



Natural Fabric with Pineapple Fibres used as a Batik Medium

Mohamad Fareez Azuan ¹, Mohd Azhar Samin ^{2*}, Rafeah Legino ³

¹ Management Science University, Seksyen 13, Shah Alam 40100 Selangor, Malaysia

² Design Study: Textile Design, College of Creative Arts, Universiti Teknologi MARA 40450 Shah Alam, Selangor, Malaysia

³ Formgiving Design Research Group, College of Creative Arts, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia

*Corresponding Author

mohdfareez_azuan@msu.edu.my, azharsamin@uitm.edu.my, rafeahl@uitm.edu.my
Tel: +60137199517

Abstract

This study is about the pineapple fibre (natural fibre fabric) utilized in Malaysia Batik products. The history of Pineapple Leaf Fibre in Malaya started in 1938s. Along with Malaysia's textile development, pineapple leaf fibres have begun to be used as raw material for textile production. This study aims to identify the sustainability of Pineapple fibre in the Malaysian batik industry. This research used field study methods, library studies, and interviews. The novelty of this study is to create awareness and acceptance among Malay batik producers towards the use of natural Pineapple fabric.

Keywords: Batik; Fabric; Pineapple Fibres; Natural; Medium

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DOI: <https://doi.org/10.21834/ebpj.v7iS18.3923>

1.0 Introduction

This study is part of a larger ongoing research project in the Malaysian textiles industry on the natural fibre fabric of pineapple fibres. The research began with a thorough examination of the potential of pineapple fibres as a batik medium, which had previously been investigated. Resources took the review of related literature and the support of visuals in the context of textile growth in this country into consideration. The mapping method in how the history of textile and development from other countries represented new potential within fabric and technology was clearly defined during the review process. Then, from different textile techniques, an overview of the method, technical, exploration, and invention are explored and contributed to this study. The conclusions can be derived from the history of the textile compilation process, which includes technological development, investigation, and invention that has been established from various sources. According to historical studies, textiles have progressed in tandem with the development of other aspects of human society. Textiles are an inextricable part of Malay culture, and they serve as a reflection of the Malay people's intelligence and creativity (Ismail, 1990; Hussin, 2016). Its composition, design, colours, and philosophy are all essential in textiles, so batik is so popular (Kerlounge, 2004). How it is made and the functions it performs reveal the national character. Saree and batik are two Malaysian words that have made their way into the English language, where they are recognized and understood by the vast majority of non-Malays around the world. This vibrant fabric serves as Malaysia's national textile. Kelantan and Terengganu, two Malaysian states on the country's east coast, were among the first to develop the batik industry and are among the most well-known for their batik production. It is common for the batik handcraft process to involve using a wax-resistant fabric. The hot wax application is used to design motifs on the fabric before subsequent dyeing or hand painting is carried out (Malaysian Handicraft Development Corporation, 2007). Thus, the pineapple fiber is not widely used and is well known in Malaysia compared to bamboo fibre which has always been marketed by the Japanese approach in textile and clothing lines (Eco-friendly garment, 2019). Therefore, the future textile will evolve by using natural pineapple fibre from our

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local country as alternatives to the batik-making industry. Some batik entrepreneurs now produce their own batik fabric based on pineapple fibre, and some also import it from neighbouring countries such as Cambodia and Vietnam. The fabric is said to have various advantages, and it also encourages Kota Batik (formerly known as AF Batik Arts) to market batik clothing designs in Malaysia. The founder and director, Aizat Daniel Daud shared the scenario where although batik clothes made of pineapple fibre have just been introduced to the market, it has their own group of enthusiasts. This is because the fabric has various features; among them, it is challenging to crumple and looks neat even though it is worn all day. The above review provides strong justification that Pineapple Leaf fabric should be utilized in the future of local batik making in Malaysia. Moreover, unlike silk fabrics that require meticulous care and dry cleaning, batik from pineapple fibre can be washed using a washing machine. This study aims to support our local natural pineapple leaf fabric in Malay batik products.

