



A Review on Antifungal Medicinal Plant.

Miss. Tarate Sanika, Miss Ghorpade Poonam, Dr. Sayyed Gaffar, Dr. Garje Sanjay.

¹Student, College of Pharmaceutical Science and Research Centre Kada Beed 414202.

²Guide, Department of Quality Assurance of Pharmaceutical Science and Research Centre Kada 414202.

ABSTRACT

The study's objective was to create a cream's recipe that would both treat and enhance the appearance of fungal skin diseases. This combination is one of a medicinal cream's two active antifungal ingredients. It provides additional components that can help with skin problems and a formula for treating fungal skin infections. The topical method is the most effective for treating skin infections. For many drugs, the development of topical drug delivery systems with systemic effects seems beneficial because of the advantages it offers over conventional drug administration techniques. The active pharmaceutical ingredients (API) used to treat fungal skin infections are tulsi oil and garlic oil. Synopsis Fungal infections are a major cause of illness worldwide, impacting millions of people annually. Drug resistance and unfavorable side effects are two common problems with conventional antifungal treatments. Consequently, in an effort to find new antifungal drugs, scientists have shifted their focus to natural therapies, particularly medicinal plants. With a focus on active ingredients, modes of action, and possible uses in the treatment of fungal diseases, this review article seeks to present a comprehensive and current analysis of the antifungal qualities of a range of therapeutic plants.

Keywords: (Fungal skin infections, Tulsi oil, Garlic oil, Indian acahypha.

INTRODUCTION:

A fungal-induced inflammatory disease. Mycosis. The term "zymosis" (medicine) refers to any of the several skin or mucous membrane problems produced by Blastomycosis, which is the emergence and dissemination of an infectious disease (especially one that is fungal in nature). Infections by fungi are frequent in the natural world. When a part of the body experiences an excessive fungal development, it can cause fungal infections in humans. Fungi are present in the soil, water, plants, air, and aquatic life. Then there are certain fungi that, in their native environment, reside on humans.

Type of fungal infection:

1. Superficial:

Skin and mucous membranes are affected. For instance, tinea versicolor and other dermatophytes can harm. The keratin layer of the skin, hair, and nails. Such as tinea pedis and ring worm infection Candidiasis: Yeast-Like symptoms, mouth thrush, and nail infections.

2. Deep infection:

Infections that impact the heart, lungs, and brain, among other internal organs. Endocarditis and Meningitis.

Overview of Fungal Skin Infection

Fungi usually reside in the vaginal area, between the toes, and under the breasts, which are damp areas of the body where skin surfaces meet. Widespread fungal skin infections are caused by yeasts (such Trichophyton, Epidermophyton, and Microsporum) or dermatophytes (like Malassezia furfur or Candida). Many of these fungi are limited to the uppermost stratum corneum, the outermost layer of skin. Avoid puncturing deeper than this. Because they have many skinfolds, obese people are more likely to get these infections; this is especially true if the skin inside a skinfold is irritated and breaks down (intertrigo). Individuals with diabetes are often also more susceptible to fungal infections. It's interesting to note that some people have fungal infestations in their bodies, which can cause rashes in numerous regions of the body.



Fig 1.Fungal skin infection

Symptoms:

- Itching
- Redness on skin

Causes:

- Due to use of antibiotics
- Poor eating habits
- Hormone imbalance.

- **Treatment:**

- Antifungal medicines
- Preventative measures for moisture
- Fungi infections are often treated using antifungal treatments, such as those that are applied right Once to the affected area (called topical drugs). Topically applied drugs
- In order to lessen swelling and discomfort, doctors treat a variety of infections with corticosteroids.

Medicinal plant profile :

- **Garlic**
- **Tulsi**
- **Kuppamini.**

1.Garlic:



FIG 2 Garlic .

Synonyms: Allium; lissan (Hindi)

Biological source: Garlic consist of ripe bulbs of *Allium sativum* Linn

Family: Liliaceae.

Parts used : Bulb ,oil ,leaves, seeds

Chemical Constituents:

Garlic contain, Alliin is an odorless sulfur- containing chemical derived from the amino acid cysteine. When garlic bulbs are crushed, Alliin is converted into another compound called Allicin. Allicin is further broken down to a compound called Ajoene, which may be the substance that inhibits blockage in blood vessels from clots and atherosclerosis. Alliin is an odorless sulfur-containing chemical derived from the amino acid cysteine. When garlic bulbs are crushed, Alliin is converted into another compound called Allicin. Allicin is further broken down to a compound called Ajoene, which may be the substance that inhibits blockage in blood vessels from clots and atherosclerosis.

