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eISSN 2805-5683



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ABOUT THE MAGAZINE

RISE Magazine is published by Office of the Deputy Vice-Chancellor (Research and Innovation) with aims to highlight a research and innovation on multidisciplinary expert of fields in UiTM. It serves as a platform for researcher to showcase their high quality and impactful findings, activities and innovative solution through publication. Contribution of these ideas come from academicians, researchers, graduates and universities professionals who will enhance the visibility of research and stride to elevate Universiti Teknologi MARA to global standards. This is an effort to promote research as a culture that is accepted by all expertise.

ABOUT UiTM

Universiti Teknologi MARA (UiTM) is a public university based primarily in Shah Alam, Malaysia. It has grown into the largest institution of higher education in Malaysia as measured by physical infrastructure, faculty and staff, and student enrollment. UiTM is the largest public university in Malaysia with numerous campuses throughout all 13 states in Malaysia. There is a mixture of research, coursework and programmes offered to the students. Office of the Deputy Vice-Chancellor (Research and Innovation) or known as TNCPI (*Timbalan Naib Canselor (Penyelidikan dan Inovasi)*) serves as a *Pusat Tanggungjawab* (PTJ) navigate the research and innovation of university in achieving UiTM agenda. TNCPI office strives to mobilize faculty, and campuses to move together and cooperation of researchers to become a leading global university of science, technology, and innovation by 2025.

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FOREWORD

Bismillahirrahmanirrahim.

Alhamdulillah, all praises to Allah SWT and a heartfelt congratulations to the Office of Deputy Vice-Chancellor (Research and Innovation) on the publication of RISE Magazine (October Issue, No. 2) in promoting visibility for UiTM's research and its researchers.

I am thrilled to have witnessed a growing number of article publications and research innovations endeavoured by our fellow researchers. Thank you for all the effort, time, and energy that you have selflessly spent for the university.

The sustainability theme chosen for this edition is wise, apt, and timely. While striving to become a Globally Renowned University (GRU) and attaining Sustainable Development Goals (SDGs), we must ensure that our research activities are in line with the 17 goals set by the United Nations (UN) as well as the university's strategic plan.

UiTM is proud with the progressive development of renewable energy and currently 7 campuses are equipped with solar photovoltaic rooftops. This supports Malaysia's noble cause of becoming a carbon-neutral nation by 2050. Green Retrofit Framework for Sustainable Residential Refurbishment Project was also initiated with

plausible effectiveness to increase the number of green buildings and eventually will help reduce the emission of Green House Gases (GHG).

Our researchers have also begun to use Green Polysaccharides material for wound healing which is greener and environmentally benign. Other noteworthy projects are the use of Resistograph to assess the accuracy of Wood Density (WD) prediction, the application of 3D printing technology in simulating real experiences of halal animal slaughtering, as well as lipid reduction via systematic screening to make our planet more sustainable.

I am delighted with the research ambience that has now become an acceptable culture in UiTM. GRU2025 is definitely achievable with continuous effort and dedication made by members of UiTM as we work towards helping the nation and the world to achieving SDGs by 2030.

Thank you.

PROFESSOR DATUK TS. DR HAJAH ROZIAH MOHD JANOR

Vice-Chancellor

Universiti Teknologi MARA



FOREWORD

Congratulations to the editorial team on the publication of RISE magazine Issue 2, 2022, serving as a platform to showcase our pride in UiTM research and innovations.

We chose *Sustainability* as the theme for this edition. Despite its definition that may be contextual and vary across the field, we can't deny its essence and impacts on our daily life, and that every one of us should gracefully embrace.

Under this umbrella, we have witnessed an array of projects carried out by UiTM researches in various genres of research, driven to help the community in the short and long run. Flipping each page of this magazine and seeing how far we have become as a university sends unflagging goosebumps- signaling how proud I am to be part of this huge family.

Research has no longer been alien to us. We could see that the propagated activities in the quest of finding answers to problems have mushroomed over the years. It has become somewhat the bread and butter of academics other than teaching and learning. Its role has been significantly proven to elevate teaching community to a better level.

TNCPI Office seeks continuous support from every researcher, academician, and administrator to keep your momentum in doing research and innovations. Perhaps, through a stronger research ecosystem, this will help us to become a Globally Renowned University by 2025. We will keep providing supports, rewards and facilities needed in boosting the morale of our researchers.

