REVIEW ON ANTIFUNGAL HAIR OINTMENT

Mr.Samrat Sukhadev Bhise , Mr.Vilas Balu Chavan, Mr.Saurabh Ashok Chavan,
Student, Shri Sai Institute Of Pharmacy And Research Chh.Sambaji Nagar.

Mrs.Sapana Ghughe,
Asst. Professor, Department Of Pharmaceutics, Faculty Of Shri Sai Institute Of Pharmacy Chh.Sambhaji Nagar.

Mrs. Dr. Kavita Kulkarni.
Principal, Shri Sai Institute Of Pharmacy And Research Chh.Sambaji Nagar.

Abstract

An antibacterial hair ointment is a topical semi-solid formulation designed to address and prevent bacterial infections of the scalp and hair. It provides a targeted solution for common issues like folliculitis and other scalp conditions caused by microbial growth. This ointment combines a base of petroleum jelly or natural waxes with active antibacterial agents, which can be synthetic, like mupirocin, or natural, derived from plants.

INTRODUCTION

Fungal infection, also known as mycosis, is a disease caused by fungi. Different types are traditionally divided according to the part of the body affected, superficial, subcutaneous, and systemic. Superficial fungal infections include common tinea of the skin, such as tinea of the body, groin, hands, feet and beard, and yeast infections such as pityriasis versicular. Subcutaneous types include eumycetoma and chromoblastomycosis, which generally affect tissues in and beneath the skin. Systemic fungal infections are more serious and include cryptococcosis, histoplasmosis, pneumocystis pneumonia, aspergillosis and mucormycosis. Signs and symptoms range widely.

There is usually a rash with superficial infection. Fungal infection within the skin or under the skin may present with a lump and skin changes. Pneumonia-like symptoms or meningitis may occur with a deeper or systemic infection. Fungal infections are more likely in people with weak immune systems. This includes people with illnesses such as HIV/AIDS, and people taking medicines such as steroids or cancer treatments. People with diabetes also tend to develop fungal infections. Very young and very old people, also, are groups at risk.

Individuals being treated with antibiotics are at higher risk of fungal infections. Children whose immune systems are not functioning properly (such as children with cancer) are at risk of invasive fungal infections.

There are many types of fungal infection on skin including ringworm infection, out of which is most common type of skin infection onychomycosis (fungal infection on toenails and fingernails), tinea versicolor, athletes foot etc.

ATHLETE'S FOOT INFECTION

Athlete's Foot (Tinea pedis) is a fungal infection that usually affects:

- Skin between toes
- Soles of the fee
- Sometimes toenails

It is contagious and spreads in warm, moist places like bathrooms, shoes, gyms, and swimming pools.

Many people will have athlete's foot at some point in their lives. It usually affects the gaps between the toes. Athlete's foot (tinea pedis) is particularly common between the little toe and the toe next to it. The fungus can cause the skin to redden and crack.

The affected areas are flaky and sometimes itchy. The skin can also turn white and thicken, and is then often slightly swollen. If the infection spreads across the sole of the foot it is referred to as moccasin athlete's foot.

The soles of the feet, the heels and the edges of the feet are then dry, scaly and may be itchy. Moccasin athlete's foot is sometimes mistaken for other conditions such as eczema. A rare kind of athlete's foot causes an acute.

CAUSES

Athlete's foot is usually caused by fungi that infect the skin (dermatophytes). They can enter the skin through small cracks or wounds, and infect the top layer. The fungi are passed on through direct skin contact or through contact with flakes of skin. That can happen if, for instance, you step on infectious flakes of skin in communal showers. The same fungi can also cause fungal nail infections

Fungal skin infections need moisture and warmth to spread. Our feet offer a perfect environment for them, because we wear shoes for most of the day and so our feet are often warm and moist.

The skin on our feet also contains a lot of keratins a protein that can be found in the top layer of skin

Fig no;1 Athlete's foot infection

RISK FACTORS

These are the main ones: A genetic predisposition (if a lot of people in your family have it), Allergies and eczema, Particularly sweaty feet, A weak immune system, for instance due to a serious illness or the long-term use of medication that weakens the immune system, Circulation problems in the legs, for example as a result of diabetes or narrowed blood vessels, Some sports, especially running and swimming.

PREVENTION

Because fungi grow particularly well in a moist environment, it's important to make sure you need your feet dry. You might try the following, for example: Thoroughly drying your feet with a towel after having a shower or bath, or after swimming, wearing shoes that aren't too tight and let your feet breathe, not wearing the same pair of shoes two days in a row, Taking your shoes off as often as possible

1. **Materials Required Herbal Actives:**

- Neem extract (Azadirachta indica) – 5%
- Turmeric extract (Curcuma longa) – 3%
- Clove oil (Syzygium Aromatic) – 5%
- Amla powder (Phyllanthus Emblica)

Ointment Base & Excipients:

- Beeswax – 5%
- Lanolin – 10%
- White soft paraffin – 60%
- Glycerin – 7%
- Preservative (e.g., methylparaben or sodium benzoate) – 0.2%

q.s. with base components to 100%

PROCEDURE

Step 1: Preparation of the Herbal Extracts

1. Neem and Turmeric Extracts:

 Use ethanol or hydro alcohol for extraction via maceration or Soxhlet method.

