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WOMEN TWO-WHEELER SCARF CUM FACE MASK WITH NATURAL FINISHES : RIDING SAFELY WITH NATURAL TOUCHES

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ABSTRACT

Unlike cars, two-wheelers have no covering cabin for the occupants. This exposes the riders to dust, infections, diseases, sunburns, skin and hair damage due to UV rays, etc., Women riding two-wheelers covering their faces to save themselves from scorching heat will no longer be allowed to cover their faces while driving. Wearing a face mask helps filter out some of these pollutants, reducing the inhalation of harmful substances and protecting the rider's respiratory system. Prolonged exposure to UV rays can lead to skin damage and certain face masks offer an additional layer of protection. Face masks also provide comfort to riders in hot and sunny conditions, they can provide some relief from direct sunlight. Riding at high speeds can result in a wind chill effect, making the air feel colder than the actual temperature. A face mask helps reduce this wind chill, making the ride more comfortable, especially during the colder months. Scarf cum mask is used as a multipurpose for the head, face, and neck. Face masks are used to reduce the exposure of the maximum part of the face with ease and comfort to protect yourself from dust, bacteria, sunburn by sun rays, etc. It is made for full length, covering your head, face, and neck while driving. Cloth masks can be used to reduce disease transmission arising from the wearer's respiratory droplets. It is considered as a personal protective equipment for the wearer. Usage of natural fibers and finishes helps for a more comfortable wearing experience for the riders. In summary, wearing a face mask for two-wheeler riders contributes to both health and safety by protecting against air pollution, respiratory infections, dust, debris, UV rays, and adverse weather conditions.

KEYWORDS: UV Rays, Scarf cum Mask, Sunburns, Personal Protective Equipment, Natural Fibers, Respiratory Infections.

INTRODUCTION

A flexible mask that adjusts to your head, mouth as well as nose and is still breathable and comfortable. A two-wheeler face mask is a thin covering worn over your face to protect you from the elements while riding. These masks are usually made with lightweight materials that won't hinder your vision. They will be made of a comfortable and breathable material. Most importantly, these masks keep dirt, dust, pollen, and other outside elements out of your mouth, nose, and head. If you're about head out for a ride on an open road it is safe to wear a scarf cum mask to keep yourself out of infections and pollution that will affect your face and hair. Women's face masks may be designed better to fit the contours of a woman's face, considering variations in facial shapes and sizes.

Face masks will be available in different materials but this paper explains the face mask with banana fiber. It provides a different level of protection. Scarf cum masks is available in a variety of different and interesting designs, shapes, and even patterns like funky, impression, natural, and plain. A natural face mask for two-wheeler use should be breathable to ensure comfortable airflow, preventing discomfort during rides. Natural materials that wick away moisture can help keep the skin dry and prevent irritation, especially during longer rides. The scarf cum mask should be designed to fit comfortably on the face, considering the unique contours of a woman's face. A natural mask for two-wheeler use should be easy to clean and maintain, allowing for multiple uses. Some natural materials inherently provide UV protection, which can be beneficial for protecting the skin during rides in sunny conditions. The mask is colored using natural dyes to avoid synthetic additives. The mask should be suitable for different weather conditions and offer protection against wind, dust, and other environmental elements

Banana fibers have several benefits for skin care. Banana peel fibers have a soft and skin-fitting effect compared to other plants like cotton and linen. It improves the comfort and skin-fitting effect of the mask. The biodegradability of banana fibers is another advantage, as they break down into water and carbon dioxide in the soil. Overall banana fibers offer a natural and beneficial option for skincare applications. Banana fibers are known for their strength making them suitable for a variety of applications. Despite their strength banana fibers are relatively lightweight making them versatile for use in various products. Banana fabrics are flexible and can be easily woven or twisted into different forms, allowing for various applications in textiles and crafts. These fabrics are biocompatible and do not cause skin irritation, making them suitable for use in clothing and other textile applications. Banana fibers can be easily dyed allowing a range of colors in textiles and crafts. The cultivation of banana plants for fiber extraction typically has a lower environmental impact than other crops, as bananas are often grown for their fruit and the pseudo stems can be utilized for fiber after harvesting. They have natural insulating properties.

