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The Feasibility of Songket Weaving with Pineapple Fiber to Be A Fashion Product

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Abstract

Songket woven fabrics in West Sumatra, called Minangkabau Songket, are generally woven from cotton and silk threads. It is still used limitedly for traditional ceremonies and ceremonial events. For the Songket woven fabric to be accepted by the global community, innovations are needed, both in terms of materials and in terms of technique, and color. So this research is a test of the development of Minangkabau Songket woven fabrics with material innovation, namely the transfer of Songket woven materials with pineapple fibers. Pineapple fiber was chosen as a development test because pineapple fiber is strong and can be woven. The findings obtained in the field become a reference for the development of the Songket woven fabric innovation. Data were also obtained directly when the test was carried out in the field. Research results 1) The development of woven fabrics based on pineapple fiber is stated to be very strong and suitable as the basic material for Songket weaving. 2) The feasibility of innovative pineapple fiber woven fabric product is feasible as a development of the Minangkabau Songket woven fabric. 3) The feasibility of Songket weaving to become a fashion product, is very feasible to develop. Therefore, the innovation of Songket-woven fabrics by transferring materials with pineapple fibers can be developed into fashion products.

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INTRODUCTION

To develop the Minangkabau *Songket* woven fabric into the global market into a fashion product, it is necessary to innovate through various strategies. [1] strategies in development ranging from the development of forms, technology, transfer of raw materials, and marketing techniques. The development of *Songket*-woven fabrics through the transfer of materials and technology is related to the

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weaving process. For the process of developing handicraft products to be able to compete in marketing, various preparations need to be made, starting from the selection of raw materials, production equipment, and the ability of the workforce, to marketing techniques [2]. So in this study, pineapple fiber is included as the basic material for *Songket* weaving [3]. Pineapple-leaf fiber is a type of fiber derived from plants (vegetable fiber) that is obtained from the leaves of the pineapple plant. The shape of pineapple leaves resembles a sharpened sword at the end with a blackish-green color and on the edge of the leaf, there are sharp thorns. Depending on the plant species or variety, the length of pineapple leaves ranges from 55 to 75 cm with a width of 3.1 to 5.3 cm and a leaf thickness of 0.18 to 0.27 cm. From the test of the toughness of the pineapple fibers, the pineapple fiber is suitable as the base material for *Songket* woven fabrics.

Incorporating pineapple fiber elements into the *Songket* woven cloth gave birth to innovations in the Minangkabau *Songket* woven fabric. In this research, we conducted a test for the development of *Songket* weavings by transferring materials from cotton and silk to pineapple fibers. It is hoped that the Minangkabau *Songket* woven cloth will no longer be used only in traditional ceremonies and certain events but be used for various occasions and purposes for fashion products that can be used by the global community. Below is formulated the following problem: How is the feasibility of woven fabric products with the innovation of material transfer with pineapple fibers in Minangkabau *Songket* weavings, which include 1) the toughness of pineapple fibers into *Songket* fabrics; 2) feasibility tests for *Songket*-woven fabrics with pineapple fiber innovations; and 3) the feasibility of *Songket* woven products with pineapple fiber innovation as a fashion product.

DISCUSSIONS

Fabric Minangkabau traditional *Songket* weavings generally function as traditional cloth, which is closely related to the values of the Minangkabau cultural philosophy [4]. Inside every sheet of old *Songket* (tradition) can be seen the life force and creative power of the Minangkabau ancestors in continuing and reviving their culture, through strands for the sake of the strands woven in a fine technique [5][6]. Along with developments, and socio-cultural and technological changes in the community, the *Songket* woven cloth as a customary cloth changed. The variety of fabrics produced by industrial technology at easy-to-reach prices makes consumers replace *Songket* fabrics with other fabrics in the textile market. The traditional *Songket* cloth used in traditional ceremonies is no longer visible in Minangkabau society [7]. In addition, the technological factor that still uses ATBM looms causes high production costs and also influences the price of *Songket* woven fabrics [9].

Technically [10] add, *Songket* is woven by weaving weft threads and gold-colored threads on thousands of loose threads that run across the loom called panta. Seeing the *Songket* woven cloth is a social order in life, the perception of traditional rituals and cultural ceremonies. For this reason, it is necessary to do an effort to make traditional *Songket* woven fabrics re-exist as customary fabrics, once the *Songket* woven fabrics must also develop as a creative product that can compete in the global market. The technique and material of the *Songket*-woven cloth should also experience developments that require weaving craftsmen to have the ability to create a new *Songket* as a characteristic or *Songket* identity [11]. Besides that, the product quality also needs to be improved. *Songket* entrepreneurs must be able to develop products related to motives, and better raw materials for making *Songket* so that *Songket*

products are increasingly in demand by consumers. This development must be supported by appropriate technology in producing and marketing *Songket* so that it can be more widely known by consumers [1].

