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A Cram on Artifact Combo Organic Cotton, Bamboo Fiber and Roots for the of Spinal and Back Pain

D Anita Rachel¹, B Senthil Kumar², T Ramachandran³, S Boobalan⁴

¹Research Scholar, ²Assistant Professor, RIM Dept, Gandhigram Rural Institute, Dindigul

³Principal, ⁴B.Tech Textile Technology, Karpagam Institute of Technology, Coimbatore, India

Abstract: The abstract or idea of this project is to produce a Non-Woven Fabric Material by using both Bamboo Cotton fibers blend and grains vetiver roots in 3:1:1 ratio, (ie) 20 % bamboo and 60% cotton fiber, 20 % of cut pieces of vetiver roots. This non-woven fabric – car seat rest will be highly Anti-Microbial smooth, soft and back rest material will be having the cooling property and fragrance with more comfortness. More over this product has medical nature and medical usage that is this product can reduce the back pain. My application of this material will be in car seats cushion, bike seats, van seats, heavy vehicle seats, Train seats; Aero planes seats, beds, pillows, Sofas, cushions, Quilts and some back rest etc to enhance more comfortness. Combination of textile technology and medical sciences has resulted into a new field called medical textiles.

Here the Automobile textile product is produced with a Medical sense prosthetics and intelligent textiles in a NON WOVEN PRODUCT. This car seat cushion non woven product is one of the most rapidly expanding sectors in the technical textiles market, according to reports, and hosiery products with medical industry applications are among a long list of textile products being consumed in that market. In this project work, a successful attempt had been made to develop an eco-friendly non- woven fabric car seat cushion made up of bamboo fiber and grains of vetiver, which is a new approach. It got a high Anti- Microbial property in nature so it reduces the back pain.

Keywords: Auto mobile textiles, Car Seats, Non-Woven's, Bamboo, Grains of Vetiver roots, Cotton.

1 INTRODUCTION

1.1 Non Woven

A nonwoven is a sheet of fibers, continuous filaments, of any nature or origin, that have been formed into a web, layers and bonded together by mechanical, chemical or thermal means and by needle punching Techniques. Non-woven materials are used in various applications such as surgical gowns, surgical Masks, oil and air filters, vacuum cleaner bags, canal constructions, erosion control, shopping bags, etc. The physical properties like strength or efficacy of these products are highly influenced by the micro structure of the materials used. Realistic 3D models for a fiber system are required to analyze the micro structure of these products. These models help to study the influence of the micro structure on its macroscopic properties.

1.2 Medical Textile

Combination of textile technology and medical science has resulted into a field called medical textiles. Medical textiles are one of the most rapidly expanding sectors in the textile market, according to reports, and hosiery products with medical industry applications are among a long list of textile products being consumed in that market. New areas applications for medical textiles have been identified

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with the development of new fiber manufacturing technologies for yarns and fabrics. Development in the field of textiles, either natural or manmade textiles, normally aimed at how they enhance the comfort to the users. Development of medical textiles can be considered as one such development, which is really meant for converting the painful days of patients to comfortable days.

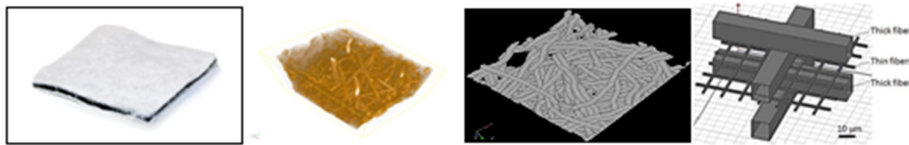
Here I'm making a non-woven product made of 60% cotton, 20% bamboo and 20% grains of vetiver roots which has many medical properties like Anti-microbial property. It is done by mixing the three fiber materials together and by using needle punching technique by taking materials in the ratio of 3:1:1 ratio. It will be placed in a sandwich form i.e. cotton fiber in the upper and lower layer and bamboo and vetiver coming in the middle layer. This is done because the irritation which is made by the vetiver can be reduced by the softness of the cotton fiber. Automotive textile is that part of textile which is used in accordance with the vehicles i. e. it is widely used in automotive industry right from light weight vehicles to a heavy truck or duty vehicles. This product gives more comfort and this Automobile textile is an integral aspect of technical textile. Since it cannot be classified in apparel textile, it is more of a techno mechanical application of textile. Industrial textiles are widely used in transportation vehicles and systems including cars, trains, buses, airplanes and marine vehicles. Approximately 50 square yards of textile material is used in an average car for interior trim (seating areas headliners, side panels, carpets and trunk, lining, tires, filters, belts hoses, airbags etc.)

