples, the chronic alcohol group showed reduced Firmicutes and increased Actinobacteria, Fusobacteria, and Proteobacteria compared with controls, indicating alcohol-associated microbial shifts. Beta diversity analysis (PCoA) confirmed a detectable compositional difference between groups. In fecal samples, *Clostridium* abundance was higher in alcoholics than in controls. Within the alcoholic group, Firmicutes were more abundant in cecum, while Actinobacteria were lower compared to feces. Among controls, Actinobacteria and Bacteroidetes were enriched in feces, whereas Firmicutes predominated in the cecum. Alpha diversity (ACE and Chao1 indices) revealed significantly greater species richness in fecal samples.

Research limitations – This study was based on post-mortem cadavers, with limited sample size that reduced statistical power. Uncontrolled factors such as prior antibiotic use, diet, lifestyle, and individual variability served as potential confounders. Despite sampling within 24 hours of death, early decomposition or post-mortem interval variation may also have affected microbial profiles.

Originality/value – This study is the first to characterize post-mortem gut microbiota in Thai individuals with chronic alcohol use, revealing distinct microbial patterns between groups and intestinal sites. The results suggest alcohol-related microbial signatures with potential clinical and forensic value for assessing chronic alcohol exposure.

Keywords: Chronic alcoholic, gut microbiome, post-mortem samples, microbial dysbiosis

Comparative Analysis of Gut Microbial Diversity in Early Decomposition Stages of Human Cadavers in Thai Population

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Abstract

Background – The human microbiome plays a vital role in maintaining health and normal bodily functions during life. However, its fate after death remains poorly understood. Microbes are closely linked to decomposition, influencing its progression through distinct stages. Understanding these postmortem microbial shifts not only deepens our knowledge of decomposition but also offers potential for estimating the postmortem interval (PMI). In this study, we assess the microbial diversity of cecum samples as a baseline for future PMI estimation.

Purpose – To assess and compare the microbial composition, diversity, and abundance in the cecum of human cadavers within the Thai population, and to evaluate changes in these microbial parameters during the early post-mortem period between 1–6 hours and 6–12 hour.

Design/methodology/approach – Cecum samples were collected and divided by postmortem interval: Group 1 (1–6 h) and Group 2 (6–12 h). Samples were stored at –80 °C under sterile conditions. Microbial DNA was extracted using the ZymoBIOMICS™ DNA Miniprep Kit and quantified with a QIAxpert. The 16S rRNA V3–V4 regions were sequenced on an Illumina MiSeq, clustered into 97% OTUs, classified via the SILVA database, and analyzed for alpha/beta diversity and biomarker taxa using LEfSe.

Findings – Distinct bacterial communities were observed between the two postmortem intervals. Agathobacter was notably abundant in Group 5 (1–6 h), while Butyricicoccaceae and Butyricoccus were predominant in Group 6 (6–12 h). These temporal variations illustrate an early microbial succession pattern, where the initial prevalence of Agathobacter transitions to the dominance of butyrate-producing taxa, potentially providing valuable indicators for the precise estimation of short postmortem intervals in forensic studies.

Research limitations – As this study involved human subjects, obtaining a large sample size was difficult due to limited suitable cases and ethical or logistical constraints of postmortem sampling. Future studies may overcome these challenges through broader collaborations, multi-center sample collection, and standardized protocols to enhance sample accessibility and representativeness.

Originality/value – There has been no prior research in Thailand examining microbial diversity in human cadavers. Moreover, the early postmortem interval (1–12 hours), which is critical for forensic investigations, remains underexplored. This gap highlights the importance of the present research.

Keywords: Gut microbial diversity, Postmortem interval estimation, Human cadaver decomposition, Microbial succession, Postmortem microbial changes

Track: Islamic Finance

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Faith-Driven Consumer Choices: Exploring the Role of MUI Fatwa in Moderating the Effect of Boycott Motivation on Gen Z's Purchasing Behavior

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Abstract

Background – The global proliferation of product boycotts highlights a growing ethical consciousness among consumers, especially Generation Z, known for their digital connectivity and heightened social awareness. In Indonesia, this phenomenon gained significant traction after MUI Fatwa No. 83/2023 urged Muslims to abstain from products associated with political or humanitarian transgressions. This investigation thus explores the interplay between this faith-based directive and boycott motivation in shaping Indonesian Gen Z consumers' purchasing behavior concerning L'Oréal Group products.

Purpose – The research aims to examine the influence of boycott motivation on purchasing decisions and assess whether the MUI Fatwa moderates this relationship. It seeks to clarify whether religious guidance amplifies or diminishes Gen Z's boycott-driven consumption patterns.

Design/methodology/approach – This quantitative study employs Partial Least Squares–Structural Equation Modeling (PLS-SEM) using SmartPLS 4.1. A total of 384 respondents, representing Indonesian Gen Z consumers aged 12–29, participated through an online survey. The model tested the relationships among Boycott Motivation (X), MUI Fatwa (Z), and Purchase Decision (Y) with a 5 percent significance level.

