

## VETIVER (*Chrysopogon zizanioides*) AS AN INGREDIENT FOR CAR FLOOR MATS.

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### Abstract

Examining vehicle mats and tire development is the focus of this study. Car mats have been used for a long time to prevent damage to the flooring of automobiles. You may find a wide selection of automobile mats on the market, including synthetic mats, rubber mats, and nylon mats. The goal is to find a vehicle mat that is both environmentally and user-friendly, made from materials that can be produced with minimal energy. In addition, the car mats must be able to perform their primary functions throughout the duration of the vehicle's use. The mats should be able to keep salt and water off the floor, trap dirt and odors, resist wear, and be simple to clean. Therefore, research and the identification of superior alternatives to the present baseline are required. After doing research on various fibers, we settled on using coir fiber for both the mat's foundation and its filaments. The coconut husk, from which coir fibers are derived, is biodegradable and environmentally friendly.

*Keywords*— Eco-friendly Coir-fibre car mats.

## I.INTRODUCTION

Many automobile owners consider the floor mat an essential accessory. The automobile will look and feel cleaner, neater, and more put together thanks to its ability to absorb water, vacuum, disinfect, and insulate against noise. Despite their strength, the vehicle carpets are useless if not properly chosen. If they are not used correctly, they might cause serious mishaps. Foot mats in subpar cars not only can't shield the primary engine from the elements, but they may also emit toxic gasses and contribute to air pollution. Automobile, and may even be dangerous since it doesn't fit properly. When we shop for cars,

we put our pads, not only the material and version features but also safety, slip resistance, and other factors must be taken into account. There are now five distinct varieties of automobile mats available, each distinguished by the material from which it was crafted.

There is a wide selection of floor mats for your car, truck, or SUV. They might have points or spikes, caps or grooves to collect debris and synthetic rubber (also known as vulcanized rubber). (Sometimes known as "vinyl" or "thermoplastic"), or textiles. Car mats are available in

two main styles: alternatives: fabrics for carpets or tires. There are some key distinctions between them, including offers benefits and drawbacks when with non-slip rubber backings and longer lasting.

## **II.OBJECTIVES OF THE STUDY**

### **Textiles For Noise Control**

Sound is propagated through the air and by vibration of the car body and there are three basic mechanism for reducing it, by absorption, by clamping and thirdly by isolation or insulation. In general thick piece of material will absorb more sound than a thinner piece of the same material. There are number of layers of material and permutations of layers of material used in noise and vibration damping.

### **COIR FIBRE**

Coir is a versatile natural fibre extracted from mesocarp tissue, or husk of the coconut fruit. Generally fibre is of golden color when cleaned after removing from coconut husk; and hence the name "The Golden Fibre". The common name, scientific name and plant family of coconut fiber is Coir, *Cocos nucifera* and *Arecaceae*. Coconut fiber is available by dehusking between skin and shell. These are multicellular, lignocellulosic, hard, a very coarse, and rigid variety of natural fruit fiber. Its advantages are agro-renewability, biodegradability and a good blend of strength, length, extensibility, moisture regain, and high durability or resistance against sunlight, saline water, microbes, etc. The unfavorable attributes of coconut fiber are its coarse nature, variable length and fineness, somewhat stiff and harsh nature. Physical and mechanical properties of coconut fiber are compared with two allied

