

2ND EDITION

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**ABSTRACT**

**INTERNATIONAL  
AGROTECHNOLOGY  
INNOVATION  
SYMPOSIUM (i-AIS)**



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### INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS)

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## ABOUT FACULTY OF PLANTATION AND AGROTECHNOLOGY

The Faculty of Plantation and Agrotechnology was established in 2010 at Universiti Teknologi MARA (UiTM). The mission of the faculty is to play the vital role of producing well-trained professionals in all areas of plantation and agriculture-related industries at national and international levels.

Bachelor of Science (Hons) Plantation Technology and Management is a three-year program that strongly emphasizes the various aspects of Production Technology, Management, and Information Technology highly sought after by the agricultural and plantation sectors. Students in this program will be fully trained to serve as professionals in the plantation sector and related industries. They will have ample opportunities to fulfill important positions in the plantation industry such as plantation executives. This program provides a strong balance of technology and management courses essential for the plantation industry such as management of plantation crops, soil fertility, plantation management operation, plantation crop mechanization, and agricultural precision. As an integral part of the program, students will be required to undergo industrial attachment to gain managerial skills in the plantation industry.

The faculty is highly committed to disseminating, imparting, and fostering intellectual development and research to meet the changing needs of the plantation and agriculture sectors. With this regard, numerous undergraduate and postgraduate programs have been offered by the government's intention to produce professionals and entrepreneurs who are knowledgeable and highly skilled in the plantation, agriculture, and agrotechnology sectors.

## PREFACE

International Agrotechnology Innovation Symposium (i-AIS) is a platform to be formed for students/lecturers/staff to share creativity in applying the knowledge that is related to the world of Agrotechnology in the form of posters. This virtual poster competition takes place on the 1st of December 2022 and ends on the 8th of January 2023. This competition is an assessment of students in determining the level of understanding, creativity, and group work for the subject related to agrotechnology and being able to apply it to the field of Agrotechnology. The i-AIS 2022 program takes place from December 1, 2022, to January 8, 2023. The program was officiated by the Dean of the Faculty of Plantation and Agrotechnology, namely Prof. Madya Ts. Dr. Azma Yusuf. The program involves students from faculties of the Faculty of Plantation and Agrotechnology (FPA) and HEP participating in i-AIS 2022, namely, the Faculty of Education and Pre-Higher Education. This program involves the UiTM student and some of the non-UiTM students which come from the international university and the local university. Two categories are contested, namely UiTM and non-UiTM. To date, students from these programs have shown remarkable achievements in academic performance and participation in national as well as international competitions.

This competition is an open door for the students and lecturers to exhibit creative minds stemming from curiosity. Several e-content projects have been evaluated by esteemed judges and that has led to the birth of this E-Poster Book. Ideas and novelties are celebrated, and participants are applauded for displaying ingenious minds in their ideas.

It is hoped that such an effort continues to breed so that there is always an outlet for these creative minds to grow.

Thank you.

Dean  
On behalf of the Organizing Committee  
Conference Chair  
Universiti Teknologi MARA  
Faculty of Plantation and Agrotechnology  
<http://fpa.uitm.edu.my>

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# PRODUCTS MADE FROM PINEAPPLE LEAVES

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**ABSTRACT** - Our innovation is based on pineapple leaves that have made thread that can provide various benefits. Pineapple thread is a thread produced from pineapple leaves (*Ananas comosus*) which is a type of plant that produces pineapple fruit. Pineapple trees have very short shoots and have around 25-30 leaves per tree with a length between 0.9 - 1.5m. Usually pineapple leaves are harvested after the fruits are harvested around 16-24 months after planting. When processed, pineapple leaf fiber (PALF) will result from the processing of pineapple leaves. Pineapple leaf fiber (PALF) is formed from multi-cellular material and lignocellulose extracted from the leaves of the plant. From the study found that the main chemical composition found in pineapple leaf fiber (PALF) is cellulose (70-82%), lignan (5-12%) and ash (1.1%). In fact, pineapple fiber thread has a variety of uses in producing high-quality textiles, including making clothes, and is even suitable for weaving or songket embroidery instead of gold thread. The quality of this pineapple fiber yarn is very high and it is able to provide profitable results if produced in large quantities. Among the products that can be produced from pineapple yarn are clothes, crafts and pineapple paper. From the study shows where the durability of pineapple leaf thread is more durable and a little rough compared to other threads on the market. Now some young entrepreneurs are being guided by the LPNM for the development of pineapple yarn as one of the valuable products apart from fresh pineapple pulp, pineapple seeds, processed pineapple products and so on.

