

# Study on Natural Eco- Friendly Fibers

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**Abstract** – The use of synthetic and polyester fabric Consumption is more nowadays compared to past 15 years back and these fibres are non – biodegradable because their origin is synthetic. Now there is more on organic and natural biodegradable fibers to replace the synthetic and polyester fibres which causes more irritation and skin problems and produces more heat and it is also harmful to the environment. It would be possible to replace natural biodegradable fibres with the nessacary characteristics to reduce non-biodegradable Fibers.

*Key Words*: Natural fibers , biodegradable, synthetic, polyester environment.

#### **1.INTRODUCTION**

Products for natural organic products in addition to providing biodegradable product and eco friendly environment . In addition to the use of synthetic and polyester fiber these causes skin hazards and produces more heat to the skin . Due to their chemical composition there are non – biodegradable . All these concerns creates an turn to Natural fibre organic products which is reusable and renewable fiber and biodegradable and a ecofriendly product which good for the Human resources and the environment . Now days the turn to more organic an natural biodegradable fibers and natural organic products . There hence these fibers are non biodegradable and harms the environment this study enhances the need to make natural biodegradable sustainable products .

### 2. NATURAL FIBRE PRODUCTS

Nowadays many products are available in the market made of synthetic fibers ,polyester and rayon .These products contains more chemical and colouring agents which is harmful. Due to their chemical composition there

are non – biodegradable . All these concerns creates an turn to Natural fibre organic products which is reusable and renewable fiber and biodegradable and a ecofriendly

product which good for the Human resources and the environment .

### **2.1 COTTON FIBER**

The fibre is of pure cellulose and they are

biodegradable under aerobic conditions. It is most often spun into yarn or thread for producing soft and breathable textile products. The standard moisture content of cotton fiber is 7.34%. Cotton(fig-1) has the ability to absorb liquids in large quantity and can absorb water up to 24 -

27 times its own weight. Oil, wax, protein, pectin, and some coloring contents are also present in cotton. Cotton fabric allows air to pass through freely and absorbs sweat, releases it on its surface. Hence it is comfortable to be worn in hot and humid climates.



Fig-1



### **2.2 BAMBOO FIBER**

G.Malarvizhi had proposed thatBamboofibers(fig-2) have excellent wet permeability, moisturevapor transmission proprieties.It is a newly founded, great prospective green fabric. Bamboo fiber is naturally soft, down to the core of its very structure. Bamboo has the function of antibiosis, bacteriostatic.Bamboo fiber keeps the moisture away when it gets wet so that the fabric does not stick to the skin, and dries fast so that you feel cooler and more comfortable while you wear it.

Bamboo tibers have been shown to be able to absorb

much more water, i.e. up to 26.2% equilibrium moisture content at around 90% RH, compared to polyester resin that can only absorb up to 0.71% water (at 20 °C).

Bamboo fiber is naturally absorbent and speedily wicks away moisture - up to four times faster than cotton.



Fig-2

## **2.3 BANANA FIBER**

Banana fiber(fig-3) is one of the strongest natural fiber available today. The physical structure of banana fiber looks similar to the ramie fiber. It is a Lignocellulosic structured natural fiber composed of cellulose, hemicelluloses.lignin, Etc The moisture absorbency of this fiber is 10% - 11.5%. This fiber has strong moisture absorption quality it absorbs And releases moisture very fast. It is bio- degradable and has no negative effect on environment and thus can be categorized as eco-friendly fiber. With the increasing development of sustainable textile products the application of banana fibers has also been increased in apparel garments and home furnishing.





### **2.4 HEMP FIBER**

The long fiber strands that make up the plant's stalk are used to make hemp fabric(fig-4). The "retting" process is used to separate these fibers from the bark. In order to create a continuous thread that can be woven into a fabric, these fibers are then spun together. Original hemp hurd samples are primarily made up of lignin and sugar-based polymers (holocellulose, including cellulose and hemicelloses).Waxes oils (toluene-ethanol extract), as well as structural water, were discovered as additional components. Weighing hemp samples before and after they were dried for 24 hours at 105 °C yielded average moisture contents of hemp materials of 10.13 and 10.78 wt%, respectively.



Fig-4

## **2.5 PINA FIBER**

Pina is a cellulosic natural fiber extracted out from pineapple leaf(PALF) that is different from the regularly grown fruit. Fiber from pineapple can be done bothmanually and mechanically. This fiber(fig-5) is creamy, white and lustrous as silk with good biocomposite qualities. It is 10 times as coarser as cotton but as fine as jute. It consists of high cellulose content, a large amount of hemicellulose, and some lignin, too. The



moisture content of this fiber is 10% - 11.5% The advantage of being cost-effective and delicate in texture adds value to its application in traditional formal wears and accessories.



Fig -5

### **3. CONCLUSION**

At present plant fibers are widely used for various

applications among textile product because of their biodegradable and renewable properties which leads a way to sustainability. In the above study, absorbency of various natural fibers was investigated and it was found that bamboo has more absorbent capacity than the other fibers such as cotton, banana, hemp and pina. Hence Natural fibers will be best replacement for other harmful synthetic and polyester materials which causes health hazards.

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