



# ANALYZING THE PROPERTIES OF BAMBOO/POLYESTER BLENDED WOVEN FABRIC WITH FRAGRANCE FINISH

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## ABSTRACT

The main aim of this research is to know about the resemblances and differences between the 30s and 40s count of bamboo/polyester blended woven fabrics. This research is done by blending the two selected fibers, Bamboo and polyester, then the blended yarn are weaved, wet processing and finished with Fragrance finish. And they are compared for various properties the finished fabrics, before and after laundering. On comparison it was clear that the 40s count fabrics showed certain, better geometrical, physical and mechanical properties. Bamboo fabrics are now a day's filling the vacancy in the textile material development in our textile production nation and these will inevitably stimulate the new fabric development through blending and finishing, among the cotton, wool and silk and bring the textile corporations a new opportunity.

**KEY WORDS:** Bamboo, Polyester, Fragrance finish.

## 1. INTRODUCTION

Textile fiber reinforced composite materials are an important class of engineering materials. They offer outstanding mechanical properties, unique flexibility in design capabilities and ease of fabrication. Composites using high strength fibers such as graphite, aramid and glass are commonly used in broad range of applications from aerospace structure to automotive part and building materials to sporting goods.

Bamboo textiles are cloth, yarn, and clothing made out of bamboo fibers. While historically used only for structural elements, such as bustles and the ribs of corsets, in recent years a range of technologies have been developed allowing bamboo fiber to be used in a wide range of textile and fashion applications. Modern bamboo clothing is clothing made from either 100% bamboo yarn or a blend of bamboo and cotton yarn. The bamboo yarn can also be blended with other textile fibers such as hemp or even spandex. In the West, bamboo, alongside other components such as whalebone and steel wire, was sometimes used as a structural component in corsets, bustles and other types of structural elements used in fashionable women's dresses.

Polyester is a term often defined as "long-chain polymers chemically composed of at least 85% by weight of an ester and a dihydric alcohol and a terephthalic acid". In other words, it means the linking of several esters within the fibers. Reaction of alcohol with carboxylic acid results in the formation of esters. The most common polyester or staple fiber is usually composed of polyethylene terephthalate polymers. Polyester can also be classified as saturated and unsaturated polyesters.

Indians have been considered as forerunners in the art of natural dyeing. Natural dyes find use in the coloring of textiles, drugs, cosmetics, etc. Owing to their non-toxic effects, they are also used for coloring various food products. In India, there are more than 450 plants that can yield dyes. In addition to their dye-yielding characteristics, some of these plants also possess medicinal value. Though there is a large plant resource base, little has been exploited so far. Due to lack of availability of precise technical knowledge on the extracting and dyeing technique, it has not commercially succeeded like the synthetic dyes (Siva 2007).

## 2. MATERIALS & METHODS

For the purpose of this study 30s and 40s count bamboo/polyester blended yarn are selected. Natural dye was extract from Catechu powder applying mordant technique. Fragrance was given to the fabric by using Lavender oil by applying padding mangle method. Various parameters of the yarn properties, Fabric analysis properties: Ends per inch/ Picks per inch, Fabric Thickness, Fabric Weight, Tensile Strength, Abrasion Resistance, Bursting Strength, Stiffness, Crease

Recovery, Wick Ability, Air Permeability, Water Drop Absorption, Water Vapor Permeability, Light fastness, Rubbing fastness tests were evaluated. Moreover the fabric quality was tested for washing property up to 20 washes and the quality of the fabric was assessed.

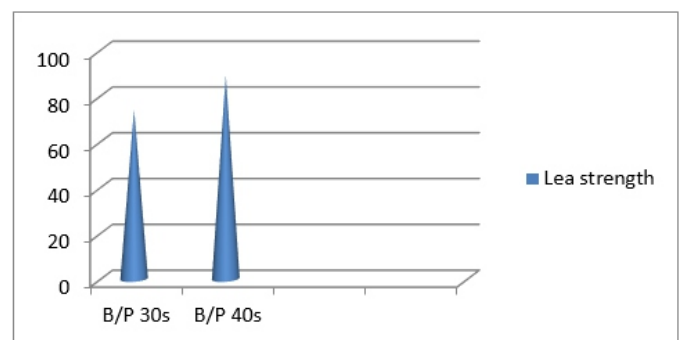
Results revealed that the blending property of Bamboo/Polyester 30s and Bamboo/Polyester 40s count was good when compared to any other fibers. Further as an application part woven fabric was also designed for children (girls), which showed a good compatibility and dermally safe product. This study way for the usage of eco-friendly and dermatologically safe woven fabrics from Bamboo/Polyester 30s and Bamboo/Polyester 40s count.

## 3. RESULTS & DISCUSSION:

### 3.1 Evaluation of yarn properties

#### 3.1.1 Evaluation of Lea Strength

The following results of (Table-I), Lea Strength was obtained for Bamboo/Polyester 30s and Bamboo/Polyester 40s blended yarn with different counts (FIG-I).