The same thing also happened to the *Songket* craftsmen in Karangasem Bali, namely, there are three factors behind the *Songket* weaving craftsmen to produce traditional motifs and modern motifs seen from cultural factors, economic factors, and environmental factors. The problems faced are, until now, the weaving tools are not functioning well due to the age of processing looms, the management of raw materials and produce results that have not been properly managed, and the *Songket* weaving motifs are less varied [12][13]. To develop *Songket* woven fabrics, it is necessary to innovate in terms of technique, materials, and decoration because innovation is a challenge going forward, innovation is closely related to creativity that produces work that is new and useful [2]. So it is clear that innovation can occur when there is creativity to give birth to a product or develop it so that it becomes a new work or object. In Minangkabau *Songket* weaving, in terms of product development, there are not many innovations. Woven fabrics are generally still made in the form of a sarong or scarf, but in terms of motifs, there is a shift in motifs [14]. In this study, the *Songket* woven fabric innovation is expected to develop by market demands. One of them is developing in terms of the basic material of woven fabrics.

Minangkabau *Songket* development through innovation can increase competitiveness in marketing. The same thing is done by the woven fabric entrepreneur *Endek* in Klungkung Bali, competitive advantage through innovation is a mediating variable in the *Endek* fabric industry, the owner or manager of the *Endek* fabric business needs to innovate which in turn can create a competitive advantage for the company [15]. Product innovation affects product excellence which becomes competitiveness. Innovations are also carried out in the development of motifs and layout of motifs on products. Motifs are adjusted to the objects made, design, size, and shape. On the other hand, industries that are not able to increase competitiveness will be left behind by similar industries that carry out development innovations. It is necessary to innovate to improve product quality because low quality causes difficulties in increasing selling power. The inability to increase competitiveness is because the industry has various limitations, such as a lack of ability to adapt to the environment, a lack of ability to read business opportunities, and a lack of innovation in anticipating various environmental challenges.

In the creative industry, the innovation factor is a very determining part and is the main capital for craftsmen in facing market competition. However, the quality, technique, and quality factors cannot be ignored. The ability to generate new ideas needs to be honed and improved, and the creative industry also needs to have quality resources. Innovation can only be done through techniques, materials, and decorations. So in this study, the *Songket* weave innovation was carried out by changing the material. decoration. From product innovation, it is hoped that a variety of new products will emerge, so that the shape and usage of *Songket* weaving can be more diverse, not only for sarongs and scarves used for traditional ceremonies and official occasions but *Songket* weavings can also be used for fashion products.

The addition of 10-40% pineapple fiber nano cellulose can increase tensile strength, but the addition of up to 50% decreases the elongation value. Pineapple leaf fiber has a fairly large chemical composition. Taking fiber from pineapple leaves can be done by hand, namely by hand (manually) or do a decorticator. In general, rural people sting pineapple leaves in the decomposing water. The most common and practical ways are water retting and scraping processes or manually. Water retting is a

process carried out by microorganisms (bacterial action) to separate or rot the gummy substances that are around the fibers of pineapple leaves so that the fibers will easily separate and break down from one another [5]. The results of the research on the strength of pineapple fiber obtained that the composite that has the highest tensile strength at the weight fraction of 40% is 12.587 MPa [5][6]. The strength test on the fibers showed that the fabric tear strength test showed that a fabric made of 50% pineapple leaf fiber: 50% cotton had a higher tear strength with a value.

The pineapple fiber resistance test was also carried out with the hand lay-up method with fiber volume fractions of 10%, 20%, 30%, and 40% with short fiber orientation in the direction and random direction of pineapple leaves. Specimen testing was carried out using the ASTM D3039 standard tensile strength test. As a result, it is known that the tensile strength of the composites increases with increasing fiber volume fraction for unidirectional fiber orientation, but more to the random orientation of short fibers. Meanwhile, the tensile strain of the composite increased with increasing vapor volume fraction for both orientations of pineapple fiber fibers. From the test, the strength of the pineapple fibers above, the pineapple fibers, the authors conclude that pineapple fibers are suitable as the basic material for *Songket* woven fabrics. Incorporating pineapple fiber elements into the Minangkabau *Songket* woven fabric will give birth to innovations in the Minangkabau *Songket* woven fabric. In the research that has been carried out, tests on the development of *Songket* weavings have been carried out by transferring materials from cotton and silk to pineapple fibers. The development test of *Songket* woven cloth with the base material of pineapple fiber has been carried out using the weaving process using an ATBM loom.

The weaving process that has been carried out is as follows: 1) begins with sealing the threads or unraveling the threads; 2) *Penghanian*, arranging the threads according to the width of the fabric on the loom, *Penghanian* is carried out to determine the length of the functional thread and determine the desired fabric width, then the thread which has been rolled into a tool such as a roller is called a gun; 3) the installation of the gun is carried out after the thread stretch is evenly distributed, the gun springs consist of threads that are tied to the threads of the threaded pole; and 4) Putting the yarn in binoculars or woven *Turak*, which contains the weft spools. To make a motif, each weave is done according to the desired motif according to the design, the path is followed by *Palapah Gadang* to reveal the displacement threads through the additional weft threads to form the motive. In the *Pengannyaman* process, the weft thread can be passed into the rotating thread alternately.