1.3 Seat Covers

A car is one of the most expensive possessions a person will have, so it is a good idea to consider those little extras to help, keep it in good condition for a long time. Using car seat covers is good way to protect the seats from the wear and tear typically associated with commuting. A car seat cover protects the car from various elements that contribute to the breakdown of the cloth, leather or other material used to make the seat.

1.4 Non-Woven Fabric Made of Cotton, Bamboo and Vetiver

Cotton, bamboo fiber and vetiver has got many properties. Products of these materials with different properties are available. But a non woven product or product made of these materials is for the first time in the textile industry for the car seats. This is the most specialty of this material, Bamboo and vetiver grains has got anti-microbial properties in nature. By enhancing that properties plus the anti-fungal cooling effect, fragrance of the vetiver and the UV protective nature of the bamboo fiber, this product has been developed.



1.5 Bamboo

Bamboo fiber is cellulose fiber extracted or fabricated from natural bamboo (and possibly other additives) and is made from (or in the case of material fabrications, is the pulp of bamboo plant.



- It is usually not made from the fibers of the plant, but is a synthetic viscose made from bamboo cellulose. (In the US, the Federal Trade Commission (FTC) has ruled that unless a yarn is made directly with bamboo fiber- often called “mechanically processes bamboo” – it must be called “rayon” or “rayon made from bamboo”.
- Bamboo has gained popularity as a “green” fiber. Manufacturers tout the fact that bamboo can be cultivated quickly, can be used as a cash crop to develop improvised regions of the third world, and is a natural fiber (as opposed to popular synthetics like polyester) whose cultivation results in a decrease in greenhouse gases.

1.6 Vetiver

A fragrant extract or essential oil obtained from the root of an Indian grass, used in perfumery and aromatherapy. The grass is *Vetiveria zizanioides*, family Gramineae.

A member of the Gramineae family, vetiver is native of the South Asian region which includes India and Ceylon

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Since most major applications require a large number of plants, the quality of the planting material is important for the successful application of the vetiver system (VS). This requires nurseries capable of producing large quantities of high quality low cost plant materials.

The exclusive use of only sterile vetiver cultivars will prevent weedy vetiver from becoming established in a new environment. DNA tests prove that the sterile vetiver cultivar used around the world is genetically similar to Sunshine and Monto cultivars, both of which originate in Southern India. Given its sterility, this vetiver must be propagated vegetative. Stress and balance hormonal system.

1.7 Medical Impacts of Vetiver Roots

- Muscular problems: aches and pains, arthritis, rheumatism, stiffness.
- Nervous system: insomnia, depression, and nervous tension.
- Skin: for oily skin, cuts and wounds, acne.
- It balances the activity of the sebaceous oil glands.
- It has deodorizing properties and helps normalize oily skin and clear acne.
- It replenishes moisture in dry and dehydrated skin.
- When used regularly during pregnancy, vetiver oil repeatedly prevents stretch marks.
- The oil strengthens the central nervous system.
- Helpful in overcoming depression, insomnia, anxiety, stress, tension, and nervousness.
- Infusion of roots is a refreshing drink in fever, inflammation and irritability of the stomach.