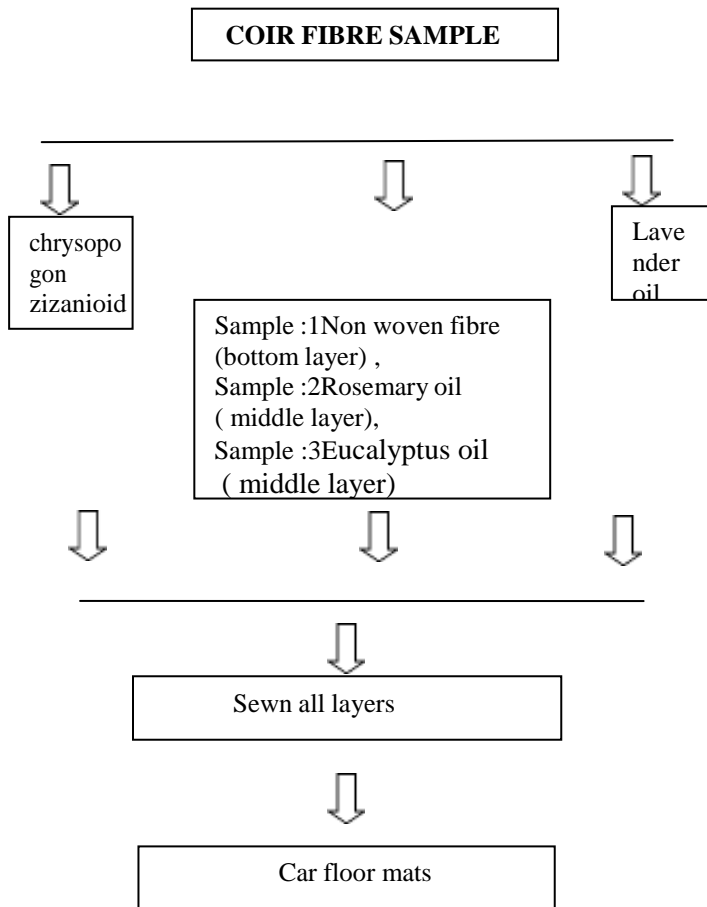
weighed against the other. Carpet mats are one example. are more resilient than rubber mats, and other types may be tufted and equipped

popular lignocellulosic fibers viz., jute and sisal. Moreover, fine structure and chemical properties have also been described. Preparation of car mat using natural coir fiber with biodegradable and washable properties. Coir or coconut is a natural fibre extracted from the outer husk of coconut. Coir is the fibrous material found between the hard, internal shell and the outer coat of a coconut. Vatiever is used to absorb heat and used as insect repellent. So this will reduce heat from car and does not allow insect into car. Lavender oil is used as fragrance, and inhaling of lavender oil it will reduce our stress and keeps our mind free from fear. Eucalyptus oil is used as to keep the pests away

## I. MATERIALS AND

## METHODS CAR FLOOR

## MATS



## PROC

## ESS

## SAMPL

## E 1

## Introduction

The natural coir fibre is selected for suitable purpose and then vetiver (Chrysopogon zizanioides) and both fibres are blended. Top and bottom layer fabric are chosen as per the process. Methodology

The main purpose of car mats is to provide more comfortable. It must be eco-friendly and biodegradable. The material chosen for car mats must have the properties of absorbing heat and odour from car. Recipe

- Coir fibre
- Vetiver (Chrysopogon zizanioides)
- Essential oil (lavender oil)
- Non woven fibre

## Process

At first, coir fibre is taken and vetiver (Chrysopogon zizanioides), which has the properties of absorbing heat and odour also has many ayurvedic properties in it. This is chosen as a primary process and both fibres are blended. This taken as a middle layer.

## lavender oil

After that, essential oil (lavender oil) is applied as finishing in non woven fabric. This helps to remove bad odour from the car. Then, it is given as a middle layer and non woven fibre is used as a top and bottom layer of the car floor mat. It is washable and biodegradable. and finally the top, middle and bottom layer are sewn at the edge.

## SAMPLE 2

## Introduction

The natural coir fibre is selected for suitable

purpose and then vetiver (Chrysopogon zizanioides) and both fibres are blended together. Top and bottom layer fabric are chosen as per the process.

### **Methodology**

The main purpose of car mats is to provide more comfortable. It must be eco-friendly and biodegradable. The material chosen for car mats must have the properties of absorbing heat and odour from car. The essential oil is given as fragrance in middle layer to remove odour. It must be easy washable.

