

ECO – Comfort Colostomy Belt by Using Bamboo Fabric with Extraction of Holy Basil

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Abstract- This cutting-edge product offers patients a cozy, environmentally responsible, and skin-friendly solution by fusing the therapeutic qualities of Holy Basil (Tulsi) extract with the natural advantages of bamboo fabric. Bamboo fabric is renowned for its antibacterial, moisture-wicking, and breathable qualities, all of which contribute to the comfort and health of the skin all day long. Furthermore, by providing natural antibacterial and anti-inflammatory properties, Holy Basil extract further improves the belt's effectiveness and makes it perfect for sensitive skin. By addressing important issues such as skin irritation, discomfort, and hygiene, the Eco-Comfort Colostomy Belt seeks to enhance the quality of life for colostomy patients. Because bamboo's natural fibers are hypoallergenic and soft, they fit gently and don't chafe or itch. Holy basil extract is especially helpful for patients who have skin sensitivity from wearing colostomy. Patients now have a dependable and calming solution for their everyday needs with the Eco-Comfort Colostomy Belt, which combines contemporary innovation, comfort, and sustainability. The use of bamboo fabric and Holy Basil extract together provides a sustainable and efficient way to improve the entire colostomy care experience, offering users both mental and physical relief.

Key Words: *Eco-Comfort Colostomy Belt, Bamboo Fabric, Holy Basil Extract (Tulsi), Medical Apparel, Breathability, Moisture-Wicking, Anti-Inflammatory, Sensitive Skin.*

1. INTRODUCTION

Bamboo, the fastest-growing plant, is naturally organic and eco-friendly, requiring no pesticides, little water, and releasing 35% more oxygen than other trees. It matures in seven years and prevents soil erosion. Bamboo fabric is eco-fashionable due to its softness and gentle drape. Holy Basil, also known as *Ocimum tenuiflorum*, is a perennial herb with

health-promoting antioxidants and flavonoids. It is revered and considered sacred in Hinduism, with its leaves, stem, flower, root, seeds, oil, and surrounding soil harboring beneficial endophytic fungi. Holy basil has a rich history in Ayurveda and is used in culinary cooking. A colostomy belt is a medical device designed to provide support, security, and comfort for individuals with a colostomy, a surgical procedure that creates an opening in the abdomen to divert fecal flow into an external pouch or bag.

OBJECTIVE

- To provide support and stability.
- To reduce leakage and accidents.
- To promote skin health.
- To improve comfort and mobility.
- To protect the skin from irritation.
- To facilitate easy bag changes.

2. REVIEW OF LITERATURE

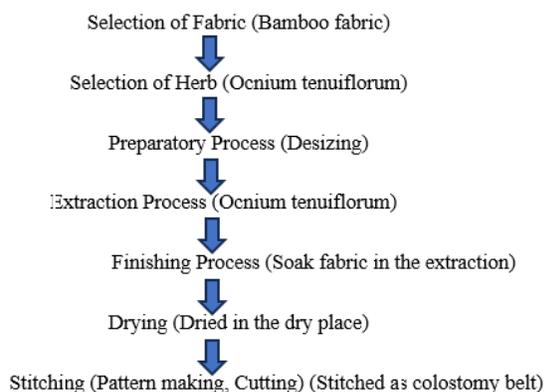
Bamboo is widely used across the world for everything from food and medicine to furniture and scaffolding. It tends to grow in a “belt” running through tropical, subtropical and temperate climates around the globe, and up to 3500m altitude. There are more than 1000 species of bamboo in total, broken into two “groups”: herbaceous and woody. The former tend to be very small-diameter and resemble grasses, while the latter are the more familiar

Botanically, *Ocimum tenuiflorum* is a perennial shrub that can grow up to 1 meter in height. It has aromatic, oval-shaped leaves that range in color from green to purple, with small, delicate flowers that attract bees and butterflies. The plant thrives in tropical and subtropical climates, often being found in gardens,

temple courtyards, and rural landscapes across India and other parts of Southeast Asia. In India, there are two primary varieties of Tulsi: *Sri Tulsi* (green-leafed) and *Krishna Tulsi* (purple-leafed), both offering slightly different medicinal properties but sharing the same broad range of benefits.

