Available Online at www.e-iph.co.uk
Indexed in Clarivate Analytics WoS, and ScienceOPEN

E-B
Environment - Behaviour Proceedings Journal

APAF2025Yogyakarta
https://s.id/apaf2025
Asia Pacific Art Forum
Inaugural Symposium 2025
ISI Yogyakarta Indonesia, 23 June 2025

e-IPH
e-International Publishing House Ltd., United Kingdom

Organised by: Institut Seni Indonesia, Yogyakarta, Indonesia,
Australian Indonesian Art Forum, Project 11 Melbourne, & 16 Albermarle Project Space Sydney

Painting Batik with Gutta Tamarind: An exploratory study of media, technique, and visual value

Ariani[1*], Wegig Murwonugroho[1], Anita Armas[1], Woro Asty Werdina[1], Wan Juliana Emeih Wahed[2]
**Corresponding Author*

[1] Faculty of Art and Design, Universitas Trisakti, Jakarta, Indonesia
[2] College of Creative Arts, Universiti Teknologi MARA Sarawak Branch, Malaysia

arianirachman@trisakti.ac.id, wegig@trisakti.ac.id, anita.armas@trisakti.ac.id, woro_asty@trisakti.ac.id, wanjuliana@uitm.edu.my
Tel: +6282111632637

Abstract
This exploratory study examines *gutta* tamarind made from tamarind seed powder (Tamarindus indica L.) as a resist material on a painted batik. This study uses an art-based research approach to explore its visual potential, suitable media, application methods, and technical challenges. The findings indicate that *gutta* tamarind works best on fine-pored fabrics, features an easy application technique, and can produce organic visual effects that enhance batik painting motifs. This study concludes that *gutta* tamarind has considerable promise as an environmentally friendly alternative medium for contemporary batik, enriching artistic approaches based on local materials.

Keywords: Painting batik, *gutta* tamarind, exploratory study

DOI: https://doi.org/10.21834/e-bpj.v10iSI39.7691

1.0 Introduction

In Indonesia, batik art has evolved from a traditional technique into a medium for contemporary exploration of art. It is defined as a patterned fabric applied with particular wax (*lilin batik* or *malam*) on a fabric, which is combined with a certain processing. Over time, batik has become known as a cultural legacy rich in symbolism and an artistic medium encouraging innovation in technique, motifs, and materials. Its key component is using resist materials such as wax, *gutta* tamarind, and other natural compounds. The resist materials limit the flow of color on the fabric, thus allowing the creation of complex and layered motifs. This innovation is relevant for fostering the possibilities for visual expression, enhancing the sustainability of manufacturing techniques, and reconnecting textile art practices with local natural resources.

A fabric can be classified as batik if its production involves using wax (*malam*) as a color resist. In other words, if wax is not used as a part of the resist, a fabric with motifs resembling batik cannot be classified as batik; it would be regarded as a fabric with a batik pattern. In other words, the primary factor distinguishing batik from other patterned fabrics is the use of wax during manufacturing. One batik painting technique on textiles is using cold wax. This technique resembles traditional batik but is simpler because cold wax is a color resist on the fabric. In contrast to the conventional technique, cold wax batik utilizes a paste made from a combination ofion of ingredients instead of heated wax and canting (a pen-like tool used to apply liquid hot wax). Hence, the technique is called cold wax batik (Ariani & Pandanwangi, 2021).

eISSN: 2398-4287 © 2025. The Authors. Published for AMER by e-International Publishing House, Ltd., UK. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/). Peer–review under responsibility of AMER (Association of Malaysian Environment-Behaviour Researchers).
DOI: https://doi.org/10.21834/e-bpj.v10iSI39.7691

The primary material developed for creating cold wax is a mixture of tamarind seed powder with vegetable fat (butter) and water, known as *gutta* tamarind. *Gutta* tamarind presents potential as a natural resist material in batik painting that can prevent or block the color penetration into the fabric fibers. Each resist type has unique characteristics in terms of durability, viscosity, visual effects, and ecological impact. In the context of textile art, experimenting with resist materials contributes to the expansion of the visual language of the work. Such material exploration encourages a deeper understanding of material characteristics, which in turn informs visual expression and creative decision-making (Hossain et al., 2024). This interaction influences visual outcomes and shapes conceptual knowledge and artistic narratives through material-based creative processes. The thick, adhesive texture of *gutta* tamarind and its ability to block color penetration are worthy of further investigation as an alternative medium in contemporary batik painting practices. Additionally, its use widens opportunities for creating more environmentally friendly artistic processes. This study aims to (1) examine the potential of tamarind *gutta* tamarind as an alternative resist material in batik painting, (2) identify effective application techniques in the process of creating batik paintings using *gutta* tamarind, and (3) analyze the visual values that emerge from batik works made using this material.

