

Enhancement of Foot Patch Using natural fiber with herbal extract

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Abstract

Detoxification foot pads are pseudo-scientific alternative medical adhesive foot pads or patches that manufacturers claim can dramatically improve health when placed under the feet during sleep. A medicinal plant *Tridax procumbens* commonly known as coat button Kansai (Hindi) or Ghamara belongs to the family Asteraceae. It is a plant community. Before going to bed at night, you apply adhesive patches called detox foot patches on the bottoms of your feet. While you sleep, the product is left in place. It is said that the ions in the pads pull heavy metals and other pollutants out of your body. *Tridax procumbens*, a plant with many uses and advantages, is sometimes referred to as coat buttons or *tridax daisy*. There are various techniques to extract and use its essence. It is used in traditional medicine to treat ailments like respiratory, intestinal, and skin infections since it is said to have therapeutic qualities. In medicine, cotton and its derivatives are extensively researched and utilized. This is *Tridax procumbens*, a member of the Asteraceae family of medicinal plants, also referred to as coat button, Kansai (Hindi), or ghamara. It is a community of plants.

The perennial plant *Tridax procumbens*, sometimes referred to as "coat buttons," is a member of the Asteraceae family and is indigenous to Central and South America. This species has been employed in Indian Ayurveda since the beginning of time. *T. procumbens* possesses a wide range of pharmacological characteristics, such as anti-oxidant, anti-hepatotoxic, analgesic, anti-diabetic, anti-inflammatory, anti-fungal, and antimicrobial effects. Applying powdered turmeric leaves to foot regions might aid in both relaxation and detoxification. Its antibacterial and anti-inflammatory qualities can support good foot hygiene while relieving fatigued and achy feet.

Keywords: Hepatoprotection, anti-hypertensive, immunomodulatory, antibacterial, anti-inflammatory, and *Tridax procumbens*

1. Introduction

Tridax procumbens The *Tridax* (Linn.) family Compositae, which is commonly employed in Ayurvedic medicine to cure a wide range of illnesses, is also known by the English names "Ghamra" and "coat buttons" because of the appearance of the blossoms. It is also used by some Ayurvedic practitioners to prepare "*Bhringraj*," a popular remedy for liver problems.

The week-straggling herb *Tridax* is around 12 to 24 cm long, with few leaves that are 6 to 8 cm long and very long, slender, solitary peduncles that are at least a foot long. The leaf is an inflorescence capitulum that is simple, opposite, exstipulate, oval, and sharp. There are two varieties of blooms in *Tridax*: disk florets and ray florets. During basal placentation, cypselas are the fruit. A study found that putting coconut extract on human skin can increase the barrier defenses' efficacy.

According to a study, applying coconut extract to human skin can improve the effectiveness of the barrier defenses. An oil massage not only moisturizes and protects your skin, but also eases pain and inflammation by relaxing the muscles in your feet. Regular massages with coconut oil at night help to moisturize and shield your skin from drying out.

Detox foot pads hasten the body's inherent healing mechanisms. It might lower the chance of cellulitis, high blood pressure, depression, sleeplessness, and weight gain. Because of its remarkable ability to absorb fluids, absorbent cotton—also referred to as surgical cotton or cotton wool—is mostly utilized for medical purposes in hospitals, nursing homes, clinics, and other healthcare facilities.

Cotton that absorbs well has very elastic fibers. It is made up of 98–99.5% cellulose and measures 16.30 mm in diameter and 12–40 mm in length. Applying powdered turmeric leaves to foot regions might aid in both relaxation and

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1.1 OBJECTIVES

- ✧ The study about the foot patch application in order to improve the body's blood circulation, Foot
- ✧ pain, Depression, Head aches, Cracks, Seed corn ,and Insomnia etc,...
- ✧ To enhance the knowledge about the detox foot patch with the infusion of herbs.
- ✧ To analyse the techniques used in foot patch development
- ✧ To create the foot patch by infusing jelled herbs by the dip and dry process in the cotton fiber.
- ✧ To create awareness about the natural foot patch and the side effects of he synthetic patches

2. MATERIALS AND METHODS

2.1 SELECTION OF FABRIC

Non Woven Cotton Fabric

Cotton non-woven fabric can be used for detox foot pads or foot patches for a variety of reasons and it is meant to support general health and detoxification. Although it is manufactured from cotton fibers, non-woven cotton fabric is not produced in the same way as traditional woven cotton fabric. Non-woven fabrics are created by various methods than traditional woven fabrics, which are created by weaving threads together. Instead, they are created by mechanically tangled or glued strands.

