

Potential of Boranssus Flabelliformis as a Textile Fibre

*C. Anisha, ** Dr. S. Jayapriya

Abstract

Today, safety is the most important factor in product choosing. The greatest product should be non-toxic and safe in both raw materials and final products, as well as biodegradable and easy to obtain. At the moment, eco-friendly production is receiving a lot of attention. Because of the globalisation of the world market, textile industries are facing a difficult situation in terms of quality and productivity. In today's highly competitive environment, and as environmental standards become increasingly severe, the textile processor's primary concern is quality and ecology. Natural fibres have gained popularity in recent years as a result of people's desire to live in harmony with nature. Boranssus Flabelliformis fibre has the potential to be a good source of natural fibre. The fibre is collected from the sheath of the bifurcated section of the leaf stalk that joins the palm's trunk. This fibre is widely used in India, particularly in the prefectures of Bombay and Madras. Burma, Sri Lanka, Bangladesh, China, and West Africa are among the countries that grow palm. Boranssus Flabelliformis is only commercially produced in three Indian states: Andhra Pradesh, Tamil Nadu, and Kerala. The major goals of this study are to introduce a new ecofriendly fibre in textile industry

Key words:

Boranssus Flabelliformis, Palmyra Palm, Fibre, Toddy Palm, Leaf Stalk Fiber

* C. Anisha, Assistant Professor, Department of Costume Design and Fashion, Nehru Arts and Science College, Coimbatore – 6410105. Email- signintonisha@gmail.com

**Dr. S. Jayapriya, Associate Professor and Head, Department of Costume Design and Fashion, Nehru Arts and Science College, Coimbatore – 6410105. E-Mail- jpriyasuresh@gmail.com

INTRODUCTION

BORANSSUS FLABELLIFORMIS the botanical named fibre is well known as Palmyra palm. The name 'Borassus' comes from a Greek term that refers to the fruit's leathery covering, while 'Flabellifer' means "fan-bearer." It's a member of the 'Palme' family. The lovely tree is known by several names in India's diverse languages. The tree is known as 'Tal,' 'Talgachh,' and 'Tarkajhar' in Hindi and Bengali, respectively. In Tamil, it is referred to as 'Pannei.' It's called 'Lulu' or 'Tacli' in Telugu. The tree was given the name 'Karimpana' by Malayalam speakers. Other than 'Palmyra Palm Tree,' the tree has a few other names in English. The 'Fan Palm,' 'Brab Tree,' 'Toddy Palm,' and 'Tala Palm' are their names.

Scientific classification

Kingdom:	Plantae
Division:	Magnoliophyta
Class:	Liliopsida
Order:	Arecales
Family:	Areaceae
Genus:	Borassus

PLANT DESCRIPTION

Boranssus Flabelliformis can grow up to the height from 12 to 18 m when it becomes matured. However, on rare occasions, it can reach a height of 30 metres and a diameter of 60 metres. The tree's broad, fan-shaped leaves make it easy to spot within a grove of trees. The tree's stem is black in colour and resembles cylinders. The semi-circular scars of fallen leaves have also corrugated it. The tree's massive leaves emerge in a clump from the top. They're often robust and have thick stems.



Fig 1. Boranssus Flabelliformis tree

The leaves are palm-shaped and can grow up to 5 metres across. The number of heave segments is usually between sixty and eighty. The green spherical fruits of the Boranssus Flabelliformis Tree' follow the flowers. When immature, the coconut-like fruits are three-sided, then become spherical or more or less oval, 12-15 cm across, and topped with overlapping sepals at the base. The outer layer is smooth, thin, leathery, and brown in colour, turning almost black after harvest. A juicy mass of long, tough, coarse white fibres coated with yellow or orange pulp can be found inside. A solid white kernel, similar to coconut meat but much tougher, is found within the ripe seed. This hollow, soft-as-jelly, translucent-as-ice kernel is accompanied by a watery, sweetish, and edible liquid when the fruit is quite young.

The Arrack or Toddy is without a doubt the Boranssus Flabelliformis's most famous product. This is one of the country's most fascinating drinks. When freshly poured before morning, it is a sweet juice that makes a delightful and healthy drink. It has a laxative effect when taken in big amounts in the morning.

The Boranssus Flabelliformis, like the Coconut, Bamboo, and Banana tree, has incalculable significance to the people of India. The tree also has religious significance. Both Hindus and Buddhists revere this tree because it once housed sacred scriptures etched on its leaves. They hang the leaves and fruits over entrances for ceremonial events, and they also use them on marriage 'Shamianas.'



Fig 2. Boranssus Flabelliformis leaf and fruit

FIBER EXTRACTION

Boranssus Flabelliformis fibre is collected from the bifurcated sheath at the bend of the leaf stalk that connects to the tree's stem. The leaf stalk is pulled down from the tree and its fibrous base position is further cut into little pieces ranging from 1 to 2 feet in length to extract the fibre. Before harvesting, the lowest portion of the leaf stem must have achieved a specific state of decomposition. Because the white fibre acquired from immature stalks is more brittle and less malleable than the black fibre produced from mature stalks, the fibre should be black when beaten out.