Green tea is considered a magical ingredient for the skin. It has active components that work in your skin's favor to treat an umpteen number of skin woes. In addition, green tea leaves contain caffeine and tannins that shrink your blood vessels and reduce puffiness. Green tea leaves including matcha, contain L-

theanine, an amino acid associated with relaxation and improved cognitive function. This may be contributing to protecting the skin from oxidative stress and premature aging. The anti-inflammatory properties can be beneficial for soothing irritated skin, reducing redness, and addressing conditions like acne or rosacea. They may help remove dead skin cells, unclog pores, and promote smoother skin texture. Regular use improves skin texture. It has a healing process for the skin, promoting the repair of damaged cells and tissues.

Tea tree oil is an essential oil that has many benefits for the skin. It helps with several concerns, from open wounds to general inflammation, and treats symptoms that affect hair. It can also be used as a deodorant. It has strong antibacterial properties, making it active against acne-causing bacteria. Tea tree oil properties make it active against certain types of fungi. For those with sensitive or irritated skin, tea tree oil can provide relief. It acts as a natural antiseptic, helping to cleanse wounds or blemishes and prevent infection. It also helps combat dandruff and soothe an itchy scalp. It can help control odor-causing bacteria and acts as an effective natural deodorant.

MATERIALS AND METHODOLOGY

SELECTION OF FIBER

Fabric used: Banana yarn fabric

Fig. 1

Finish: Green tea leaves powder

Fig. 2

Fragrance : Tea tree oil

Fig. 3

- Banana yarn is obtained from the pseudo stem of the banana plant.
- Now the banana yarn is weaved into a fabric.
- The weaved fabric is finished using green tea leaves powder.
- After the finishing is done for the fabric to be with a pleasant odor tea tree oil is used.

METHODOLOGY

BANANA FIBER EXTRACT:

Fiber is obtained from the pseudo stem of the banana tree. During the process of extraction, a gummy substance that is non-cellulosic is removed and the fiber is extracted from the fiber. The fiber is subjected to mechanical, chemical, and biological treatments for yarns to be produced.

GREEN TEA LEAVES POWDER (FINISH):

Green tea plants are shaded from the sun for about 20 to 30 days before harvesting. This process increases chlorophyll production, giving the leaves a vibrant color. Only the youngest, tender leaves are picked by hand. The stem and veins will be removed during the initial process. The freshly picked tea leaves are steamed to halt fermentation and preserve their vibrant green color. The steaming process typically lasts for about 20 to 30 seconds. After steaming, the leaves are dried to remove excess moisture. Traditional methods involve air-drying on mats, while modern techniques may use hot air dryers. The dried leaves are sorted by size and quality. the dried and sorted leaves are ground into a fine powder using stone mills or grinders. This process can take several hours to achieve the desired fineness. The resulting green tea leaves powder is carefully packaged to preserve its freshness, color, and flavor.

TEA TREE OIL (FRAGRANCE):

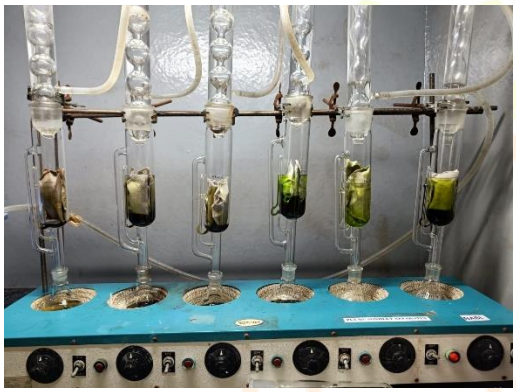
Tea tree leaves are typically harvested by hand or using mechanical means. The leaves contain oil glands that house the essential oil. The harvested tea tree leaves are usually dried to reduce moisture content. This step is important for optimizing the steam distillation process. The dried tea tree leaves are loaded into a still or distillation apparatus. The still typically consists of a boiler to generate steam and a condenser to collect the essential oil. Steam is introduced into the still and passes through the tea tree leaves. The steam causes the essential oil in the leaves to evaporate. The steam, along with the vaporized tea tree oil, is then cooled down in the condenser. This condensation process results in a mixture of water and essential oil. The collected liquid from the distillation process is a mixture of water and essential oil. Since oil and water do not mix well, the essential oil can be separated from water. This separation is often done using a separating funnel or through a centrifuge. The separated essential oil may undergo a filtration process to remove any remaining impurities or plant material. This step helps ensure the purity of the final tea tree oil.

