



FORMULATION AND EVALUATION OF HERBAL ANTIFUNGAL OINTMENT

¹Taware S. S, ² Prof. Fand S. B, ³Vidhate S. V, ⁴Markad S. D.

^{1,2,3}Student of ACOP, ² Assistant Professor

¹B. Pharmacy Student of ACOP

¹Arihant College of Pharmacy, Ahmednagar, India 414005

Abstract: Fungal infections is also called mycoses represent the invasion of tissues by one or more species of fungi which may cause superficial, localized, deeper tissue infections to serious lung, blood or systemic diseases. In this research has been undertaken with the aim to formulate and evaluate the ointment containing Lantana camara leaf extract. Herbal medicine has become an item of global importance both medicinal and economical. Although usage of these herbal medicines has increased, their quality, safety and efficiency are serious concerns in industrialized and developing countries. Herbal remedies are getting increasing patient compliance as they are devoid of typical side effects of allopathic medicines. The present research has been undertaken with the aim to formulate and evaluate the herbal gel containing Lantana camara leaf extract.

Keywords: Lantana camara, Beta Caryophyllene, Pulverized, Soxhlet method

I. INTRODUCTION

Fungal infections are any disease or condition you get from a fungus. They usually affect your skin, hair, nails, or mucous membranes but they can also infect your lungs or other parts of your body. A fungal infection is also known as mycosis. most fungi are harmless to humans, some of them are capable of causing diseases under specific conditions. Fungi reproduce by releasing spores that can be picked up by direct contact or even inhaled. Fungal infections on or in your skin can look red, swollen or bumpy. They can look like a rash or you might be able to see a lump under your skin. Fungal infections in your nails can make them discolored (yellow, brown or white), thick or cracked. Fungal infections in your mouth or throat can cause white coating or patches.

Some signs and symptoms of fungal infection-

- 1) Irritation
- 2) Scaly skin
- 3) Redness
- 4) Itching
- 5) Swelling
- 6) Blisters

Types of fungal Infection

1. Cryptococcosis
2. Athlete's
3. Jock itch
4. Yeast infection

1. Cryptococcosis

Cryptococcosis is an infectious disease with worldwide distribution and wide array of clinical presentations caused by pathogenic encapsulated yeasts in the genus *Cryptococcus*. Currently, there are 2 species of *Cryptococcus* that commonly cause disease in humans:

Symptoms

- 1) Headache.
- 2) Fever.
- 3) Neck pain.
- 4) Nausea and vomiting.
- 5) Sensitivity to light.
- 6) Confusion or changes in behavior.



Fig 1

2. Athlete's Foot

Athlete's foot is also known as tinea pedis. It's a type of fungal infection that can affect the skin on your feet, as well as your hands and nails. The infection is caused by dermatophytes, a group of fungi that can thrive in the warm and humid areas between your toes. In some cases, the infection can also spread to other areas of



your body. Examples include your nails, groin, or hands

Fig 2

Symptoms

Athlete's foot can cause an itching, stinging, or burning sensation between your toes or on other parts of your foot. Your skin might also crack, peel, or blister.

3. Jack itch

Jack itch is also known as tinea cruris. It's a fungal infection that can affect the skin on your groin area, as well as your inner thighs and buttocks. Like athlete's foot, it's caused by dermatophytes, a group of fungi that thrive in warm and humid areas. This type of infection mostly affects men and boys, but women and girls can develop it too. The main symptom is an itchy red rash that typically starts in the groin area or around the upper inner thighs. The rash may get worse after exercise or other physical activity and can spread to the buttocks and abdomen. The affected skin may also appear scaly, flaky, or cracked. The outer border of the rash can be slightly raised and darker.



Fig 3

Symptoms

Redness, itchiness, burning feeling, changes in skin color, cracking skin.

4. Yeast Infection

Candida albicans is a type of fungus that can infect your skin, mouth, gastrointestinal tract, urinary tract, or genitals. It's normal for small amounts of candida albicans to be present on your skin and in your body. But when these fungi multiply too much, they can cause an infection known as a yeast infection. The fungus candida albicans is responsible for most vaginal yeast infections.

Your vagina naturally contains a balanced mix of yeast, including candida, and bacteria. Certain bacteria (lactobacillus) act to prevent an overgrowth of yeast. But that balance can be disrupted. An overgrowth of candida or penetration of the fungus into deeper vaginal cell layers causes the signs and symptoms of a yeast infection.

Overgrowth of yeast can result from:

- 1 Antibiotic use, which causes an imbalance in natural vaginal flora
- 2 Pregnancy
- 3 Uncontrolled diabetes
- 4 An impaired immune system
- 5 Taking oral contraceptives or hormone therapy that increases estrogen levels

Symptoms

If you get a yeast infection in your throat or mouth, it's called oral thrush. Thrush causes white patches to form in your mouth and throat. People who undergo prolonged antibiotic therapy often develop this type of infection.