 Filter and concentrate the extracts using a rotary evaporator or water bath.

 Dry the extracts under reduced pressure or desiccator.

 Standardize the extracts (optional but recommended for batch-to-batch consistency).

Step 2: Preparation of Ointment Base

 Weigh beeswax, lanolin, and white soft paraffin accurately.

 Heat these components in a beaker over a water bath (~70–75°C) until completely melted.

 Stir continuously to ensure a uniform molten phase.

3.LITERATURE REVIEW

1) Dr. Sakthivel M et.al.2024

Derived substances and herbal medicines have recently attracted the great interest towards their versatile application, as medicinal plants are the richest source of bioactive compounds used in traditional and modern medicine. The present

work is to formulate and evaluate the herbal ointment containing Neem (Azadirachta indica) and Turmeric (Curcuma longa) extract.

The ethanolic extracts were prepared by using maceration method. The ointment base was prepared and formulation of herbal ointment.

2) Shubhangi E. Sawant*, et.al.2023

Even in areas where modern medicine is available, the interest on herbal medicines and their utilization have been increasing rapidly in recent years. Plant derived substances and herbal medicines have recently attracted the great interest towards their versatile application, as medicinal plants are the richest source of bioactive compounds used in traditional and modern medicine.

3) Aravinda Nalla et.al2022

The present work is to formulate and evaluate the ointment of garlic bulb extract for anti- microbial activity. The benzene extract was prepared by Soxhalation method. The ointment base was prepared and four formulations of ointments were done by incorporating the extract in the base by levigation method. From four ointments, F4 was found to be the best formulation as it shows 98% drug release within 6hours, drug content 98.8% and it shows more zone of inhibition against Bacillus as compared to other three formulations.

4) Telange – Patil P. V et.al2020

Herbal medicines have become a global important for both medical and economical. The

antibacterial ointment prepared from herbal plant are more efficacious than synthetic medicines and which show some adverse effect.

Ointments are semisolid system which behave as viscoelastic materials when shear stress is applied. Indigenous people are known to widely use the crude extract of many plants. Neem has become valuable plant in the world which shows the solution for hundreds and thousands of problems. This herbal ointment of neem and turmeric extract can be used in the treatments of skin infections.

5) Vishal*, Shourya et.al.2017

The current inventions garlic and neem ointment is effective in treating fungal and bacterial skin infections in tropical regions. By utilizing all of the components of garlic and neem, this ointment seeks to maximize the advantages. Allin and Allicin are stabilized by the ointment. Neem powder, freeze-dried garlic, and a delivery system that has received pharmaceutical approval make up the mixture. It can be applied topically to treat common skin conditions. A base for an ointment was produced, and the extract was then added to the base using the levigation process to create the ointment.

6) Stuti Pandey3*et.al january2016

Even in places where modern treatment is readily available, the utilization of herbal remedies has witnessed a significant surge in fascination over the past few years. A lot of people are interested in phytochemicals and herbal medicines lately because these substances are derived from medicinal plants, which are a source of bioactive compounds utilized in both conventional and alternative medicine.

7) Pre-1960s — discovery & systemic era (1939–1959)

Griseofulvin was isolated in 1939 and became the first systemic antifungal widely used for dermatophyte infections; systemic therapy established the clinical paradigm for hair-shaft infections because of superior follicular delivery compared with topical agents.

4. AIM AND OBJECTIVE: -

This following study aimed to review on Antifungal hair ointment containing Neem, Amla, turmeric and clove oil for topical administration used in the treatment of the fungal infection like Athelets foot

AIM:

To formulate and evaluate a herbal ointment using plant extracts with known antifungal properties, and to assess its physicochemical characteristics and antifungal efficacy against common fungal pathogens.

OBJECTIVE:

- Topical root is more suitable for infection.
- The main aim of our research was developing an antifungal cream formulation

Consisting of herbal ointment for the treatment of antifungal infection

5. PLANTS:

1.NEEM

- Biological source: -
- Neem (azadirachta indica) consist of fresh or dried leaves and
- seed oil of azadirachta indica
- Family: - meliaceae
- Chemical constituent:

Azadirachta indica L.(neem) shows therapeutics role in health management due to rich source of various types of ingredients. The most important active constituent is azadirachtin and the others are nimbolinin, nimbin, nimbidin.