2.0 Literature Review

2.1 Batik Art and Its Development

Batik is a fabric dyeing technique that employs resist materials to create motifs. This technique has evolved since the era of kingdoms in the Indonesian archipelago and has been recognized by UNESCO as an Intangible Cultural Heritage. Initially, batik was produced using the written wax and stamped wax techniques. However, the contemporary art advancement has facilitated the transformation of these techniques into batik painting, which involves freely drawing motifs directly onto the fabric without a fixed pattern. Batik development has undergone complex dynamics, transitioning from a traditional medium of expression to a component of the creative industry. Changes in the form, function, and meaning of batik reflect the cultural adaptation to the demands of modern times (Setiyoko, 2023). The modernization of batik is driven by market demand and cultural reinterpretation through design and materials (Shaharuddin et al., 2021). A study by Guntur, Ponimin, and Purnomo (2023) revealed that in student final projects, discovering techniques, exploration, and creation of new motifs in contemporary batik demonstrate a strong inclination toward innovation. These studies reflect that batik art has experienced significant development in terms of visual form, working techniques, and the values it embodies. This evolution is influenced by cultural, economic, and individual factors that offer new values of batik as an artistic medium.

2.2 Resist Materials in Textile Technique

The resist method, which involves the application of materials that block dye, is a fundamental technique in textile arts such as batik, *shibori,* and *tie-dye*. This technique has been widely used across various cultures and continues to be adapted in contemporary practices. A study by Azonuche and Emelue (2023) entitled *Effect of Different Resist Substances on Fabric in Batik Production for Household Use* examined several types of resist materials, including wax, paste, and synthetic wax, and their impact on the quality of batik designs. They concluded that varied resist materials lead to differences in motif clarity and the design's durability throughout the dyeing process. Furthermore, Forsman et al. (2020) discussed a *hydrophobic coating* formulation based on *carnauba wax* that can be sprayed onto natural textiles. This demonstrates that natural wax has broad applications as a resist material in modern textiles.

2.3 Gutta Tamarind as an Alternative Media

Tamarind seeds contain 50-60% polysaccharides, significant for medicinal applications and other benefits, including serving as a binder or fiber enhancer in the textile industry. The excellent coagulating properties of tamarind polysaccharides, which facilitate or accelerate the thickening process, have been utilized as an alternative to wax resist in batik painting. The cold wax, in the form of paste (*gutta*), made from a mixture of tamarind flour, butter, and water, is known as *gutta* tamarind. The term *gutta* or *gutha* originates from Hindi (India), meaning “gum”. *Gutta* tamarind is increasingly used as a medium for batik painting, replacing other types of wax due to its practicality and relatively simple production process (Ariani & Pandanwangi, 2021; Budiman et al., 2022).

2.4 Visual Value in Fine Arts

From a fine arts perspective, the visual value refers to formal aspects such as line, color, texture, composition, and rhythm. Previous research indicates that aesthetic appreciation in visual artworks is influenced by the perceptual attributes associated with techniques and visual features of materials, which shape how observers evaluate artistic value (Wu et al., 2025). Therefore, the techniques and materials used in the creative process significantly influence the aesthetic value of the resulting work. Experiments with batik painting techniques using *gutta* tamarind yield formal elements: line, color, texture, and composition, that align with the framework of visual values in fine arts. Visually, organic compositions contribute to an aesthetic experience. In accordance, gradation and contrasting colors evoke visual emotions, as noted in the study by Lowenthal et al. (2020).

3.0 Methodology

This study employs a qualitative approach using an art-based research methodology. This approach was selected because the primary focus of the study lies in artistic experimentation with materials, techniques, and visual outcomes in the process of batik painting using *gutta* tamarind. Art-based research explores and comprehends social and cultural phenomena through art and aesthetics (Leavy, 2025).