Findings – Results show that boycott motivation significantly and positively influences purchase decisions ($T = 11.870$; $\beta = 0.560$). The MUI Fatwa also has a direct positive effect ($T = 5.991$; $\beta = 0.303$), underscoring the role of religious authority in ethical consumption. However, its moderating effect is insignificant ($T = 2.953$; $\beta = -0.034$), indicating that Gen Z's boycott participation is driven more by humanitarian and social solidarity than by formal religious edicts.

Research limitations – The study focuses only on L'Oréal Group and Indonesian Gen Z, limiting broader generalization. Data collected via self-reported online surveys may also involve response bias.

Originality/value – This research offers an empirical contribution to the study of Islamic consumer ethics, integrating religious authority with behavioral economics. It provides insights for policymakers, marketers, and scholars on how faith and social consciousness jointly influence purchasing behavior in Muslim-majority markets.

Keywords: Boycott Motivation, Religious Moderation Effect, Faith-Based Consumer Behavior, Generation Z Purchase Decision, Islamic Economics

From Purity to Justice: Rethinking Digital Halal Governance as a Political-Theological Project in the IMT-GT Corridor

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Abstract

Background – The global halal economy’s digital turn especially blockchain-based certification has been promoted as a breakthrough for transparency and market confidence. Within the IMT-GT, these technologies underpin an ambitious regional halal-hub agenda linking laboratories, logistics, and state-religious authorities. Digital infrastructure reflects a technocratic logic that reduce halal to chemical purity and data traceability, ignoring its theological focus on justice and trust within the maqasid al-shari’ah.

Purpose – This study rethinks digital halal governance as a political-theological project, this term refers to a form of government in which the power to regulate halal certification is linked to moral legitimacy and theological ideas of justice. It examines whether the halal system itself not merely its products can promote justice and moral accountability in the IMT-GT corridor.

Design/methodology/approach – Using a comparative desk analysis, the paper examines two architectures of halal digitalisation: (1) Thailand’s laboratory-led Halal Blockchain Initiative at the Halal Science Center, and (2) Indonesia’s BPJPH state-centric halal regime. The study uses three different ways of looking at things: (a) halal as a social and technical trust system, (b) a critical political economy of digital governance, and (c) Islamic ethics of justice based on maqasid reasoning. Primary and secondary policy documents, academic studies, and institutional reports are interpreted thematically.

Findings – Blockchain enhances traceability but does not automatically democratise authority. It tends to concentrate power among technocratic or bureaucratic leaders, marginalize halal SMEs, and turn halal into a commodity as a national or corporate brand. The new discussion about “Green Halal” shows how ethical language can be used in green marketing without addressing unfair labor precarity or ecological inequality.

Research limitations – As this is a theoretically driven and regionally focused study, filed research is needed to assess how digital platforms influence farmers, workers, and halal SMEs throughout the IMT-GT supply chain.

Originality/value – The paper offers a justice-oriented analytical framework for digital halal governance, integrates Islamic political economy and technological power. By repositioning IMT-GT as a living laboratory for maqasid-based innovation, it advances a normative question for policymakers and scholars alike: Can Islamic finance systems resist the reduction of halal to market value and restore its ethical foundation of justice?

Keywords: halal governance; blockchain politics; maqasid justice; Islamic political economy; digital certification

Halal Integrity in Heavy Industry: Legal and Leadership Perspectives from Brunei's Hengyi Petrochemical Complex

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Abstract

Background – Halal governance has traditionally focused on food, pharmaceuticals, and cosmetics. However, as global industries expand, the need to uphold Halal principles in non-consumable sectors—such as petrochemicals—has become increasingly relevant. Brunei's Hengyi Industries offers a unique case study in navigating Halal compliance within a high-risk, high-volume industrial context.

Purpose – This paper aims to explore how Halal principles are operationalised in heavy industry, focusing on legal frameworks and leadership strategies that embed ethical integrity across corporate systems.

Design/methodology/approach – Using a qualitative case study approach, the paper draws on internal policy reviews, legal documentation, and expert interviews with compliance and leadership personnel at Hengyi. It integrates Islamic legal analysis with organisational leadership theory to propose a hybrid model of Halal governance.

Findings – The study finds that Halal compliance in industrial settings requires more than certification—it demands a values-based culture rooted in amanah (trust), ihsan (excellence), and maslahah (public good). Legal mechanisms such as supplier contracts and audit protocols are essential, but equally important are leadership practices that foster Halal literacy, ethical decision-making, and internal accountability.

Research limitations – The findings are based on a single case study and may not be generalisable across all industrial sectors. Access to proprietary data was limited, and further research is needed to explore cross-border Halal harmonisation.

