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agari news

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Advancing the Local Keropok Manufacturing Industry with a Collaborative Innovation

Strengthening Community Bonds and Sustainable Agriculture: UMT's Collaboration with Telaga Batin Community for Compost and Aquaponics Knowledge Transfer

"Environmental Sustainability Programme: Ornamental Plant Propagation" Encourage Awareness Among School Students

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A Note from the Editor

July 17, 2023

Dear Faculty Members,

We are delighted to present the latest edition of our AgriNews, a platform that showcases the remarkable achievements and contributions of our esteemed faculty community. As we navigate the ever-evolving landscape of academia, this bulletin serves as a testament to our collective pursuit of knowledge and dedication to academic excellence.

Within these pages, you will find a diverse range of accomplishments that exemplify the strength and diversity of our faculty. From groundbreaking research findings and prestigious grants, each faculty member's efforts leave an indelible mark on our institution and the broader academic community. As we embrace the challenges and opportunities in education, research, and service, it is essential to recognize the collaborative spirit that defines our faculty. Interdisciplinary endeavours continue to enrich our understanding of complex issues and offer solutions that transcend traditional boundaries.

We are particularly proud of the social impact initiatives featured in this edition. By engaging with local and global communities, our faculty members demonstrate the significance of extending the reach of education beyond the confines of our campus. In a rapidly changing world, our faculty's adaptability and willingness to embrace innovation are truly commendable. As we harness the power of technology and embrace digital transformation, we look forward to exploring new horizons in teaching, research, and outreach.

The AgriNews is not only a showcase of accomplishments but also a celebration of the journey we undertake together. It is a testament to the passion, perseverance, and expertise that each faculty member brings to our academic community. We extend our heartfelt gratitude to all our contributors and editorial team members who have dedicated their time and efforts to make this publication possible. Your enthusiasm and commitment to highlighting the achievements of our faculty community are truly commendable.

As we move forward, let us continue to support each other, inspire one another, and collectively contribute to the growth and success of our institution. Together, we can shape the future of education and make a lasting impact on the world.

Thank you for your unwavering commitment and dedication.

Shamsul Bahri

Prof. Dr. Shamsul Bahri Abd Razak
Editor in Chief

Advancing the Local Keropok Manufacturing Industry with a Collaborative Innovation: The Semi-Automatic Fish Gut Removal and Fish Head Cutting Machine Developed by UMT, UCTATI, and UMK

By Prof. Madya Ts Dr. Norizah Mhd. Sarbon, Ts Dr. Nizaha Juhaida Mohamad and Ts Dr. Azizah Mahmood



Fish crackers, also known as keropok ikan, are a popular snack in Southeast Asian countries such as Thailand, Indonesia, Brunei, and Malaysia. In Malaysia, fish crackers contribute approximately 30-40% to the total processed food products based on fish. The production of fish crackers is mainly concentrated along the east coast of Peninsular Malaysia, accounting for up to 95% of the total production. The main states for fish crackers production along the east coast are Terengganu (67%), Kelantan (17%), and Pahang (12%).

Several mechanization, innovation, and techniques have been developed to enhance the quality of fish crackers and produce more acceptable products. For example, the use of sausage technology with fillers and casings during the preparation of fish crackers, as well as the incorporation of specific additives such as sodium bicarbonate, sodium phosphate, and ammonium bicarbonate in the production

process. Existing technologies in fish cracker processing include washing machines, deboning machines, and grinding machines. However, there are still technological limitations that need to be improved, especially in the production of fish fillings for fish cracker processing. Currently, fish cracker producers still rely on manual methods for fish cleaning, where labor is required to remove the fish's internal organs and cut off the head. This poses a challenge that most entrepreneurs have to overcome in developing their businesses.



An invented semi-automatic fish gut removal and fish the head-cutting machine

The production of fish fillings is the initial step in producing fish crackers. Not all fish cracker entrepreneurs produce their own fish fillings due to the complexity of the process, particularly in obtaining a consistent supply of fish and the additional labor required for fish cleaning. Most fish cracker entrepreneurs source ready-made frozen fish fillings from specific fish filling producers. On the part of the fish filling producers, they must ensure a consistent supply of fish fillings, considering the high demand from fish crackers and fish chip entrepreneurs, especially in the states along the East Coast. Since the primary process in fish filling preparation is fish cleaning, a significant number of laborers are required for this purpose, and it is still done manually using knives. In this case, the productivity of fish filling depends on the skills of the workers and the number of workers available. To ensure fish freshness and the quality of the fish fillings, they must be processed as quickly as possible, which incurs high labor costs. Additionally, there is a shortage of laborers willing to engage in the industry, exacerbating the issue. Indirectly, high labor costs contribute to increased production costs faced by entrepreneurs.



The fish guts are removed cleanly using the machine

To address these challenges, five researchers from three higher education institutions, namely Universiti Malaysia Terengganu (UMT), Universiti Kolej TATI (UCTATI), and Universiti Malaysia Kelantan (UMK), have come together to find solutions to the challenges faced by fish filling entrepreneurs. This research group is led by Associate Professor Ts. Dr. Norizah Mhd. Sarbon from the Faculty of Fisheries and Food Sciences, UMT, and supported by fellow researchers Ts. Dr. Azizah Mahmood and Ts. Dr. Nizaha Juhaida Mohamad. Additionally, Mr. Mohd Shamsul Azmi Mohd Alim from the Faculty of Engineering Technology, UCTATI, and Associate Professor Dr. Mohamad Najmi Masri from the Faculty of Biomedical Engineering and Technology, UMK, contribute to the team.