1.8 Properties

- It will provide high anti-microbial activity.
- As it contains vetiver it will provide cooling effect.
- If it is used as comfort cover it reduces back pain.
- If it is used regularly the skin will get a sheer effect.
- It will reduce mental depression, insomnia and nervous tension.
- It will reduce muscular problems like aches and pains.
- The most important thing in vetiver is it reduces cough and fever.
- Vetiver won't give any irritation to the user as it is made in a sandwich form by using needle punching technique.

1.10 Cotton



Cotton is a plant that produces fibers, which are used to make clothes and other products, like towels, carpets or sheets. Clothes made out of cotton are especially light and comfortable. Every part of the cotton plant can be used. The long cotton fibers are used to make cloth, the short fibers can be used in the paper industry. You can make oil or margarine out of the seeds of the cotton plant. The leaves and stalks of the cotton plant are plowed into the ground to make the soil better. Other parts of the plant are fed to animals.

1.11 Characteristics of Cotton

Cotton, as a natural cellulosic fiber, has a lot of characteristics, such as;

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- Comfortable Soft hand
- Good absorbency
- Color retention
- Prints well
- Machine-washable
- Dry-cleanable
- Good strength
- Drapes well
- Easy to handle and sew

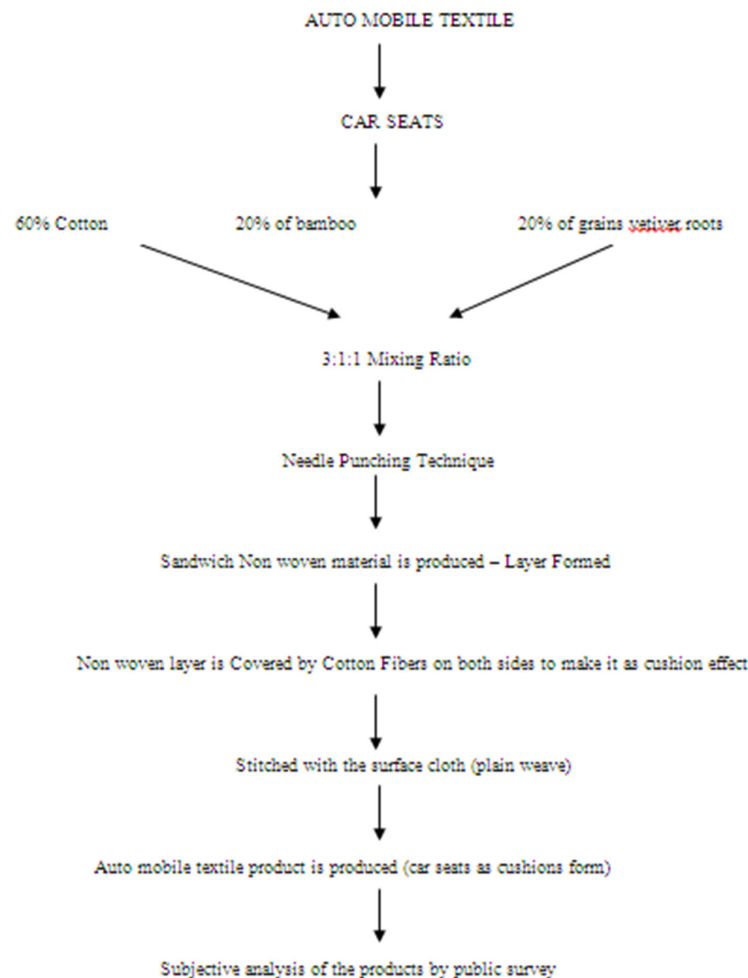
2 Methodologies

This chapter deals the material used, methodology and procedures adopted for the development of non woven material of automobile textile for car seats made of 60% of cotton fibers, 20% of bamboo fibers and 20% of vetiver roots, which is anti-microbial and an eco-friendly product in nature.

2.1 Materials and Methods

- The experimental plan consists of the following stages: How to manufacture the automobile textile product of car seats by using the mixture of 60% cotton, 20% bamboo and 20% vetiver grains.

