

A NOVEL APPROACH OF COFFEE GROUND FIBER TOWARDS ENVIRONMENT FRIENDLY TEXTILE

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ABSTRACT

Sustainable, eco friendly, recycle and up – cycle are new emerging elements in textile and fashion industry. Coffee ground fiber is one of the amazing, creative innovation towards sustainable future textile and fashion. Coffee ground fiber having valuable properties for making textile utility products. Now a day's coffee ground fiber highly used in dress material and home furnishing, it is totally organic compound, gives a new innovative path to futuristic eco friendly textile.

KEY WORDS: *Sustainable, Eco Friendly, Recycle, Fiber, Coffee Ground, Textile, Innovative, Futuristic*

INTRODUCTION

A cup of coffee improves our mood, and gives us a mental boost. Coffee is one of the most popular and valued beverages around the world, being consumed for its exciting and refreshing properties, which are defined by the green beans compositions and changes occurring during the roasting process (Mussatto et al. 2011a). As an end result of this big market, the coffee industry is responsible for generating large quantities of residues. Now textile industry transforms coffee into fabric, coffee been garbage used in the formation of fabric with new technologies, and creative applications, and it is eco friendly recycled fabrics. Fabrics are also made from some other natural sources such as coffee ground fiber, seaweed, and pineapple leaves or as important they are the foundation of the fashion industry's green future. The textile industry has been implementing new technologies to developing the fiber which is innovative and better for the industry, social and environmental sustainable point of view.

The textile industry is directly linked with the next footstep to more sustainable .Mass of the assets used in textile manufacturing as a raw material which has mainly obtained from natural sources such as cotton, jute, linen, etc.“The resulting coffeeyarn is multi-functional, can be used in a variety of products, from outdoor, and sports performance wear to household items used every day.

Sustainable clothing refers to fabrics resulting from eco-friendly resources, such as environment friendly grown fiber crops or recycled materials. It also refers to how these fabrics are made. Historically, being environmentally aware towards clothing meant

- Buying clothes from thrift stores or any shops that sell second-hand clothing,
- Donating used clothes to shops previously mentioned, for reuse or resale.

Today's famous trend towards sustainability is being green, recycle; eco friendly clothing has expanded towards

- Reducing the amount of clothing discarded to landfills.
- Diminishing the environmental through brunt of agro-chemicals in producing conventional fiber crops.

Processing of Coffee Fiber

Process of making fabric out of coffee grounds is just similar to that used to bamboo into viscose like material. The fabric from coffee ground fiber is soft, light, flexible and breathable. “Singtex has patented a process to transform coffee grounds into S.Cafe yarn through a temperature of 160°C for carbonization, which is energy efficient in comparison to 600°C for normal yarn. The basic procedure to obtain the green fiber S.Cafe’ yarn includes mixing the coffee residue into a recycled plastic bottle material and re-polymerizing to masterbatch and spinning to a coffee yarn, this is the basic procedure. The raw material is a combination of coffee and recycled polyester; the finished textile quality and appearance are as good as those achieved by using new materials. Singtex industries created a process to use coffee grounds, which was generally treated as waste, through extraction, nano grinding, metropolis, and wicking material improvement. This is then used to create technical composite fiber which can be used for knitted and woven clothing. A single cup of coffee can make the two T-shirt. It is possible to mix the coffee fiber with other material like polyester and more traditional material like nylon. The benefits of these products are more numerous”.

The Manufacturing Process of Coffee Ground Fiber Involve the Following Steps:

- Preparation material with coffee residue.
- Cleaning or sieving of coffee residue or raw material.
- Removal of organic contents from material with coffee residue.
- Preparation of carbonized particles.
- Mixing of material with carbonized material to form a mixture.
- Blending the mixture with the polyester chip in a weight ratio of 1:9 to produce a masterbatch.

Important Characteristics of Coffee Fibre

- Fast drying the chief feature of “s cafe technology”, coffee ground fibre is having faster drying ability that means it constantly moves moisture away from the skin to the outer surface of the fabric. “S cafe fabric diffuses the body moisture wicks it away from the body to the atmosphere. It is not a temporary kind of finish in the fabric, this feature being permanent will never wash out”.
- Odor control property is embedded in this fiber, the granules of coffee absorbs the order and make fabric order less. The granules are in nano size, which helps to absorbs perspiration (alkaline and acidic order)
- UV protection is the unique characteristic of the coffee ground fiber and fabric, enormous amount of microscopic pores which formulate long-lasting natural and chemical-free guard for fibre or yarn or fabric, which reflects UV rays and provide comfortable.
- Coffee ground fiber is eco-friendly , easy to recycle , totally based on ground, easy to collect the raw material for processing of fabric.