2.0 Literature Review

The term "natural fibre" refers to any type of fibre that originates from the natural world, including mineral, animal, and vegetable fibre. At this point, the source of petroleum products is quite restricted and fraught with doubt. As a result of this issue, many enterprises and research institutions have decided to locate an alternate method that is both affordable and sustainable. In addition to that, the alternative method must also be able to get that easily accessible primary material (Brundtland, 1987). Naturally occurring fibres are always present in the environment, and always present in significant amounts is the real benefit of using them. The sole individual accountable for cultivating the plants and rearing the animals is man. Because of the one-of-a-kind qualities of their fibres, natural fibres are regarded as superior to artificial fibres in several different aspects. Some of the natural fibres may be coloured easily and do not require much money to do so. When utilized in this manner, they rapidly absorb moisture and perspiration, offer good body comfort, resist total melting, do not generate static charges while being processed, and do not have any dermatological effect on human skin. It is not difficult to sew, and the seams will not come undone easily. The pineapple plant leaves are used to extract the soft fibre known as pineapple fibre, which is then spun into yarn. The mature leaves are put through a machine called a decorticating machine, which is a device that shreds the leaves into minute bits, and this is how the product is created. It is sometimes blended with silk or polyester in the production of textile materials to produce a more opulent appearance. Leaves are a waste product that is produced by the pineapple industry. These leaves have the potential to be transformed into fibre and sold on the contract market. A significant portion of the world's pineapple crop is grown in Asia, most notably in the Philippines. In general, pineapple fibres have at least one of the following components: lipids, waxes, pectin, hemicellulose, cellulose, and lignin, to name just a few examples.

Pineapples are fermented into alcohol by the Indians, who also eat the fruit in their diet and use it to produce wine. The process of creating wine was commonplace throughout the entirety of the nation. Therefore, the Indians had also researched the pineapple and developed a belief in certain medicinal qualities of the fruit because the early explorers and settlers frequently wrote about the benefits of the pineapple in the Treatment of specific human disorders. This led to the Indians researching the pineapple and developing their belief in the fruit's medicinal properties. It is unlikely that the Europeans could have independently formed such views within such a short period after becoming familiar with the fruit. In the Philippines, artisan artisans have been producing fabric out of the fibre that is extracted from pineapple leaves for a very long time. Because of this, pineapple fibre is regarded as having a more refined and delicate feel than any other type of vegetable fibre. One kilogram of leaves can produce up to fifteen to eighteen pieces of silk fibre around sixty centimetres in length, is white, creamy, and shiny, and readily holds colours. From the very beginning to the very conclusion of the procedure, up to thirty different persons are involved in the laborious and time-consuming process. A broken plate or coconut shell is used as a scraper to remove the fibres from the leaf. A quick scraper can remove fibre from more than 500 leaves every day. After the fibre has been extracted, it is cleaned and then dried in the open air. After that, the entanglements are removed by waxing the fibres, and then the fibres are twisted and bundled into skeins in preparation for the subsequent step, which involves weaving the yarns into the cloth. Fabrics made of pineapples are used to make barong Tagalog and other types of formal dress. It is also used in various items for which a lightweight cloth that is also stiff and sheer is required (Mahapatra, 2019).

Pineapple fiber is often white or ivory in colour, and it is softer and has a more excellent gloss than other types of fibre. It is lightweight and straightforward to care for, and it has a beautiful appearance that is comparable to that of linen, which is an ivory-white colour that has a natural glossy finish. A more extraordinary shine is used to produce this dreamy and delicate fabric (Wijana et al., 2016). Pineapple silk is the fabric of choice for the most affluent members of Philippine society and is often regarded as the "queen" of Philippine textiles. Because it is pliable, long-lasting, and resistant to moisture, pine fabric is an excellent material for use in mats, bags, and garments. The leaves separate from one another mechanically by scratching, while rolling is controlled by the leaves by soaking in water and so allowing bacteria to attack (beating). The fibres are substantially more rigid and longer than cotton and are made up of cellulosic bundles of cells. In addition, the production of pina fabric is a laborious process that takes a significant amount of time and is highly costly in the laboratory. On the other hand, when individuals wore garments that were manufactured from the fabric itself, they reported that the outfits felt and looked quite excellent. Pineapple fabric is frequently combined with other materials, like cotton, abaca, and silk, to produce excellent lightweight and airy garments. Therefore, when woven with silk, dubbed pina-silk, when the pina is blended with the abaca fabric, the strength and sheerness are less expensive than when using 100 per cent pina. Pina-silk is woven with silk. In several different civilizations, including the Philippines, pineapple leaves are woven into textiles to serve the primary purpose of Red Spanish pina is traditionally utilized to produce expensive textiles such as traditional Barong Tagalog, wedding clothing for both ladies and men, kimonos, and gowns. This practice dates back centuries. In the Philippines, one of the most common uses for pina fabric is in the production of barong Tagalog. Calado is a hand embroidery technique that has been used for generations to embellish the cloth. Pina Calado is the name given to a Pina garment with embroidery. The natural colours of these hand-woven textiles come from vegetable dyes extracted