Originality/value – This paper contributes to the emerging discourse on Halal governance in non-food industries. By combining legal and leadership perspectives, it offers a Bruneian model for ethical industrial practice that can inform ASEAN policy, corporate training, and future research.

Keywords: Halal governance, industrial ethics, Brunei, Islamic law, leadership integrity

Track: E-Business

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HalalGuide: Halal Certification Portal with Establishment Finder

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¹STI College - Gen. Santos, Inc.

Abstract

Background – The expansion of halal-friendly tourism in the Philippines is constrained by the absence of a centralized and credible platform for tourists to access halal-certified establishments. Moreover, the existing halal certification process for local businesses is fragmented and largely manual, resulting in inefficiencies that hinder trust, accessibility, and scalability.

Purpose – This study aims to develop HalalGuide: Halal Certification Portal with Establishment Finder, a web-based platform designed to digitize the halal certification process and provide an integrated directory of verified halal establishments. The project aims to enhance transparency, efficiency, and user trust while supporting the country’s efforts toward inclusive and technology-driven halal tourism.

Design/methodology/approach – The system was developed using HTML, CSS, JavaScript, PHP, and MySQL, guided by the Scrum agile methodology to promote iterative design, collaboration, and continuous feedback. It integrates several core modules—Halal Certification Application, Establishment Listings, Interactive Mapping, User Feedback, and Administrative Management—overseen by the Mindanao Halal Authority (MINHA) and the National Commission on Muslim Filipinos (NCMF). The system’s functionality and usability were evaluated through user testing involving tourists, business owners, and representatives from certifying bodies.

Findings – Results revealed that HalalGuide effectively streamlined the certification process and improved user accessibility to verified halal establishments. All stakeholder groups, including MINHA and NCMF, rated its performance as “excellent,” citing enhanced efficiency, reliability, and satisfaction. Feedback also affirmed that the system significantly increased transparency and user confidence within the halal tourism ecosystem.

Research limitations – The system’s current scope is limited to South Cotabato and relies on stable internet connectivity, third-party mapping APIs, and timely updates from administrators and business owners. Expanding the platform nationwide and integrating advanced analytics are recommended directions for future development.

Originality/value – HalalGuide represents one of the first Philippine-developed digital platforms that integrate halal certification management with an establishment finder within a secure and privacy-compliant digital environment. Its incorporation of cybersecurity measures ensures long-term sustainability, fosters user trust, supports halal business growth, and aligns with the national vision for inclusive and technology-driven halal tourism.

Keywords: Halal Certification Portal, Halal-certified Establishments Finder, Halal-friendly Tourism, Web-Based System, Tourism Technology

Challenges and Motivation of Daughters in Sustaining Leadership Roles in Family Businesses

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¹Universitas Ary Ginanjar

Abstract

Background – Family businesses contribute significantly to Indonesia’s economy, accounting for 82% of national GDP and 95% of existing enterprises. Despite this central role, succession remains a persistent challenge, with only 30% of businesses surviving into the second generation and 13% into the third. Within this landscape, daughters encounter unique difficulties shaped by gendered expectations, legitimacy struggles, and cultural norms that often limit their access to leadership. As more women gain higher education and enter professional environments, addressing these obstacles becomes crucial for building an inclusive and sustainable family business succession framework. This study offers a focused examination of the gendered succession dynamics that influence daughters’ pathways to leadership—highlighting their challenges, motivations, and agency in transforming family enterprises.

Purpose – This research aims to (1) identify the specific barriers daughters encounter in assuming leadership roles, (2) explore the motivations and enabling factors that strengthen their intention to lead, and (3) propose strategic pathways to enhance their leadership readiness and contribution to long-term business continuity.

Design/methodology/approach – A descriptive qualitative design was employed, involving eight purposively selected female participants from the Second Generation Program at Universitas Ary Ginanjar who were actively involved or preparing for involvement in their family enterprises. Data were collected through semi-structured interviews, analyzed using thematic analysis via NVivo 15, and validated through triangulation between interview data and program documentation.

Findings – The findings show that daughters face intertwined challenges including generational mindset disparities, gender-based legitimacy issues, and competing personal–familial role demands. However, these challenges are countered by intrinsic motivation, self-awareness, parental trust, innovation capability, and leadership development programs. The study also reveals that structured governance—particularly through formalized managerial systems and family constitutions—supports a shift from traditional patriarchal succession toward merit-based, collaborative models. Sustainable leadership emerges when personal resilience aligns with supportive family structures and institutional empowerment.

Research limitations – While limited by its small, context-specific sample, this study provides valuable insight into daughters as active agents rather than passive successors.

Originality/value – It contributes to the literature by integrating gender, leadership, and governance perspectives and offers practical implications for designing inclusive succession strategies that strengthen women’s leadership roles and ensure intergenerational business sustainability.