With a grant of RM140,000.00 from the Ministry of Education Malaysia under the Public-Private Research Network 2.0 research grant, this issue has been successfully addressed through the development of a semi-automatic machine for gut removal and fish head cutting. The design of this semi-automatic machine has undergone the process of intellectual property registration under the Patent and Industrial Design categories. The project involved collaboration with the local fish cracker producers, namely KMT FOOD MANUFACTURING SDN. BHD., and was coordinated by the Knowledge Transfer and Industry Networking Center at Universiti Malaysia Terengganu. In line with the project's objectives, the completed machine has been installed at the fish-filling processing factory in Kampung Baru Merang, Setiu. The design of this machine has significantly reduced labor costs while improving the productivity of fish-filling production. The construction of this machine

exemplifies the sincere efforts of higher education institutions in assisting the challenges faced by the local community and strengthening the bilateral relationship between them. The innovative outcome of this machine's development has been awarded the Gold Medal and the Grand Award in the Research and Innovation Week competition held at UCTATI on May 29-30,

2023. The Research and Innovation Week competition involved local universities on the East Coast.



The process of delivering the machine to the fish processing factory



Winning the Gold Medal and the Grand Award in the 2023 Research and Innovation Week competition

Clean-up and Disposal of Mercury Waste for Laboratory Safety and Environmental Protection

By Hasrul Hizat Hassin, Shahrol Idham Ismail, Muhammad Haniff Mohd Yusoff, Khairul Anuar Kamarudin, Mei Rifqi Mursyidah, Nur Athirah Muhammad Aris, Nadirah Musa, Nurul Aqilah Iberahim, Khairulbariyyah Zakaria, Mohammad Tajuddin Abdul Manaf, Wan Nurhafizah Wan Ibrahim, Alia Syafiqah Aznan, Nur Azna Saari, Nor Maisarah Rameli, Nasorriah Nasir, Lee Kok Leong and Najiah Musa

Laboratories play an important role in teaching and learning at universities, but may also pose a serious safety risk to the users, and negative impact on the environment through hazardous biological and chemical contaminants if not complying with the safety requirements. Keeping the laboratories and equipment clean is crucial for safe use of laboratory facilities. This article describes the clean-up and waste disposal procedures for mercury experiment at the challenge laboratory of Faculty of Fisheries and Food Science, Universiti Malaysia Terengganu.

The dangers of mercury

Mercury (Hg) is an element naturally occurring on earth in various forms in soil, water and air. It is considered by World Health Organisation as one of the chemicals of major public health concern. Mercury is a potent neurotoxicant that can have serious implications for human health including causing damage to the nervous and immune systems, as well as gastrointestinal tract, lungs, kidneys, skin and eyes. It also poses a threat to fetus development in pregnant women, and normal growth of infant.

Impacts of mercury pollution

Mercury contributes to adverse ecological impact if not disposed of accordingly. Mercury pollutants entered the aquatic

ecosystems not only bio-accumulate (in organic form eg., methylmercury) in the aquatic food web, and make their way into the human food chain through fisheries products. The absorbed mercury tightly binds to proteins in fish tissues including muscle, and is not reducible by cooking or cleaning. Long-term ingestion of low levels of methylmercury through polluted seafood can cause chronic neurological disorder symptoms such as fatigue, muscle weakness, headaches, irritability, anxiety, depression, memory problems, difficulty in speaking, sensory disruptions (vision, hearing and coordination), and more severely, paralysis, coma, and death. On the other hand, mercury pollution in waters may also reduce the stock sizes of commercial fish species, and negatively impact the profitability of the fisheries sector.

Cleaning and disposal procedures

When mercury experiments are necessary and indispensable for knowledge advancement, proper post-experimental decontamination of laboratory facilities (work bench, equipment, etc) and waste management are of utmost importance for the safety of laboratory users and personnel, as well as for protection against environmental pollution. Mercury-containing waste water needs to be stored in leak-proof HDPE containers, and clearly

labelled as Mercury Waste prior to sending to centralised waste storage facilities pending collection by the commercial laboratory waste disposal service provider. Tanks, labwares (glass and plastic), laboratory bench, etc are cleaned with dilute nitric acid and washed with a copious flow of tap water.

Good laboratory practice is vital for the safety and protection of the laboratory users and personnel, as well as the environment. Prudent laboratory waste management helps prevent environmental impact due to unintentional discharge, and is critical for preservation of biodiversity. Proper clean-up and disposal of hazardous mercury waste in laboratory eliminates the risk of inhalation, ingestion, and skin absorption.



Figure 1. Preparing dilute nitric acid under fume hood for mercury decontamination purpose (credit: Hizat and Idham)



Figure 2. Cleaning laboratory bench (credit: Hizat and Idham)



Figure 3. Cleaning aquarium tank facility (credit: Hizat and Idham)

Sharing on Latest Issues & Research In Honey And Its Products

By Dr. Tuan Zainazor Tuan Chilek



The Food Safety and Quality Division, Kelantan State Health Department, organized a course to provide technical exposure to its staff. It was held on March 13, 2023, at the Public Health Laboratory, Kota Bharu, Kelantan. A total of 50 participants were involved in the course. This course was conducted to expose participants to the latest issues and research in honey and its products.

The topics discussed include safety & quality aspects, honey standards, research related to honey, handling of honey & its products and introducing to SIG Apis Meliponine UMT.



During the discussion and questioning session, various questions involving the sale of fake honey, the quality of honey, and the export and importation of honey were hotly debated.



However, all participants were delighted with the session. Food Safety and Quality Division, Kelantan State Health Department intends to make the next session in the future as the control of honey at all levels should be given serious attention.



Technical update course was conducted at Public Health Laboratory, Kota Bharu, Kelantan. At the bottom right, the Speaker with Puan Narah Abu Bakar, Deputy Director of State Health (Food Safety and Quality), Kelantan State Health Department.



The speaker presented and discussed the latest honey-related issues and the current honey research worldwide

Young Academician

By Prof. Madya Ts. Dr. Wan Nurul Nadiah Binti Wan Rasdi

The field of academia is one of, if not the most competitive areas in the modern world. As such, young, aspiring academicians often find themselves overwhelmed by sheer pressure to be successful. People frequently view successful young academicians as special, be it by genius intellect or any other God-given talents that separate them from the rest of the pack. While this is true that natural talent gives you an advantage over the competition, talent alone can only get you so far in the race. Attaining success as an academician requires a good understanding that multiple facets must be addressed. As one goes through the journey of becoming a young academician, one must understand that there are several phases that one must go through to finish one's post-graduate studies.