from the bark and leaves of various plants. Pina fibre is frequently combined with cotton, abaca, and silk to create incredible textiles that are incredibly airy and lightweight (Delacruz, 2020). The Malayan Pineapple industry was founded before the turn of the century. In the early days, this industry was associated with the rubber industry. In 1938, a move began to transfer pineapple cultivation to the deep peat soils following its virtual destruction during the Japanese occupation of Malaya. The industry is now developing almost exclusively on these soils. The usefulness of the pineapple plantation on these soils was five to six years. According to the Ministry of Agriculture Malaya (1959), at the end of 1956, the total area planted with pineapples in the Federation of Malaya was about 44,800 acres. Export of canned pineapples and canned pineapple juice from the Federation and Singapore in 1956 were valued at 31,670 000 dollars. Nearly all the fruit processed by Singapore canneries was grown in the Federation. In the early stages of growth, the pineapple grows vegetatively, producing many formed flowers, which in turn produce the individual berry-like fruits, which together compose the pineapple.

Previous research from Wahab et al. (2008) claimed that there is potential for using "Pandan" leaf fibre in textile weaving and that the manufacture of pandan leaves might serve as a novel concept for textile weaving products. His potential should be brought to light to produce the weave in several different textures. Research is being conducted in Malaysia on the potential use of pineapple leaf fibre as an alternative to synthetic plastic. This is due to the biodegradability and sustainability of pineapple leaf fibre. Because pineapple waste is one example, Yusof et al. (2015) use the sugar in pineapple trash as a carbon source for bacteria to use in the construction of biopolymers. Because pineapple waste contains sucrose, glucose, and fructose, in addition to other nutrients necessary for the production of bioplastics, pineapple waste is one of the examples of food waste that can produce P. (3HB). During their time in Pasir Gudang, Johor, Ibrahim Sultan Polytechnic (PIS) was inspired to begin manufacturing products based on fibre yarn. These products include traditional textile songkets, woven fabrics, ties, and other types of handicrafts. The project, which began in 2011, uses premium items that can be made from pineapple trash. These products may be sold for lucrative prices; in addition, Johor has the highest pineapple crop area of any state in any state Malaysia. Additionally, PIS's pineapple fibre yarn handicrafts are famous in international markets like the United States of America (US), China, and Japan.

Ismail (1990) stated that the process of modernizing batik's concepts, techniques, and philosophies has resulted in the art form's expansion outside its original environment. The art of batik evolved alongside society and culture with time, both of which are in a state of perpetual flux. The beauty that can only be found in that garment indicates the wearer's status. Batik has moved its concept according to the concept of the Western artistic tradition of batik painting which is the decoration of the gallery wall or offices, hotels, or even as living room wall decorations of houses middle society and changes in the shape and function of batik occur due to the changing of the times, the replacement of generations, the influence of western culture, and the advancement of modern technology (Ismail, 1994). The desires and values of modern society are reflected in the transformation that has taken place in the form and function of contemporary batik art. Therefore, the specialization of its manufacturing procedures and the harmonious arrangement theme that represents the community make it possible for contemporary painters to work on it. Derahman (2021) mentioned that they have many potential alternative materials that we can utilize as a medium for manufacturing batik in the textiles industry. Pineapple fabric, which is formed from pineapple fibres, is one of these prospective materials. While Shukri (2021) states that our local textiles industries require new exploration materials that can be utilized in the production of local batik and that can represent our country for new exploration batik on an international level, this statement is in contradiction to the fact that our local textiles industries require new exploration materials.

3.0 Research Methodology

The objectives of this study are to identify the sustainability of Pineapple fibre in the Malaysian batik industry. To make a better understanding of this study researcher will create the data collection by qualitative method through primary and secondary data, which is many research results through field studies by engaging in the Malaysian sustainable pineapple fibres and study about the documentation of the natural fabric of pineapple fibres as batik medium in Malaysia from the library and internet sources. Analysis of some example batik products produced from pineapple fabric was discussed.

