

# BRAINSTORMING SESSION 2021

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## RESEARCH COLLABORATION IN MEDICINAL PLANTS AND MARKET PENETRATION FOR HERBAL AND NATURAL PRODUCTS

Summary of Proceedings

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# Research Collaboration in Medicinal Plants and Market Penetration for Herbal and Natural Products

## Summary of Proceedings

24 March 2021

Perdana Leadership Foundation, Putrajaya

The 9th Installment of the HLAf Development Forum

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## Acronyms

HLAF	Human Life Advancement Foundation
MAFI	Ministry of Agriculture and Food Industries
NKEA	New Key Economic Areas
NCBI	National Center for Biotechnology Information

## Introduction

This report summarises the experience of the 9th installment of the HLAf Development Forum brainstorming session discussing on the herbal and natural products industry in Malaysia: Research Collaboration in Medicinal Plants and Market Penetration for Herbal and Natural Products, convened by Human Life Advancement Foundation (HLAF), with the support of Orang Kampung Holdings Sdn. Bhd., held at Perdana Leadership Foundation, Putrajaya on 24 March 2021.

## Background and Rationale

Human Life Advancement Foundation (HLAF) main objective is to bridge the gap between the advanced and the developing nations in areas of innovation and technological advancements. One of the foundation's key agenda is to devise innovative ways to create partnerships and linkages with businesses, centers of excellence and world communities to enable knowledge and technology transfer for common good. HLAF intends to embark vigorously on the protection and commercialization of intellectual property (IP) and assets to foster innovation and create opportunities for wealth and economic sustenance. One of its main functions is to support the growth and development of the local herbal and natural products-based industries. In doing this, HLAF awards scholarships to PhD and postdoc scholars who are involved in research works related to medicinal plants and natural products that will have significant milestone and impact on the world communities.

We envisage the trends towards penetrating the market for herbal and natural products should respond and go parallel with the Fourth Industrial Revolution (IR 4.0) which include the world of digitalization. Therefore, this upcoming meeting is a step forward, obliging to the call for "Coordination of Strategic Plan for the Development of the National Herbal Trading House" which was organized by MAFI (MOA) on 5 Nov 2019. We would love to share our next move, as well as to hear from the experts too, hence the holding of the 9th installment of the HLAf Development Forum.

## Brief of the Event

The HLAf 9th Development Forum on Herbal and Natural Products was held in Perdana Leadership Foundation, Putrajaya, Malaysia on 24 March 2021. The annual Forum, organised by Human Life Advancement Foundation since 2014, discussed the theme of "Research Collaboration in Medicinal Plants and Market Penetration for Herbal and Natural Products".

The objective of the 9th Forum was to discuss on the way forward for possible research collaboration between Centres of Excellence on medicinal plant research, and market strategy and penetration for herbal and natural products. Through six sessions of multi-stakeholder panel discussions, the Forum explored herbal and natural products industry research partnerships and market penetration strategies.

The HLAf 9th Development Forum on Herbal and Natural Products was held to bring together leaders and experts in medicinal plant research to discuss the appropriate strategies to capitalise our strengths and opportunities to good use in bringing Malaysia to the forefront of herbal and natural products industry. It was also to find common interests, collaboration opportunities as well as addressing various issues related to "Research Collaboration in Medicinal Plants and Market Penetration for Herbal and Natural Products".

