



Review on Herbal Soap paper for Antifungals and Antibacterials

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ABSTRACT:

There are many potential applications and all-natural components, herbal soaps are growing in popularity. This study set out to make and evaluate herbal soap paper strips utilizing three potent herbs: garlic (*allium sativum*), turmeric (*curcuma longa*), and neem (*azadirachta indica*). The physicochemical properties of the soap paper strips including their antifungal and antibacterial activity, propensity for skin irritation, and cleaning efficacy, were assessed subsequent to their production using a simple and eco-friendly method. The results demonstrated that the herbal soap paper strips were well-designed, and shown encouraging antibacterial activity against a range of ailments. Furthermore, the strips gave the skin a deep cleansing, leaving it feeling revitalized. Overall, research demonstrates how herbal soap paper strips make useful, eco-friendly, and versatile replacements for personal hygiene products.

Keywords: Herbal soap, paper strips, Garlic, Turmeric, Neem, Antifungal, skin irritation.

INTRODUCTION:

In order to develop a base that can be utilized to treat a variety of skin disorders, one or more herbal compounds are combined with other cosmetic ingredients to make herbal cosmetics. Plants are a common primary source of ingredients for newly developed pharmaceutical products intended for both medical and cosmetic applications.

Cosmetics are substances that are applied to the face and hands of humans in order to improve appearance, smoothening the skin, and promote attractiveness without altering the structures or functions of the body. These days, more and more individuals are using herbal cosmetics, and there is a constant need for these items for daily skin care. Herbal cosmetics are divided into groups according to the area of the body they are meant to be applied to, such as cosmetics for the skin, hair, nails, teeth, and mouth, in addition to dosage forms such creams, powders, soaps, or solutions. The medical systems of Ayurveda, Unani, Rigveda, Yajurveda, and homoeopathy are all based on the basic idea of aesthetic skin care. These products are made with crude or extracted plant material. Herbs have a significant role in promoting health and preventing disease. The benefits of using herbal cosmetics are as follows. Markets have a variety of skin care products, including sunscreen, anti-aging, anti-wrinkle, and anti-acne products. Several fungal diseases, such as eczema, psoriasis, athlete's foot, and many more, can be helped with topical antifungal soaps paper. Herbal soap paper formulations are widely used in the treatment of fungal and Bacterial infections because of their all-natural ingredients, wide range of efficacy, and low occurrence of adverse effects. [1,2,3,4]

Paper soap benefits are as follows:

- Light weight
- Easy to use
- Gentle on skin
- Carrying ease
- Environmental friendly
- Affordable
- Biodegradable and disposable

FUNGAL INFECTION:

Usually called mycosis, fungus causes fungal infections, which are skin diseases. The number of species of fungi is infinite. They are present on your skin, on home objects, in the soil, and on plants. Sometimes they might result in skin issues like acne or rashes. Fungal infections can be caused by a wide range of fungal species. Unusual fungus on your unregulated cell development or within it might occasionally cause infection. One can spread yeast infections. Individuals may transmit them to one another. At present, one of the most urgent dermatological problems globally is fungal skin infections. Study indicates that developing the number of persons with fungal infections in developed and developing countries is around 40 million. [5,6]



**Antifungal:**

Medications classified as antifungal agents, often referred to as fungistatic drugs, are used to treat and prevent mycosis, which includes ringworm, athlete's foot, candidiasis, and dangerous systemic infections such as cryptococcal meningitis. Athlete's foot, psoriasis, eczema, and many other fungal diseases are treated with topical antifungal soaps as a supportive measure. Herbal soap paper compositions are widely used to treat fungal infections because of their all-natural ingredients, wide range of efficacy, and low number of negative effects. These days, there's a rising interest in these preparations. At the moment, fungus infections are increasingly common among humans because of. People may get rid of fungal infections and the discomfort they cause with the help of the offered therapy. Treating the infection is an advantage of antifungal soap. [7,8]

Plant Profile:**NEEM:****Azadirachta indica (Neem)**

One of the most valuable trees in the mahogany family (Meliaceae) is neem (*Azadirachta indica*), also referred to as Nim or Margosa. It grows quickly and is used as a natural pesticide in addition to its wood. The Indian subcontinent and other drier parts of South Asia are most likely home to neem.

Numerous countries in the Caribbean, parts of Africa, and South and Central America have received it. Utilization of the plant dates back many years in organic farming, cosmetics, and Ayurvedic and conventional medicine.

Neem trees may reach heights of between 15 and 30 meters (49 to 98 feet) and feature visually beautiful rounded crowns with thick furrowed bark.

PLANT SPECIFICATION OF AZADIRACHTA INDICA:

Although they can fall off during exceptionally dry conditions, the intricate leaves typically contain serrated leaflets and are evergreen. Tiny, fragrant white blossoms, either staminate or male (bisexual), are borne in clusters on the leaf axils.