Prevention

- 1 Be sure to practice good hygiene.
- 2 Don't share clothing, towels, or other personal items.
- 3 Wear clean clothes every day, particularly socks and underwear.
- 4 Choose clothing and shoes that breathe well. Avoid clothing or shoes that are too tight or have a restrictive fit.
- 5 Make sure to dry off properly with a clean, dry, towel after showering, bathing, or swimming.

OINTMENT:

These are preparations for external use, intended for application to the skin. Typically, they have an oily or greasy consistency and can appear "stiff" as they are applied to the skin. Ointments contain drug that may act on the skin or be absorbed through the skin for Systemic action. Many ointments are made from petroleum jelly.

Ointments are best used on dry skin because they trap Moisture and are not well absorbed into the skin. When used for medical purposes, ointments are used for a variety of conditions, such as Medicinal plants represent an important source of medically important compounds. Since ancient time, medicinal plants are used to cure several types of health problems. Systemic Analysis of these plants provides a variety of bioactive Molecules for the development of newer pharmaceutical Products.

Recently, there is a growing interest in the Pharmacological evaluation of various plants used in Different traditional system of medicine.



Types Of Ointment

The various types of ointments are

1. Unmedicated Ointment
2. Medicated Ointment

1. Unmedicated Ointment

These ointments do not contain any contain any drugs. They are useful as emollients, protectants.

2. Medicated Ointment

These ointments contain drugs which show local or systemic effects. This medication is used. These ointments contain drugs which show local or systemic effects.

This medication is used as a moisturizer to treat or prevent dry, rough, scaly, itchy skin and minor skin irritations or prevent dry, rough, scaly, itchy skin and minor skin irritations or prevent dry, rough, scaly, itchy skin and minor skin irritations (such as diaper rash, skin burns from radiation therapy). These are of several sub-types:

- 1) Dermatologic ointments
- 2) Ophthalmic ointments
- 3) Rectal ointments
- 4) Vaginal ointments
- 5) Nasal ointments

Medicinal application of the Ointment

- Ointments are used topically for several purposes, e.g., as protectants, antiseptics, emollients, antipruritic, keratolytic, and astringents.
- In the case of a protective ointment, it serves to protect the skin against moisture, air, sun rays and other external factors.
- It is necessary that the ointment neither penetrates the human skin barriers nor facilitates the absorption of substances through this barrier.
- An antiseptic ointment is used to destroy or inhibit the growth of bacteria. Frequently bacterial infections are deeply seated; a base which has the capacity to either penetrate or dissolve and release the medication effectively is therefore desired.
- Ointments used for their emollient effect should be easy to apply, be non-greasy and effectively penetrate the skin.

INGREDIENTS

LANTANA CAMARA



Synonyms

Lantana viburnoides, *Lantana urticifolia* subsp. *portoricensis*, *L. urticifolia* subsp. *moldenkei*, *L. urticifolia*, *Lantana undulata*

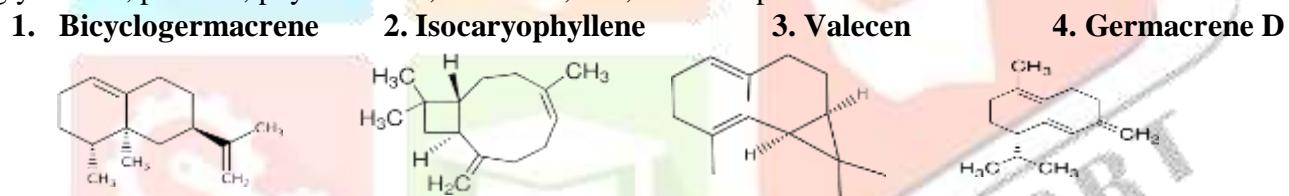
Geographical source

Lantana is mostly native to subtropical and tropical America, but a few taxa are indigenous to tropical Asia and Africa. It now occurs in approximately 50 countries where several species are cultivated for its flowers under hundreds of cultivar names.

Lantana camara	
Order	Lamiales
Family	Verbenaceae
Genus	<i>Lantana</i>
Species	<i>L. camara</i>

Chemical Constituents

Phytochemical analysis of the leaves of *L. camara* showed that the plant contained alkaloids, glycosides, steroids, saponins, flavonoids, coumarins, tannins, carbohydrates, hydroxy anthraquinones, anthraquinone glycosides, proteins, phytosteroids, fixed oils, fats, and triterpenoids.



2. SALICYLIC ACID

Salicylic acid is used on the skin to treat psoriasis and other dry, scaly skin conditions. This medication is also used to help remove dead skin from warts, the palms of the hands, and the soles of the feet. It belongs to the same class of drug as aspirin (salicylates). This medication should not be used by children younger than 2 years.