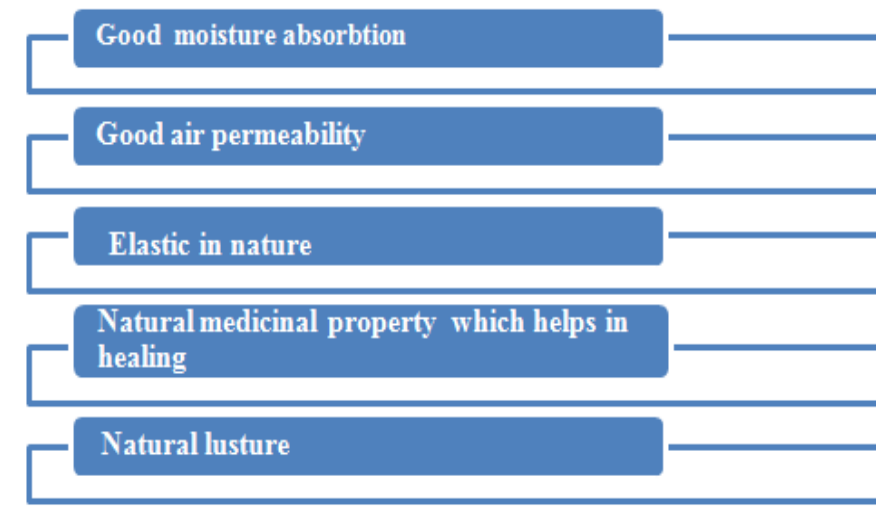


Figure 1: Properties of Coffee Ground Fiber.

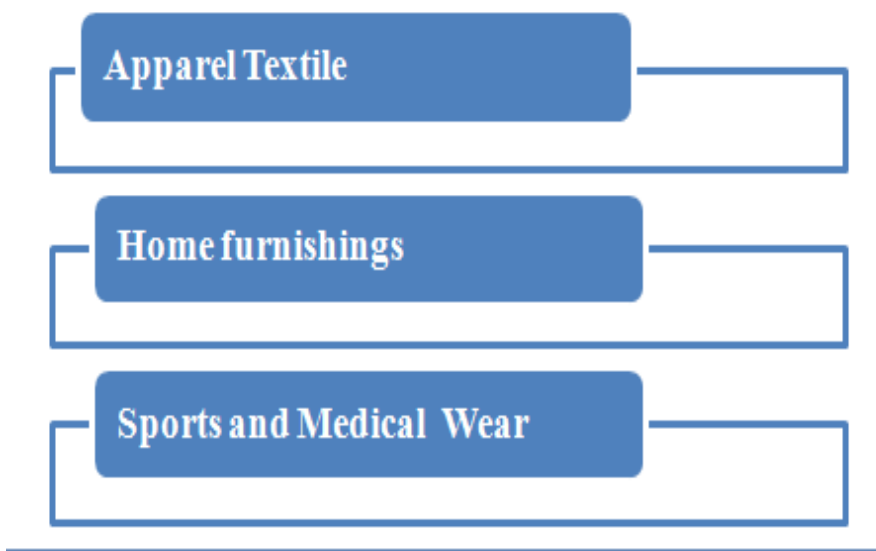


Figure 2: Application Area where Coffee Ground Fabric Used.

Environment Friendly Textile

Coffee ground fiber and fabric is the most amazing textile sustainable innovation, it turned fiber into a yarn that provides an excellent natural anti-odor (perspiration) property , UV ray protection property , good absorbency and a good faster drying property in comparison to cotton. Multi-functional yarn can be used for a variety of products for sportswear and household, medical wear (provide good healing, help to avoid inflammation due to good air permeability). It can easily be sustainable, organic, recycle.



Source of image: www.textilemates.com

Figure 3: Images of Coffee Ground Fabric.

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