**Keywords:** pineapple leaves

## INTRODUCTION

In Malaysia, pineapple (*Ananas Comosus*), and the most economically significant plant in the family Bromeliaceae. Pineapple has been identified as a high-value non-seasonal tropic fruit, is one of the top five fruits that shows a promising demand in the local and export markets. Pineapple is one of the popular fruit crops grown in Malaysia. Malaysia started planting pineapple on a big scale and producing more products such as fresh fruits 70% and 95% canned pineapple production export other countries. Nowadays, the pineapple fibre has potential to become an eco-friendly material in conservation. The term fibre is defined as a long and fine continuous thread or filament created from natural materials or by chemical processes. Several utilization techniques based on natural fibres have been developed for several purposes including textile technology and commercial products. pineapple fibre is soft and has a high cellulose content. The thread is very suitable for making cloth, especially when using the traditional method to extract the fibre. This would determine the use of pineapple leaf fibre as a potential thread in the restoration work for textile.

## MATERIAL AND METHOD

This research entails two basic stages of investigation, namely material preparation to make fibre thread from pineapple leaves, followed by fundamental experimentation on the chemical and physical properties of the fibre. Pineapple fibre has been extracted from the leaves of Josopine type pineapples. the Josopine type creates a very fine and high-quality thread because the leaves` fibre is fine and rich in cellulose. The thread is very suitable for making cloth, especially when using the traditional method to extract the fibre. For preparation of method, the preparation of material for making pineapple fibre thread involved 3 processes: (1) selection of leaves, (2) cleaning of leaves, and (3) extraction of fibre from leaves. In this experiment, a total of 30 pineapple leaves were used to make the leaf fibre. Josopine pineapple leaves are spiky and long. The length is from 10 cm to 30 cm depending on how mature the tree is. The fibres were extracted using traditional tools known as “Peralatan Meraut Daun Nenas” (pineapple fibre extracting tools). Fibre was extracted from the leaves manually using this tool. This process also helps to soften the outer layer, thus making it easy to remove the fibre.

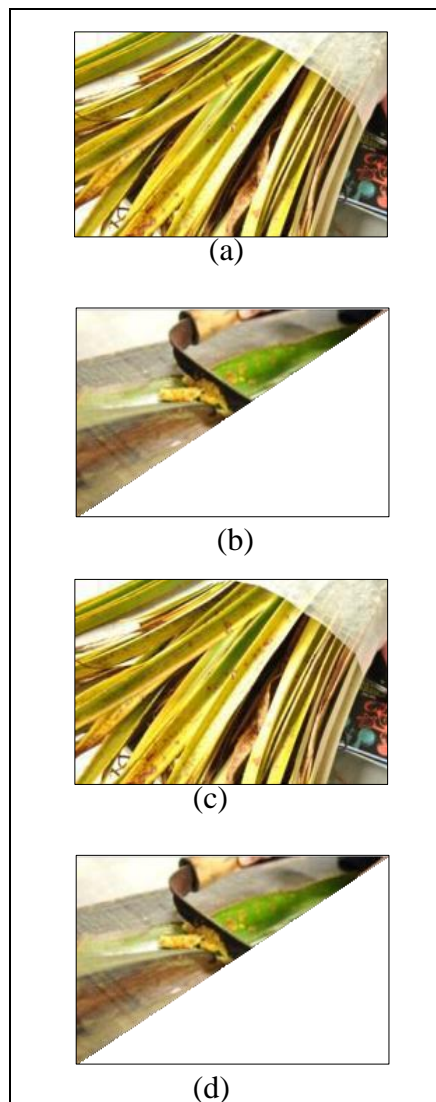


Figure 6 : (a) pineapple leaves, (b) fibre extracting tool, (c) extracting the upper surface of the leaves, and (d) a leaf after extraction

## RESULTS AND DISCUSSION

The result of the above method is that processed pineapple fiber yarn can actually produce high quality textiles for making clothes and it can also be used for the production of songket motifs instead of gold thread in addition to being able to produce woven cloth, tablecloths, songkok and various other souvenirs. the quality of this pineapple fiber yarn is very high where it is able to provide a very profitable income if produced in large quantities. Songket woven from yarn made from pineapple fiber is the most difficult to produce. Threads from pineapple fibers need to be joined first before being joined into a songket cloth. The period to produce depends on the product, usually, the longest even in three months. Songket from this pineapple fiber thread will be produced products such as sampin and traditional clothes.

