

PROCESSING OF BIO-DEGRADABLE FABRIC - BASSINE FIBRE

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Abstract

The textile industry is the most ecologically harmful industry in the world. The eco-problems in textile industry occur during some production processes carried forward right to the finished product. The clothes we wear and therefore the textiles they're made up of can damage the environment and make us sick. Now- a- days a good range of techniques and innovations associated with textile production are developed to save lots of the planet from being suffering from the hazardous effects of chemicals. This review presents an overview of the textile industry highlighting a study of bio-degradable fabrics developed to make textile industry more sustainable.

Key Words: Toddy palm, fabrics, bio-degradable, Fiber Extraction, Yarn Preparation, Weaving

1. INTRODUCTION

Textiles are the fabric made by the art of weaving rushes and other fibres or bundles of fibres of long length. The art of weaving preceded that of spinning of fibre 'threads'. The spinning and weaving of fibre-threads or yarns are obviously most delicate processes as compared with rush and coarse fibre weaving. Textiles are used for apparel, household linens and bedding, upholstery, draperies and curtains, wall coverings, rugs and carpets, and book bindings, additionally to getting used widely in industry. The best product must be non-toxicity and safety both in raw materials and in finished products, bio-degradable and easy to source. At present major emphasis and attention is given

to bio-degradable fabrics. Textile industries are facing a challenging condition in the field of quality and productivity, due to the globalization of the world market. Bio-Degradable means the product manufactured must be of no harmful to human beings and environment and can be decomposed naturally.

Further studies show that needle-punched nonwoven composites can be created by combination of Cotton, Polyester and wool with palm fiber at different ratios.

1.1 Bassine fibre

Bassine fibre is extracted from the sheath of bifurcated portion at the bend of the leaf stalk joining the trunk of the Toddy Palm. This comes under the category of miscellaneous fibre. The botanical name for this fibre is 'BORASSUS FLABELLIFORMIS'. The fibre degrades completely naturally, with no harm to the environment, and is harvested from a renewable source, making it one among the "greenest" fibres available. Though it is an easily available fibre, its usage were only limited for making the brushes and brooms.

2. METHODOLOGY

2.1 Fiber Extraction

Bassine fibre is extracted from the sheath of bifurcated position at the bend of leaf stalk joining the trunk of the tree. For extracting the fibre, the leaf stalk are cut down from the tree and its fibrous bottom position is further cut in small piece which generally range from 1

to 2 feet length. The fibre, when it is beaten out, is black in color, as the white fibre obtained from immature stalks is more brittle and less pliable than the black fibre from mature stalks.



Fig. 1. Bassine fibre

2.2 Yarn Preparation

The fibers are made into yarn by applying a twist. Then the yarns are winded to the spindle by the machines.



Fig 2. Bassine fibre weaving

2.3 Weaving Mechanism

Weaving is a textile production method which involves interlacing a set of vertical threads (called the warp) as bassine fibre with a set of horizontal threads (called the weft) as cotton. The cotton of 20's count and 18 to 20 strands are used as filling thread.

The process weaving bassine fibre with Cotton yarn involves:

2.3.1 Warp beam: Winding of bassine yarn in a sheet form on to beam with the individual thread in their relative position.



Fig 3. Bassine fibre warp beam

2.3.2 Heald Apparatus : The apparatus divide the bassine yarn on the warp into two parts of alternate threads; they proceeded to separating the threads as per the designs.

2.3.3 Reed : It is called Lathe, or working part, because it is the part of the loom which makes the cloth.



Fig. 4 Bassine fibre reed

2.3.4 Shuttle : Made of hard wood, shaped like a miniature boat carries the weft yarn from one end to other end to and fro. The Cotton yarn on weft yarn is wound around the shuttle.

2.3.5 Fabric beam: It is similar to warp beam but in this it carries the finished bassine and Cotton mixture finished fabric.

2.4 Procedure

1. Wind your weft thread around a stick to use as a shuttle. Pass this shuttle through the first shed. The tail end of the weft are often tucked into the second shed.
2. Now change the shed by lifting the heddle bar with one hand. With the other hand, beat the first weft shot into place with a beater.

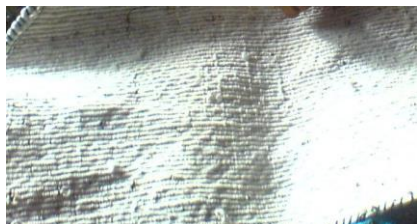


Fig 5. Bassine fabric

Tensile Strength Of the fabric

Details of the sample	Warp direction			Weft direction		
	Mean load (kg)	Elongation %	Mean time(min)	Mean load (kg)	Elongation %	Mean time(min)
Bassine cotton mixture fabric	70.29	6.84	2.46	240.6	25.44	3.29

3. CONCLUSION

The results show that the investigator was successfully able to launch a new mixture of fabric and also a new look has been given in producing a variety in fabric with this new mixture. The time, process and cost is little more in the case of the bassine -cotton mixture fabric than other fabric, it has good durability and strength. To the prevailing condition of the country, the mixture is a needful, because the bassine

3. Finally fabric mixture of bassine and cotton fibre is manufactured.

fibre has the capacity to degrade easily without causing any harmful to the nature. This mixture is purely of the nature fibre and this will be durable for more days and never cause any toxic to the human beings.

REFERENCES

1. NATURAL FIBERS AND THEIR COMPOSITES, Navin Chand and Pradeep.k.Rohati
2. BARK AND LEAF FIBERS IN INDIA DIRECTORATE OF PUBLICITY, Kallapur.S.K, KVIC, Bombay (1962)
3. BYROM.M.H & WHITTEMORE.H.D. (1958), Mechanization of Brush Fibre Production. Proc. Soil Sci. Fla.,
4. HANDBOOK OF WEAVING, W.S.Murphy, Abhishek Publications, Chandigarh-17
5. Sajid, Laila, Azmami, Oussama, El Ahmadi, Zakia, Benayada, Abbès, Majid, Sanaa and Gmouh, Said, 2020, Introduction of raw palm fibers in the textile industry by development of nonwoven composite materials based on Washingtonia palm fibers, The Journal of The Textile Institute, Oct 2020, Pg-1 -13, doi: 10.1080/00405000.2020.1840690