- **Extraction: -**

Collect fresh neem leaves wash it with distilled water dried it in hot air oven and then powder take 5gm neem powder in 20 ml dimethyl sulfoxide at 100 cc for the 5-10 min then it filters it by filter paper and clear solution is obtained.

Fig no: 02 Neem powder

Uses: -

- Antifungal
- Antiviral

Antibacterial

2.TURMERIC

Biological source: -

Turmeric is a product of curcuma longa or dried rhizome of curcuma longa linn

Family: - Zingiberaceae.

Turmeric is mildly aromatic and has scents of orange or zinger it has pungent, bitter flavour turmeric has brilliant yellow colour.

Chemical constituents-

Curcuminoid, Curcumin, Beta-sesquiphellandrene, Phellandrene, Elemene, Zingiberene, P- Cymene, Germacrone, Bisabolene, Curzerenone, Cedrene, Bisdemethoxycurcumin. Use: - Curcumin is reported as a strong antioxidant, anti-inflammatory, antibacterial, antifungal

agents. Inhibits the growth of candida and protects against yeast infections.

Figure no.3. turmeric powder

3.AMLA

Biological source: -

Amla powder is made from the ground up leaves of Indian gooseberry or phyllanthus Emblica L Family: Ephorbiaceae

Indian gooseberry is fleshy, round, attractive, deeply ribbed and yellowish green in colour.

Chemical constituent: -

Emblacanin A and B, punigluconin, chebulinic acid, corlagin, geraninin, phyllantidine.

Uses: -

- Immunity boost
- Digestion improvement
- Blood sugar and Cholesterol control
- Anti-inflammatory properties

Figure no.4. amla powder

4.CLOVE OIL

Biologial source: -

Clove oil is obtained from the dried flower buds, stems, and leaves of the plant Syzygium aromaticum (Linn.) Merrill and Perry.

Family: Myrtaceae

Part Used: Dried flower buds (commonly called cloves)

Chemical constituents: -

Eugenol (major constituent), Eugenyl acetate, β-Caryophyllene, Vanillin

Uses: -

As an anti-fungal and

antiseptic in ointments and dental preparations In flavoring, perfumery, and pharmaceuticals.

Figure no. 5. Clove OIL

6. EVALUATION OF TEST PROCEDURE

pH determination: - ▪ Using a pH metre (Digital pH metre), the pH value of prepared herbal antifungal ointment 1% solution was determined.

Viscosity: - ▪ A Brookfield viscometer with spindle 6 at 10 rpm was used to measure the viscosity of the baches that were formed. A thermostatically regulated circulating watered bath that was kept at 25°c was connected to the assembly. The mixture was poured into a beaker with a thermostatic jacket on top of it. The reading was recorded after allowing the spindle to travel freely into the ointment.

Extrudability study: - ▪ Extrudability test is the measure of the force required to extrude the material from collapsible tube when certain amount of force has been applied on it in the form of weight.

In the present study th quantity in percentage of ointment extruded from the tube ▪ on application of certain load was determined. The extruadibility of prepared ointment formulations was calculated by using following formula Ext. Amount of ointment extruded from the tube x 100 Total amount of ointment in tube.

Spreadability: - ▪ The spreadability was determined by placing excess of sample in between two slides Which was compressed to uniform thickness by placing a definite weight for definite time.

separation of two slides results better spreadability. Spreadability was calculated by following formula S-MXL/T Were, S-Spreadability. M- Weight tide to the upper slide L= Length of glass slide T= Time taken to separate the slides

LOD: - ▪ LOD was determined by placing the formulation in Petri dish on water bath and dried for the Temperature 105 C

Solubility: - ▪ Soluble in boiling water, miscible with alcohol, ether, chloroform.

Washability: - Formulation was applied on the skin and then ease extend of washing with water was checked

7.DISCUSSION

Derived substances and herbal medicines have recently attracted the great interest towards their versatile application, as medicinal plants are the richest source of bioactive compounds used in traditional and modern medicine. The present work is to formulate and evaluate the herbal ointment containing Neem (Azadirachta

indica) and Turmeric (Curcuma longa) extract and Clove oil.

The ethanolic extracts were prepared by using maceration method.

Even in areas where modern medicine is available, the interest on herbal medicines and their utilization have been increasing rapidly in recent years. Plant derived substances and herbal medicines have recently attracted the great interest towards their versatile application, as medicinal plants are the richest source of bioactive compounds used in traditional and modern medicine.

8.CONCLUSION

From the ancient time Neem, Turmeric, Amla and Clove oil is used for their various medicinal properties like antibacterial, antifungal, anti-inflammatory etc.

Thus, this ointment could become a media to use these medicinal properties effectively and easily as a simple dosage form.

9. REFERENCE

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