Smooth and yellow-green drupe-like, the fruit's flesh has a nice flavour. Neem may be propagated by cuttings or root suckers, however seeds are frequently the favourite option. Because it's hardy and persistent, the plant does well in rocky, poor soil. Although it cannot tolerate wetness or temperatures below freezing, neem can tolerate a wide variety of environmental conditions.[9]

- Scientific Name: Azadirachta Indica
- Family: Meliaceae
- Kingdom: Plantae
- Phylum: Magnoliophyta
- Class: Magnoliopsida
- Subclass: Rosidae
- Order: Sapindales
- Family: Meliaceae
- Genus: Azadirachta
- Subject: Azadirachta indica

MOA OF AZADIRACHTA INDICA:

Parts of the neem (Azadirachta indica) plant have antibacterial properties due to their ability to suppress microbial development and perhaps break down cell walls.[10]

AZADIRACHTA INDICA USE IN ANTIFUNGAL:

Antifungal activity: A condition caused by fungi People have believed that neem is useful against some fungi that infect the human body since the beginning of time. Several important fungi have been found to be effectively treated by neem preparations. These include ringworm, which attacks the skin and nails of the feet, athlete's foot fungus, which affects the skin, hair, and nails, fungi that grow in the lungs, bronchi, and mucous membranes, and fungi that are normally found in the mucous membranes but can get out of control and cause lesions in the mouth (thrush), vagina, etc. Neem leaf and oil seed extracts work well against a variety of fungi, such as Trichosporon, Candida, Trichophyton, Epidermophyton, and Microspor.[11]

TURMERIC:



Curcuma longa (Turmeric)

One blooming plant in the Zingiberaceae family of ginger is turmeric, or *Curcuma longa*. Originating from the Indian subcontinent and Southeast Asia, this perennial herbaceous plant needs significant yearly rainfall and temperatures between 20 and 30 °C (68 and 86 °F) to flourish. Every year, plants are harvested for their roots; some are kept for eating, while others are multiplied for use the next season. The main ingredient in turmeric, curcumin, imparts the dyeing properties. The rhizomes are used fresh or boiled in water, dried, and then ground into a deep orange-yellow powder that is frequently used as a colouring and flavouring agent in many Asian cuisines, especially for curries. While curcumin, or turmeric, has been used for a long time in Ayurvedic medicine, there is no solid clinical evidence to support its efficacy in treating any illness.[12]

PLANT SPECIFICATION CURCUMA LONGA:

- *Scientific Name: Curcuma longa*
- Kingdom: Plantae
- Sub-kingdom: Tracheobionta -Vascular plants
- Super division: Spermatophyta
- Division: Magnoliophyta – Flowering plants
- Class: Lilliopeales- monocotyledons
- Subclass: Zingiberidae
- Order: Zingiberales
- Genus: *Curcuma* L. *curcuma*
- Species: *Curcuma longa*

MOA OF CURCUMA LONGA:

Through the use of calcein leakage tests on curcumin-treated gigantic and large unilamellar vesicles, we discovered that curcumin possesses a membrane-active mechanism that causes internal components to leak through the flappy membrane.[13]

CURCUMA LONGA USE IN ANTIFUNGAL:

Turmeric, often referred to as *Curcuma longa*, is a golden-yellow spice that is frequently used in traditional medicine and food. It has a wide range of applications, such as in antifungal, as an anti-inflammatory, antioxidant, and for digestive health, wound healing, skin care, heart health, immune support, cancer prevention, and weight management.[14]

ALLIUM SATIVUM (GARLIC):

Allium sativum (Garlic)

Planting *Allium sativum*, a perennial in the Amaryllidaceae family, is done mostly for its tasty bulbs. The plant, which is native to central Asia, grows wild in southern France and Italy and is a staple in many regional cuisines. The strong onion-like flavour and scent of the bulbs make them unsuitable for eating uncooked.

Garlic plants grow to an average height of 60 cm (2 ft.). Depending on the cultivar, the long leaves frequently sprout from a short, hard stem above the bulb or from a soft faux stem composed of overlapping leaf sheaths. With a membrane skin covering, the clove-shaped bulb may hold up to 20 edible bulblets. The bracts that had been covering the spherical flower cluster burst open when the green-white or pinkish blooms bloomed. On flower stalks, tiny bulbils—secondary bulbs that develop in place of blooms—and sterile flowers can occasionally be seen. Garlic is typically propagated by planting cloves or top bulbils, however seeds can also be utilized. Usually, garlic is grown as an annual crop. [15]