Applications

- Medical and Hygiene Products, Home and Personal CareFiltration, Agriculture, Geotextiles, Environmental Considerations.

Non-woven cotton fabric maintains the breathability and softness of cotton while providing durability and versatility for a variety of applications. It is widely used in both durable and disposable products across many industries.it's important to keep in mind that views on the effectiveness and safety of detox foot patches differ, thus using them should be done so warily and skeptically. It is best to speak with a healthcare provider to fully understand the advantages and disadvantages of using or making foot patches made of non-woven cotton or any other material for detoxification.

2.2 SELECTION OF FIBER

2.2.1 Cotton Fiber

Medical cotton, often known as "cotton wool" or "cotton balls," is a soft, absorbent substance made of cotton fibers. Its exceptional absorbency, non-toxicity,

and purity make it a highly useful substance in the medical field. The cotton plant's seed hairs are used to make soft, fluffy, natural plant-based cotton fabric. In the textile industry, it is one of the most important and widely used natural fibers.

Properties:

Cotton has a long history in the textile industry and is a material that is frequently utilized and versatile. For a variety of textile items, its comfort, breathability, and softness continue to make it a popular choice.It's essential to use sterile, contamination-free medical cotton products to prevent infection or issues. Medical professionals handle and utilize cotton in medical settings in accordance with stringent criteria to safeguard patient safety.

2.3 SELECTION OF HERBS

2.3.1 *Tridax Procumbence*

Tridax procumbens, sometimes referred to as coat buttons or *Tridax daisy*, has been utilized for a variety of therapeutic purposes throughout history in traditional medicine. *Tridax procumbens* has been used medicinally for a variety of conditions, including wound healing, respiratory problems, gastrointestinal disorders, growth habits, leaves, flowers, and fruit, though its efficacy may vary.

Fields, roadsides, waste sites, and other open, disturbed habitats are common places to find *Tridax procumbens*. It is well suited to a variety of soil conditions and is well renowned for its rapid colonization of open areas.



Fig 3a *Tridax Procumbence* Leaf



Fig 3b Extracted essence

2.3.2 *Curcuma Longa* Leaves Powder

Turmeric leaves, also known as "Haldi leaves" or "*Curcuma longa* leaves," are the leaves of the turmeric plant. This plant is well recognized for producing the popular spice turmeric from its rhizomes, or

underground stems. In some areas, there are also customary uses and culinary applications for turmeric leaves. However, curcumin and other bioactive substances found in turmeric leaves, as well as the rhizomes, may offer health advantages. Turmeric has long been used as a medical herb because of its wide range of biological properties, including the ability to boost energy, fight infection, reduce inflammation, fight cancer, and speed up the healing of wounds. Turmeric leaves have several advantages, one of which is their ability to reduce inflammation. They include substances that may lessen inflammation in the body, which may be advantageous for people who suffer from inflammatory diseases like arthritis.

Curcuma longa leaves are extracted as powder by the grinding process after the leaves are been dried by the shadow dry method. The shadow dry method is nothing but the drying process which is done without sunlight or drying it inside a room with a cohesive room temperature. Anti-Inflammatory Properties, Antioxidant Effects, Digestive Health, Skin Health, Traditional Medicine It's important to note that the culinary and medicinal uses of turmeric leaves may vary by region and culture.



Fig 4a *Curcuma longa* dried leaves



Fig 4b *Curcuma longa* leaf powder

2.4 SELECTION OF OIL

2.4.1 *Cocos Nucifera* Oil

- ❖ Made from the flesh or kernel of mature coconuts, coconut oil is a practical and often used natural product. It can be used in many ways for cosmetic, medical, and culinary purposes.
- Antibacterial and Antifungal, Oral Health, Digestive Aid, Weight Management, Antimicrobial Properties, Anti-Inflammatory

2.5 DOUBLE BOILING AND MIXING PROCESS

Double boiling, also known as "bain-marie" or "water bath," is a cooking technique used to heat or cook delicate substances, such as chocolate, custards, and sauces, without subjecting them to direct heat. This

method involves using two pots, one placed inside the other, with the outer pot containing simmering water. Here's how the double boiling process works:

❖ Equipment Needed:

- Two pots or saucepans: One larger pot and one smaller pot or bowl Herbal extract, *Curcuma longa* leaves powder, *Cocos Nucifera* oil, Spactura

❖ Steps:

- Fill Larger Pot with Water . Place the Smaller Pot Inside. Add the Ingredients Heat the Essence Stir and Monitor

2.6 FINISHING [EXTRACTION APPLICATION]

2.6.1 Infusion of Essence in Cotton (Dip And Dry)

- The "dip and dry" process you're referring to, is in the context of infusing essence or essential oils into cotton fibers.
- In this process, the infusion of boiled and cooled essence with oil will be infused on the cotton fiber by the method known as the dip and dry process.
- Take 30 ml of essence {TRIDAX} 15ml of coconut oil and 2spactura of turmeric leaf powder together for 15 minutes to boil in the water bath at 900 Celsius to make these properties jell together

❖ Materials Needed:

- Cotton Fiber, Essential ingredient, Container.