Lastly, I hope RISE can be the front page of UiTM exhibiting the business that we are doing. Every time you go for a conference or any meeting with potential collaborators, please share RISE with them. We never know how much opportunities that will come knocking our doors just from that gesture.

Thank You.

PROFESSOR TS. DR NORAZAH ABD RAHMAN

Deputy Vice-Chancellor (Research & Innovation)
Universiti Teknologi MARA

MESSAGE FROM THE CHIEF EDITOR

Alhamdulillah

It gives me great pleasure to see RISE issue # II published. We have received a huge number of impactful submissions to be featured as our #KeluargaUiTM's research stories. Despite the difficult circumstances of post-covid19, UiTM researchers are proactive in carrying out research activities and events within their respective capacities.

Allow me to express my heartfelt gratitude to all of the authors of the articles in this magazine. Not to forget all editorial members who worked hard to ensure its publication was on schedule. The publication of this issue would have been far more difficult to achieve without their contributions. In this edition, we feature seven researchers from both science and technology and social sciences disciplines with their views and experiences in sustainability-related research and their efforts for mobilising sustainable development. Also, RISE II presents the achievements of the multidisciplinary domains by distinguished UiTM research groups.



I believe that sustainability should be the nucleus of any research agenda. Prominent researchers around the world are focusing on the call to address global livelihood and wellbeing. Hence, we at UiTM should embed and embrace the principles of Sustainable Development Goals in our research efforts.

To all researchers out there, we hope that the amazing stories in RISE II will rekindle our enthusiasm for research. We sincerely hope to bring you more research news from the #keluargaUiTM in the coming issues. I invite you to discover RISE II and be inspired. Enjoy reading!

ASSOC. PROF. DR MOHD MUZAMIR MAHAT

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The Challenge of Sustaining Improvements in Patient Medication Adherence

Improved patient adherence to medications is a challenge for healthcare workers, particularly pharmacists. Adherence is the condition when patients take their medication as directed for controlling chronic conditions, treating acute conditions, and overall long-term health and well-being. If a patient does not adhere to their medications, it can cause a serious threat to their health as well as a significant financial burden not only to the patients itself but also to the government.

Many factors influence patient adherence, including patients' understanding and knowledge of the treatment plan, ignorance, disregarding healthcare workers advice especially doctors and pharmacists and many others. The solution to this problem is for the healthcare workers to take responsibility to listen to their patients about why they are unable to adhere to the medications. The healthcare workers must assess the patient's adherence to medications. After determining that the patient is not adhering to the medications, they can refer to the pharmacist to determine what the patient's true problems are. This is a multidisciplinary responsibility in which everyone must participate.

Malaysia's Ministry of Health (MOH) has taken the initiative to establish the Medication Therapy Adherence Clinic (MTAC). It was first introduced in 2004 as part of clinical pharmacy in ambulatory care. The goal of this service is to improve patient medication adherence. This service also entails the Pharmacist and the Medical Officer working together to provide pharmaceutical care to patients. The Pharmacist implements MTAC by monitoring drug therapy and providing information to patients, increasing the patient's understanding of pharmacotherapy treatment, and motivating patients to have a positive perception of the disease and the treatment received.

There are 13 different types of MTAC that have been approved by the Pharmaceutical Services Division of the Ministry of Health Malaysia and are available to patients at MOH facilities. Diabetes mellitus, respiratory, warfarin, haemophilia, stroke, rheumatoid arthritis, psoriasis, psychiatry, geriatrics, retroviral disease, renal transplant, chronic kidney disease, and dialysis are the 13 types of MTAC. The first session (patient recruitment) and several follow-up sessions are among the activities carried out in the MTAC service. In general, patients must attend at least four MTAC sessions to ensure that these services are effective. Patients will receive counseling and advisory services based on specific modules designed to meet the needs of each patient and based on the type of MTAC.

The major challenge for pharmacists is sustaining the improvements in patient medication adherence. Patients can improve their adherence, but we must continue to make extra efforts to make patients understand the importance of adhering to their medications. Furthermore, adherence is critical if the patient requires lifelong medications, such as diabetes, hypertension, heart disease, and so on.