FINISHING AGENT

The finishing agents are green tea leaves powder with tea tree oil for fragrance. The finishing is done on the fabric using Pad-Dry-cure process. Green tea leaves are dried under shade for days until it gets dried. The dried leaves are powdered using mixer jar. The tea tree oil is purchased from online store.

Pad-Dry-Cure process

Padding mangle: The use of structure with a minimum of one dimension of nano meter size for the development of materials, devices or system significantly improved properties due to their Nano size. Nano particles are mostly used in commercial products in the range of 1-100 nm. They have unique physical and chemical properties. The banana fabric is soaked in the extraction that is extracted from the green tea powder mixed with tea tree oil. The green tea powder extracted mixed with tea tree oil-soaked banana fabric is inserted in the padding mangle in the rolling machine so that it will be rolled up and the excess green tea powder extract mixed with tea tree oil will be squeezed out. The finished fabric is let to set and the fabric is dried placed in the hot air oven with 100ºC for 30 min. After drying the fabric in the oven, the fabric is moved to cure method, where the fabric is ironed.



Extraction from the powder

Fig. 4

Finishing on the banana fabric

Fig. 5

TESTING

CONSTRUCTION OF TWO WHEELER FACE MASK

- Start by measuring the dimensions of your face to determine the size of the mask. Consider the contours of the face, including the nose, chin and cheeks, for a snug fit.
- Use the measurements to cut two pieces of fabric. Remember to leave extra fabric for seam allowance.
- Allow the gap for the eyes,
- Using a sewing machine or needle and thread, sew along the edges of the fabric. Use a straight or a zigzag stitch for added durability.

- Attach ropes for the mask to tie it to secure mask on head and face.

Fig. 6 Final Product

Air Permeability Test

The resistance of a fabric to the flow of air is a measure of the initial warm/cool feeling when the garment is worn. The higher the air flow value, the greater the intensity of the warm/cool feeling will be. The effect of air permeability on comfort properties is much greater when the speed of air is high, for example, in stormy weather conditions. The results of air permeability, in terms of the amount of air passing through a unit fabric area per unit time, are given in Table. The result shows that linen and linen-based blended fabrics permit more air to pass through, as compared to 100% cotton fabrics of similar areal density. The reason for the higher permeability in the case of linen and linen-blended fabrics can be attributed to the lower hairiness of these yarns, due to their longer fibre length as compared to cotton. It may also be due to the large diameter of the fibre, which results ?in/from the low packing density of the yarn. Linen fibres, being smoother, circular and coarser as compared to cotton fibres, also assist the easy passage of air through the yarn cross-section, which results in higher air permeability. The result shows that the air permeability decreases in the respective linen blended fabrics with the increase of the viscose component. The air permeability results reveal that the fabrics made from linen fibres are more suitable for summer dress material as compared to winter wear, provided the other comfort parameters of linen fabrics are made suitable to meet the requirements.

SITRA, COIMBATORE, INDIA

Test Report no. 2024.03.12, 11.05.38.LBD **LBD087**

Style:	WOVEN FABRIC	Date/time:	12.03.2024, 11:05 - 12.03.2024, 11:08
SAMPLE NO:	C2301233-1	Operator:	BT
PARTICULARS:	BANANA FABRIC SAMPLE		
MATERIAL:			

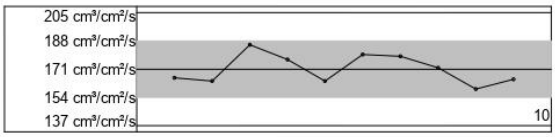
Static Air Permeability

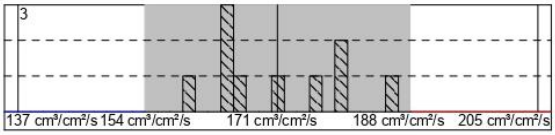
Test pressure:	125 Pa	Date/time:	12.03.2024, 11:05 - 12.03.2024, 11:08
Test area:	38 cm²	Instrument:	Textest FX 3300-III, s/n: 1198