While most would agree that attaining a PhD is not a walk in the park, it is also essential to realize and understand that every person striving towards their PhD encounters and solves different challenges using entirely different methods. As Richard Feynman, Nobel Prize Winner in Physics in 1965, famously quotes: "The first principle is that you must not fool yourself, and you are the easiest person to fool." In this regard, it is paramount for young academicians to fully understand the journey that they started; in this case, attaining a PhD and becoming a young academician is a path that has already chosen, must be able to be certain that the foolishness of themselves does not sway them, be it self-doubt, or any other things

that can negatively impact their ultimate goal of becoming a successful academician. Towards this end, one can tackle several key areas to better equip themselves in this journey.



IMPORTANCE OF SLEEP

"Happiness is waking up, looking at the clock and finding that you still have two hours left to sleep." — Charles M. Schulz

Since the Industrial Revolution in the late 18th Century, humanity's progress has been set into overdrive. As world economies grow, people have been taught at an early age that there is a high chance that they can be left behind if they do not follow the pace of the world which is now increasing at a worrying speed. To keep up many individuals opt to sleep less and less. While this increases their hours in a day to be productive, previous studies have revealed that sleep deprivation can cause changes in an individual's mood, cognitive ability, work performance, and immune function (Choo et

al., 2005). In essence, this strategy is counter-productive and also results in impaired learning capabilities as well as having an indirect negative impact on academic performance. Consistent sleep hours are vital in ensuring that one can become the best version of themselves. In academia, one must strategize their hours in a day to maximize productivity and use sleep to become more successful in their field.

READING DILIGENTLY

As a researcher, the most essential quality is needed to succeed in reading. Reading is one of the most underrated skills since it is required for academia. However, you will be surprised at the required skill level by working on your reading skills. The ability to focus on pieces of information that you require, be it for your research or information in general, enables you to strategize properly and get better at the most mundane of skills which are reading. The general purpose of reading is to exercise your cognitive ability. However, for a young academician, most of your time reading must be focused on other people's work, concerning your field of research. This gives you a good grasp of the extent of reach that your particular research subject has already covered, as well as providing insights into particular research done by others. Whether it be reading with particular interest or focus, or simply reading, aim to always keep in mind that reading is the easiest way to gain knowledge, and having a good grasp of strategies in reading will let you consume more in less time than mindlessly scrounging through text.



“Reading is a discount ticket to everywhere.”
- Mary Schmich

OPEN TO CRITICISM

When you are trudging the path to becoming an expert in your field, it is easy to become comfortable with your truth and accept it to be the universal truth. In 1931, Kurt Godel challenged the mathematics world and ultimately proved that David Hilbert, considered one of the most advanced mathematicians at the time, was wrong. At first, Hilbert denounces the Incompleteness Theorem set forth by Godel, saying that mathematics must be consistent, decidable, and most importantly, complete. Nevertheless, Godel's logic, Hilbert's goals are impossible to attain. These findings prove that even if you are an expert in your field, you must be able to consider other people's views. As an academician, one of the basic tenets is the pursuit of truth. As such, ignorance must be met with virile rejection. Keeping an open mind is the key to progress, even if it means that your life's work is wrong. Therefore, the notion that "in every criticism is a grain of truth" must be met with an open mind.

LEARNING THROUGH OBSERVATION

Academics is a noble endeavour. Each of us learns new things every day, simply by observing the universe as it plays out. This is so important that Isaac Newton founded the

theory of gravity simply by observing (and experiencing) an apple falling from a tree. The ability to take things in, think, internalize, and funnel your observations, whether it be in your related research, or in general, enables you to distil and extract information that will prove to be useful. Observation also serves to be a great tool to verify whatever information you have accumulated through reading, hence enabling you to sift through all the related information with ease. An academician serves the public in general by observing what is going on with the world to enable the public to understand the world better.

GOOD WRITING SKILL

In the days of the Greeks, the primary way information was transferred and consumed was through lectures. We hear names like Aristotle, who engages in this practice through the Lyceum, where debates and lectures are conducted. This intellectual discourse method has been stapled in the education system and is still today's primary teaching method. However, since the innovation of the printing press by Johannes Gutenberg around 1436, the world entered a renaissance. Since then, spoken words have become second to writing words in terms of information through sheer speed and availability of printed media. On the other hand, writing is an invaluable skill to have. Anyone can write, but only a skilled writer can convey the true intentions of their writing, as well as use their writing in such a way that it can be understood by as large a population ranging from laymen to experts. Writing enables one to paint pictures in words, explain ideas in detail, and map out thought processes in ways that are so simple that people will be bamboozled that they haven't thought of it. That is a mark of a great writer. A young academician should

aspire to become a great writer in their own right, for the skills of writing can enable your point of view to be projected to the world, enabling readers to understand the details, as well as get the whole picture together.

NEVER STOP LEARNING

The current global economy is geared towards specialization. This is what PhDs are for. Specialists of a specific craft get compensated for their effort and time to home in on the skills that required them to study for long years to arrive at that point. A excellent example of this would be specialists in medicine, such as cardiologists, paediatrics, and many more. Even though that is the case, as an academician, you will find that learning new things can enable you to broaden your horizon and sometimes aid in your research. Keeping an open mind and taking new things in stride will prove helpful later in life. The insights might never come if you only focus on your field. Some of the scientific discoveries in modern history are made by accident. You should strive to have several glasses to see the world in a different light.

HEALTHY HOBBIES

In recent times, modern men and women are pushing toward "hustle culture". This culture is driven by young people that should aspire to make the most of their time to "grind" towards their goals. While this motivates young people to keep working tirelessly towards their set goals, one must understand that this "culture" is almost impossible to maintain without burning out. Burnout happens when one spends too much time and energy on something. Moreover, this often happens to young academicians. This makes the drive that keeps them going to fade away and ultimately robs them of their motivation in

the first place. While this culture has many positive outlooks, one must strive to find a good balance and know when to "turn off". Getting a hobby is one of many ways to take your mind off work. A hobby that keeps you engaged and healthy is invaluable in helping you keep your stress levels down. Sports is one of the most popular ways to go about this. It is healthy for your body, and also your mind. Other than that, hobbies such as reading, hiking, and any other hobbies that completely take your mind off work are also welcome, as this helps you to "reset" and find your centre. Hustle culture advocates you to grind. But without hobbies as your grease, all you do is grind your gears to dust, leaving you unmotivated and depleted in the process.