A colostomy belt is a supportive garment worn by individuals who have undergone a colostomy procedure. It is designed to securely hold a colostomy pouch or bag in place, ensuring that it stays attached to the body and remains discreet. The belt provides additional comfort and stability, preventing the pouch from shifting or falling off. Colostomy belts are typically made from elastic materials and are adjustable to accommodate different body shapes and sizes. They are commonly used by people with colostomies to improve confidence, mobility, and overall comfort during daily activities.

3. METHODS / METHODOLOGY



3.1. SELECTION OF FABRIC:

3.1.1. BAMBOO FABRIC:

Bamboo, the fastest-growing plant, is naturally organic and eco-friendly, needing no pesticides, little water, and releasing 35% more oxygen than other trees. Maturing in seven years, it doesn't require replanting and prevents soil erosion.



(Fig 1: Bamboo fabric)

3.2. SELECTION OF HERB:

3.2.1. TULSI (OCIMUM TENUIFLORUM):

Ocimum tenuiflorum is a small aromatic shrub with green or purple leaves, depending on the variety (green-leafed varieties are common, while purple-leafed ones are less common). The plant has small, white to purple flowers that grow in clusters.



(Fig 2 Tulsi)

3.3. PREPARATORY PROCESS:

(Fig 3 Desizing Process) (Fig 4 Desized Fabric) (Fig 5 Extraction filter) (Fig 6 Soaking Process) (Fig 7 Drying)



3.4. EXTRACTION PROCESS:



(Fig 8 Tulsi extraction)

Extraction is a crucial technique in chemistry, particularly in organic chemistry, for isolating and purifying target compounds from mixtures containing unwanted materials or impurities.

3.6. PATTERN MAKING:



(Fig 9 Pattern of colostomy belt)

Pattern making in fashion design is the process of creating a template, or blueprint, used to cut fabric and sew a garment, ensuring accurate fit and construction. Pattern making is essential for creating garments that fit well and are constructed according to the designer's vision.

3.7. CUTTING:



(Fig 10 Fabric cutting)

Fabric cutting is a crucial step in garment and textile manufacturing, transforming raw fabric into the individual pieces that will be sewn together to create the final product.

3.8. STITCHING:



(Fig 11 Stitching)

Stitching, in the context of sewing and textile arts, refers to the process of creating stitches by looping yarn or thread through fabric

3.8.4. STITCHES AS COLOSTOMY BELT:



(Fig 12 Colostomy belt front)



(Fig 13 Colostomy belt back)

4.RESULT /DISCUSSION

4.1. QUALITATIVE ANALYSIS:

1.ANTI -MICROBIALACTIVITY TEST - DYNAMIC CONTACT CONDITIONS METHOD (QUANTITIVE)WITH REFER TO 2001 AATCC COMMITTE, AATCC TEST METHOD -AATCC 100-2012

UNSTERILIZATION OF SAMPLE BEFORE TEST:
NEUTRALIZING SOLUTION: PHOSPHATE BUFFER SOLUTION

CONTACT TIME: 1 HOUR

CONTACT TEMPERATURE :24+/-1 °C

INCUBATION PERIOD:24 HOURS

AGAR MEDIUM: NUTRIENT AGAR

TEST ORGANISM: ESCHERICIA COLIFORUM (8099)

STAPHYLOCOCCUS AUREUS (AATCC 6538)

TEST MICROORAGNISMS	REDUCTION OF BACTERIA (%)
ESCHERICIA COLIFORUM	90.5%
STAPHYLOCOCCUS AUREUS	90.5%



(Fig 14&15 Colostomy belt front and back)

5.SUMMARY AND CONCLUSION

The Eco-Comfort Colostomy Belt is a unique medical garment designed for individuals who have undergone colostomy procedures. This belt is crafted from bamboo fabric, which is known for its natural antibacterial properties, softness, and breathability. The use of bamboo fabric provides comfort and enhances skin protection for colostomy patients. Additionally, the belt incorporates the extraction of Holy Basil (Tulsi), a plant renowned for its medicinal properties, including its antimicrobial, anti-inflammatory, and antioxidant effects.

The Eco-Comfort Colostomy Belt represents an innovative and sustainable approach to supporting individuals with colostomies. By integrating bamboo fabric and Holy Basil, this belt provides a natural, eco-friendly, and comfortable solution to the needs of colostomy patients. The antibacterial and healing properties of both the bamboo fabric and Holy Basil enhance the wearer's comfort and contribute to skin health, making it an excellent choice for long-term use. Overall, this belt is a testament to how combining natural materials and modern needs can lead to a better quality of life for those with medical conditions requiring colostomies.

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