The research procedure was designed to allow an in-depth and reflective engagement with the creative process, ensuring that material behavior, technical responses, and visual outcomes could be observed and analyzed comprehensively. The study was conducted over a three-month period and consisted of five sequential stages: (1) preparation, (2) material and technique experimentation, (3) artwork creation, (4) documentation and reflection, and (5) visual analysis. During the preparation stage, *gutta* tamarind was formulated from tamarind seed powder, vegetable fat (butter), and water, and various textile materials were selected based on differences in fiber type and pore structure. The experimentation stage involved applying *gutta* tamarind as a resist medium using different tools and application pressures to observe its viscosity, adhesion, drying behavior, and resistance to color penetration. These experiments were conducted in the researcher's private studio, which functioned as a controlled environment for artistic practice. Throughout the artwork creation process, systematic documentation was carried out through photographs, sketches, and reflective notes to capture changes in material behavior and emerging visual effects. The reflection and analysis stage focused on interpreting the resulting artworks in terms of motif clarity, organic visual qualities, and aesthetic values produced by the interaction between material, technique, and textile surface. This procedural structure ensured that each stage of the creative process contributed meaningfully to data collection and interpretation, thereby justifying the methodological approach used in this study.

4.0 Findings

The findings indicate that *gutta* tamarind is more effective on fine-pored fabrics, easy to apply, and can create organic visual effects that enhance motif clarity. A detailed explanation of these findings is as follows:

4.1 Media Characteristics: Responsive to Smooth Surfaces

As a water-based resist material, Gutta tamarind has relatively small particles and a lightweight liquid consistency. When applied to fabrics with the fine pores (such as *mori primissima* or polyester satin), *gutta* tamarind tends to: (1) spread more controllably; (2) stay closer to the surface fibers, thus remaining on the surface on the fibers; and (3) produce cleaner edges without "bleeding" outside the motif area This contrasts with its behavior on coarse fabrics like linen or canvas, which tend to absorb the resist liquid and thus compromise the clarity of the shapes.

4.2 Application Technique: Easy and Adaptive

Compared to traditional wax, which requires heating, *gutta* tamarind offers several advantages: (1) it is ready to use (without heating); (2) it can be applied using a piping bag or a specialized bottle; and (3) it dries quickly at room temperature and is easy for artists to control, even for beginners. These properties make *gutta* tamarind an accessible and flexible medium for exploring contemporary and experimental batik techniques.

4.3 Visual Effect: Organic yet Directed

The nature of *gutta* tamarind, which does not become completely rigid after drying, allows it to form natural cracks and permits slight color infiltration into the small gaps that develop. This enriches the visual dimension of batik motifs, particularly in: (1) color gradation at the edges of the resist lines; (2) uneven line effects that convey a sense of spontaneity; (3) natural contrasts between areas covered by *gutta* and those that absorb dye. Therefore, *gutta* tamarind serves as a barrier and actively contributes to forming visual value, making motifs appear vibrant, dynamic, and distinctive.

5.0 Discussion

This section discusses the findings of exploring batik painting practices using *gutta* tamarind as a natural resist material. The process was conducted in several stages: it started by identifying the material characteristics, followed by application technique trials, and concluded with an evaluation of the visual value of the resulting artworks. The data presented includes visual documentation, process notes, and the researchers' reflective observations as creative practitioners.

5.1 Media Exploration: Characteristics of Gutta Tamarind

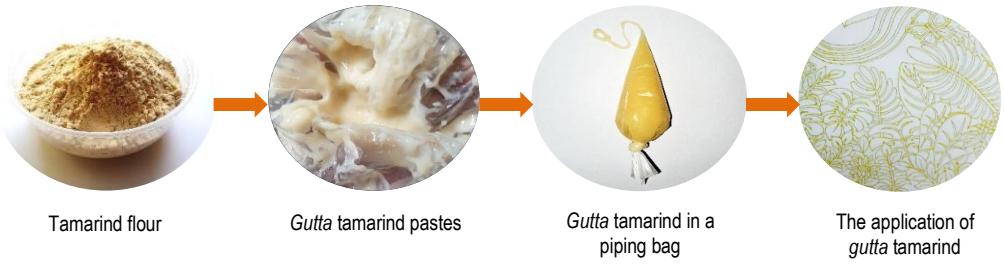


Fig. 1. The process of producing *gutta* tamarind begins with tamarind flour and culminates in its application
(Source: Ariani, 2025)