Garlic was esteemed for its medicinal qualities and used as a charm to ward off vampires and other evils in ancient and mediaeval times. There is some evidence that the herb, which is widely used in traditional and folk medicine, may help prevent heart disease. The main ingredients of essential oil—diallyl disulfide, diallyl trisulfide, and allyl propyl disulfide—compose around 0.1 percent of garlic.[15]

PLANT SPECIFICATION ALLIUM SATIVUM:

The bulb of *Allium sativum* yields an annual crop with flowers. Its stem, which blooms erect, is one meter (three feet) high. 1.25–2.5 cm (0.5–1.0 in) in width, with a sharp tip, the leaf blade is firm, flat, and linear. Pink to purple flowers can be produced by the plant from July to September in the Northern Hemisphere. An inner sheath encloses the clove of the odoriferous bulb, while thin sheathing leaves surround the outer layers. Differently formed cloves, save for those nearest to the center, usually number 10 to 20 in the bulb. Proper timing and depth of planting can allow garlic to thrive as far north as Alaska. It may be grown up to Alaska's north. It gives rise to hermaphrodite blossoms. It is pollinated by bees, butterflies, moths, and other insects.[16]

- Garlic (*Allium sativum*)
- Synonym: Garlic
- Family: Amaryllidaceae.
- Kingdom: Plantae
- Phylum: Tracheophyta
- Class: Lilopsia
- Order: Asparagales
- Family: Meliaceae
- Genus: *Allium*
- Subject: *Allium Sativum*

MOA OF ALLIUM SATIVUM: Garlic contains a sulphur-containing molecule called di-allyl thiosulfate, or allicin, which is the active ingredient that inhibits the growth of bacteria and fungus. Garlic's fresh aqueous extract demonstrated antifungal efficacy, particularly against some *Aspergillus*

ALLIUM SATIVUM USE IN ANTIFUNGAL:

Antifungal action: Garlic is a widely consumed item that has been used in traditional medicine for thousands of years. The powerful antifungal and anti-inflammatory qualities of garlic oil, which is derived from garlic, have been shown. The two volatile sulphur-containing compounds found in garlic oil most frequently are diallyl trisulfide (DTS) and diallyl disulfide (DDS). According to experiments, garlic oil shown a potent antifungal effect against *Candida albicans*.

actions of antibiotics.

management of the skin virus.

Heart-related Conditions.

therapy for cancer.

Effect of Lowering Lipid.

Anti-inflammatory characteristics.

Capacity of antioxidants. [17,18,19]

1. INGREDIENTS AND ROLES:

Ingredients	Uses	Amount
Neem oil	Antifungal agent	2 ml
Turmeric	Antifungal agent	4mg
Garlic oil	Antifungal agent	2 ml
Soap base	Base	100g
Sodium hydroxides	Adsorbent	50g
Methyl paraben	Preservative	8 ml
Distilled water	Solvent	Q. S

2. MATERIAL:

- Neem leaves
- Turmeric rhizomes
- Garlic oil
- Soap base
- Sodium hydroxides
- Water soluble paper strip's
- Silicon Mold
- Methyl paraben
- Distilled water

3. METHOD'S:

1. Take fresh's leaves of neem also take fresh turmeric, garlic oil.
2. Wash neem leaves and turmeric with distilled water.
3. Take leaves of neem and turmeric in mixer and add some amount of water into it.
4. Take above mixture and filter it with filter paper in beaker.
5. Take soap base and melt with help of water bath, take soap base in beaker.
6. Add mixture in soap base while addition of methyl paraben, sodium hydroxides at low flame of burner.
7. Take this solution breaker, after that take soap paper strip and deep in that solution for few seconds
8. Remove the soap paper from this solution and dry at room temperature.
9. After dry of soap paper the formulation of soap paper is prepared
10. You may use small storage containers and tools like tape, clips, and rope to hang dried paper soap.

CONCLUSION:

One of the most important items that is used on a daily basis is soap. It guarantees that the microorganisms in the skin and other exterior areas of the body are eliminated while cleaning and bathing the body. Research has demonstrated that the presence of thick foam on the affected area hydrates the stratum corneum, improving medicine penetration. Soap bars drawbacks are addressed by the creation of herbal paper soap strips. Patients of all ages and genders can use these easy to use, affordable, and practical herbal soap strips. The addition of main herbal ingredient in paper soap such as garlic is advantageous because of their anti-fungal, anti-bacterial, anti-microbial properties beneficial for skin like anti-aging and skin smoothing benefits and can also increase antioxidant levels of the skin.

No medicine that has been shown to have non-irritating properties for the skin has been added. Fragrances are applied last (lemon essential oils) and the skin's natural pH is maintained without damage or peeling off of palm skin. Also give proper odour

Neem and turmeric also show anti-bacterial and anti-fungal therapeutic action. The invention of soap that is shaped like thin paper is called paper soap. Most tourists use paper soap since it's convenient to carry

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