### **Recipe**

- Coir fibre
- Vetiver (Chrysopogon zizanioides)
- Essential oil (rosemary oil)
- Non woven fibres

### **Process**

The natural fibre, coir fibre is taken and vetiver (Chrysopogon zizanioides), which has the properties of absorbing heat and odour also has many ayurvedic properties in it. This is chosen as a primary process and both fibres are blended. This taken as a middle layer. After that, essential oil (rosemary oil) is applied as finishing in non woven fabric. This helps to remove bad odour from the car. Then, it is given as a middle layer and non woven fibre is used as a top and bottom layer of the car floor mat. It is washable and biodegradable. Finally top, middle and bottom layer are sewn at the edge.

## **SAMPLE 3**

### **Introduction**

The coir fibre is selected for suitable purpose and then vetiver (Chrysopogon zizanioides) and both fibres are blended together. Top and bottom layer fabric are chosen as per the process. For middle layer, essential oil is given as a fragrance to remove odour from car.

### **Methodology**

The main purpose of car mats is to provide more comfortable. It must be eco-friendly and biodegradable. The material chosen for car mats must have the properties of absorbing heat and odour from car. The essential oil is given as fragrance in middle layer to remove odour. It must be easy washable.

### **Recipe**

- Coir fibre
- Vetiver (Chrysopogon zizanioides)
- Essential oil (eucalyptus oil)
- Non woven fibres

### **Process**

The natural fibre, coir fibre is taken and vetiver (Chrysopogon zizanioides), which has the properties of absorbing heat and odour also has many ayurvedic properties in it. This is chosen as a

primary process and both fibres are blended. This taken as a middle layer. After that, essential oil (eucalyptus oil) is given as

finishing in non woven fabric . This helps to remove bad odour from the car. The essential oil will helps to relieve from stress. Then, it is given as a middle layer and non woven fibre is used as a top and bottom layer of the car floor mat. It is washable and bio-degradable . Finally, top ,middle and bottom layer are sewn at the edge .

### **III.RESULTS AND DISCUSSION**

The prepared car floor mat is taken and the samples are tested for further usage . The washability of the car mat is tested. The odour absorbing capacity is also to be checked.

#### **Physical properties**

The physical properties of the car floor mat , the diameter of coconut fibres is approximately same and magnitudes of tensile strength are quite different. There are variations in properties of coconut fibres, and *Chrysopogon zizanioides*. So these both coir fibre and *Chrysopogon zizanioides* is blended together to get better good properties . The washability of car mat, 4-5 washes . The outer coconut fibre had a higher elongation property which could makes it to absorb or with stand higher stretching energy as compared to the inner coconut fibre. The fragranace withstand for 2-3 washes.

#### **Chemical properties**

Coconut fibres contain cellulose, hemi-cellulose and lignin as major composition. These

compositions affect the different properties of coconut fibres. Thepre-treatment of fibres changes the composition and ultimately changes not only its properties but also the properties of composites. Some-times it improves the behaviour of fibres but sometimes its effect is not favourable.

### **IV CONCLUSION**

The versatility and applications of coconut fibers in different fields is discussed in detail. Coconut fibers are reported as most ductile and energy absorbent material. It is concluded that coconut fibers have the potential to be used in composites for different purposes. Various aspects of many coconut fibers reinforced composites have already been investigated; and the economical and better results are achieved as reported by many researchers. Since the use of coconut fibers has given some marvellous products, there is still possibility of the invention of new products containing coconut fibers with improved results. In civil engineering, coconut fibers have been used as reinforcement in composites for non-structural components. There is a need of investigating the behaviour of coconut fibre reinforced concrete to be used in main structural components like beams and columns

The coir and vetiver (*Chrysopogon zizanioides*) are blended together . non woven fabric is choosen as top and bottom layer . Non woven fabric is taken as

middle layer and finishing is given using essential oil.

The essential oils like lavender oil, rosemary oil and eucalyptus oil is used as non woven fabric as middle layer . This is used to prevent insects , bad odour and vetiver is used to control heat from car. This car floor mat is made by natural and ayurvedic (vetiver) . It is bio-degradable and it controls smell, heat and insects away . This is easily washable car floor mat.

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