Visually, *gutta* tamarind has a transparent, light brown appearance with a sticky texture. When applied to the fabric surfaces, it shows good adhesive qualities. When dried, *gutta* forms a reasonably stable color barrier, although it is not as dense as hot wax. Trials on various fabric types indicate that *gutta* tamarind works better on fabrics with fine pores. On coarse or textured fabrics (such as linen), the material tends to absorb into the fibers, reducing the resist effect. The drying process takes 15 to 30 minutes, depending on the application's thickness and the surrounding conditions (humidity and room temperature). Interestingly, this exploration is the emergence of natural crackle effects when *gutta* tamarind is thickly applied and bent or folded before coloring. This effect adds a textural value that is hard to achieve with synthetic resists by producing micro-linear motifs resembling craquelure in old paintings.

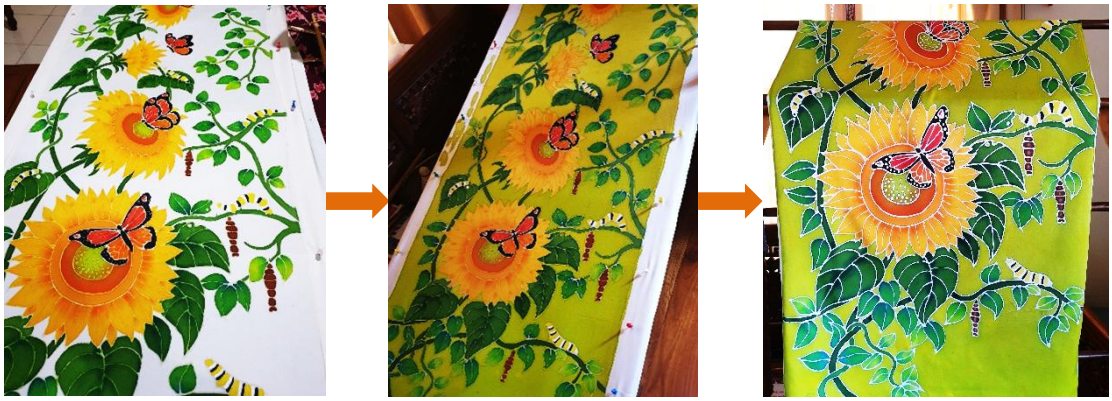
From a sustainability perspective, *gutta* tamarind has the advantage of being a natural, biodegradable substance that poses minimal environmental impact. This characteristic positions *gutta* tamarind within the discourse of eco-art and slow design, where material choice becomes an ethical and conceptual component of artistic practice (Marianto, 2020; Pandanwangi et al., 2021). However, its natural properties also present challenges, as the material lacks durability in liquid form if not stored properly, particularly in airtight containers and cool conditions. Despite these limitations, *gutta* tamarind shows strong potential as an experimental resist medium in batik painting, offering distinctive visual textures and a more environmentally friendly alternative to synthetic materials. Its use also supports interdisciplinary approaches and practical applications in art and design education focused on sustainable, process-based practices.

5.2 Application Techniques in Batik Painting with Gutta Tamarind

The techniques exploration was conducted through a hands-on approach using *gutta* tamarind as the primary resist material. The application process was carried out in the stages to evaluate the material's ability to form color boundaries, create motif lines, and produce distinctive visual effects. This process began with the preparation of materials and tools, which included polyester satin fabric, *gutta* tamarind in a piping bag and *canting* (pen) bottle, and a frame to stretch the fabric. Subsequently, the technique for applying *gutta* tamarind was executed similarly to the application of batik wax. Using a piping bag resulted in lines that appeared more fluid and occasionally widened, depending on the viscosity of the *gutta* and the sensitivity of the pressure applied while squeezing the piping bag. An advantage of this technique is the creation of an organic impression that lacks rigidity. In contrast, the application with a canting bottle produced more consistent lines but required significant finger strength to press the bottle and release the *gutta,* as shown in Figure 2.

