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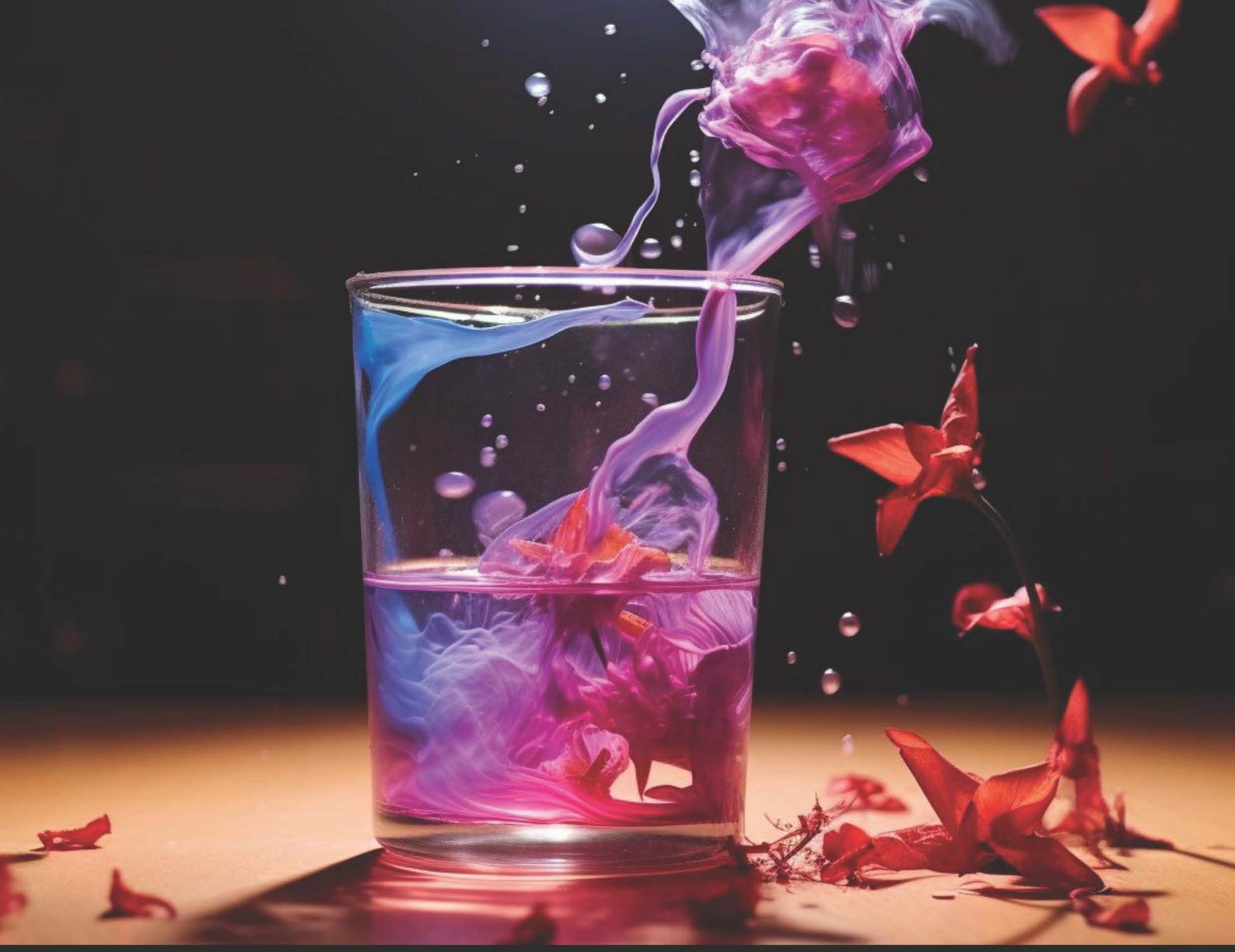

Preserving Tradition: Extending the Shelf Life of Malaysia's Bunga Kantan

In the heart of Malaysian cuisine lies the torch ginger flower, or Bunga Kantan, an ingredient revered not only for its vivid colour and unique flavour but also for its role in traditional dishes that have been passed down through generations. Bunga Kantan, or its scientific name *Etlingera* elatior is celebrated for its aromatic properties and its ability to infuse dishes with a burst of flavour that is both sharp and subtly sweet. Found in everything from salads to soups, its importance transcends the culinary, touching aspects of cultural identity and heritage in Malaysia. However, the fleeting freshness of the Bunga Kantan presents a real problem. Plant parts such as cut flowers of torch ginger are highly perishable (Cunha Neto et al., 2023). It is not easy to keep this delicate flower from wilting, which limits its use and affects those who depend on it for their livelihood. Nogueira et al. (2023) recommended to start the conditioning process after harvesting by keeping the stems immersed in water to maintain the hydration of the Bunga Kantan. However, this process has limitations as it affects the postharvest quality and takes a considerable amount of space within the cold chamber.