Keywords: Family Business Succession, Female Leadership, Gender and Entrepreneurship, Intergenerational Transition, Empowerment of Daughters

Track: Environment Technological

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Reframing Corporate Sustainability through Maqashid Syariah: Evidence from Indonesia's Green Industry

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Abstract

Background – The growing environmental degradation in Indonesia has emphasized the urgency of sustainable industrial practices. PT Tirta Investama Tanggamus, a subsidiary of Danone-AQUA, represents an important case where green management principles intersect with Islamic ethical frameworks. The Maqashid Syariah—as the philosophical foundation of Islamic law—provides a holistic lens for evaluating corporate environmental responsibility through protection of life (hifzh al-nafs), wealth (hifzh al-mal), and posterity (hifzh al-nasl).

Purpose – This study analyzes green management at PT Tirta Investama Tanggamus through a Maqashid Syariah lens, identifying enabling and inhibiting factors and evaluating socio-economic and ecological impacts on communities, clarifying how Islamic ethics shape sustainability practices and environmental governance.

Design/methodology/approach – This qualitative case study integrates a literature-enriched design with source triangulation across company representatives, local policymakers, and community stakeholders. The empirical base comprises four interview transcripts and a secondary corpus of 47 news articles, 38 scholarly journals, 32 books, and 6 reports, all coded and visualized in NVivo 12 Pro. Analysis followed Miles & Huberman's interactive cycle (data reduction, display, conclusion), ensuring credibility through cross-source corroboration and theory-informed coding aligned with Maqashid Syariah.

Findings – The study finds that PT Tirta Investama's green management practices strongly align with ISO 14001:2015 environmental standards and Maqashid Syariah principles. Environmental policies and operations reflect hifzh al-nafs (protection of life) through sustainable water and waste management, and hifzh al-mal (protection of wealth) through fair resource use and local economic contribution. Stakeholder engagement further embodies *maslahah* (public benefit) and 'adl (justice) by empowering communities in environmental stewardship. However, challenges persist in participatory communication and differing community perceptions of water access. Overall, triangulated qualitative evidence confirms that Maqashid Syariah reframes corporate sustainability as spiritual accountability, extending beyond compliance toward ethical and holistic stewardship.

Research limitations – The study is confined to a single-site, time-bounded case relying primarily on qualitative evidence; future work should incorporate quantitative environmental performance indicators and multi-site comparisons to test transferability.

Originality/value – This research bridges Islamic jurisprudence and contemporary environmental management by proposing a Maqashid Syariah-based evaluative model for green industry governance, demonstrating how faith-driven ethical principles reinforce sustainability beyond compliance, advancing stewardship, accountability, and stakeholder legitimacy in Muslim-majority contexts.

Keywords: *Green Management, Maqashid Syariah, Sustainability, Islamic Economics, Corporate Environmental Responsibility.*

Track: Health Sciences

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CTCF Regulation of CEMIP: Novel and Translational Target for Drug Resistant Prostate Cancer

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¹The University of Hong Kong

Abstract

Background – Prostate cancer is the seventh highest cause of cancer death among males, accounting for more than 375,000 fatalities in 2020 and it is a second-leading cause of cancer death in American men. Novel techniques for therapy are required to tackle chemo-resistant prostate cancer.

Purpose – To investigate the epigenetic and transcriptional role of 11-zinc finger protein (CTCF) on CEMIP that drives its metastatic phenotypes in aggressive prostate cancer and Novel and translational target for drug resistant prostate cancer

Design/methodology/approach – ChIP-Atlas and UCSC Genome Browser were used as a tool to examine CTCF and its binding site with CEMIP. CEMIP was knock-downed (si-RNA) and overexpressed (OE) with lentivirus in androgen-insensitive (DU145, PC-3) and androgen-sensitive (LNCaP) human prostate cancer cell lines. We then performed 3D spheroid model (Aggrewell method) to furtherly confirm that the knock-down and overexpression of CEMIP play crucial role in 3D spheroid formation in castration-resistant prostate cancer cell lines with statistical analysis from GraphPadPrism software.

Findings – The results revealed the significant epigenetic shift of CEMIP at promoter region affected by CTCF. The results from RT-qPCR confirmed the successful knock-down and overexpression. The knock-down displayed cytotoxic effects against cancer cells ($p < 0.05$) while the overexpression of CEMIP increased cancer cells proliferation ($p < 0.05$). Moreover, cancer cells form less aggregation after si-CEMIP but better 3D structure in OE. Thus, we confirmed that CEMIP drives tumor metastasis and 3D spheroid formation in castration-resistant prostate cancer cell lines