2.2 Methodology



Needle Punching Machine Details

Description	Specification
Make	Dilo, Germany
Type	OD-II/6 with drive with compressive batt feeder CBF/6
No.of Needle/1 MTS working width	8000-10,000
working width	600mm
stroke	60mm
Stroke Frequency	Maximum 1200/Min

3 Parameters can be tested

For this non woven product the below test can be tested for further proceedings,

- Anti-microbial activity test
- Anti- fungal activity test
- U-V nature
- Smoothness after home laundering.
- Durability Test
- Colour Fastness

4 Analysis of the Survey

The survey towards this non woven product can be based on questionnaires,

4.1 Colour

An attribute of things that results from the light they reflect, transmit or emit in so far as light causes a visual sensation that depends on the wave length.

4.2 Comfortness

Implies that the subject is in state of pain, suffering or affliction. Where the term is used to describe the support given to someone who has experienced a tragedy .One can provide physical comfort to someone who is not in a position to be uncomfortable.

4.3 Smoothness

This fabric gives smoothness because it is made of natural fibers.

4.4 Feel

The person who drives at very first time will not feel much comfortable when they use this often they feel better.

4.5 Driving Experience

Driving experience will not be that much comfortable for the person who uses this comfort cover at very first time. It takes time for them to make themselves comfortable

4.6 Product Sample



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4.7 Results and Discussions

4.7.1 Analysis of the Survey

X-axis – Aesthetic properties

Y-axis – Grade points

4.7.2 Grade Points

1. Fair
2. Average
3. Good
4. Very good
5. Excellent.

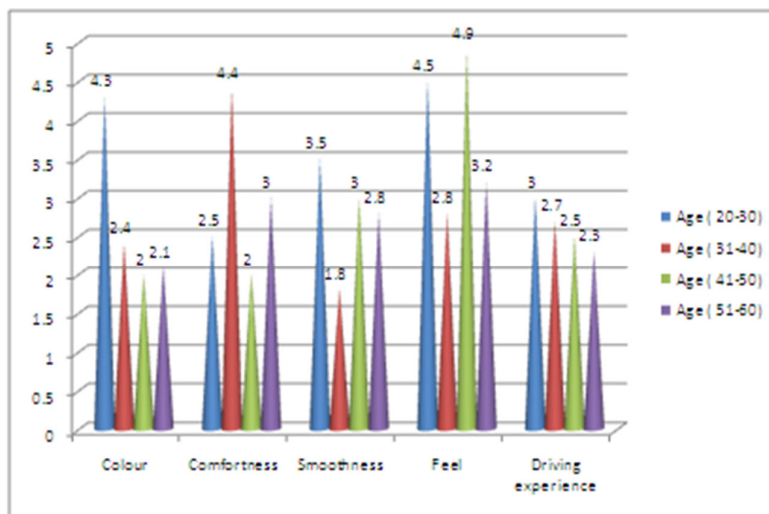
4.7.3. Age Split

The age of usages?

- a. 20 - 30
- b. 31 - 40
- c. 40 - 50
- d. 50 - 60

Rate of the product = Rs.1780/-

4.7.4 Analysis of the Survey



5. Conclusions

The new product which is produced by the cotton, bamboo fiber and vetiver is having the properties of medicinal healing. This is the highlight of this non-woven product. Medical textiles and automobile textiles are combined together to make the final product. The most important properties which have to be noticed is that it's Anti- microbial and Anti-fungal property as well as its fragrance. Our buy products for this project are car seat covers, blanket and pillow. Our ultimate aim was to develop an automobile textile product which has got medicinal values. From the above observations; we can conclude that the non woven needle punched material have the medicinal properties of cotton, bamboo and vetiver. Hence there is no usage of chemicals for the development of this product it is said to be eco-friendly too.

5.1 End Uses

- Applications in Medical field for reducing the tension, back pain, skin rashes and other Anti – microbial clearance.
- 40 Age above pupils can prefer to use this product for long driving.
- Due to its pleasant smell of the roots it can be used as intelligent textiles. Rather other new yield in Wide Home Textiles like beds, cushions, pillows & Sofas etc.
- A new Stuff towards Textiles.

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