Fig 3. Boranssus Flabelliformis leaf stalk

PROCESS FLOW CHART

a) Crushing

This is the procedure of passing the stalk between two rollers to make it pliable for combing. Otherwise, the iron spikes of the combing machine will break during processing the stalk used for combing. The machine is made up of two iron rollers attached to a strand with a motor at one end. The upper roller moves in an anti-clockwise manner when the motor is turned on, while the lower roller moves in a clockwise direction. The stalk is inserted

between the two rollers, and the battered stalk is retrieved from the opposite side. The stalks are fed to the roller one by one, and the final arrangement is made for combing. It took one hour for the completion of process for 10 kg of stalk.



Fig 4. Boranssus Flabelliformis crushing

b) Combing:

The fibre is combed to eliminate pith and other extraneous materials. This is accomplished with a machine that consists of three iron planks mounted on a roller. The plank is adorned with four rows of 3" to 4" long spikes. The distance between the spikes varies between 3/4 and 1 inch, while the distance between the rows is roughly 1 inch. To retain the stalk, a screw with a handle is provided at a predetermined distance from the roller. Approximately 4 to 6 stalks are placed on the screw and tightened to keep them in place. The screw is used to transport the stalk to the rolling roller, where the pith is removed. Repeat on the opposite side until the pith is fully removed. This procedure removes a significant amount of pith. Making 8kg of fibre took one hour.



Fig 5. Boranssus Flabelliformis combing

c) Retting:

In a vessel or pond, the *Boranssus Flabelliformis* fibre is soaked in water for around 24 hours. Check to make sure that all of the fibre is completely immersed and that no fibre edges are visible. It is taken out for cleaning after 24 hours.



Fig 6. *Boranssus Flabelliformis* retting

d) Beating:

There will be some pith left in the fibre after combing. Cleaning has been completed in order to remove the pith. The wet fibre is hammered with wooden mallets or pieces of wood until all of the pith is removed and the thread-like fibre is separated from the foreign stuff. The beating of a piece of stalk is a difficult and time-consuming task, thus production will be slow. This cleaning process took two days.



Fig 7. *Boranssus Flabelliformis* manual beating

e) Washing and Drying:

The beaten fibre is carefully rinsed in running water. Rinse the fibre in clean water two or three times. The hard filaments are then removed, and the fibre is dried in the sun.



Fig 8. Boranssus Flabelliformis washing and drying

SUMMARY AND CONCLUSION

As Boranssus Flabelliformis fibre has the ability to disintegrate quickly without harming the environment, it is a necessity in the current state of the country. This fibre is entirely natural, which means it will last for many days and will never be detrimental to the environment. Boranssus Flabelliformis fibre may be utilised efficiently instead of synthetic fibre, which is extremely polluting to the environment

The Boranssus Flabelliformis produces the following results.

- The palm's various components are quite useful in our daily lives.
- It is environmentally friendly.
- It is more long-lasting.
- It has a high tensile strength.
- It is inexpensively available throughout your country.
- An increase in production will help to expand job possibilities.
- It can be washed by hand.
- It is easy to cultivate and grows well in all types of soil.

BIBLIOGRAPHY

1. NATURAL FIBERS AND THEIR COMPOSITES, Navin Chand and Pradeep.k.Rohati
2. A STUDY OF FIBRE INDUSTRY IN INDIA, P.V.Shrikanta Rao
3. THE WEALTH OF INDIA-A Dictionary of Indian Raw Material and Industrial Products, Vol.1, Vol.2, Vol.3 and Vol.4, Council of Scientific and Industrial Research
4. BARK AND LEAF FIBERS IN INDIA DIRECTORATE OF PUBLICITY, Kallapur.S.K, KVIC, Bombay (1962)

5. WORLD CROPS BOOKS, Edited by Prof: Nicholas Polunin VEGETABLE FIBRES: Botany, Cultivation and Utilisation, By R.H.Kirby, London Leonard Hill (books) Ltd, Interscience Publishers, INC, New York
6. SYMONDS.W.A. (189I). The Palmyra Palm and its Uses.Bull. Dep. Agric. Madras, No.25
7. BYROM.M.H WHITTEMORE.H.D. (1958), Mechanization of Brush Fibre Production, Proc. Soil Sci. Fla.
8. KIRBY.R.H - (1948 a) Fibres in Brush Making.
9. KIDD.F. (1957) Brush Making Materials, British Brush Mfr's. Res. Assoc., London.
10. Virtual Palm Encyclopedia - Evolution and the fossil record
11. <http://www.pacsoa.org.au/palms/Borassus/index.html>
12. http://www.plantapalm.com/vpe/photos/Species/borassus_flabellifer.htm
- 13.