



# RMU 4U

**Volume 4 (2025)**

**Research Management Unit**  
Universiti Teknologi MARA Cawangan Kedah

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## RECTOR'S NOTE



**Prof. Dr Roshima Said**  
Acting Rector

***"Together we advance knowledge with integrity, creativity, and purpose—many voices united to shape a brighter, sustainable future."***

Assalamualaikum warahmatullahi wabarakatuh,

Alhamdulillah, with gratitude to Allah SWT, I am pleased to welcome you to the fourth volume of RMU4U e-Bulletin. This publication continues to serve as a reflection of our vibrant intellectual community at UiTM Kedah, bringing together voices from diverse disciplines and perspectives. In this issue, with 42 insightful contributions, we witness not only the richness of research topics but also the strength of our shared purpose. While the papers range from sustainability in fashion and design, digital literacy, and artificial intelligence to law, economics, and cultural heritage, they are united by a common aspiration: to advance knowledge that is meaningful, ethical, and impactful for society.

Our academic journey is significant because of this harmony amid diversity. Whether addressing contemporary challenges in technology and governance or celebrating the timeless values of culture and tradition, our scholars demonstrate that knowledge is most powerful when it is connected, when different fields meet at the crossroads of innovation, integrity, and service to the community.

As Rector, I am profoundly inspired by the dedication, innovation, and scholarly excellence demonstrated by our academics and researchers. You are not only advancing knowledge within our university but are also fulfilling UiTM's noble mission, creating impactful ideas that serve the nation and uplift the ummah.

Your work reflects a deep commitment to relevance, integrity, and service. Let us continue to nurture a culture of collaboration, creativity, and excellence, ensuring that our contributions remain forward-looking, transformative, and rooted in the needs of society. Together, we are shaping a brighter, more sustainable future through education, research, and innovation.

Congratulations to all the dedicated contributors whose passion and perseverance have brought this volume to life. My heartfelt appreciation goes to the Research Management Unit for their steadfast leadership and solid commitment in making this achievement possible. May RMU4U continue to shine as a beacon of knowledge, uniting diverse voices in a shared mission of discovery and excellence. Together, may we be inspired to reach even greater heights in the pursuit of impactful research and innovation.

One purpose. One vision. Many voices, one future.

Sincerely,  
Prof. Dr Roshima Said  
Acting Rector,  
Universiti Teknologi MARA Keda

## A MESSAGE FROM THE CHIEF EDITOR



**Dr Azyyati Anuar**  
Chief Editor,  
RMU4U E-Bulletin

***"RMU4U Volume 4 celebrates diverse scholarship, uniting research, innovation, and culture to inspire collaboration, sustainability, and inclusive growth."***

We are pleased to present Volume 4 of RMU4U, a platform dedicated to showcasing research, innovation, and thought leadership across diverse academic disciplines. This issue reflects the dynamic intellectual ecosystem we strive to cultivate, highlighting contributions that bridge theory and practice while addressing pressing contemporary challenges. In the Business, Accounting, and Finance section, we feature 15 insightful papers that explore the evolving landscape of global markets, financial resilience, sustainable accounting practices, and digital transformation in business operations.

These works not only provide empirical findings but also propose actionable frameworks for industry adoption, underscoring the vital role of research in shaping competitive and ethical enterprises. The Designer Thoughts segment presents 6 stimulating papers that merge creativity with problem-solving. From design thinking methodologies to innovation in product aesthetics and usability, these contributions remind us that design is not merely about form but about crafting meaningful user experiences.

This section will be of particular interest to those who value the intersection of artistry, functionality, and human-centered solutions. Our IR 5.0 category brings together 6 pioneering papers examining the fusion of automation, artificial intelligence, and human capital development in the context of the Fifth Industrial Revolution. The authors challenge readers to consider how technology can be harmonized with ethical and inclusive practices, ensuring that digital progress translates into equitable societal benefits. In the Law and Policy section, 7 comprehensive papers analyze legal reforms, governance frameworks, and policy innovations that respond to shifting socio-economic realities.

The breadth of topics from regulatory compliance in emerging industries to community rights in a globalized economy reflects the critical role of law as both a safeguard and an enabler of change. The Literature and Culture segment enriches this volume with 8 thought-provoking papers that delve into narratives, identities, and cultural dialogues shaping societies today.

Whether revisiting classic literature through modern lenses or exploring contemporary cultural phenomena, these works invite readers to appreciate the role of the humanities in fostering empathy, critical thinking, and cultural continuity. Collectively, these 42 scholarly contributions affirm the breadth and depth of academic engagement within our community. They underscore our commitment to advancing knowledge that is relevant, impactful, and forward-looking. This volume is not only a testament to our contributors' dedication but also a resource for policymakers, practitioners, educators, and learners who seek informed perspectives and innovative solutions. We extend our heartfelt appreciation to all authors, reviewers, and editorial team members whose collective efforts have made this publication possible. We hope that RMU4U Vol. 4 will spark dialogue, inspire collaboration, and contribute to the enrichment of both academic scholarship and practical application.

Let us continue to explore, innovate, and contribute, together shaping a future where knowledge serves as the foundation for sustainable and inclusive growth.