Recent breakthroughs in food preservation led by researchers at Universiti Teknologi MARA (UiTM) are set to change the game. This innovative approach not only promises to extend the flower's shelf life but also aims to enhance its accessibility and reduce food waste, ensuring that this cultural staple can be enjoyed all year round. The team from the Food Process Engineering Research Group (FOPERG UiTM) developed a novel drying technique after a series of experiments using infrared technology to pinpoint the best conditions designed specifically for the preservation of Bunga Kantan. This involved meticulous adjustments of drying parameters and techniques to ensure the final product remained true to its fresh form. Unlike standard drying processes that can sap ingredients of their flavour and nutritional value, this alternative method uses a combination of controlled temperatures and humidity levels to preserve these qualities effectively. The

result? Dried Bunga Kantan that maintains its distinctive taste and aroma for up to six months. "Our goal was to find a sweet spot where we could reduce moisture without compromising the integrity of the flower's properties through engineering touch," explains Ts. Dr. Habsah, who is the lead researcher of this project. "We are thrilled with these results because they allow us to overcome the biggest hurdles in Bunga Kantan preservation," she added.

Potential Health Benefits of Dried Bunga Kantan

While the primary focus of the research was on extending the shelf life of Bunga Kantan, the team's findings also suggest potential health benefits associated with consuming the dried flower. Preliminary studies have indicated that Bunga Kantan may possess antioxidant, anti-inflammatory, and antimicrobial properties which could contribute to improved overall health and well-being. Bunga Kantan may contain compounds with potent antioxidant activity that offer protection against oxidative stress and related health issues. The bioactive compounds in Bunga Kantan can also exhibit anti-inflammatory properties, which could have therapeutic implications for conditions associated with chronic inflammation. This flower also has antimicrobial properties that contribute to improved food safety and offers natural alternatives to synthetic preservatives. Cunha Neto et al. (2023) reported that torch ginger contains anthocyanins and carotenoids that are affected by the post-harvest process. Therefore, further research is needed to fully understand the nutritional profile and bioactive compounds present in Bunga Kantan. By investigating these potential health benefits, we can unlock additional value and provide strong incentives for the widespread adoption of this preservation technique. Ultimately, empowering communities with access to nutrient-rich, shelf-stable Bunga Kantan can have a positive impact on public health and wellness.

With the extended shelf life, Bunga Kantan can now be transported beyond local markets to reach Malaysian expatriates and global enthusiasts who are eager to explore authentic Malaysian cuisine. This accessibility could lead to new culinary innovations as chefs and home cooks alike experiment with incorporating Bunga Kantan into a broader range of dishes. The availability of dried Bunga Kantan could introduce a wave of creativity in kitchens around the world, expanding its use far beyond traditional Malaysian recipes. The benefits of this preservation technique also extend beyond the kitchen. For local farmers and suppliers, longer shelf lives translate to reduced waste and increased profits. This method can significantly impact the local economy by providing a stable, year-round supply of Bunga Kantan, which could increase farmer incomes and promote growth in the agricultural sector. Moreover, reducing waste contributes to environmental sustainability, a pressing global concern. By minimising the decay and disposal of unsold flowers, this technique supports more sustainable consumption patterns, which align with broader efforts to combat food waste and promote environmental stewardship.

Preservation of Malaysian Cultural Heritage

Perhaps the most profound impact of this research is its contribution to the preservation of the Malaysian cultural heritage. By ensuring the availability of Bunga Kantan throughout the year, the project helps maintain culinary traditions that might have otherwise been limited by seasonal constraints. Furthermore, it empowers local communities by providing them with the knowledge and tools to sustainably harvest and process Bunga Kantan, fostering a sense of pride and continuity.

Our efforts to extend the shelf life of Bunga Kantan through drying not only address immediate practical concerns but also align with broader sustainability goals. By promoting responsible consumption practices and reducing food waste, this preservation technique contributes to the preservation of biodiversity and the creation of a more sustainable food system. Additionally, the dissemination of this knowledge empowers local communities, fostering self-reliance and resilience in the face of environmental and economic challenges. This inclusive approach ensures that the benefits of this research are widely shared, which promotes equitable access to this cherished ingredient and supports the livelihoods of farmers, suppliers, and culinary professionals. The drying method helps reduce food waste and promote responsible consumption practices, contributing to the preservation of biodiversity and a more sustainable food system. The research team's efforts also empower local communities by equipping

them with effective preservation techniques, fostering self-reliance and resilience. The widespread adoption of this drying method supports the livelihoods of various stakeholders, ensuring equitable access to Bunga Kantan and its culinary and economic benefits.

Looking ahead, the research team at UiTM plans to explore other applications of their drying technique and assess its scalability for other perishable ingredients commonly used in Southeast Asian cuisine. While this study has provided valuable insights, the researchers recognise that there are still avenues for further exploration. Future research could focus on optimising the drying process to enhance efficiency and scalability, as well as investigating the potential health benefits of consuming dried Bunga Kantan. Additionally, studies examining the socio-economic impacts of implementing this preservation technique at the community level would offer valuable insights into its broader implications.

The development of a drying process that effectively extends the shelf life of Bunga Kantan is more than a technological achievement; it is a step towards safeguarding the cultural fabric of Malaysia and promoting sustainable practices within the food industry. As this technique continues to gain traction, it promises to bring a taste of Malaysia to more tables around the world, bridging cultures through the universal language of food.

Nurul Asyikin Md Zaki
School of Chemical Engineering,
College of Engineering, UiTM Shah Alam

Ts Dr Habsah Alwi &
Hanafiah Zainal Abidin
School of Chemical Engineering,
College of Engineering, UiTM Shah Alam

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Department of Research & Innovation,
Level 5, Bangunan Canseleri Tuanku Syed Sirajuddin,
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