Usually, 10 kg of pineapple leaves that are processed will produce 100 grams of pineapple thread which can be made into 1 meter of pineapple thread fabric. Other products available are made from pineapple yarn such as handkerchiefs, neckties, tablecloths, paintings and so on. To produce 100 grams of thread will require a total of 10 kilograms of pineapple leaves and only certain leaves can be used to produce the thread. The life span of the leaf is also very short which is only three days because after that the leaf will burn and can no longer be used.

Processed pineapple fiber thread actually has a variety of uses in the production of high-quality textiles, including being used to make clothes and it can also be used for the production of songket motifs instead of gold thread. Currently the quality of this pineapple fiber yarn is very high where it is able to provide a very profitable income if produced in large quantities. The results of pineapple yarn products are now marketed domestically and abroad through promotions on the website and also through several related agencies. Songket from this pineapple fiber thread will be produced products such as sampin and traditional clothes. In addition to producing songket, there are several other products that are taught such as weaving, batik, wood, metal and ceramics.

Pineapple leaf fibers (pineapple-leaf fibers) is one type of fiber derived from plants (vegetable fiber) obtained from pineapple plant leaves. Pineapple plant who also has another name, namely *Ananas Cosmosus*, (included in the family Bromeliaceae), generally including species annuals.

Tabel 1. Physical Characteristics Serat Daun Nanas

Varietas Nanas	Physical Characteristics		
	Length (cm)	Width (cm)	Thickness (cm)
Assam local	75	4.7	0.21
Cayenalisa	55	4.0	0.21
Kallara Local	56	3.3	0.22
Kew	73	5.2	0.25
Mauritius	55	5.3	0.18
Pulimath Local	68	3.4	0.27
Smooth Cayenne	58	4.7	0.21
Valera Moranda	65	3.9	0.23



Figure 2: Songket fabric woven from pineapple thread

## CONCLUSION

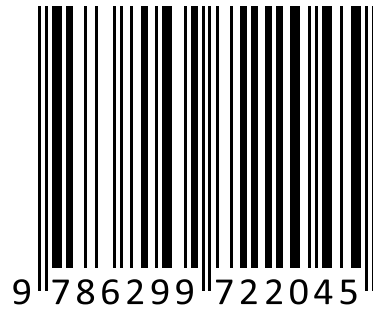
In conclusion, we found that the durability of pineapple leaf thread is more durable and slightly rougher than other threads on the market. In a local newspaper report titled "Scrap 200 pineapple leaves per day" written by journalist Mr. Taufik Salimin, the business of processing pineapple leaves was found to be viable. The author also found that who would have thought that the pineapple fruit plant that has a sour, sweet and bitter taste actually has its own advantages in the local handicraft industry. The fruit is not only suitable for commercialization in the food industry, even its spiky and reddish-green leaves are special.

## REFERENCES

- [1] Hidayat, P. (2008). Teknologi Pemanfaatan Serat Daun Nanas Sebagai Alternatif Bahan Baku Tekstil. *Teknoin*, 13(2). <https://doi.org/10.20885/teknoin.vol13.iss2.art7>
- [2] Anem, M. (2017, September 24). Anim Agro Technology: USAHAWAN BENANG NANAS. *Anim Agro Technology*. <http://animhosnan.blogspot.com/2017/09/usahawan-benang-nanas.html?m=1>
- [3] Anem, M. (2017, October 3). Anim Agro Technology: BENANG NANAS - ADA POTENSI. *Anim Agro Technology*. <http://animhosnan.blogspot.com/2017/10/benang-nanas-ada-potensi.html?m=1>
- [4] J-Sustain | International Journal of Sustainable Future for Human Security. (n.d.). *Www.j-Sustain.com*. [http://www.j-sustain.com/files/pub/file/2016/Vol%204%20No%202/J-Sustain\\_Vol4\\_No2\\_30-35%20BE-011-04153\\_REV.pdf](http://www.j-sustain.com/files/pub/file/2016/Vol%204%20No%202/J-Sustain_Vol4_No2_30-35%20BE-011-04153_REV.pdf)

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