The participants had been asked to have a free exchange of ideas related to, but not limited to:

1. Creating Malaysia as a Centre of Excellence through Collaboration of Research Centres Focusing on Priority Research Areas in Medicinal Plants and Natural Products
2. Establishment of Alliances to Bridge the Gap between the Industry and the Academia (Market-driven Research)
3. Establishment of Coordinating Centres to Formulate Strategies to Address Issues in Herbal and Natural Products Research and Industry
4. Human Capital, Resources and Training in the Herbal and Natural Product Industry
5. Optimum Supply of Quality Feedstocks to the Industry to Produce Quality Products (Safe and Effective)
7. Design Market Strategy through Embracing the Fourth Industrial Revolution (IR 4.0)



## Event Agenda

Time	Event
9:00AM - 9:30AM	Registration and Breakfast
9:30AM - 9:40AM	<b>Session 1: Opening Session</b>  Welcome address by Mr. Junaidi Said, CEO of Human Life Advancement Foundation  Introduction to HLA and its Advisors
9:40AM - 10:00AM	Introduction remarks by Prof. Dato' Dr. Ibrahim Jantan as Program Moderator  Introduction of panelists
10:00AM - 10:20AM	<b>Session 2: Creating Malaysia as a Centre of Excellence through Collaboration of Research Centres Focusing on Priority Research Areas in Medicinal Plants and Natural Products</b>
10:20AM - 10:40AM	<b>Session 3: Establishment of Alliances to Bridge the Gap between the Industry and the Academia (Market-driven Research)</b>
10:40AM - 11:00AM	<b>Session 4: Establishment of Coordinating Centres to Formulate Strategies to Address Issues in Herbal and Natural Products Research and Industry</b>
11:00AM - 11:15AM	Tea/Coffee Break
11:15AM - 11:35AM	<b>Session 5: Human Capital, Resources and Training in the Herbal and Natural Product Industry</b>
11:35AM - 11:55AM	<b>Session 6: Optimum Supply of Quality Feedstocks to the Industry to Produce Quality Products (Safe and Effective)</b>
11:55AM - 12:15PM	<b>Session 7: Design Market Strategy through Embracing the Fourth Industrial Revolution (IR 4.0)</b>
12:15PM - 12:30PM	<b>Session 8: Closing Remarks and Way Forward</b>  The moderators will make brief closing remarks after making a summary of the brainstorm session and concluding remarks.
12:30PM - 12:45PM	Token of Appreciation giving ceremony Group photography session Program ends

## Discussion Findings

### Session 2: Creating Malaysia as a Centre of Excellence through Collaboration of Research Centres Focusing on Priority Research Areas in Medicinal Plants and Natural Products

1. Undoubtedly, there are many grants, but only a small number of Research Centres are working together. Researchers in the herbal and natural products industry know very well the priority research areas and the industry's demands. Hence perhaps a consolidating agency like a consortium could be established to form research partnerships between these centres. Evidence-based knowledge creation, the forte of academic scholars at universities worldwide, continues to be essential.
2. Other than being the focal linking agency among the research centres, a consortium must aim to advance the knowledge and practice of modern evidence-based management and foster impactful research. The consortium creation must be because of the result of a careful study of the evolving business atmosphere and its critical needs. Challenges to research consortia such as contractual negotiations, effective autonomy, public engagement and promotion, funding, transparency, and legacy planning are expected.
3. Research in traditional medicine is inadequate, and that traditional medicine though it has been long-existing and is acknowledged yet lacks advanced strategic planning, which threatens knowledge loss.
4. The New Key Economic Areas (NKEA) has driven many achievements in the industry though unnoticed.
5. Herbal pharmacopeial monograph development of the country still needs development as it is an essential asset of the industry, where that is the target for 2021.
6. Some available products are supported with findings from cell and animal studies. However, most of the time, the product's value is seemingly pushed down by the market for general health use but not for treatment of specific diseases due to regulatory matters.
7. The NKEA program paved the ways for many successful projects. However, addressing the way forward from there is what needed to be discussed.