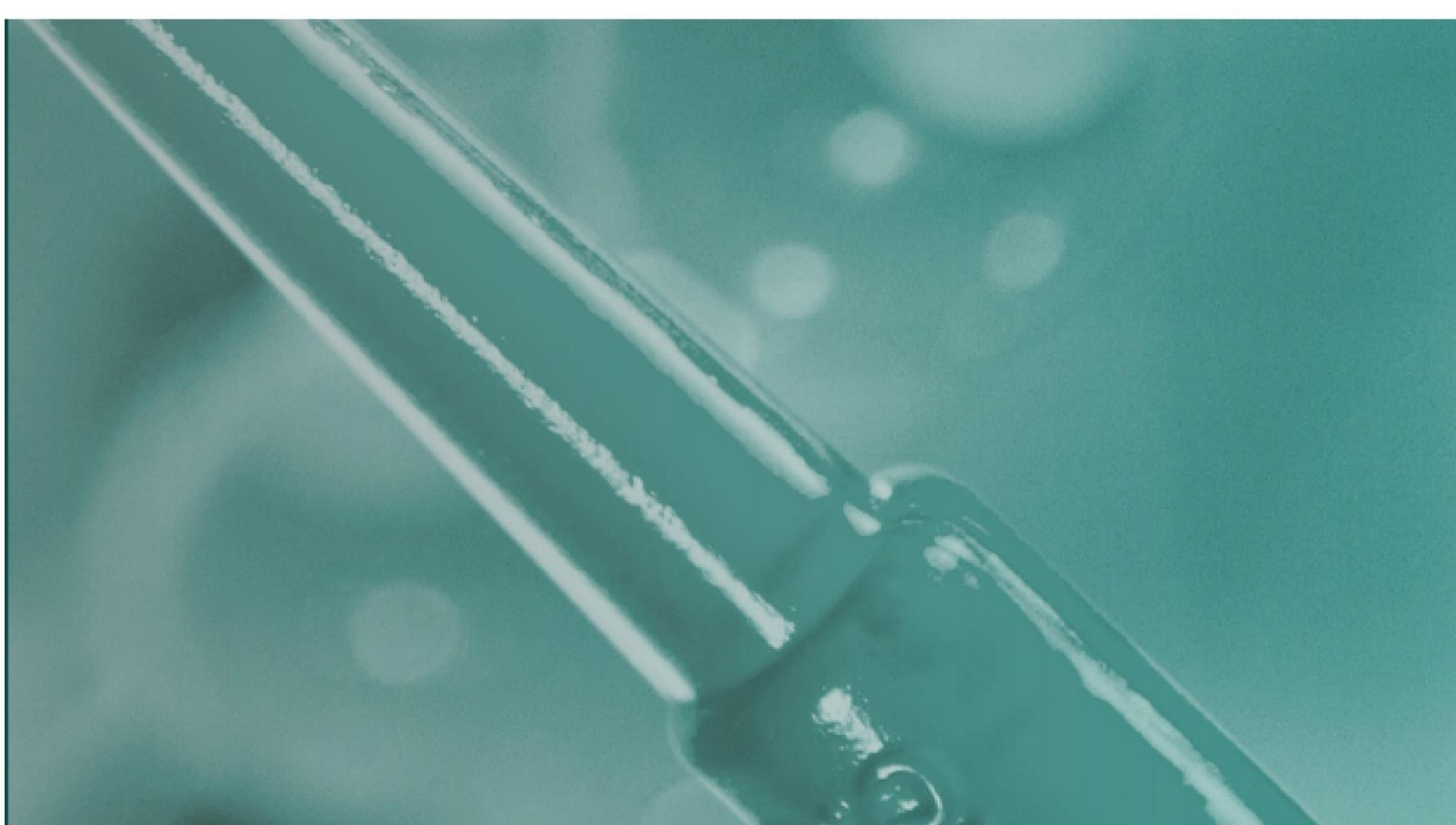
Research limitations – Further in vivo and clinical validation is required

Originality/value – Our investigations provide compelling and novel evidence that CEMIP has role as oncogene in androgen-resistant prostate cancer. Overall, our outcomes reveal that CEMIP may have potential as a future therapeutic target in prostate cancer.

Keywords: prostate cancer, CEMIP, CTCF

Track: Young Halal Innovators Project

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Development of a program for simulating of blood flows and finding the percentage of coronary artery stenosis from Coronary Angiography

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Islamic Sciences Demonstration School, Prince of Songkla University

Abstract

Background – Coronary artery disease (CAD) is a leading cause of morbidity and mortality worldwide. It results from the stenosis or obstruction of coronary arteries, leading to reduced blood supply to the myocardium. Accurate assessment of the severity of coronary artery stenosis is essential for diagnosis and treatment planning. Currently, coronary angiography combined with quantitative coronary analysis (QCA) is widely used. Although QCA provides high accuracy, the process is complex and time-consuming, as physicians must manually trace vessel boundaries. Moreover, conventional assessment methods mainly focus on anatomical narrowing and may not adequately reflect hemodynamic changes, such as blood flow velocity and pressure, which are directly related to disease severity.

Purpose – This study aims to develop an automated program to detect coronary artery boundaries from coronary angiography (CAG) images, calculate the percentage of stenosis, and simulate blood flow behavior. The proposed system seeks to provide a more comprehensive assessment of coronary artery disease, reduce human error, and shorten diagnostic time.