CONCLUSION

A good academician excels in academia. But a great academician is one that not only excels at that, but also in other facets of life. Academicians are role models in society. Hence, academicians must lead by example by showing aspiring students they can fall in love with academia. As a young academician, take good care of your physical and mental health through sleep and your favourite pastime or hobby. Aim to improve yourself by dedicating time to reading and improving your writing skills. Accept constructive criticism outright. Lastly, remember that it is easy to get too worked up in aiming toward the scope. However, one should step back and marvel at the great world that we're living in. In the words of Albert Einstein, one of, if not, the most important academic figures in modern history: "Life is like riding a bicycle. To keep your balance, you must keep moving."



Doing something that completely take your mind off work can help you to "reset" and find your centre"- Nadiah W. Rasdi

Buzzing with Excitement: Universiti Malaysia Terengganu Welcomes Downunder's Finest Stingless Bee Experts

By Prof. Dr. Shamsul Bahri Abd Razak



Dr. Tobias Smith and Dr. Tim Heard, hailing from the University of Queensland and the University of Sydney, respectively, are esteemed specialists in the field of stingless bees. They are widely recognized stingless bee experts in the world. With a remarkable four-decade background, Dr. Tim Heard has dedicated his career to studying native stingless bees in Australia and has authored numerous books on the subject. Dr. Tobias, on the other hand, has devoted nearly 20 years to researching the behaviour of Australian stingless bees and exploring the beneficial properties of their honey for humanity.

During their visit to Terengganu from 14th to 18th March 2023, the researchers immersed themselves in the world of local stingless beekeepers. Over the course of five days, they gained valuable insights into the techniques and practices employed by Malaysian stingless beekeepers in meliponiculture management. Additionally, they had the opportunity to marvel at the exquisite collection of live Indo Malaya stingless bees at the UMT Indo-Malaya Stingless Bee Repositori Bkt Kor, making their experience truly delightful.

Towards the conclusion of their visit, the generous researchers graciously shared their

extensive knowledge on stingless bee research with both the academic community and the local public. Their expertise was enthusiastically imparted, benefiting all who had the opportunity to learn from them.



The arrival of the two Australian stingless bee experts was warmly embraced by several members of the UMT Special Interest Group for Apis and Meliponine. Their visit was met with enthusiasm and appreciation, as these members recognized the valuable insights and knowledge that the experts would bring to further enrich their understanding of stingless bees and meliponiculture.



Not only were the researchers treated to Malaysian warmth and hospitality, but they were also indulged in mouth-watering traditional cuisines by Ayohku and Mokku from Kg. Pengkalan Gelap, Setiu. The delectable flavours and cultural experience provided an extra layer of delight during their visit, creating lasting memories of their time in Malaysia.



Accompanied by Dr. Zoe from Universiti Malaysia Sabah (far right), Dr. Tobias and Dr. Tim Heard seized a rare opportunity to visit the UMT Indo Malaya Stingless Bee Repository in Bukit Kor. Their visit left them immensely impressed with the remarkable collection of stingless bees. So captivated were they by the repository's offerings that they expressed their intentions to revisit this unique establishment in the near future, eager to gather additional data for their research endeavours.



As their visit to UMT drew to a close, both Australian stingless bee experts generously conducted a sharing session, benefiting not only the academic community but also local stingless beekeepers.

NUTRIYUM, The Taste of Real Cream Soup

By Dr. Mannur Ismail Shaik

NUTRIYUM, Cream of Shrimp and Mushroom Soup prepared by students of Chattogram Veterinary and Animal Science University (CVASU), Bangladesh as an Internship activity at FPSM under the supervision of Dr. Mannur Ismail Shaik. Shrimp (*Macrobrachium rosenbergii*) and Mushrooms (*Agaricus bisporus*) are two promising protein and mineral food sources. Both have a high potential to be developed as a cream soup that can alleviate micronutrient (iron and folic acid) deficiencies. There has been little effort to develop a cream soup made from marine products, particularly shrimp, which is classified as one of the most perishable foods



The 3:1 ratio of shrimp and mushroom formulated soup got the highest score through sensory evaluation and fulfilled the high protein and fiber content as nutrition claims. The combination of marine and plant-based foods into instant food products can be used to produce a nutritious, desirable, and alternative antioxidant food source that is also practically easy to serve. This NUTRIYUM product was developed by the team involved including Tasfia Chowdhury, Mithila Khatun, Anik Chakraborty, Farjana Akter, Arpita Nandi, Md. Didarul Islam, and Md. Saidur Rahman.



Figure 1: The Label of NUTRIYUM



Figure 2: The NUTRIYUM Team with the Supervisor, Dr. Mannur Ismail Shaik

Sensory Evaluation Lab : Faculty of Fisheries and Food Science new facility

By Dr. Faridah Yahya



The Sensory Evaluation Laboratory is one of the new facilities of the Faculty of Fisheries and Food Science (FPSM), which was officially launched by the Universiti Malaysia Terengganu Vice Chancellor, Prof. Dato' Dr. Mazlan Abd Ghaffar on 25 January 2023. Mr. Mohd Faizal Mohd Noor, Director of Development and Property, and Prof. Ts. Dr. Mohd. Effendy Abd Wahid, Dean of FPSM, were also present at this event. This air-conditioned laboratory is located on the ground floor of the FPSM building. An evaluation area of this laboratory was equipped with 10 sensory booths that designed in an L-shaped arrangement and attached with sample preparation area. Interestingly, each of the sensory booths is equipped with five different coloured lights and a signal button box as a communication

tool between the researcher (who conducts the sensory analysis) and the sensory panellist (who evaluates the sample). The application of a signal button box can reduce the frequency of verbal communication between the researcher and sensory panellist and indirectly provide a conducive atmosphere for the panellist with minimal interference.

The sensory evaluation laboratory is a teaching and research laboratory that focuses on quality assessment activities through the identification, evaluation, and acceptance of products using human senses for both food and non-food products. Analysis that can be carried out, such as descriptive tests, which can determine and describe the characteristics and attributes of

a product in detail, while affective tests (particularly acceptance tests) can help researchers identify the degree of consumer liking for the products produced. While discriminative tests can distinguish between the characteristics of the newly developed product and the existing commercialised or competitor product.