Formula: C ₇ H ₆ O ₃
Molar mass: 138.121 g/mol
Boiling point: 211 °C
Structure

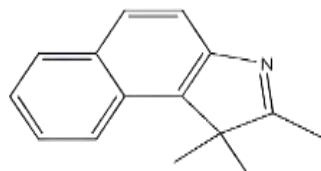
3. WHITE SOFT PARAFFIN

Common Name: petroleum jelly, moisturizer, Emollient, dry skin repair, skin Lubricant

Indications and Usage

For the relief of dry skin conditions such as flaking chapped skin, ichthyosis (abnormality in skin growth that results in drying and scaling). Beneficial in pruritus (severe itching), dermatitis (inflammation of the skin), the dry stage of eczema, psoriasis. Helpful for the elderly in itching and dryness associated with ageing skin.

Chemical Structure :



4. PROPYLENE GLYCOL

Propylene glycol (CH₂CH(OH)CH₂OH) is a commonly used drug solubilizer in topical, oral, And injectable medications. It is used as stabilizer for vitamins, and as a water-Miscible cosolvent. Cases of hyperosmolality from absorption of creams applied to burns have been reported. Contact dermatitis has also occurred with topical application in the pediatric population.

Formula: C ₃ H ₈ O ₂
Density: 1.04 g/cm ³
IUPAC ID: propane-1,2-diol
Melting point: -59 °C
Boiling point: 188.2 °C
Molar mass: 76.09 g/mol
Chemical structure

REFERENCES:

1. Ganesh T, Saikatsen, Thilagam G, Loganatham T, Raja Chakraborty "Pharmacognostic and anti-hyperglycemic evaluation of lantana camara (L) var. aculeate leaves in alloxan-induced hyperglycemic rats" *Int J Res Pharm*; 2010; 1(3); 247-252.
2. Kumar G, Karthik L, Rao KVB., "In vitro anticandidal activity of Calotropis gigantea against clinical isolates of *Candida*" *Journal of Pharmacy Research*; 2010; 3 (3); 539-542.
3. Gomes de Melo J, de Sousa Araújo TA, ThijanNobre de Almeida e Castro V, Lyra de Vasconcelos Cabral D, do Desterro Rodrigues M, Carneiro do Nascimento S., "Antiproliferative activity, antioxidant capacity and tannin content in plants of semi-arid Brazil" *Molecules*; 2010; 15 (12) 8534-42.
4. Pour BM, Latha LY and Sasidharan S., "Cytotoxicity and oral acute toxicity studies of Lantana camara leaf extract" *Molecules*; 2011; 16 (5); 3663-3674.
5. Ghosh S, Das Sarma M; "Anti-inflammatory and anticancer compounds isolated from Ventilagomadraspatana Gaertn, Rubia cordifolia L inn. And Lantana camara Linn." *Journal of Pharmacy and Pharmacology*; 2010; 62 (9); 1158-1166.
6. Barreto FS, Sousa EO, Campos AR, Costa JGM, Rodrigues FFG., "Antibacterial activity of Lantana camara Linn and Lantana montevidensis Brig extracts from Cariri-Ceará, Brazil" *Journal of Young Pharmacists*; 2010; 2(1); 42-44.

7. Ganjewala D, Sam S, Khan KH; "Biochemical compositions and antibacterial activities of Lantana camara plants with yellow, lavender, red and white flowers" *Eur Asian Journal of BioSciences*; 2009; 3; 69-77.

8. Badakhshan MP, Sasidharan S, Rameshwar NJ, Ramanathan S; "A Comparative Study: Antimicrobial Activity Of Methanol Extracts Of Lantana Camara Various Parts" *Pharmacognosy Research*; 2009; 1 (6); 348-351.

9. Kalita S, Kumar G, Karthik L, BhaskaraRao KV., "Phytochemical composition and in vitro hemolytic activity of Lantana camara L. (Verbenaceae) leaves" *Pharmacologyonline*; 2011; 1; 59-67.

10. Srivastava D, Singh P; "Antifungal potential of two common weeds against plant pathogenic fungi- Alternariaspis" *Asian Journal of Experimental Biological Sciences*; 2011; 2 (3); 525-528.

11. Tripathi S, Rawat K, Swati D, Himani P; "Potential of Lantana camara Linn. Weed against wood destroying fungi" *Indian Forest*; 2009; 135(3); 403-411.

12. Barre JT, Bowden BF, Coll JC, De Jesus J, De La Fuente VE, Janairo GC, Ragasa CY., "A Bioactive Triterpene from Lantana Camara" *Phytochemistry*; 1997; 45(2); 321-324.