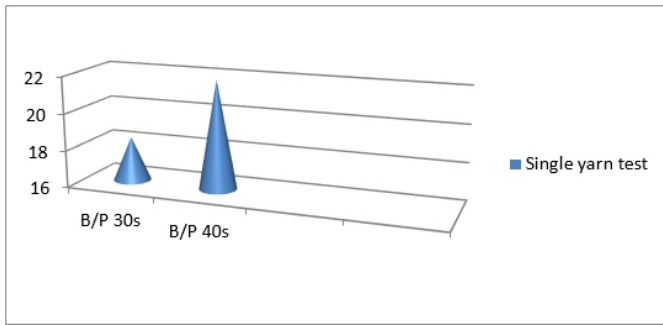
**Table-I**  
Lea strength of the selected yarn

The samples Bamboo/Polyester 30s and Bamboo/polyester 40s count yarns when compared, while Bamboo/Polyester 40s is greater than 30s count yarn.

The samples Bamboo/Polyester 30s and Bamboo/polyester 40s count yarns is significant, because the p value is less than the level of significant i.e. (P<0.05). So the hypothesis is significant difference between two variables.

#### 3.1.2 Evaluation of Single Yarn Twist

The following results of (Table-II), Single Yarn Twist was obtained for Bamboo/Polyester 30s and Bamboo/Polyester 40s blended yarn with different counts (FIG-II).



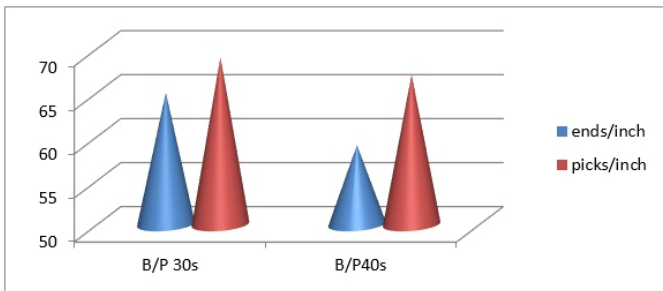
The samples Bamboo/Polyester 30s and Bamboo/polyester 40s count yarns when compared, while Bamboo/Polyester 40s is greater than 30s count yarn.

The samples Bamboo/Polyester 30s and Bamboo/polyester 40s count yarns is significant, because the p value is less than the level of significant i.e. ( $P < 0.05$ ). So the hypothesis is significant difference between two variables.

### 3.2 Evaluation of Geometric Properties

#### 3.2.1 Ends per inch/ Picks per inch

The following results of (Table-III), Ends per inch and Picks per inch were obtained for Bamboo/Polyester 30s and Bamboo/Polyester 40s blended fabric with different counts (FIG-III).



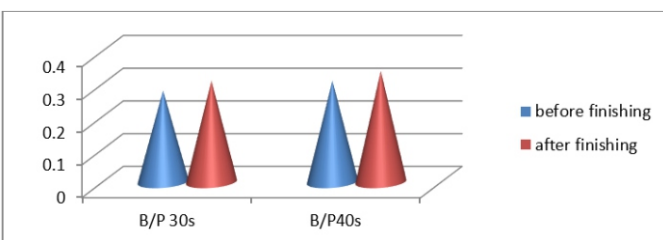
The samples Bamboo/Polyester 30s and 40s Ends per inch and Picks per inch fabric when compared, while Picks per inch greater than Ends per inch of the fabric. Both Bamboo/Polyester 30s and 40s when compared, while Bamboo/Polyester 30s is greater than 40s count fabric Ends per inch and Picks per inch.

The samples Bamboo/Polyester 30s and Bamboo/polyester 40s count fabric is significant, because the p value is less than the level of significant i.e. ( $P < 0.05$ ). So the hypothesis is significant difference between two variables.

#### 3.2.2 Fabric Thickness

The following results of (Table-IV), Fabric Thickness was obtained for Bamboo/Polyester 30s and Bamboo/Polyester 40s blended fabric with different counts (FIG-IV).

The samples Bamboo/Polyester 30s and Bamboo/polyester 40s count yarns when compared, while Bamboo/Polyester 30s and 40s after finishing greater than before finishing of fabric thickness. To increase the fabric thickness was after finishing. Both samples are Bamboo/Polyester 30s and 40s when compared; while Bamboo/Polyester 40s is greater than 30s count fabric thickness is before and after finishing.



The samples Bamboo/Polyester 30s and Bamboo/polyester 40s count fabric is not significant, because the p value is greater than the level of significant i.e. ( $P > 0.05$ ). So the hypothesis is not significant difference between two variables.

### 4. CONCLUSION

From the research it could be concluded, that bamboo/polyester 30s and bamboo/polyester 40s count possess all the desired properties that are required for apparel. The above fabric is finished with natural dye and fragrance finish increases the awareness about the herb and also effective utilization of the same. While comparing the all the above fabrics it is concluded that blended 70:30 ratio bamboo/polyester 30 and bamboo/polyester 40s count has much more properties and excellent results. Thus the end product woven petticoat from bamboo/polyester 30 and bamboo/polyester 40s count will face the demand of green consumers with welcoming hands. The search of innovative blended natural regenerated with various finishes for textile and fashion industries can be fulfilled with these fabrics.

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