Design/methodology/approach – CAG images were processed using image processing techniques, including thresholding, flood fill, noise reduction, and edge detection, to automatically identify coronary artery boundaries from user-selected regions of interest. The percentage of stenosis was calculated based on vessel width measurements and classified using K-means clustering. Blood flow behavior in stenotic regions was simulated using two-dimensional Navier–Stokes equations, solved by the fractional step method. The calculated stenosis percentages were compared with clinical QCA results obtained from 80 CAG images provided by Yala Hospital to evaluate system accuracy.

Findings – The results showed that the program could accurately detect coronary artery boundaries. Blood flow simulation demonstrated increased velocity and decreased pressure in stenotic regions, which is consistent with fundamental fluid dynamics principles. When compared with QCA results, the majority of the calculated stenosis percentages differed by less than 10%. In addition, feedback from physicians indicated that the program was accurate and convenient to use, suggesting its potential applicability in future clinical practice.

Research limitations – This study is limited by the assumption of two-dimensional blood flow, which may not fully represent the three-dimensional structure of coronary arteries. Furthermore, images containing numerous small vessels may increase the complexity of vessel boundary segmentation and lead to measurement inaccuracies.

Originality/value – The proposed automated framework integrates anatomical and hemodynamic analyses, enabling a faster and more comprehensive assessment of coronary artery disease. The system has potential applications in medical treatment planning and clinical decision support, while also aligning with ethical principles of Halal science.

Keywords: Coronary artery disease, Poisson equation, flood fill, Gauss–Seidel method, Navier–Stokes equations, fractional step method

Efficacy testing of five invasive alien plant extracts on mortality of *Aedes aegypti* mosquito larvae and pupae and development of Mini jelly Capsule using basic spherification technique.

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Research Supervisor Sukthanut Promjit, Dr. Rungtiwa Wongsagonsup**

Benchamatheputhit Phechaburi School, Thailand

Abstract

Background – *Aedes aegypti* spreads dengue, Zika, and chikungunya viruses, making larval and pupal control a public health priority. Plant-based larvicides are safer and environmentally friendly alternatives to chemical control. Developing user-friendly products that follow Halal requirements is important for communities guided by religious principles.

Purpose – This study tested plant extracts from five weed species to see how well they kill *Aedes aegypti* larvae and pupae. It also compared how Mini Jelly Capsules made with calcium lactate and calcium chloride absorb water at 21, 28, and 35 °C. The study also observed capsule size, color, and firmness, and developed a Halal-friendly Mini Jelly Capsule for simple mosquito control.

Design/methodology/approach – Extracts from *Leucaena leucocephala*, *Chromolaena odorata*, *Pluchea indica*, *Ruellia tuberosa*, and *Spermacoce articularis* were prepared using distilled water and ethanol. Third stage larvae and pupae test concentration at 125, 250, 500, and 1,000 µg/L, with 15 individuals per replicate and three replicates. Mortality was recorded at several time points, and LC₅₀ and LC₈₀ were calculated using Probit analysis. Mini Jelly Capsules were produced using Basic Spherification and tested for water absorption, size, color, and firmness. All materials followed Halal rules, avoiding gelatin and any animal-based ingredients. Field testing took place at Yamiul Islam Mosque in Phetchaburi, with participation from the local Muslim community.

Findings – The ethanol extract from *Ruellia tuberosa* was the most effective in killing *Aedes aegypti* larvae and pupae, even at low concentrations, while the extract from *Chromolaena odorata* could kill only the larvae. Therefore, they were developed into mini jelly capsules.

Research limitations – Use 1 gram in 1 liter of water. One small sachet can treat 10 liters of water.

Originality/value – This study applied weed extracts with Basic Spherification to create to Halal principles larvicidal capsules, offering a community-friendly approach for sustainable mosquito control, especially in Muslim communities.

A Natural 4 Indicator Film for Detection of *Staphylococcus* spp. Infection Levels in Pressure Ulcers Combined with Antibacterial Activity of *Bidens Pilosa* Extract

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Research Supervisor Sukthanut Promjit, Dr. Jaruwan Chatwichien

Benchamatheputhit Phechaburi School, Thailand

Abstract

Background – The skin is a crucial protective organ, and improper wound care can lead to infection, inflammation, and progression into pressure ulcers, which are highly susceptible to bacterial contamination and difficult to treat.

Purpose – This study aimed 1.to develop a transparent film dressing capable of preventing bacterial infection caused by *Staphylococcus* spp. using extracts from *Bidens Pilosa*, and 2.to develop a hydrogel indicator film capable of detecting bacterial infection through pH-dependent color changes in the wound environment

Design/methodology/approach – The research began with the extraction of *Bidens Pilosa* and the evaluation of its antioxidant activity and hyaluronidase inhibitory effects. The floral parts of the plant were then extracted using four solvents—hexane, dichloromethane, ethyl acetate, and butanol—and were retested for biological activity, including antibacterial activity against *Staphylococcus* spp. Film sheets incorporating the plant extracts were subsequently fabricated. In addition, a hydrogel indicator film was developed using natural pH-sensitive extracts from four local plants: butterfly pea, purple cabbage, red grape, and pomegranate.