8. Grants given to Research Centres are well spent on instruments, materials etc. However, it is still not clear how to link these centres for research partnerships.
9. Research consortia can be the best agency to amass and communicate information on tackling industry regulations. Researchers and scientists with built human capital from the past years would be the best contributors.
10. Digitalisation is lacking in the industry. Change and adaptation is a must in the growing size of the industry.
11. A national database or portal for natural products researchers and enthusiasts would be one of the best ways to integrate all industry stakeholders. The database/portal should be combined with recent technologies like Artificial Intelligence and big data. The best example would be the National Center for Biotechnology Information (NCBI) database.
12. It is also proposed that the database/portal be policed by the relevant authority and provide real-time natural product education to users.
13. Local Universities have great resources and research that often overlaps with each other that can be shared. One of the challenges is copyright issues.
14. The session concluded with all agreed that a consortium is to be formed, with HLAF as a coordinator that connects inter-sectorial institutions intending to link research centres and the industry together for partnership.

### Session 3: Establishment of Alliances to Bridge the Gap between the Industry and Academia (Market-driven Research)

1. The challenge for market-driven research is that, while fundamental research is still necessary to discover new drugs and herbal products, the exact path to take them to the market is somewhat vague.
2. Furthermore, intellectually marketing the product's content needs strategic planning (e.g., what the star content of the product will do to your health), rather than relying on current viral marketing technique.

3. Indisputably, expertise and focal persons to refer to in commercialising products are lacking.
4. Though herbal and natural products are expansive in the market, it seems that their aim for public health has yet to be met.
5. It is imperative to address ways on how to bring health-driven and market-driven strategies to the industry.
6. It goes by saying that no requirements or demands would lead to no production. The most crucial initial step is to acknowledge and define the needs in the industry and society.
7. When this definition of needs has been determined, academia can partner to meet the needs, albeit halfway.
8. It seems that there is no synchronisation in the needs and goals between academia and industry. Academia can produce scientific research support for the sector, granted that there is a shared realistic goal.
9. The direction of the industry is there, though lack of implementation and communication among the stakeholders.
10. Malaysia has the expertise, but the industry is not as much as exposed globally, even locally.
11. Government involvement is also seemingly not as present between academia and the industry. This should also be addressed and strengthened.

### Session 4: Establishment of Coordinating Centres to Formulate Strategies to Address Issues in Herbal and Natural Products Research and Industry

1. A neutral party should be the coordinator in establishing partnership among the stakeholders, where the approach is holistic and meeting all parties' interests.
2. The session concluded with once again; all agreed that a consortium is to be formed, with HLAF as a coordinator that can bring inter-sectorial institutions to partner and provide regulatory information in the industry.

**Coffee break at 11:30 a.m.**  
**Session resumed at 11:50 a.m.**

### **Session 5: Human Capital, Resources, And Training in the Herbal and Natural Product Industry**

1. A large number of researchers and the players in the industry are not well versed with the regulations and directions. They need to be trained by those who are knowledgeable in the matter.
2. There is a lack of awareness on regulatory matters related to herbal products and natural products among the researchers and industry players. They should be aware of these regulations and guidelines (The Regulation of Control of Drugs and Cosmetics, 1984; The Medicines (Sales and Advertisement) Act, 1956; Traditional and Complementary Medicine Act 2016 - Act 755; Guideline on Natural Products with therapeutic claims, June 2020) as these documents can provide guidance to design and conduct appropriate research strategies and activities towards the production of registrable and marketable end products.
3. There is a need to develop a strategic framework for the human capital of the industry.
4. Universities are well-equipped to do research, but they are unsure what to do next to penetrate the market. They lack the person or agency that knows how and understands the regulations and the efficacy and safety of product trials.
5. This person or agency should also be responsible for strategising, organising and training people to be included in the consortium.
6. It is proposed for some attachment program for industry representatives to partner with academia where these representatives can advise and drive for the market's quality requirements for developing products.
7. The session concluded with all agreeing that the industry itself must have a personnel/agency with in-depth knowledge of the whole value-chain.