Fig. 2. Application of gutta tamarind using a canting bottle
(Source: Ariani, 2025)

Once the *gutta* had dried completely, dyes (both natural and synthetic) were applied using a brush. The dye penetrated all areas except those covered by the *gutta*. This process concluded with drying and color fixation, which could be achieved through steam ironing or immersion in a fixative solution, depending on the type of dye used. The final stage involved dissolving the *gutta* tamarind with warm water and rinsing the fabric until clean. Drying was performed by air-drying while avoiding direct sunlight. The result contrasts the areas protected by the *gutta* with those that absorbed the dye. The dyeing and drying process can be seen in Figure 3 below, while the final result can be seen in Figure 4.



(a) (b) (c)
Fig. 3. (a) and (b) The coloring process with *gutta* color barriers; (c) and after the *gutta* is cleaned
(Source: Ariani, 2025)

(a) (b)

Fig. 4. (a) Batik painting before *gutta* tamarind is cleaned; (b) after washing until the gutta is removed
(Source: Ariani, 2025)

5.3 Analysis of Artwork Value

The exploration of batik painting techniques using *gutta* tamarind reveals a diversity of visual forms that depend not only on motifs but also on the interaction between materials, media, and application techniques. In this context, visual value was assessed from an aesthetic perspective and through expressive, symbolic, and innovative dimensions. The lines produced by *gutta* tamarind possess distinctive characteristics: they are organic, irregular, and often exhibit density variations due to the material's natural viscosity. Unlike traditional wax or synthetic *gutta*, which tend to be rigid and precise, *gutta* tamarind creates more fluid and expressive forms, enriching the gestural quality of the artwork. The colors in batik paintings were determined by the effectiveness of gutta as a barrier. In thin applications, *gutta* allows some color to penetrate, resulting in soft gradients or semi-transparent effects. This introduces a visual dynamism less common in traditional batik, which typically relies on sharp color boundaries. Layering effects also become prominent when multiple techniques are combined. *Gutta* serves as a color protector and a tool for creating illusions of depth, rhythm, and visual cadence within the composition.

Experimental works demonstrate intriguing variations in surface texture. When dried, *gutta* tamarind can leave a thin, glossy layer or thicken to create a relief-like effect on the fabric. This texture provides a unique visual and tactile experience, transforming the artwork into a multisensory medium. Some pieces consciously utilize negative space—areas left uncolored or unpatterned—to highlight the main forms. This indicates that the use of *gutta* functions not only as a boundary tool but also as a compositional strategy. Overall, the visual value generated from this experimentation highlights the potential of *gutta* tamarind as a unique medium for artistic expression. The organic forms, unpredictable outcomes, and challenging visual qualities contribute to creating contemporary works. This exploration also encourages a reinterpretation of batik techniques, shifting from repetitive and ornamental practices to more expressive, intuitive, and individual approaches. Therefore, visual value emerges in formal aspects and as part of an artistic approach that offers new narratives within textile art.

6.0 Conclusion

Through an exploratory, practice-based approach, this study demonstrates that *gutta* tamarind, a natural material derived from tamarind seeds, can function effectively as a resist medium in batik painting, producing distinctive textures and visual effects relevant to contemporary artistic expression. Technically, *gutta* tamarind is capable of forming color boundaries; however, several limitations were identified, including lower resistance to water compared to synthetic media, reduced line stability on coarse fabrics, and limited shelf life in liquid form without controlled storage conditions. These constraints affect consistency and reproducibility, particularly for large-scale or long-term applications. Nevertheless, such limitations also encourage experimental and intuitive approaches, expanding the expressive and material possibilities of textile art. The visual value of the resulting artworks lies not only in formal elements, such as line, color, and composition, but also in surface texture, layering depth, and organic irregularities, which contribute to a more fluid and process-oriented aesthetic. This finding suggests that locally sourced natural materials like *gutta* tamarind can reposition batik as a dynamic and evolving medium beyond repetitive ornamental traditions.

In addition to contributing to contemporary visual art practices, this study offers sustainable and environmentally friendly alternatives, aligning with eco-art and slow design principles. To strengthen and extend these findings, future research should adopt more concrete and measurable strategies, including systematic material formulation experiments to improve adhesion, viscosity control, and storage stability, evaluated through repeated application and wash-resistance testing. Further studies should also expand experimentation

across diverse textile media to assess performance consistency and visual outcomes. New research directions may prioritize interdisciplinary collaboration between artists, material scientists, and textile educators, employing mixed methods that integrate studio-based experimentation, material analysis, and pedagogical case studies. Applied research involving educational settings or small-scale industry trials would further clarify the potential of *gutta* tamarind for broader adoption, positioning it as a point of convergence between art practice, sustainability, and innovation in contemporary textile research.