1.Allin, Allicin

2.Mucilage

3.Volatile Oils

4.Albumin

5.Fatty acid

Uses:

Bacterial and Viral Conditions :

- Fights bacteria like an antibiotic
- Inhibits the growth of different species of Bacteria
- Garlic is reported to be more effective than Penicillin against:
 - The organisms responsible for cholera, Dysentery and enteritis
 - Paratyphoid disease Putrefactive intestinal bacteriaStreptococcus and staphylococcus Bacteria Typhus disease
- One medium clove of Garlic can equal the
- Antibacterial action equivalent to 1%
- Penicillin
- Blood Conditions Dissolves blood clots
- Reduces fat levels in the blood
 - Athletes foot
 - Anti-fungal
 - Yeast infection
 - Flavouring agent
 - Effective pain killer.

SIDE EFFECTS:

- Side effects may include:
- Internally:
 - upset stomach,
 - bloating,
 - bad breath,
 - body odor

- Headache
- Fatigue
- loss of appetite
- muscle aches
- vertigo
- allergic asthmatic reaction

Externally:

A stinging sensation on the skin from handling too much Fresh or dried garlic can cause blistering if applied to

- Delicate skin handling may also cause the appearance of
- Skin lesions contact dermatitis (skin rash). Due
- To Garlic's blood-thinning properties it should not be used
- By people:
- with bleeding disorders such as:
- hemophilia
- platelet disorders
- Too much Garlic can increase your risk for bleeding during .

Garlic as an antimicrobial agent and a fungicidal agent:

Garlic extract possess a good antimicrobial activity against human oral microorganism. It is suggested that mouthwash containing 10% garlic extract helps in the significant reduction of the level of oral bacteria [28].Groppo et al. [29] have observed a remarkable reduction of mutans streptococci after gargling the mouth with a 2.5% garlic mouthwash solution. Another study, reported a reduction in levels of total salivary bacterial count and the streptococcal mutans count after garlic mouthwash. It was mentioned that a 3% concentration was the minimum concentration at which a zone of inhibition was observed[30]. This antimicrobial action could be applied in the prevention of dental caries. Garlic is reported to be an effective fungicidal agent too against *Candida albicans*, a fungus that is usually present in the oral cavity [31]. Ledezma 24 et al demonstrated that ajoene , an active compound in garlic may play a role as a topical fungal agent .

- **Tulsi:**



Fig 3 tulsi

Synonyms: Scared basil, kali-tulsi, veranda

Biological Source: Tulsi consists of fresh and dried leaves of *Ocimum Sanctum*

And *ocimum basilicum*

Family: Lamiaceae

Chemical constituents:

The chemical composition of Tulsi is highly complex, Containing many nutrients and other biological active Compounds. extract yielded some phenolic compounds (antioxidants) such as cirsilineol, circimaritin, isothymusin, apigenin and rosameric acid, and appreciable quantities of eugenol. The leaves of *Ocimum sanctum* contain 0.7% volatile oil comprising about 71% eugenol and 20% methyl eugenol. The oil also contains carvacrol and sesquiterpine hydrocarbon caryophyllene [5]. Two flavonoids orientin and andvicenin from aqueous leaf extract of *Ocimum sanctum* have been isolated.

1. 70%Eugenol
- 2.Caryophyllene,
- 3.oleanolic acid
- 4.linolenic acid

Scientific classification

Kingdom : Plantae

Division : Magnoliophyta

Class : Magnoliopsida

Order : Lamiales

Family : Lamiaceae

Genus : *Ocimum*

Species : *O.Tenuiflorum*

Binomial name : *Ocimum tenuiflorum* or *Ocimum sanctum* L.

Antibacterial activity:

the aqueous, alcoholic, chloroform Extract and oil obtained from leaves of *Ocimum sanctum* were Studied against *E.coli*, *P. aeruginosa*, *S. typhimurium* and *S. Aureus*. Extract obtained from *O.sanctum* were observed Equally effective against pathogenic gram-positive and gram-Negative bacteria . . Fresh leaves essential oil had shown more Antibacterial properties compared to dried leaves essential oil Of Tulsi and in case of fungus the property is just the reverse

Uses:

- 1.Antifungal agent
- 2.Anti-diabetic properties
- 3.Expectorant
- 4.Carminative

• **KUPPAIMENI:**



Fig no 4 kuppaimeni

Synonyms :Indian nettle, Indian acalypha.

Family : Euphorbiaceae.

Biological source : It consist of herbal plant of indian mercury.

TAXONOMICAL CLASSIFICATION:

Kingdom: Plantae

Superdivision: Embryophyta

Division: Tracheophyta

Subdivision: Spermatophytina

Class: Magnoliopsida

Superorder: Rosanae

Order: Malpighiales

Family: Euphorbiaceae

Genus: Acalypha

Species: A. Indica

:Vernacular names

Begali: Muktajhuri steva-basanta

Hindi: Kuppikhoksli, kuppu, khokali .