Services and training related to sensory evaluation can also be provided to local communities around the East Coast of Peninsular Malaysia, generally through knowledge transfer and innovation programmes. For further information on the sensory evaluation lab, please do not hesitate to contact Mrs. Nor Azni Mohd Yunos through email: azniyunos@umt.edu.my or 09-6684956.



Figure 1: Sensory evaluation lab's launch session by UMT Vice Chancellor



Figure 2 and 3: Sensory booth (evaluation area) and sample preparation area



Figure 4 and 5: The UMT Vice Chancellor and all the guests do not miss the opportunity to be sensory panellists in the new sensory evaluation lab and the application of red light to mask the colour of the sample during sensory session.

Strengthening Community Bonds and Sustainable Agriculture: UMT's Collaboration with Telaga Batin Community for Compost and Aquaponics Knowledge Transfer

By Rasina Rasid, Aisyah Saat, Nurul Aqilah Iberahim, Sharifah Norasilah Syed Abdul Hakim, Nasorriah Nasir, Mohd Fazrul Hisam Abdul Aziz, Ahassan Habib, Mazidah Dagang, Raja Zirwatul Aida, Rosyidah Muhammad, Nadirah Musa, Lee Kok Leong, Najiah Musa

In conjunction with “Program Gotong Royong Perdana Komuniti Telaga Batin 2023” on 12 February 2023 (Figure 1), a team from UMT led by Dr. Rasina and Dr. Aisyah joined hands with the local community of Kampung Telaga Batin to prepare a site for compost and aquaculture (aquaponics) knowledge transfer projects. They were invited by the chairman of Kawasan Rukun Tetangga Telaga Batin, Mrs. Zaleha Ismail. The volunteer team was comprised of Telaga Batin residents, students of Bachelor of Applied Fisheries and Bachelor of Aquaculture, as well as lecturers and postgraduates from the Faculty of Fisheries and Food Science, and Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Malaysia (Figure 2 & 3).

The community cooperation programme was jointly organised by the Terengganu State Government, Telaga Batin Village Development and Safety Committee (JPKK Telaga Batin), Malaysia Airports Holdings Berhad and Kawasan Rukun Tetangga Kampung Telaga Batin, with cooperation from the Seberang Takir State Constituency

Coordinator's Office, Kuala Nerus District Office, Kuala Terengganu City Council, Fire and Rescue Department of Malaysia, Malaysian Public Works Department, 18th Royal Malay Regiment Sri Pantai Camp, The Payang Scout Hotel, UMT, Civil Aviation Authority of Malaysia (CAAM), and Malaysian Meteorological Department (METMalaysia).

In this joint work, UMT team helped the community clean the project site for the upcoming knowledge transfer activities. The programme was carried out in a casual and friendly manner. It not only promotes cleanliness in the community for a good living environment, but also fosters the bond between UMT and the local community towards cohesiveness, common goals and mutual benefit. The knowledge transfer projects, whether on a small scale in the community, or at a commercial level by the industry player, aim to benefit the country in terms of food security through sustainable agriculture practices, and promote access to nutritious food for communities in need.



Figure 1 : Telaga Batin Rukun Tetangga Centre



Figure 2: Joint team members diligently execute their work plan on the aquaponics project site



Figure 3: Volunteer members from the Faculty of Business, Economics and Social Development..

“Environmental Sustainability Programme: Ornamental Plant Propagation” Encourage Awareness Among School Students

By Dr. Nurul Faziha Binti Ibrahim and Dr. Nor Idzwana Binti Mohd Idris

A series of knowledge transfer programs were held on the project title 'Ornamental Plant Propagation Among School Students for Environmental Sustainability' from April 2022 until April 2023. This program has sparked an interest of 123 students from four schools which are Sekolah Rendah Islam Al-Amin, Maahad Al-Tahfiz Wa Al-Dirasat Al-Islamiyyah, Taman Sinar Harapan and Pertubuhan Kebajikan Anak-anak Yatim dan Miskin Darul Akhyar. This program has been organized by lecturers from the Faculty of Fisheries and Food Science (FPSM) and funded by Centre of Knowledge Transfer, Industrial Linkages and Community under Knowledge and Technology Assimilation Grant (KTAG).

The main objective of this program is to promote student's interest on the uniqueness of ornamental plants through understanding of propagation techniques that can be used during planting and encourage the students to grow plants for environmental sustainability. This program has successfully established University-Community networking for future cooperation.

The program comprised activities during workshops including talks and practicals related to various aspect of ornamental plants, plant care, propagation techniques, fertilization technique, composting

technique and set up a mini garden. Speakers for the programme are lecturers from Crop Science Department, FPSM involved; Dr. Nurul Faziha Binti Ibrahim, Dr. Ramisah Mohd Shah, Dr. Norhidayah Che Soh, Dr. Suhaizan Lob, Dr. Nor Idzwana Binti Mohd Idris, Dr. Husni Hayati Binti Mohd Rafdi and Dr. Iffah Hazira Binti Mohd Nawi. Five final year students from Bachelor of Science in Agrotechnology (Crop Science) was appointment as facilitators and given opportunity to develop their leadership skill.

From the activities that have been carried out, the participants able to recognize the equipment that can be used for planting purposes and learned the correct planting techniques. This workshop has also succeeded in fostering enthusiasm among school students to study the field of agriculture, especially in the field of ornamental plants. In addition, through group activities, the participants have shown their own creativity in arranging the mini garden as well as giving a high commitment in each activity carried out.

With a program like this, it is hoped that all the participants will get benefit from the knowledge that has been shared by all the lecturers. The bilateral cooperation between the school and the university has inspired all of us to continue this kind of program in the future .



Dr. Ramisah (right picture) and Dr. husni Hayati (left picture) giving talk about ornamental plants.



Students learn to build mini garden at school



Students from Pertubuhan Kebajikan Anak-anak Yatim dan Miskin Darul Akhyar learn to make compost from food



Vice Chancellor's Friendly Visit to FPSM Agrotechnology Complex, Bukit Kor Campus

By Mohd Shahrul bin Zanudin



On March 12, 2023, the members of FPSM were pleased to welcome Prof. Dato' Dr. Mazlan Abd. Ghaffar, Vice Chancellor of UMT, on his visit to the FPSM Agrotechnology Complex at UMT Bukit Kor Campus. This marked the first official visit of the year, involving not only the top management of UMT but also all FPSM members.