Acknowledgement
The authors would like to express sincere gratitude to Faculty of Art and Design, Universitas Trisakti, for the academic support and encouragement throughout the development of this research. Special thanks are also extended to the Dean of the Faculty of Art and Design, Universitas Trisakti, for providing the institutional support that enabled this study. Furthermore, the authors deeply appreciate the Research and Community Service Institute (LPPM, Lembaga Penelitian dan Pengabdian kepada Masyarakat) of Universitas Trisakti for its valuable facilitation and support in the research process and publication of this article.

Paper Contribution to Related Field of Study
This paper contributes to the field of Product Design by introducing tamarind-based *gutta* as an alternative medium in batik-making. It highlights the potential of local, natural materials in creative processes. It supports integrating Nusantara cultural values into design practices and encourages sustainable, culturally rooted product development.

References

Ariani, A and Pandanwangi, A. (2021). Eco-friendly batik painting wax made from tamarind seed powder (Tamarindus indica L.). *Earth and Environmental Science* 737(1). DOI 10.1088/1755-1315/737/1/012069

Azonuche, J. E. and Emelue, F. (2023). Effect of different resist substances on fabric in batik production for household use. *Nigeria Journal of Home Economics* (Nig.JHEC). 2(1), 100-110.

Budiman, I., Alya, S. H., & Pandanwangi, A. (2022). Gutta tamarind: Menciptakan karya seni dengan bahan ramah lingkungan. *Jurnal Bahasa Rupa*, *5*(2), 166–176. https://doi.org/10.31598/bahasarupa.v5i2.960

Forsman, N., Johansson, L.S., Koivula, H., Tuure, M., Kääriäinen, P., Österberg, M. (2020). Open coating with natural wax particles enables scalable, non-toxic hydrophobation of cellulose-based textiles. *Carbohydrate Polymers*. 227, 115363. https://doi.org/10.1016/j.carbpol.2019.115363

Guntur, M., Ponimin, & Purnomo, D. (2023). Innovation and creativity in batik motif design: A Study of students' art theses. *Creativity Studies*, 16(1), 13–21. https://doi.org/10.3846/cs.2023.14838

Hossain, M. T., Shahid, M. A., Limon, M. G. M., Hossain, I., Mahmud, N. (2024). Techniques, applications, and challenges in textiles for a sustainable future. Journal of Open Innovation: Technology, Market, and Complexity, 10(1), 1-17. https://doi.org/10.1016/j.joitmc.2024.100230

Leavy, P. (2025). *Handbook of Arts-Based Research (Second Edition)*. New York: Guilford Publications

Lowenthal, E., Matesva, M., Marukutira, T. (2020). Psychological reactance is a novel risk factor for adolescent antiretroviral treatment failure. *AIDS and Behavior*, 25, 1474–1479. 10.1007/s10461-020-02986-z

Marianto, M. D. (2020). Ecoart through various approaches. *Journal of Urban Society's Arts,* 7(1), p. 21-29. doi:https://doi.org/10.24821/jousa.v7i1.4084.

Pandanwangi, A., Rianingrum, C. J., Damayanti, N., Rahmat, A. (2021). The icon of local culture: Downstream of tamarind waste as a superior motif barrier in Indonesia. *Turkish Journal of Computer and Mathematics Education,* 12(13), 1524-1535. https://doi.org/10.17762/turcomat.v12i13.8781

Shaharuddin, S. I. S., Shamsuddin, M. S., Drahman, M. H., Hasan, Z., Mohd Asri, N. A., Nordin, A. A., & Shaffiar, N. M. (2021). A Review on the Malaysian and Indonesian batik production, challenges, and innovations in the 21st Century. *SAGE Open*, 11(3). https://doi.org/10.1177/21582440211040128.

Setiyoko, T. (2023). Batik Pacitan: Kontinuitas dan perubahannya. *Jurnal Kajian Seni*, 10(1), 1–14.

Wu, J., Abd. Shukor, S. F., Hasna, M. F., Daud M. N. (2025). Comparative analysis of aesthetic preferences in Chinese freehand paintings among Chinese retired elders beyond gender. *Scientific Reports,* 15, 11567. https://doi.org/10.1038/s41598-025-96353-4