Findings – The results indicated that the floral extract provided the highest biological activity. Among the solvent fractions, the ethyl acetate fraction exhibited the strongest antioxidant activity, the hexane fraction showed the greatest hyaluronidase inhibition, and the dichloromethane fraction demonstrated the most effective antibacterial activity against *Staphylococcus* spp. The optimal film formulation consisted of PVA, SCMC, 0.06 g of hyaluronic acid, and the plant extract. For the hydrogel indicator film, the formulation containing purple cabbage extract displayed the fastest and most distinct pH-responsive color change.

Research limitations – most pressure ulcers in the population are classified as stage 3–4, the film should be produced with greater thickness and larger dimensions to properly cover severe wounds. Furthermore, the prototype is still in the laboratory research phase and is not yet suitable for clinical application.

Originality/value – Given the increasing elderly population in Thailand and the high prevalence of pressure ulcers due to limited mobility, this research was motivated by the need to develop a wound-dressing film that can both inhibit infection and indicate infection levels, enabling timely and effective treatment.

Keywords: *Bidens Pilosa* ; *Hyaluronidase* ; *Natural Indicators*; *Pressure ulcer*

Nanoencapsulation of Bioactive Compounds from *Baccaurea macrophylla* Peel Extracts with Deep Eutectic Solvents for Xanthine Oxidase Inhibition

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Kanarasdornbumroong Yala School, Thailand

Abstract

Background – *Baccaurea macrophylla* pericarp extract is rich in polyphenolic compounds with strong antioxidant and xanthine oxidase (XO) inhibitory activities, indicating potential for the management of hyperuricemia and gout. However, its practical application is limited by poor stability and low bioavailability, which reduce its clinical effectiveness.

Purpose – This study aims to develop and evaluate a nanoencapsulation system to enhance the stability, bioaccessibility, and XO inhibitory activity of *B. macrophylla* pericarp extract, thereby improving its potential for use in pharmaceutical and nutraceutical applications.

Design/methodology/approach – The extract was obtained using ultrasonic-assisted ethanol extraction and encapsulated via ultrasonication using nanostarch (NSB) and nano-starch–maltodextrin (NSBM) matrices. The encapsulated systems were characterized by FTIR and SEM to confirm structural integrity and morphology. Stability tests under various pH, temperature, and storage conditions were conducted, along with in vitro gastrointestinal digestion simulations to assess bioaccessibility and XO inhibitory activity.

Findings – The results demonstrated successful encapsulation, producing spherical nanocapsules with particle sizes of approximately 160–180 nm. The NSBM system exhibited higher loading efficiency (79.92 mg/g) and superior stability compared to NSB. In vitro digestion revealed enhanced bioaccessibility, particularly in the duodenal phase (NSBM: 69.47%). Moreover, NSBM retained greater XO inhibitory activity after digestion, with an IC_{50} value of 70.44 $\mu\text{g/mL}$, indicating improved functional performance.

Research limitations – This study was limited to in vitro evaluations and did not include in vivo assessments of pharmacokinetics or therapeutic efficacy. Further research is required to validate the clinical potential and long-term safety of the nanoencapsulated extract.

Originality/value – This study highlights the effectiveness of nanostarch-based nanoencapsulation, particularly with maltodextrin co-matrices, in enhancing the stability, bioavailability, and biological activity of *B. macrophylla* extract. The findings support its promising application as a functional ingredient in oral pharmaceutical dosage forms and nutraceutical products for the management of hyperuricemia and gout.

Keywords: *Baccaurea macrophylla*; Xanthine Oxidase; Nanostarch; Nanostarch-maltodextrin; Nanoencapsulation

Development of an Energy-Boosting and Lactation-Stimulating Beverage for Breastfeeding Mothers from Banana Blossom

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Prince of Songkla university Demonstration School (Secondary)

Abstract

Background – Breastfeeding is widely recognized as the optimal method for infant nourishment; however, many mothers experience insufficient milk production and require appropriate support. Approximately 30% of mothers encounter low milk supply, with inadequate and unbalanced nutrient intake—particularly low protein, vitamins, and minerals—being a major contributing factor. Although commercial galactagogue products exist, most rely mainly on herbal ingredients that stimulate lactation while failing to provide complete and balanced nutrition.