The purpose of the visit was to personally observe the latest developments at the Human Education and Human Development Centre Complex (Kompleks Pusat Pendidikan Dan Pembangunan Insaniah). A briefing on the construction status of the building was presented by the Development and Property Office of UMT. Subsequently, the Vice Chancellor joined a guided tour of the building.



Next, everyone was taken to see the progress and development of the teaching facilities that have been provided at FPSM Agrotechnology Complex, UMT Herb Garden and UMT Indo Malaya Kelulut Repository Centre.



During the visit, FPSM staff were delighted by the UMT VC and top management warm approaches. The FPSM members, especially staff and lecturers from Bachelor of Science in Agrotechnology (Crop Science) Honours had engaged in open discussion. Some insightful ideas were expressed to further develop agricultural activities at UMT Bukit Kor Campus.

Vice Chancellor Prof. Dato' Dr. Mazlan Abd. Ghaffar said the visit was to strengthen the FPSM Agrotechnology Complex image and

branding as well as providing teaching facilities that will benefits student, community and encourage industry involvement.



Also present, Deputy Vice Chancellor (Academic and International) UMT, Prof. Ts. Dr. Mohd Zamri bin Ibrahim, Deputy Vice Chancellor (Student Affairs and Alumni) UMT, Ass. Prof. Dr. Mohd Izani bin Mohd Zain, FPSM Dean, Prof. Ts. Dr. Mohd. Effendy bin Abdul Wahid and UMT Treasurer, Mrs. Azizah binti Hasan.

PHOTO

(Source: Media Kreatif UMT & Fakulti Perikanan dan Sains Makanan, UMT)

Buzzing with Joy: World Bee Day 2023 Celebrated in Grand Style at the Iconic Kuala Terengganu Drawbridge

By Prof. Dr. Shamsul Bahri Abd Razak

The extended celebration of World Bee Day throughout the month of May this year at the iconic Terengganu landmark, the Kuala Terengganu Drawbridge, was an event to be remembered. World Bee Day is traditionally celebrated on the 20th of May each year to raise awareness about the importance of bees and other pollinators for our ecosystem and food production. The event was co-organized by University Malaysia Terengganu, Terengganu stingless beekeeper's association (PELEKAT), Terengganu Agriculture Department and Malaysia Agriculture and Research Institute (MARDI). The decision to extend the celebration for the whole month indicates a significant effort to engage the community and highlight the importance of bees. The organizers wanted to create a more immersive experience and involve more people in the festivities. Such initiatives are crucial for promoting environmental consciousness and encouraging actions to protect and preserve bees and their habitats.

Holding the celebration at the Kuala Terengganu Drawbridge, an iconic landmark, adds a unique touch to the event. The drawbridge, with its architectural significance and cultural value, serves as an ideal venue to host various activities related to World Bee Day. It offers a picturesque setting for exhibitions, educational

programs, interactive displays, and honey-related products. During the month-long celebration, a range of activities designed to engage the public, such as workshops on beekeeping, honey tastings, art exhibitions featuring bee-inspired artwork, educational talks on the importance of bees in pollination and Kelulut Run. The celebration also included activities for children, like storytelling sessions, crafts, and contest centered around bees and their role in nature.

By extending the celebration for an entire month, it allowed for more comprehensive engagement, increased awareness, and participation from the community. The immersive experience at the Kuala Terengganu Drawbridge likely left a lasting impression on visitors, making them more appreciative of bees and the vital role they play in our environment. Overall, this year's extended celebration of World Bee Day at the Kuala Terengganu Drawbridge in Terengganu appears to have been an exciting and memorable event, providing a platform to educate, inspire, and celebrate the importance of bees and their contribution to our world. During the month-long celebration, visitors from all over Malaysia and abroad were also entertained by members of PELEKAT at the Kuala Terengganu Drawbridge.



The Special Interest Group for Apis and Meliponine members prepared an array of stingless bee displays for the visitors to the Kuala Terengganu Drawbridge during the extended celebration of World Bee Day.



During the month-long celebration, visitors from all over Malaysia and abroad were also entertained by members of PELEKAT at the Kuala Terengganu Drawbridge.



Visitors were delighted to view an exhibition of macro photography by Mr. Husni Che Nghah as one of the captivating exhibits at the Kuala Terengganu Drawbridge during the month-long celebration..



The World Bee Day celebration at the Kuala Terengganu Drawbridge was graced by the presence of the honorable State Agriculture, Food, and Plantation Exco, Dr. Azman Ibrahim, who graciously officiated the event. In addition to inaugurating the celebration, Dr. Azman Ibrahim also auspiciously launched the latest stingless bee book authored by Prof. Dr. Shamsul Bahri, adding to the significance of the occasion

Carving in The Sky: Food Science FPSM UMT Rise to The Next Level

By Dr. Tuan Zainazor Tuan Chilek



Kelulut@Kuala Terengganu Drawbridge Programme with the theme of 'Sustainability Kelulut Towards Food Security' was organized by PELEKAT (Persatuan Lebah Kelulut Terengganu) in collaboration with several other agencies such as the Department of Agriculture (Mardi), SIG Apis Meliponine, Universiti Malaysia Terengganu (UMT) and also Kuala Terengganu Drawbridge. The program was held from 1 May until 31 May 2023. The programme is to provide exposure to the public on the kelulut and its importance in ensuring the sustainability of nature and its benefits to humans.

The programme includes an exhibition and sale of kelulut products, a Kelulut Fun Run, demonstration of kelulut honey-based products such as gummy candy and Golden Bee-Pang. Besides, the beautiful and creative vegetable and fruit carving was

shown and attracted many visitors throughout the programme.



Kelulut@Kuala Terengganu Drawbridge Programme was broadcast live on Selamat pagi Malaysia (SPM) programme on 5 May 2023 and Berita Wilayah on 11 May 2023 on TV1 attracted



Some of the creative vegetable and fruit carving was demonstrated by Chef Zamani Mohamed and assisted by Chef Nik Mohd 'Aqil Nik Pa from Food Science, FPSM, UMT.



