

PRE-TREATMENT OF DIFFERENT FIBERS – CONCLUDING PART

REF: TT/ MARCH 2021/ WK 4

F) Pre-treatment of special fibers continued.....

BANANA FIBER

Banana plants have pseudo stems; the fibers from this part of the plant are processed and used in textile industry. These fibers contain various chemical compounds, which are required to be removed during different pre-treatment processes. Lignin, cementing tissues, gum interferes with the absorption property and results into poor quality.

Main pre-treatment processes involved for this fiber are as follows:

1. **Retting** - In pseudo-stem, Banana fibers are found in bundles; attached to each other through tissues. These tissues consist of lignin and hemicellulose. The fibers are loosened in Retting process. This loosening of the fiber bundles is also due to the removal of various tissue components.
2. **Degumming** – Banana fibers also contain gums and non- fibrous cell. These are insoluble in water and soluble in alkaline solution. Hence, degumming of these fibers is done by boiling them in aqueous alkaline solution followed by neutralizing process.
3. **Desizing** - Sizes are applied during weaving process so desizing process is required. Desizing of banana fiber is done by enzymatic method at recommended temperature and time.
4. **Scouring** – Generally scouring of banana fiber is carried out using milder alkali like soda ash.
5. **Bleaching** - Banana fiber have yellow color so bleaching process is required. Bleaching process is carry down by using hydrogen peroxide.

LYOCELL FIBER

Lyocell fibers have the tendency to form pills due to fibrillation. Due to the unique highly crystalline structure of lyocell, the fibers undergo localized separation of fibrous elements at the surface causing fibrillation. The pilling is increased by different abrasions in dry state and fiber swelling in wet state. Fibrillation can be generated due to more oriented crystalline regions smaller and more oriented amorphous regions are higher in the fiber structure. This fibrillation behavior interferes in the processing of lyocell, mainly in the dyeing of dark/ medium shades.



Hence, defibrillation is required to be done. The defibrillation process can be achieved by various alkali treatment carried out during pre-treatment process.

Estimation/Testing methods of different Pre-treatment processes

- a. **Scouring** – Efficiency of Scouring is tested by following methods
1. Determination of weight loss
 2. Absorbency tests
 - Immersion test (Wetting & Sinking Test)
 - Drop test
 - Spot test
 3. Column test/ Wicking height Test
- b. **Bleaching** – To ensure effectiveness and efficiency of removal of residual bleaching agent, it is essential to evaluate the bleached fabric. Different testing methods are as below:
1. Titrimetric analysis
 2. Chemical Spot test
 3. Dab strip test
 4. Methylene Blue absorption test
- c. **Desizing** - For the determination of desizing efficiency, the amount of size on grey fabric and residual size on the desized fabric, Tegewa rating are determined.
- d. **Degumming** - The simplest method to assess degumming is based on weight loss. UV absorption method is also been used to assess extent of degumming.

References:

1. <https://textilestudycenter.com/>
2. <http://www.fibre2fashion.com/>
3. <https://www.textiletoday.com.bd/>

UNSCRAMBLE THE JUMBLE WORDS
STRYINDU
LUMNCO
SIONIMMER
SSESSA

Last week`s Answers: 1) BAST 2) ULTRAVIOLET 3) MILDER 4) PREVENT

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