

Formulation and Evaluation of Antifungal Activity of A Herbal Ointment Containing Azadirachta Indica (Neem)

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Abstract: *In the last few decades there has been an exponential growth in the field of herbal drug. It is getting popularized in developing and developed countries owing to its natural origin and lesser side effects. Fungal infection is now the fourth most common infection in the world. For topical delivery poor permeability of the drug leads to high cost of therapy and decrease patient compliance. The scientific evidence has brought about the possibility of utilization of herbal plant in the treatment of fungal and the development of anti-fungal products. In the present study, herbal ointment contain Neem was formulated and evaluated to study of anti-fungal activity. It was found that ointment contain Neem showed anti-fungal activity. This ointment can be used in the treatments of fungal infections, rashes, wounds and other skin infections. Neem extracts were obtain through methanol-hexane partitioning of mature green leaves and seed oil. Neem leaves and seed oil methanol extracts exhibited different chromatographic profile by HPLC, which could explain the differences observed in their antifungal activity. This analysis revealed the possible presence of terpenoids in both extracts, which are known to have biological activity. The results of this research are a new report on the therapeutic potential of neem to the control of dermatophytosis and other type of antifungal diseases.*

Keywords: Anti fungal, permeability, patient compliance, hplc, Terpenoids, dermatophytosis

I. INTRODUCTION

Plants are the oldest source of pharmacologically active compounds as well as have provided human kind with many medicinally useful components from centuries. Today more than two thirds of the worlds populations relays on plant derived drugs .The origin of many effective drugs is found in the traditional medicinal practises and in view of this it is very important to undertake study pertaining to screening of the medicinal plants for there proclaimed biological activity. Azadirachata Indica (family - Meliaceae) known as neem is well known for its medicinal properties . its leaves posses broad spectrum of activity against gram - positive and gram – neagative bacteria . including M . Tuberculosis . This ointments can be used in the treatments of sunburns rashes and other skin infections . it can also be used in the treatments superficial mycosis. The research about neem has been focused not only on its known antifeedant activity on insects nut also its antifungal potential.



Medical importance fungi such as dermatophytes are one of the most wide spread causes of dermatology consultation. Fungal infections of skin and nails affects 20 to 25 % of the world population with a prevalence as high as 40% in topical areas .There is an increasingly interest on the isolation of natural compounds with antifungal activity from which terpenoids have revealed to produce either fungistatic or fungicidal power on several pathogenic fungi. Neem row organic extracts and their and also inhibit the growth of several pathogenic fungi . using the sabouraud dextrose broth dilution method found a neem seed organic extract the .organic extract from neem leaves shows MIC's between 150 ml in the above mention fungi

II. MATERIAL AND METHODS

2.1 Plant Material

Plant material used for this study was collected from Samarth Institute Of Pharmacy Belhe, college Botanical Garden, Pune, India.

2.2 Preparation of Plant Extract

The neem leaves were also dried and powder of both were percolated with 250 ml. of 80% ethanol

A. Formulation Table

Emulsifying Wax : (3gm)

Sr. No	Ingredient	Quantity Taken
1.	Cetosteryl Alcohol	2.75gm
2.	Sodium Lauryl Sulphate	0.3gm
3.	Water	Q.S.(3ml)

Emulsifying Ointment : (10gm)

Sr. No	Ingredient	Quantity Taken
1.	Emulsifying Wax	3gm
2.	Soft Paraffin	5gm
3.	Liquid Paraffin	2ml

Neem Ointment : (10gm)

Sr. No	Ingredient	Quantity Taken
1.	Neem	0.2gm
2.	Emulsifying Ointment	10gm

B. Formulation

1. Accurately weight the all ingredients.
2. First prepared emulsifying wax using cetosteryl alcohol , sodium lauryl sulphate and water .
3. Then prepared the emulsifying ointment using emulsifying wax , soft paraffin liquid paraffin .
4. Then after melting above all ingredient after cooling add the Neem extract.
5. Then after some time our preparation get solidified take it on ointment slab.
6. Then mixed all content on ointment slab properly.
7. Then after mixing filled our preparation in container

III. EVALUATION OF WOUND HEALING OINTMENT

3.1 Physical Properties

The Ointment was observed for color and odor.

3.2 Appearance

The appearance of the ointment was judged by its color, pearlscenceaan Roughness and graded.

3.3 After Feel

Emolliency, slipperiness and amount of residue left after the applying of fixed amount of ointment was checked.

3.4 Type of Smear

After application of ointment, the type of film or smear formed on the skin Were checked

3.5 Ease of Removal

The ease of removal of the ointment applied was examined by washing the applied part with tap water

3.6 Irritancy Test

Mark an area (Isq cm) on the left hand dorsal surface. The ointment was applied to the specified area and time was noted Irritancy, erythema, edema, was checked if any for regular intervals up to 24 hrs and reported

3.7 Determination of the pH

pH of the prepared formulation was measured using digital pH meter.

3.8 Determination of Spreadability

For the determination of spreadability excess of sample was applied in between two glass slides and was compressed to uniform thickness by placing 1000gm weight for 5minutes. Weight was added to the pan. The time required to separate the two slides, i.e. the time in which the upper glass slide moves over the lower plate was taken as measure of spreadability.

$$S = m \times (1/t)$$

Where, m-weight tide to upper slide

l-length moved on the glass slide

t-time taken.

Anti-bacterial and Anti-fungal activity:

Determination of zone of inhibition:

activity was checked by agar gel diffusion method. The cultures were grown in nutrient broth and incubated at 37°C, for 24 hrs. After incubation periods was over, 0.1 ml of culture was seeded in 25 ml molten nutrient agar butts, mixed and poured into sterile petri plates and allowed to solidify. The well was bored with 6 mm borer in seeded agar. 0.1 g of each ointment sample was added in each well. Plates were kept at 10°C as a period of pre diffusion for 30 minutes. After it normalized to room temperature; the plates were incubated at 37°C for 24 hrs in case of bacteria and at 27°C for 48 hrs in case of fungi. After incubation period was over, the zone of inhibition was measured with help of Hi-antibiotic zone scale.

IV. CONCLUSION

Today, most of the people are unaware of the uses of the Medicinal plants like neem and in case of any fungal Infections, they use allopathic medicines to treat it which May cause some side effects. Neem ointment showed effective Antifungal activity against different types of fungi. It has Many medicinal properties such as healing abilities, Antioxidant activity etc. Therefore People instead of using Allopathy medicines can move in a natural way to heal Fungal infections.

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