

A Study on Dyeing of Banana/Cotton Mixture Fabric with Natural Dye-*Butea monosperma* Flower for use in Medical Textiles

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ABSTRACT:

The awareness of the eco-friendly environmental, hazards of the synthetic dyes have open the way for the application of the natural dye. Researchers are probing into the natural sources for dyes. *Butea monosperma* tree is an excellent source of medicinal value. The flower of the tree is suitable for dye and can be used for coloring the fabric. The dye extracted from the flower can be used on cellulosic fiber for dyeing. A pilot study shows that the *Butea monosperma* flower can be used to dye Banana /Cotton mixture fabric.

INTRODUCTION:

The textile industry is one of the most promising industry in the world. The new technological developments have led to the creation of new Functional textiles, which is on par with natural fibers. The major natural fibers silk and cotton are mostly used, the minor natural fibers like pineapple, banana, sisal are slowly gaining aesthetic importance. One such fiber is the Banana pseudo stem fiber. Though the usage of Banana fiber has increased in the recent past, its origin is age old. The cellulosic properties is compatible with cotton and can replace cotton to a certain extent. A study to mix banana with cotton and to colour the mixture with *Butea monosperma* flower dye has been attempted.



Extracted banana fiber

OBJECTIVE:

To explore the dye ability of the flowers of *Butea monosperma* on the Banana/Cotton Mixture fabric. To substitute Cotton with Banana fiber which has the compatibility with the cellulosic properties.

LITERATURE:

The Banana plant fiber is one of the potential renewable agricultural wastes. All part of the banana plant is used for various purposes. Among them the waste Pseudo stem of the plant is used for extracting fiber for

textile purpose. The use of the banana plant fiber dates back to the 1st century with, south-east Asia as its origin. India is the largest producer of banana according to 2012 statistics. Based on the above factor of enormous availability this resource can be tapped.

The *Butea monosperma* is a sacred tree and native of tropical and sub-tropical parts of India and South-east Asia. The common names are, Palash, Flame of the Forest, and Parrot Tree. The tree is used as fodder, resin, medicines, timber, and other products used for making plates etc. Along with the above applications the flower can be used as an excellent dye for textiles. The extract from the flower can be used as natural medicinal dye. Literature states that the flower can be used for skin disease and patients undergoing chemotherapy. Therefore this flower can be chosen for dyeing and producing apparels for patients.

Butea monosperma



Bloomed flower



Flower Bud



Garland with buds

Extraction of the dye:

The flower of *Buteamonosperma* was collected during the flowering season in February. The flowers were dried in the shade for 10 days. Then the dried flowers are powdered for dye. The dye was extracted by boiling the powder in water for a specific time. The extract was filtered and the dye liquor was separated. The Banana /Cotton mixture fabric was dyed with the above dye liquor using a natural modent. The results were excellent.



Powdered flower



Dye solution



Dyeing

The samples of the dyed fabrics were tested and analyzed for its color fastness. The Gray scelerating showed good performance. The ware study test for medical textiles is under process.



Dyed sample with *Butea monosperma*

CONCLUSION:

The compatibility of the banana plant fiber with natural fiber like cotton, in its strength and silk like appearance will meet the demand for cotton and the environmental issues. Considering the merits of the *Butea monosperma* flower, as a natural medicinal dye, the low cost, the astringent properties without any side effects the dye can be used for textile purpose. Apparels can be designed using the dyed fabric. The medical and textile properties of the banana fiber and *Buteamonosperma* flower holds good to be used in medical textiles.

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