

# Allure of pineapple

4 October 2010

---

Alluring dresses from pineapple? Scientists in Malaysia are looking into the potential of another 'cotton' - the pineapple. Jamil Salleh of UiTM, Shah Alam, Malaysia is to assess techniques to extract the long fibres of the pineapple leaves.

Lanky models strutting in cotton, linen and silk, making statement for beautiful creations - why not make statement with a 'pineapple'? Alluring dresses from pineapple? It could be. Often we heard mothers reminiscing their hard times during the Japanese occupation sewing with threads from pineapple leaves. If so, can we spin yarn from pineapple leaves threads then? After all, we have been relying on plants for clothings - the cotton. Now scientists in Malaysia are looking into the potential of another 'cotton' - the pineapple.

Jamil Salleh's study is timely as we have scores of pineapple plantations with tonnes of leaves burnt away. There has been not much interest in pineapple fibres in our country. Hence, he is optimist that abundantly pineapple fibres in Malaysia, if extracted, can be marketed as 'exotic' textile. A good news for fashion designers Zang Toi or Bernard Chandran? For them it could be a work of mix and match for another charming creation. A good understanding of the extraction methods will be good for them. Thus Jamil will try to establish the best extraction to get the best of the fibres.

Jamil will experiment on the long fibres of the leaves by scrapping and retting. It is a preliminary study to assess the best technique to extract the fibres from the leaves. Scrapping is a traditional method where the epidermal tissue of the leaves is scrapped from the surface and back of the leaves using broken plate or coconut shell to expose the fibres. As much as 500 leaves can be scrapped in a day by an expert scrapper. It is tedious, time consuming and labor intensive. After scrapping, the fibres will be washed thoroughly with water and then air-dried.

Apart from scrapping, the fibre can also be

extracted by retting. Retting is the use of micro organism and moisture to dissolve or rot away the epidermal tissue and pectine of the leaves, which will separate the fibre from the leaves. There are many types of water retting such as still water, running water and dew and rain retting. These methods are slow and consumes time, hence less popular. However, around 2.5 - 3.5% of fibre can be recovered from both methods.

Other than that, Jamil and colleagues are looking into chemical retting under alkaline condition and microbes as they have been used to extract other fibres such as flax and kenaf. It was found that fibers produced from microbe retting are with higher residual gum content and lower elongation but better tenacity and softness. Other other hand, chemical retting produces lower tenacity and thicker fibre; and water retting produces weak and low quality fibre.

The fibres will be extracted from pineapple leaves by scrapping and retting method. To scrape, porcelain scrap will be used to remove the epidermal tissue of the leaves. For retting, four methods will be employed which are immersion in water for certain duration, use of NaOH/acetic acid and EDTA, use of enzyme (xylanase/pectinase/cellulase), and combination of chemical and enzyme retting. Other mechanical extraction methods using special fabricated equipment will also be experimented.

The strength of the extracted fibres will be evaluated using tests of linear density, tenacity, microscopic appearance, micronaire and fibre strength. Then, the fibres will be hand-spun into yarn or dref spinning. The spun yarn then will be tested for its physical properties such as linear density (count), single strength, yarn appearance and hairiness. A comparison fibre and yarn properties with regards to the extraction techniques employed will be evaluated to determine the best fibre extraction technique.

Provided by UniversityTeknologi MARA

APA citation: Allure of pineapple (2010, October 4) retrieved 25 October 2020 from  
<https://phys.org/news/2010-10-allure-pineapple.html>

*This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.*