Kannada: Kuppigida

Malayalam: Kuppameni

Sanskrit: Haritamanjari

Tamil: Kuppivaeni , kuppaimeni .

Telugu: Kuppichettu, harita-manjiri, kuppinta, muripindi

Chemical constituents:

1.Tannin

2.flavonoid.

3.cyanogenice glycoside.

4.acalyphamide.

BOTANICAL DESCRIPTION :

Acalypha indica is a traditional medicinal plant, well known by old generations in many countries like Asia and Africa.(5) The plant is mostly found in wet, tropical and backyards of houses. It grows as Weed, bushes alongside roads and other areas.(6) Many international manuscripts on Acalypha indica Has been published in Indian journals because this plants has a close connection with Siddha, Ayurveda medicinal practices followed by old generation of people.

.1 Leaves :

The leaves have acute or sub obtuse crenate – serrate, glabrous thin and base cuneate. Their petiole is usually longer than the blade, slender and stipulate minute.(13) The leaves of Acalypha indica are simple and arranged spirally 0.02 – 12cm petiole long.

Flower :

Flowers are elongated, auxiliary spikes and clusters near to spikes. The female flower is white in colour and surrounded by a shortly pedunculate large leafy dentate cuneiform with many nerves bract a shortly pedunculate large leafy dentate cuneiform with many nerves bract that is approximately 6 to 8mm in

diameter. Flowers are unisexual, sessile and petals absent; male flowers with 4-lobed, minute, granular dotted, greenish calyx and stamens 8; female flowers with 3 triangular-ovate, ciliate sepals, ovary superior, 3-celled, slightly 3 lobed, styles 3, fused at base and fringed.

Fruits

The fruits of the *Acalypha indica* are small and hairy. Capsule is bristly, 1mm broad.

Seeds :

The seeds are minute, ovoid in shape and pale brown in colour. In the early stages of seed formation, its colour changes from greenish white into a completely brownish or grey colour depending on its maturity(16) The inflorescences are in axillary, solitary or paired spike reaching up to 6–10cm .

TRADITIONAL USES OF ACALYPHA INDICA LINN.

leaves :

Leaves are used as antibacterial, wound healing and decoction of leaves is used for dysentery. Leaf infusion is also taken as purgative. The leaves in decoction and in powder form are used as laxative. Paste of leaves is applied in burning lesions.

Roots:

Roots are used for treatment of fever, intestinal worms, diabetes and stomach ache. Roots are used as abortifacient, cathartic, demulcent and anti-inflammatory.

Seeds :

Seeds are used to treat diarrhoea, asthma and bronchitis and it is a natural diuretic agent,

COMMON USES :

It has also been reported to be useful in treating pneumoniae, asthma, rheumatism and several other ailments. The plant is commonly used as dyeing agent. The plant is also used as expectorant, antivenom, wound healing, antioxidant, diuretic and treatment of infertility, Inflammation, bacterial infections and cancer.

PHYTOCHEMICAL STUDY:

The constituents present in plant play a vital role in the identification of crude drug. *Acalypha indica* has a wide variety of nutrients such carbohydrates, proteins, vitamins and lipids. The plant has a high content of iron, followed by copper, nickel, zinc and chromium. **Leaves:**

The leaves possess acaindinin, aurantiamide, corilagin, ferulic acid, triacetoneamine and resin.

Whole plant :

The plant contains acalyphamide, acetylgeraniin, caffeic acid, cysteine, gallic acid and tectoquinone.

Root

The roots have stigmasterol, syringic acid and 3,3' Methylene bis (4-hydroxyl coumarin). The plant shows a cyanogenetic glucoside, kaempferol, triacetoneamine, a base and acalyphin, an alkaloid. It also contains acalyphamide, 2methylanthraquinone, amides, -sitosterol, beta sitosterol, tri-o-methyl ellagic acid, stigmasterol, beta-sitosterol glucoside, quinine, tannin, resin, noctacosanol, and essential oils.

Uses:

- Antifungal.
- Anthelmintic.
- Purgative.
- Diuretics.
- Antibacterial.
- **Anti-fungal activity:**

Hexane, petroleum ether, chloroform, ethyl acetate, methanol and water extracts of *Acalypha indica* was Evaluated for its antifungal activity against *Aspergillus flavus*, *Aspergillus niger* *Candida albicans*, *Candida glabrata*, *Candida tropicalis* and *Penicillium chrysogenum*. The phenolic compounds and Flavonoidal derivatives of *Acalypha indica* were believed to be the source for antifungal properties.

Conclusion :

The skin antifungal action using bioactive components. The antifungal will incorporate Tulsi oil, indian mercury oil, and garlic oil throughout the emulsification process. For many fungal infections, the best treatments include garlic and tulsi oil. The combination of the active components has an antifungal effect. Because topical medicines allow for personalized therapy and have fewer side effects, they are the best choice for treating skin infections.

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