Dr. Tuan Zainazor Tuan Chilek, Lecturer from the Faculty of Fisheries and Food Science, UMT briefly explained on *kelulut* honey-based food products to YB. Dr. Azman Ibrahim, Chairman of the Committee on Agriculture, Agro-based Industry and Rural Development, Terengganu and also to the visitors in conjunction with the Opening Ceremony of the *Kelulut@Kuala Terengganu Drawbridge* Programme, held on 19 May 2023.



FPSM Staff Mobility Outbound Program at Fakultas Ekologi Manusia, IPB University, Bogor, Indonesia

By Dr. Siti Nur'afifah Jaafar and Mrs. Nor Azni Mohd Yunos



Dr. Siti Nur'afifah Jaafar, Mrs. Nor Azni Mohd Yunos and Mrs. Aniza Draman, the staffs of Faculty of Fisheries and Food Science (FPSM) had visited Department of Community Nutrition, IPB University, Bogor, Indonesia from 20th May 2023 until 26th May 2023.

Dr. Siti Nur'afifah Jaafar have been involved with undergraduate and postgraduate talk as well as the monitoring practical class of Nutrition and Foodservice Management (GIZ1335). A session of introducing University Malaysia Terengganu and Faculty of Fisheries and Food Science as well as a session to discuss future collaboration between food science, food service and nutrition experts from both universities was also carried out on the first day of visit.



Brief discussion about UMT and FPSM vision with the Dean of Faculty of Human Ecology, IPB University, Dr. Sofyan Sjaf and Head Department of Community Nutrition, Prof. Dr. Katrin Roosita



Insight discussion on research collaboration with Dr. Rimbawan, Head of Postgraduate Study Program, Department of Community Nutrition, Faculty of Human Ecology, IPB University.

A total of 88 students of Bachelor of Nutritional Science and their lecturer joined the talk on the topic “Facility Design and Equipment Selection for Foodservice Premises”. They were exposed for an hour on the principles of foodservice facility design, equipment and equipment selection for foodservice establishment. Students involved actively during the lecture and Q and A session.

On the second day of visit, Dr. Siti Nur’afifah Jaafar monitored the food and beverage preparation in the practical class of Nutrition and Foodservice Management (GIZ1335). Students had prepared Chicken Hejosos Toast, Chicken Mahah Toast, Chicken Mahah Rice, Chicken Hejosos Rice, Date Yoghurt Drink and Strawberry Yoghurt Drink. Feedbacks about safety and hygiene as well as techniques in preparation and cooking of the menus were given to students for further action.

In the postgraduate talk, 59 postgraduate students had engaged and actively involved during Q and A session regarding the topic

“Consumer Satisfaction in Foodservice Establishment and Its Effect on Plate Waste”. Research related to consumer satisfaction and plate waste and gap in the literature were shared to students. Consequently, exposed them to potential research scope. The excellent 2 hours talk was ended with group photo in front of the Department of Community Nutrition.



Delivering undergraduate lecture



Group photo with Mrs. Reisi Nurdiani (lecturer) and students of Nutrition and Foodservice Management (GIZ1335) course



Monitoring food and beverage preparation in the practical class of Nutrition and Foodservice Management (GIZ1335)

They were warmly welcomed by the head of Community Nutrition Department, Professor Dr. Katrin Roosita, Laboratory Coordinator, Dr. Zuraidah Nasution, and also management and laboratory staffs. They were taken on a tour to the food science related laboratories in both faculties, the Faculty of Human Ecology (Department of Community Nutrition) and the Faculty of Agricultural Technology (Department of Food Science and Technology).



Mrs. Nor Azni and Mrs. Aniza were warmly welcomed by Professor Dr. Katrin Roosita and staffs of Community Nutrition Department.



Certification handover by Mr. Kitaka Asyraf, a representative of postgraduate student

Meanwhile for laboratory support officers who participate in the LASBELA study tour program, Mrs. Nor Azni Mohd Yunos and Mrs. Aniza Draman, were participating on laboratory management procedures at IPB.



Visiting food technology laboratory at Faculty of Agricultural Engineering and Technology

At FEMA (Faculty of Human Ecology), there are 12 laboratories that are managed by 3 laboratory officer, Mrs. Titi Riani, Mrs. Ine Amelia and Mr. Satriyo Nugroho. Mrs. Nor Azni and Mrs. Aniza were able to participate in three practical classes; Analysis and Evaluation of Food Nutrition Quality (Flavonoid Analysis), Food Processing and Culinary (Low Temperature Processing of Dragon Fruit and Pineapple Sorbet) and Nutrition and Foodservice Management conducted at the Faculty of Human Ecology. Every practical classes were conducted by senior or master students working as laboratory assistants together with laboratory staff in ensuring practical class went smoothly. This could be applied in FPSM, UMT laboratories so that the postgraduate would be able to practise their skills and gain experience from the staff.-



Nutrition and Foodservice Management practical class

Mrs. Azni and Mrs. Aniza were taken to visit Kebun Raya which are very rich with lush and well-preserved greenery, they had experienced tasting food from the street vendor to cafe, seeing the uniqueness of

Indonesian batik and the beauty of local community culture.



Visiting Kebun Raya, Plant Conservation Centre.



Luscious greenery in Kebun Raya

On the sixth day, Dr. Siti Nur'afifah Jaafar, Mrs. Nor Azni Mohd Yunos and Mrs. Aniza Draman had visited the Rumah Tempe Indonesia (RTI) which is administered by the cooperative of Indonesian Tempe producers

(KOPTI). KOPTI is a well-known tempeh maker throughout Indonesia and apart from the main soybean distributor for tofu and tempeh entrepreneurs, they also provide equipment and advisory services to traditionally tofu and tempeh maker. Their aim is to produce a better-quality tofu and tempeh. Rumah Tempe Indonesia is set as an example to entrepreneurs in terms of cleanliness in tempeh production and efficient waste management.



Rumah Tempe Indonesia (RTI) visit accompanied by Miss Catur Dwi and Miss Zahrina.

Various tempeh product from traditional soybeans made tempeh toother ingredients such as green beans, walnuts, black soybeans, almonds, sesame and red beans. Tempeh based products such as tempeh chips, tempeh nuggets and tempeh mendoan are also produced have also been successfully exported to foreign countries such as South Korea.