13. Thamotharan G, Sekar G, Ganesh T, Sen S, Chakraborty R, Kumar SN; "Antiulcerogenic Effects Of Lantana Camara Linn. Leaves On In Vivo Test Models In Rats" *Asian Journal of Pharmaceutical and Clinical Research*; 2010; 3(3); 57-60.

14. Bhakta D, Ganjewala D; "Effect Of Leaf Positions On Total Phenolics, Flavonoids And Proantho-Cyanidins Content And Antioxidant Activities In Lantana Camara (L)" *Journal of Scientific Research*; 2009; 1(2); 63-369.

15. Mayee R, Thosar A; "Evaluation Of Lantana Camara Linn. (Verbenaceae) For Antiulrolithiatic And Antioxidant Activities In Rats" *International Journal of Pharmaceutical and Clinical Research*, 2011; 3(1);10-14.

16. Venkatachalam T, Kumar VK, Selvi PK, Maske AO, Anbarasan V, Kumar PS; "Antidiabetic Activity Of Lantana Camara Linn Fruits In Normal And Streptozotocin-Induced Diabetic Rats" *Journal of Pharmacy Research*, 2011; 4 (5); 1550-1552.

17. Ganesh T, SaikatSen, Thilagam E, Thamotharan G, Loganathan T, Chakraborty R; "Pharmacognostic and Anti-Hyperglycemic Evaluation Of Lantana Camara (L.) Var. Aculeate Leaves In Alloxan-Induced Hyperglycemic Rats" *International Journal of Research in Pharmaceutical Sciences*, 2011.

18. Gidwani BK, BhargavaS, Rao SP, Majoomdar A, Pawar DP, Alaspure RN; "Analgesic, anti-inflammatory and ant hemorrhoidal activity of aqueous extract of Lantana Camara Linn." *Research Journal of Pharmacy and Technology*; 2009; 2(2); 378-381.

19. Abdulla MA, Hassandarvish P, Ali HM, Noor SM, Mahmoud FH, Ahmad Bashah NS "Acceleration of Wound Healing Potential by Lantana camara Leaf Extract in Experimental Rats" *Research Journal of Medical Sciences*; 2009; 3(2); 75-79.

20. Nayak BS, Raju SS, Eversley M, Ramsubhag A; "Evaluation Of Wound Healing Activity Of Lantana Camara L. - A Preclinical Study" *Phytotherapy Research*; 2009; 23(2); 241-245.

21. Sagar L, Sehgal R, Ojha S; "Evaluation Of Antimotility Effect Of Lantana Camara L. Var. Acuelata Constituents On Neostigmine Induced Gastrointestinal Transit In Mice" *BMC Complementary and Alternative Medicine*; 2005; 5; 18-22.

22. Kumar MS, Manee megalai S; "Evaluation Of Larvicidal Effect Of Lantana Camara Linn. Against Mosquito Species Aedes Aegypti and Culexq Uinque Fasciatus" *Advances in Biology Research*; 2008; 2(4); 39-43.

23. Dua VK, Pandey AC, Dash AP; "Adulticidal Activity Of Essential Oil Of Lantana Camara leaves Against Mosquitoes" *Indian Journal of Medical Research*, 2010; 131; 434- 439.

24. Misra N, Sharma M, Raj K, Dangi A, Srivastava S, Bhattacharya SM; "Chemical constituents and ant filarial activity of Lantana camara against human lymphatic filariid Brugiamalayi and rodent filariid Acanthocheilonemaviteae maintained in rodent hosts" *Parasitology Research*; 2006; 100(3); 439-448.

25. De Mello FB, Jacobus D, de Carvalho KC, de Mello JR; "Effects of Lantana camara (Verbenaceae) on rat fertility" *Veterinary and Human Toxicology*; 2003; 45(1); 20-23.

26. Maiworm AI, Presta GA, Santos-Filho SD, de Paoli S, Giani TS, Fonseca AS et al.; Osmotic and morphological effects on red blood cell membrane: action of an aqueous extract of Lantana camara. *Brazilian Journal of Pharmacognosy*, 2008

27. Govindachari, T.R.; Gobalakrishnan, G.; Suresh, G. (1996). Isolation of various Azadirachtins from neem oil by preparative high performance liquid chromatography. *J. Liq. Chromatogr. & Rel. Technol.*, 19, 1729-1733.

28. Govindachari, T.R.; Suresh, G.; Gopalakrishnan, G.; Banumathy, B.; Masilamani, S. (1998). Identification of antifungal compounds from the seed oil of *Azadirachta indica*. *Phytoparasitica*; 26 (2), 1-8.
29. Grewal, P.S.; Grewal, S.K. (1991). Selective fungicidal properties of some plant extracts to mushroom weed moulds. *Phytopathol Mediterr*; 27(2); 112-114.