### **Session 6: Optimum Supply of Quality Feedstocks to the Industry to Produce Quality Products (Safe and Effective)**

1. The challenge to acquiring the optimum supply of quality feedstock is the lengthy initial process, e.g., applying for a land permit from the Department of Lands and Minerals.
2. Industry players need to be educated of the whole chain, from the initial process, for example, from planting to the market penetration.
3. The top 20 priority research/product came from the industry. An action plan is needed to synchronise the priority research/product.
4. Many products in the market lack the science behind them, hence why the industry must partner with academia to have a symbiotic relationship.
5. A thorough understanding of the whole value-chain and process flowchart to abiding regulations and market penetration must be first tackled.

### **Session 7: Design Market Strategy through Embracing the Fourth Industrial Revolution (IR 4.0)**

1. New-age technologies will present significant challenges to the industry if unprepared and will ultimately fall behind.

The adaptation to Industry 4.0 technology in Malaysia will increase their capabilities to face challenges in both local and international markets.

2. The strategies include improving automation, Industrial Internet of Thing (Industrial IoT), precision sensors, cloud computing and data analytics especially at manufacturing.
3. Automating traditionally manual processes to gain speed, efficiency, and productivity – all important features of an advanced, adaptive, and highly capable business.
4. By automating and digitalizing processes to scale efficiency and elevate productivity, the industry will inevitably gain a competitive edge.

5. Artificial intelligence (AI), robotics, augmented and virtual reality (AR and VR) will greatly add value to the herbal and natural product industry.
6. AI-powered inspection technology can get provide real-time data, which tells where and when issues are happening.
7. Cybersecurity is just as important in supporting all this cloud technology.

**The session concluded at 12:50 p.m. with HLAF introducing Herbee as the first step in expanding the field and benefit all stakeholders of the industry.**

## Profile of Participants



**Prof. Dato' Dr. Ibrahim Jantan**

Dr. Ibrahim is currently an Honorary Professor at Institute of Systems Biology, UKM. He was the profounding Dean of the Faculty of Pharmacy UKM from 1996-2018. He was the President of the Malaysian Natural Products Society (2010-2020). He has more than 34 years of research experiences in natural products, medicinal chemistry and pharmacological activities of natural products. He has published more than 200 papers in ISI-indexed journals, 73 papers in proceedings, 4 books and 10 chapters in books. His Scopus H-index is 31. He was listed as World Top 2% Influencing Researcher 2019 based on SCOPUS 2019 Citation Impact.



**Assoc. Prof. Dr. Intan Safinar Ismail**

Associate Professor Dr. Intan Safinar Ismail completed her PhD and post-doctoral studies at Okayama University and Hoshi Medical University, Japan. She joined Universiti Putra Malaysia in 2005 and became the Head of Laboratory of Natural Products at the Institute of Bioscience in November 2011 until May 2017 and now the Head of Chemistry Department. She is the editor for Journal of Natural Medicines (Springer) and Marine Biotechnology Frontiers) and chairing a few important scientific meetings including Asian Symposium on Medicinal Plants and Spices (ASOMPS) XVII 2021.



**Prof. Dr. Khozirah Shaari FASc**

Dr Khozirah Shaari FASc is a Professor in Organic Chemistry at the Department of Chemistry, Faculty of Science, UPM holding a PhD in Phytochemistry from University of Strathclyde, Glasgow, Scotland. She was Director of UPM Research Management Centre (2014-2017) and was Head of the Laboratory of Natural Products, Institute of Bioscience (2017-2020). An expert in Natural Products Chemistry with more than 30 years research experience, her interest spans the chemistry and pharmacology of natural products, standardization and quality control, profiling, dereplication and global molecular networks of natural product molecules, organic synthesis structure-activity-relationships, and multi-platform metabolomics. Her Scopus H-index is 28 and 3199 citation no, has published more than 200 ISI-indexed journal publications, and holds 4 patents. She is an Associate Editor for Journal of Ethnopharmacology (Elsevier), and an Editorial Board member for Phytochemical Analysis (Wiley). Presently, she is also an Associate Member of IUPAC Standing Committee on Chemistry and Industry (COCI), board member of the Asian Network of Research on Anti-diabetic Plants (ANRAP), and committee member of the Advisory Committee for Phytochemical Society of Asia (PSA), and of the Malaysian Natural Products Society (MNPS).