MTAC can be one of the solutions, but at the end of the day, patients must take sole responsibility for adhering to their medications. This is due to the fact that MTAC is merely a platform for improving patient understanding of their medications and diseases. Then, MTAC can only last a few sessions. As a result, patients must gather all available information and comprehend the significance of adherence. Finally, if the patient is uneducated, elderly, or bedridden, the caregiver must take responsibility for administering medications to the patient. Lastly, sustaining patient adherence to medication requires commitment not only from multidisciplinary healthcare workers, but also from patients' motivation and the caregiver's involvement in monitoring patients' adherence to medications.



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SAGA INTERNET OF THINGS (IOT) GATEWAY SYSTEM



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IOT in Aquaculture



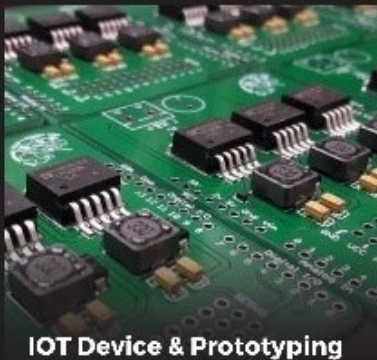
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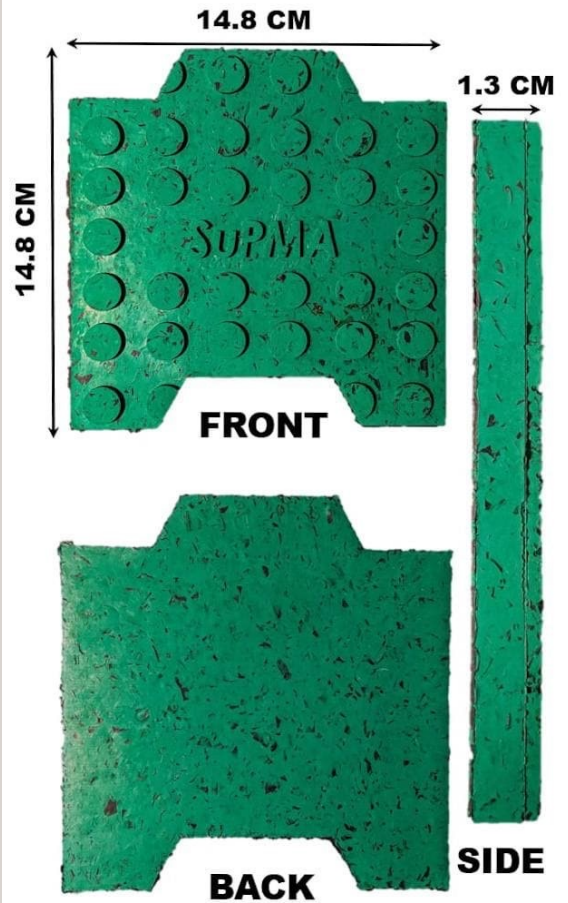
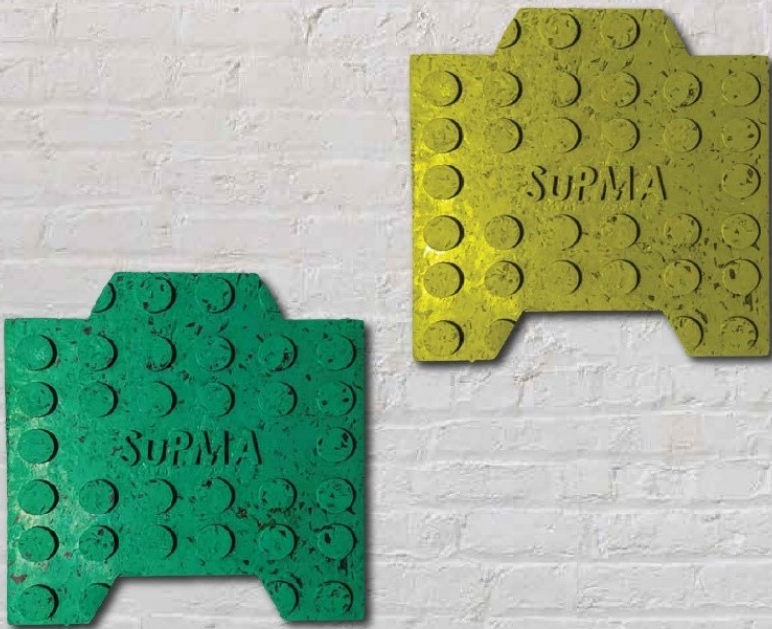
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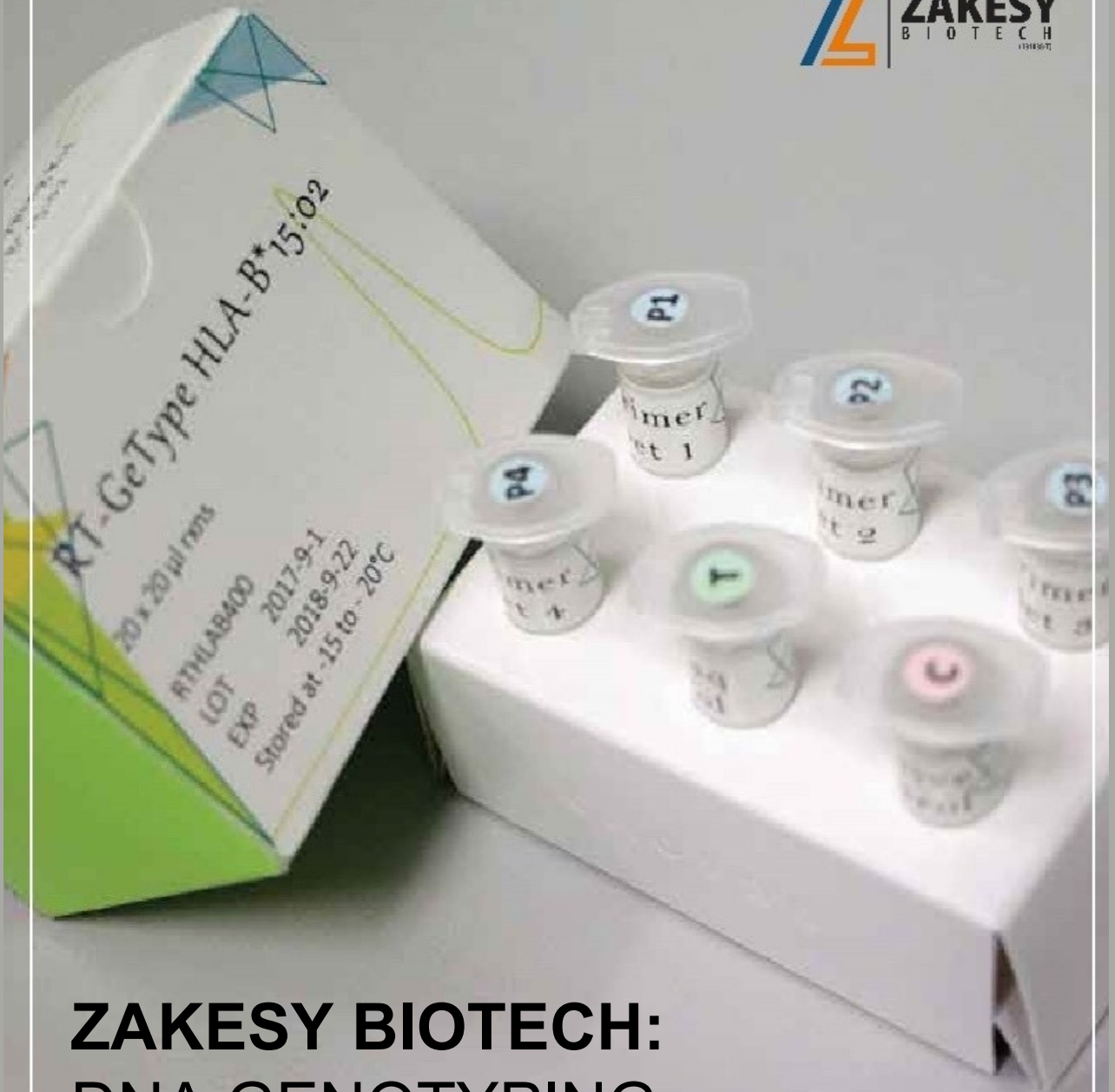
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