RTI's products: tempeh chips, almond and mung bean tempeh.

Special thanks to UMT International Centre for funding international travelling cost for Dr. Siti Nur'afifah Jaafar and Registrar UMT for funding LASBELA program for Mrs. Nor Azni Mohd Yunos and Mrs. Aniza Draman. Thanks to the Dean of Faculty of Human Ecology IPB University, Dr. Softan Sjaf, Head Department of Community Nutrition, Prof. Dr. Katrin Roosita, Mrs. Reisi Nurdiani, Deputy Head of Department, Dr. Zuraidah Nasution, liaison officer for this visit and all staffs of Department of Community Nutrition, Faculty of Human Ecology IPB University for the warmth hospitality and financial assistance throughout the visit.

UMT's 20th Stingless Bee Expedition at The Scenic Sg Menyala Forest Reserve, Port Dickson, Negeri Sembilan.

By Prof. Dr. Shamsul Bahri Bin Abd Razak



The 20th edition of the UMT Stingless Bee Expedition took place at the Sg Menyala Forest Reserve in Port Dickson, Negeri Sembilan starting from 9-11 Jun 2023. This expedition, co-organized by The Special Interest Group for Apis and Meliponine Universiti Malaysia Terengganu (UMT) and Negeri Sembilan Stingless bee Association (PATERN9) signify a long-standing tradition of exploring and studying stingless bees in different natural environments. The choice of the Sg Menyala Forest Reserve as the expedition location indicates the significance of this particular area for stingless bee research. Forest reserves like Sg Menyala provide a rich habitat for diverse bee species, including stingless bees. These

expeditions aim to study the behaviour, ecology, and diversity of these bees in their natural habitats.

This expedition was led by Prof. Dr. Shamsul Bahri Bin Abd Razak. During the 20th edition of the expedition, researchers, students, and bee enthusiasts embarked on field trips, conducting surveys and collecting data on stingless bee colonies found in the forest reserve. This hands-on experience allows participants to observe the bees' behaviour, study their nesting habits, and gain insights into their ecological interactions with plants and other organisms. The expedition also included workshops and training sessions where experts shared their knowledge and

techniques for studying stingless bees. Participants had the opportunity to learn about different stingless bee species, their identification, and the methods used to study their population dynamics and foraging patterns.

Such expeditions serve multiple purposes. They contribute to the scientific understanding of stingless bees and their role in pollination. They also help raise awareness about the importance of these bees for ecosystem health and biodiversity

conservation. Moreover, the expeditions provide valuable educational experiences for researchers, students, and the general public, fostering a deeper appreciation for the natural world.

Overall, the 20th edition of the UMT Stingless Bee Expedition held at the Sg Menyala Forest Reserve in Port Dickson, Negeri Sembilan, offered an enriching experience for participants, furthering our knowledge and appreciation of stingless bees and their habitats.



The 20th UMT stingless bee expedition was attended by a total of 73 participants from Malaysia, Indonesia, and South Korea, adding an international dimension to the event.



The participants ventured into the Sungai Menyala forest, foraging and exploring its natural habitat to observe and study the Indo Malaya stingless bees.



Knowledge sharing sessions are an integral part of the expedition program, aimed at imparting expert knowledge in the field of stingless bees to industry players. These sessions serve as a platform for exchanging valuable information, insights, and best practices related to stingless beekeeping and conservation. Additionally, they provide an opportunity for participants to network and foster connections within the industry, promoting collaboration and the sharing of experiences and ideas

Announcement (seminar, talk, conference etc)

1. MPI 2023 Achievement

Tahniiah

Di atas kejayaan memperoleh pingat **EMAS**

Ketua Projek
Prof. Madya Ts. Dr. Norizah Mhd Sarbon

Ahli
Ts. Dr. Azizah Mahmood
Ts. Dr. Nizaha Juhaida Mohamad

Tajuk Projek
Innovation Of Fish Heads Cutting And Eviscerating Machine For Productivity Improvement

Ikhtlas daripada warga **FPSM**

Tahniiah

Di atas kejayaan memperoleh pingat **EMAS**

Ketua Projek
Prof. Madya Ts. Dr. Fauziah Tufail Ahmad

Ahli
Dr. Faridah Yahya
Dr. Ramisah Mohd Shah

Tajuk Projek
PureGac Bites - Taste the Radiance of Nature

Ikhtlas daripada warga **FPSM**

Tahniiah

Di atas kejayaan memperoleh pingat **EMAS**

Ketua Projek
Dr. Rudyanto

Ahli
Dr. Ramisah Mohd Shah
Dr. Norhidayah Che Soh

Tajuk Projek
Paddy Watch for Estimating Methane Emission from Global Rice Fields

Ikhtlas daripada warga **FPSM**

Tahniiah

Di atas kejayaan memperoleh pingat **EMAS**

Ketua Projek
Ts Dr. Wan Zaliha Wan Sembok

Tajuk Projek
Portable Mini Mushroom Rack for Small Scale Mikopreneur

Ikhtlas daripada warga **FPSM**

Tahniiah

Di atas kejayaan memperoleh pingat **PERAK**

Ketua Projek
Dr. Nor Idzwana Mohd Idris

Ahli
Dr. Ramisah Mohd Shah

Tajuk Projek
Application Of Fish Bone Waste From Fish Based Food Processing Industry As a Plant Booster Eggplant (Solanum Melongena)

Ikhtlas daripada warga **FPSM**

Tahniiah

Di atas kejayaan memperoleh pingat **GANGSA**

Ketua Projek
Prof. Madya Ts. Dr. Norizah Mhd Sarbon

Ahli
Prof. Madya Ts. Dr. Mohd Zul Helmi Rozaini

Tajuk Projek
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- Agrotechnology and Animal Science
- Fisheries and Aquaculture

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07 JULY 2023	19 JULY 2023
Registration and Payment	Camera Ready
19 JULY 2023	01 AUGUST 2023
Conference Dates	
16 - 17 AUGUST 2023	

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Registration	● 15 th Sep 2023
Full Paper Submission	● 15 th Nov 2023

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