Purpose – study aims to evaluate the efficiency of extracting banana blossom milk using pectinase to obtain bioactive compounds suitable for developing an energy-boosting and lactation-enhancing beverage for breastfeeding mothers. The product must be processed in accordance with Halal principles and Halal science to ensure safety, religious compliance, and suitability for consumers of all faiths, with potential for advancement within the global Halal industry

Design/methodology/approach – Banana blossom was enzymatically extracted to enhance the recovery of functional bioactive compounds. The extracted banana blossom milk was incorporated into a cereal-based high-energy beverage, pasteurized, and packaged as a ready-to-drink product. Total phenolic content and antioxidant activity (DPPH and ABTS assays) were analyzed for both the extract and the final beverage, followed by sensory evaluation to assess consumer acceptance

Findings – Enzymatic extraction enhanced bioactive compound recovery, yielding an extract with 728.21 mg/g total phenolics and antioxidant values of 1371.54 mg/L (DPPH) and 5430.42 mg/L (ABTS). The formulated beverage provided 154 kcal per serving with balanced macronutrients. The final product showed 425.56 mg/g total phenolics and antioxidant activity of 654.42 mg/L (DPPH) and 1230.72 mg/L (ABTS). Sensory evaluation indicated high consumer acceptance

Research limitations – This study was conducted at the laboratory scale; further research is needed to evaluate stability, shelf life, and clinical lactation outcomes

Originality/value – The beverage combines enzymatically extracted banana blossom with cereal milk to deliver lactation-enhancing properties and balanced nutrition. Its high bioactive content and consumer acceptance demonstrate strong potential for commercial development

Keywords: Banana Blossom Extract; Enzyme Pectinase; Phenolic Compounds; Antioxidants

CLOSING SPEECH

Assalamualaikum Warahmatullahi Wabarakatuh,

Excellencies, Presenter, Attendees,

Ladies and Gentlemen,

It is a great honor and joy for me to deliver the closing remarks for this year's IHSATEC 2025: 18th HASIB. The committee has successfully managed the conference, ensuring that breakout sessions and presentations proceeded with minimal technical issues. Throughout the event, we engaged in insightful discussions and had the opportunity to share the outcomes of our research.

I extend my gratitude to all participants, speakers, presenters, attendees, and session chairs from various countries for their significant contributions to IHSATEC 2025: 18th HASIB. Special thanks to the hardworking committee members for their dedication.

IHSATEC 2025: 18th HASIB highlighted the need of further and diverse research on the subjects of Halal studies, both in industry business, and technology. The presented research in this conference underscored the vital role of universities, higher education institutions, government, society, and related stakeholders in leading the application of the concept of halal studies in all fields.

In conclusion, IHSATEC 2025: 18th HASIB, hopefully has provided valuable insights into the strategic approach needed for the modern and changing world. I appreciate the significant contributions made during this conference and hope that the shared knowledge and thoughts, along with new networks and friendships, will bear new collaborations ahead. Congratulations to the award winners for the best presentation, best papers, and all session chairs involved in this conference.

See you at our upcoming event.

Keep in touch and thank you very much for your attention. Stay safe and healthy.

Best regards,

Dr. Pornpimol Mahamad

Conference Chair of IHSATEC 2025: 18th HASIB

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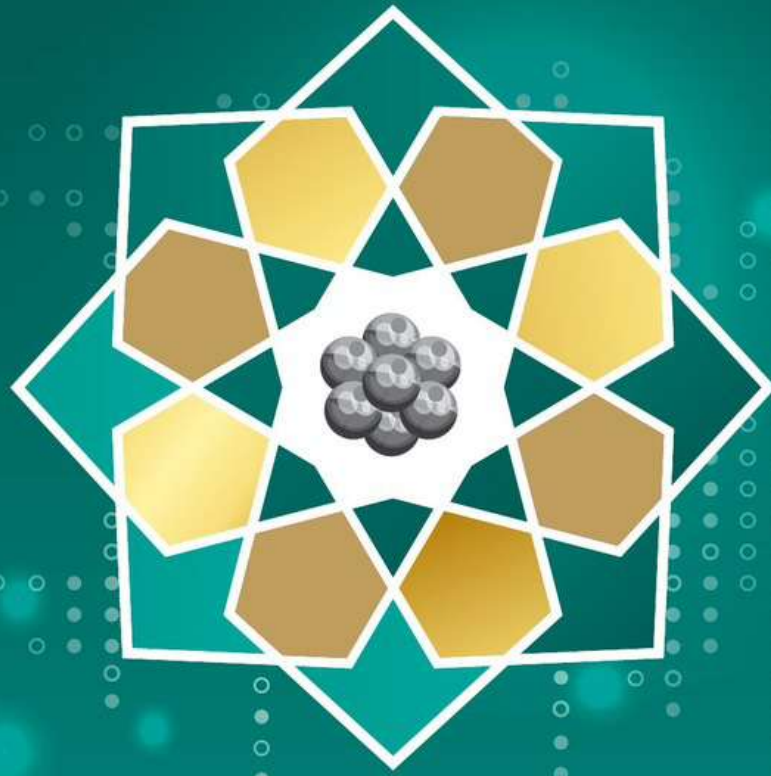
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