Steps:

- Prepare the Cotton Add Essential ingredient Mix and Coat Seal the Container

Let It Sit Dry the Cotton and use.



Fig 5 Infused cotton

A quick and easy approach to add different scents to cotton fibers is to "dip and dry" them. To make materials with a unique scent for a range of uses, experiment with different essential oils or scents.

2.7 ANTIBACTERIAL ANALYSIS

The Well Diffusion method was used to assess the antibacterial properties of crude extract extracts 20 milliliters of melted medium were added to sterile Petri dishes to create MHA plates. Following the media's solidification, a homogeneous 20–25µl solution of bacterial inoculums was swabbed. After being dipped into the necessary solvents, the sterile paper discs were put in agar plates. Subsequently, 10–

50 µl of plant extract was added to each well. Subsequently, the plates were incubated for a full day at 37°C. The assay was run in triplicates, and control plates were kept up to date as well. The zone of inhibition was measured in centimeters from the well's edge to the zone. Potato dextrose agar and Muller-Hintonagar plates were covered with the tested cell solution. Sterilized forceps were used to place the wells into the agar medium. The plant extract was added to the wells. After that, plates were incubated for roughly 24 hours at 37°C while maintaining control. From the clear zone, the zone of inhibition was measured in centimeters. The lowest inhibitory concentrations and antibacterial activity of plant extracts against Gram-positive and Gram-negative bacteria have been determined using the Agar well diffusion method.

An agar diffusion method was used to measure antibacterial activity. After being injected into nutrient broth media, the stock culture of bacteria (E. Coli, S. aureus) was cultivated at 37°C for eighteen hours. The agar plates for the media mentioned above were ready. 18-hour-old cultures of the bacteria were swabbed into each sterile plate to inoculate it. Placed were the cloths treated with extract and those left untreated. The diameter of the inhibitory zone was measured in centimeters after each plate was incubated for 24 hours at 37°C.

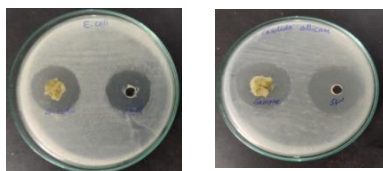


Fig:6 Antibacterial analysis a) E.Coli and b)S.aureus

2.8 DESIGN AND DEVELOPMENT OF PRODUCT



Fig 7: a) Final product, b) Application of product bandage

3. RESULTS AND DISCUSSION

3.1 Antibacterial Analysis

Table 1: Result in anti bacterial evaluation of treated fabric

Organisms	E.Coli(Gram+)	Streptococcus aureus(Gram-)
Cotton pad	1.0 cm	1.2 cm
Standard(Bacteria-Chloramphenicol)Fugues - Fluconazole	1.0 cm	1.0 cm

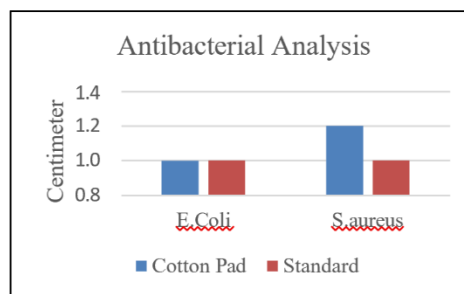


Fig 8: Result in anti bacterial evaluation of treated fabric

Table 1 and Figure 6 pertains Anti-microbial Report: The result finds extract treated Pad having antimicrobial activity against the E.Coli and S.aureus. The result shows the given Extract treated specimen shows very good Anti-microbial activity.

4. CONCLUSIONS

Thus, the Detox foot pads claim to remove toxins from the body. also assert that they can improve various other medical conditions. Keeping liver functioning effectively is the most effective way to naturally detoxify the body. In addition to detoxifying the body it may be used to reduce swelling, stress, or pain. Thus, by applying medicinal pads to the feet, may give a relaxing experience.

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