1:	166 cm³/cm²/s
2:	164 cm³/cm²/s
3:	186 cm³/cm²/s
4:	177 cm³/cm²/s
5:	164 cm³/cm²/s
6:	180 cm³/cm²/s
7:	179 cm³/cm²/s
8:	172 cm³/cm²/s
9:	159 cm³/cm²/s
10:	165 cm³/cm²/s

Commentary:

Avg:	171	cm³/cm²/s	Nominal:	171	cm³/cm²/s
Min:	159	cm³/cm²/s	Min:	154	cm³/cm²/s
Max:	186	cm³/cm²/s	Max:	188	cm³/cm²/s
CV:	5.2	%	Tests:	999	
CI:	3.7	%	CI:		





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Ph Test

Testing the pH value after applying a viscose vetiver finish on an eye mask is important for several reasons:

1. **Skin Sensitivity**: The pH value of the finished fabric can affect its compatibility with the skin. A pH value that is too high or too low may cause irritation or discomfort when the eye mask is worn.
2. **Quality Control**: Monitoring the pH value ensures consistency and quality in the finishing process. \It allows manufacturers to identify any deviations from the desired pH range, indicating potential issues in the production process.
3. **Durability**: pH can affect the durability of the finish on the fabric. An improper pH level can lead to premature deterioration of the finish, reducing the lifespan of the eye mask.
4. **Regulatory Compliance**: Certain regulations may require products like eye masks to meet specific pH standards to ensure consumer safety and compliance with industry standards.

Overall, conducting a pH value test helps ensure that the finished eye mask is safe, comfortable, and meets quality standards.

pH VALUES	**Green Tea Coated Banana Fabric**
Mean pH Value	3.65
pH of extracting solution	6.78
Temperature of the extracting solution	30.1^{o}C

Standard : IS 1390 : 2022 Test Solution Used : 0.1 M Potassium Chloride Solution

DISCUSSION

The development and testing of the green tea leaves powder for finish and tea tree oil for fragrance finished women two-wheeler face-mask. Start by introducing the motivation behind using green tea leaves powder and tea tree oil as finishing material, highlighting its potential benefits such as its natural fragrance and antimicrobial properties. Explain how the face-mask was stitched with an open for eyes and a rope to tie the face-mask. Next discuss the methodology used to test the face-mask. Explain the rationale behind conducting PH tests to ensure the material is safe for use on the skin, as well as Air-permeability test to assess its fictionality. Describe the procedures followed for each test and how the results were analysed. Following the methodology section present the results of the tests. Discuss how the face-mask performed in terms of PH levels and Air-permeability capacity. Interpret the findings and compare them to relevant standards or previous research if available.

SUMMARY AND CONCLUTION

SUMMARY

The women two-wheeler face mask serves as a crucial accessory for female riders, offering protection against pollutants, dust and airborne particles while ensuring comfort and visibility during rides. Designed with features tailored to the specific needs of women riders, these masks prioritize efficiency, breathability and compatibility with helmets. Key features of women two-wheeler face mask include multilayered filtration materials for optimal particle capture, adjustable straps for personalized fit and reflective elements for enhanced visibility in low-light conditions. Moisture-wicking fabrics and anti-fogging treatments ensure comfort and clear vision, while durable construction and washable materials promote longevity and hygiene. Optional features such as filter pockets and adjustable ropes. Women two-wheeler face masks offer both practical protection and stylish expression for riders of all ages and preferences.

CONCLUSION

In conclusion, the women two-wheeler face mask represents a vital accessory for female riders seeking protection and comfort during their journeys. By prioritizing features such as filtration efficiency, breathability and visibility enhancements, these masks offer comprehensive protection against environmental hazards while ensuring a comfortable and secure fit for riders of all ages and preferences. With ongoing advancements in materials and design, women two-wheeler face masks continue to evolve to meet the changing needs of riders and the demands of urban environments. By incorporating feedback from users and leveraging innovative technologies, manufacturers can continue to enhance the effectiveness and versatility of these essential accessories, ensuring the safety and well-being of female riders worldwide.

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