Warm regards,  
Dr Azyyati Anuar  
Chief Editor,  
RMU4U E-Bulletin



# EXPLORING THE POTENTIAL OF NIPA PALM MIDRIB STICK (LIDI NIPAH) IN CONTEMPORARY FURNITURE DESIGN: A MATERIAL-BASED EXPERIMENTAL STUDY

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The increasing demand for sustainable and locally sourced materials in contemporary design has prompted researchers and designers to explore alternative natural resources that are both environmentally friendly and culturally significant. Among these materials, Nipa Palm Midrib Stick (commonly known as Lidi Nipah) a by-product of the nipa palm tree (*Nypa fruticans*) has shown promising potential in craft and furniture design. Despite its abundance in mangrove and swampy regions across Southeast Asia, particularly in Malaysia, Lidi Nipah remains underutilized in modern industrial applications. This paper presents findings from experimental studies on Lidi Nipah, focusing on its aesthetic, structural, and functional properties and discusses how these characteristics can influence innovative approaches in contemporary furniture design.



One of the key aspects explored in this study is the aesthetic transformation of Lidi Nipah through various surface treatments, including synthetic and natural dyeing, as well as bleaching techniques. Experimental results indicate that Lidi Nipah demonstrates a high capacity for color absorption, particularly when subjected to boiling during the dyeing process. Removing the outer layer of the stick enhances the penetration of dyes, resulting in more uniform and intense coloration. Bleaching treatment further improves the visual appeal of Lidi Nipah by enhancing its brightness and providing a neutral base for subsequent coloring processes. These findings suggest that Lidi Nipah can be effectively integrated into interior design elements such as decorative panels, lampshades, or accent furniture where visual aesthetics play a crucial role.



Figure 1: Aesthetic Experiment Testing Protocol

In addition to its aesthetic qualities, the mechanical properties of Lidi Nipah were also evaluated through a series of experiments focusing on flexibility, durability, and jointing techniques. Results showed that Lidi Nipah exhibits considerable flexibility, especially when heat-treated or soaked in water prior to shaping. Using metal molds and controlled heating, the material could be manipulated into organic and geometric forms, expanding its application beyond traditional flat-weaving techniques. Load-bearing tests revealed that individual sticks can withstand up to 5 kg of weight, indicating their suitability in secondary structural components such as chair backs, side tables, or decorative frameworks.

The investigation into jointing methods demonstrated that traditional binding techniques—such as cross and corner knots—can significantly enhance the stability and strength of Lidi Nipah structures. The use of natural adhesives and resins further reinforces these connections, offering a sustainable alternative to synthetic fasteners. These findings support the integration of Lidi Nipah into modular furniture systems where disassembly and recyclability are key considerations.



Figure 2: Mechanical Properties Experiment Testing Protocol

Another critical area explored in this research is the application of weaving techniques, particularly the Anyaman Tiga Sumbu (Three-Axis Weaving) method. By employing jig-based molds and laser-cut templates, the weaving process was streamlined without compromising the intricacy or consistency of the patterns. This approach not only increases production efficiency but also allows for greater design precision, making it suitable for large-scale applications such as wall panels, room dividers, or upholstered furniture components. The structural reinforcement observed in tightly woven sections suggests that Lidi Nipah can contribute to load distribution in furniture designs, thereby improving overall durability.

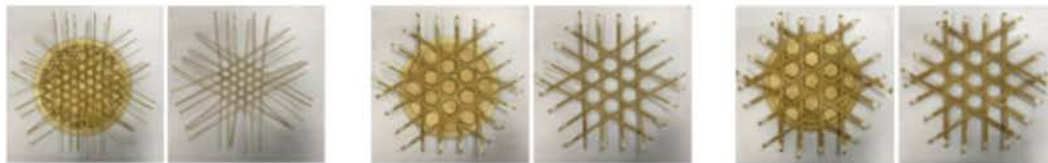


Figure 3: Weaving Techniques Experiment Testing Protocol

From an ecological perspective, Lidi Nipah aligns with the principles of sustainability and circular economy. As a naturally renewable and biodegradable material, it offers a low-carbon footprint alternative to synthetic composites. Its availability in coastal and wetland areas of Malaysia reduces transportation costs and supports local economies by creating opportunities for rural artisans and small-scale industries. Furthermore, the integration of Lidi Nipah into modern furniture design contributes to the preservation of indigenous craftsmanship while adapting it to contemporary aesthetics and functionality.

In conclusion, the experimental findings highlight the multifaceted potentials of Lidi Nipah as a viable material for contemporary furniture design. Its favorable combination of aesthetic adaptability, structural integrity, and environmental benefits position it as a compelling candidate for sustainable product development. Future research should focus on optimizing manufacturing techniques, exploring hybrid material combinations and assessing long-term performance under varying environmental conditions. By bridging traditional knowledge with modern design methodologies, Lidi Nipah can emerge as a symbol of innovation in eco-conscious design practices.

#### Biodata of author

Asrol Hasan is a passionate and versatile designer who graduated in 2006 with a Masters in Art for Design Technology from Universiti Teknologi MARA (UiTM), Shah Alam, Malaysia. He has a deep love for hands-on creation and specializes in Product Design, Furniture Design, Graphic Design, Props, Crafts and Stage Design. Throughout his career, Asrol has been actively involved in various consultation and design projects for UiTM and other external agencies, demonstrating his creative expertise and technical proficiency. With a strong foundation in both art and technology, he continues to explore innovative ways to merge functionality with aesthetic expression in every project he undertakes.



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