Furthermore, the weaving process [17] begins with stepping on the fists one by one alternately between the left foot and the right leg, so that the gun goes up and down one after another as the weaving process. When this process is in progress, the threads will fluctuate together with the ups and downs of the gun when stepped on so that the piston containing the weft can pass. When this process is in progress, the threads will fluctuate together with the ups and downs of the gun when stepped on so that the piston containing the weft can pass through. Next, finish the edges of the cloth, and clean the used threads that occur when the thread breaks or when adding weft threads are cleaned. To see the feasibility of developing Minangkabau *Songket* by making an innovation of material transfer from cotton and silk threads with pineapple fiber threads, a feasibility test was carried out. So from the results of the due diligence are as follows:

2.1 Test the fiber strength

The first test carried out is the strength test of woven cloth products with pineapple fiber as the basic material for *Songket* weaving, carried out on 2 weavers and two weavers who usually weave *Songket* and one curator of woven fabrics. The results of the feasibility of pineapple fiber into woven fabrics can be seen in the following Table 1 below.

Table 1. The test results for the strength of pineapple fibers into *Songket* woven fabrics

Assessment Aspects	Validity (%)	Category
Fiber strength	84.2%	Very strong
Fiber strength during weaving	83.6%	Very strong
The strength of the <i>Songket</i> woven cloth with pineapple fiber	84.2%	Very strong
Average	84%	Very strong

Described from the results of the strength test of the pineapple fiber material in Table 1 above, namely: 1) The strength of the fiber is 84.2% in the very strong category; 2) The strength of the fiber during the weaving process is 83.6%, the category is very strong; and 3) The strength of the *Songket* woven cloth with pineapple fiber 84.2% very strong category. From the 3 aspects of the assessment above, an average of 84% is obtained with a very strong category. It is concluded that the pineapple fiber material is suitable as a *Songket* woven material.

2.2 Feasibility test for *Songket* woven fabric products with pineapple fiber materials

The feasibility test stage of the pineapple fiber material into *Songket*-woven fabrics was tested using a questionnaire on the respondents of 10 people who are engaged in clothing, consumers, designers, and college lecturers. The results of the due diligence are as follows:

Table 2. Product due diligence test results

Assessment Aspects	Results Practicality (%)	Categories
Appearance /aesthetic feasibility	82.50%	Very worthy
Eligibility to be a used product	84.29%	Very worthy
Eligibility to be clothing products	83.54%	Very Worthy

From the feasibility test of the pineapple fiber material into *Songket* weaving as follows: 1) the feasibility of the appearance/aesthetics with a result of 82.50%, the category is very feasible; 2) The feasibility of *Songket* weaving with pineapple fiber innovation into a used product with a result of 84.29% is very feasible category; and 3) Eligibility to become a clothing product with 83.54% results in the very feasible category. From the 3 aspects of the assessment above, the average yield is 83.44% with the very feasible category.

2.3 Feasibility test of *Songket* weaves into fashion products

The feasibility test is also tested on students and fashion design lecturers and a large group of fashion observers (25 people) in Table 3. The results of the feasibility test on fashion design students and fashion design lecturers are as follows.

Table 3. Results of due diligence into fashion

Assessment Aspects	Eligibility of results into fashion products (%)	Category
Product appearance eligibility	86.94%	The cut is decent
Public interest in the product	84.17%	very suitable
Market worthy as a fashion product	85.56%	very suitable
Average	85.55%	very suitable

It can be described from 3 aspects of the feasibility test of *Songket* woven into the following fashion products: 1) the feasibility of the product display with a result of 86.94%, very feasible category; 2) Public interest to the product with a result of 84.17% very interest category; and 3) Market worthy with a result of 85.56% very feasible category. From the results of the assessment, an average of 85.55% was obtained with a very suitable category to be developed into a fashion product.

CONCLUSIONS

The development of woven fabrics based on pineapple fiber is feasible for Minangkabau *Songket* because pineapple fibers have high strength. The 84% feasibility test phase stated that the pineapple fiber material is very strong as the basic material for *Songket* tenure. The feasibility of woven cloth products made of pineapple fiber into *Songket* woven fabrics is seen from 3 aspects of the assessment test in terms of appearance/aesthetic feasibility, the function of the woven cloth or the wearability of the cloth, and the feasibility of being a clothing product obtained an average value of 83.44% with a very feasible category. Therefore, the innovative pineapple fiber woven fabric product is feasible as a development of the Minangkabau *Songket* woven fabric. The feasibility of *Songket* woven into a fashion product, an assessment of 3 aspects of the feasibility of due diligence: product appearance, public interest, and marketability, then the results of the assessment are obtained by an average of 85.55% with a very suitable category to be developed into a fashion product. Therefore, the innovation of *Songket*-woven fabrics by transferring materials with pineapple fibers can be developed into fashion products.

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