4.0 Finding and Discussion

Based on this study, selected batik works are classified through the utilization of natural fabric with pineapple fibres into batik products in 2020. The research on the sustainability of pineapple fibre is aimed to contribute to the body of knowledge on economic growth, sociology aspect, and sciences with technology. Based on AF Batiks, which is owned by new generations, Aizat Daniel created his identity by utilizing the pineapple fabric with block batik techniques and using pastel colours to attract the buyer. In the interview with Aizat Daniel (2020), there has 17 characteristics depict the effect and the attribution of the pineapple fibre such as natural gloss, no need treatment, easy to wash, wear-resistance, Ecotextile, lustrous, delicate, translucent, anti-wrinkles, easily machine wash, pastel colours, weather resistance, long-lasting, more natural look of batik. Easy to dyed, sweat-absorbent, and breathable. Thus, the pineapple fabric can be replaced with the commercial fabric that had been used in batik making because the sustainability approach and pertaining the high-quality outcome of the batik products resulted from the batik producer who already experimented with the pineapple fabric by using batik techniques. Based on the discussion, this batik work from AF batik employed the technique of block batik. The modern touch incorporates interesting elements and principles of art, unity, and contrast. The colour combination employed is pastel colours on a pastel background that matches the current style of clothing, which is functional for the younger generation and focuses on the Islamic influence as per demand. The subject matter is from Flora (nature). The designs were created based on the block batik maker's idea without reference to the traditional motif. They imitated the motifs with stylization based on the purpose of being different from the

previous block batik makers. The aesthetic value, as well as the beauty of the traditional Malay design, are not portrayed. Overall, a guideline for motif and design of block batik into the Pineapple Cotton needs to be produced. In the guideline, it is suggested to use more extra wax through the wax application process and with a combination of exploration colours to get a strong motif and design and also a strong effect of colours.

The existence of this natural pineapple fibre is made known to the local batik producer, who needs to be explored and cherished so that it will improve the sustainability approach in local batik making. Furthermore, this exciting finding needs to be made known to society because this pineapple fabric will contribute to the economic aspect of Malaysia. Moreover, the significant findings must be shared with society to attract affection toward pineapple batik fabric, which is a new experience for batik lovers, especially tourists, to know and learn about this local particular fabric and batik designs. As a result, the local textile and tourism industry will flourish and contribute to Malaysia's economic growth. These findings and discussion also will unite all the batik practitioners and producers to explore different natural fibres to make our local batik products more memorable in the market; in addition, this important finding will create awareness among batik producers to extend the knowledge with the modern textile technology so that can be extended to the next generation as part of their heritage. Based on the discussion, Table 1 shows the function of Pineapple fabric in Batik Products. There are 5 functions of Pineapple fabric in the textile industry. The finding is important to profile the function of the pineapple fabric so that society, especially batik producers, will recognize and know more about the outcome while they are using the pineapple fabric in their batik products.

Table 1: The function of Pineapple fabric in Batik Products.

1. Natural Gloss (Similar to silk) Alan Sahroni,2020	9. Anti-Wrinkles Aizat Daniel,2020
2.No need Treatment Alan Sahroni,2020	10.Easily Machine Wash Aizat Daniel,2020
3. Easy to wash and care Alan Sahroni,2020	11.Pastel Colours (Suitability of colours) Aizat Daniel,2020
4. Wear-Resistant Alan Sahroni,2020	12.Weather Resistance Aizat Daniel,2020
5.Eco-Textile (Character) Alan Sahroni,2020	13.Long Lasting Aizat Daniel,2020
6.The fiber long, lustrous, Fine Alan Sahroni,2020	14.More natural look (Batik) Aizat Daniel,2020
7.Delicate Alan Sahroni,2020	15.Sweat Absorbent R&Gaurav,2013
8. Translucent Alan Sahroni,2020	16.Easy to dyed (Absorption) R&Gaurav,2013
	17.Breathable R&Gaurav,2013

5.0 Conclusion

To sum up, this ongoing study has recognized the natural fabric with pineapple fibres as a batik medium. Based on the literature review and contributed to the finding and discussion that includes the batik work from AF Batik that has explored the alternatives pineapple fabric as part of local batik making. This great acceptance from society, mainly at the global level, proves the need for natural fibre that can be used by our current society that can utilize and seek the potential of an alternative pineapple fibre in batik making. Collectively, this study outlined a discussion related to how pineapple fabric has been explored previously.

Acknowledgements

Thousands of gratitude and appreciation to IPSIS Universiti Teknologi MARA, (UiTM) Shah Alam, Selangor and the people who were involved and have collaborated in the completion of this study.

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