**Dr. Murizal Zainol**

Dr Murizal Zainol is the Head of Bioassay Unit under the Herbal Medicine Research Centre, Institute for Medical Research. He has been working with the IMR for nearly 22 years. At the moment, he is investigating the capability of Brucea javanica (Melada Pahit) extracts and its fractions mitigating the growth of prostate cancer cell in vitro. For nearly 10 years, he has been appointed as one of the experts panel for the Ministry of Agriculture and Food Industry overlooking the "Agriculture Initiative Projects" on selected local medicinal plants intended for high value herbal products supported with sufficient scientific evidence. He is also a member of Technical Committee for Monograph Herbal Malaysia and one of the committee members in the development of Malaysia Pharmacopoeia. Complementing his role as a researcher, he is also a panel member or the Medical Research Ethics Committee (MREC) under the Ministry of Health.

## Profile of Participants

### Azmi Said

Business Advisor to Human Life Advancement Foundation

### Prof. Dr. Nor Hadiani Ismail

Director of the Atta-Ur-Rahman Institute for Natural Products Discovery (AuRIns), Universiti Teknologi MARA (UiTM)

### Assoc. Prof. Dr. Zeti Azura Mohamed Hussein

Director of the Institute of Systems Biology (INBIOSIS), Universiti Kebangsaan Malaysia (UKM)

### Assoc. Prof. Dr. Khairana Husain

Head, Drug and Herbal Research Center, Faculty of Pharmacy, Universiti Kebangsaan Malaysia (UKM)

### Dr. Ami Fazlin Syed Mohamed

Head of the Herbal Medicine Research Center, Institute of Medical Research

### Ahmad Azmir Omar

Assistant Secretary (Plantation Division), Ministry of Agriculture and Food Industries (MAFI)

## About the Organiser



**Human Life Advancement Foundation (HLAF)** is an international foundation active in the fields of the education, technology transfer and sustainable development. The Foundation mission is to bridge the gap between the advanced and developing nations, in areas of technology and innovation. At present, HLAF is playing its role in fostering innovation and technology development through collaboration with centres of excellences on R&D's, commercialisation of Intellectual Property (IP), granting scholarship to PhD and Postdoctoral researchers, granting of awards on technology innovations and organizing technology showcase and conferences as the medium of interaction between researchers, business partner and investors.

## About the Sponsor



**Orang Kampung Group of Company (OK)** involved in the production and marketing of health products and herbal-based drinks. Headquartered in Malacca, it owns three (3) of the factory and a marketing company.

OK's initial operations began around the year 1980. Based on the motto of the company 'ORANG KAMPUNG PENERAJU INDUSTRI HERBA' now the brand 'ORANG KAMPUNG' that has gone through many transformations, can be found in all categories in the domestic market and in several other countries including the Asian region and the Middle East.

Herbal factories are licensed by the Ministry of Health Malaysia and were recognized by certification 'Good Manufacturing Practice' (GMP). We give priority to 'Research & Development' and quality assurance. 'ORANG KAMPUNG' brand is safe, HALAL and easy to eat or use.

OK's mission now is to become a stronger international brand, while continuing to give satisfaction to the consumer products.



**HumanLife**  
Advancement Foundation

## **Human Life Advancement Foundation**

Suite 1B, Level 5, Menara Dato' Onn,  
World Trade Centre Kuala Lumpur,  
45 Jalan Tun Ismail, 50480, Kuala Lumpur,  
Malaysia

Tel: +603-2858 7075  
Email: [info@hlaf.org.my](mailto:info@hlaf.org.my)  
Website: [www.hlaf.org.my](http://www.hlaf.org.my)