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FORMULATION AND EVALUATION OF HERBAL OINTMENT FOR ANTI-MICROBIAL ACTIVITY: A REVIEW

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ABSTRACT

The current inventions garlic and neem ointment is effective in treating fungal and bacterial skin infections in tropical regions. By utilising all of the components of garlic and neem, this ointment seeks to maximize the advantages. Allin and Allicin are stabilised 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. After the mixture was complete, it was tested for compliance with physicochemical standards, including color, scent, pH, spreadability, extrudability, consistency, diffusion tests, solubility and washability.

KEYWORDS: Anti-Microbial, Antifungal, Ointment, Neem extract and Garlic extract.

INTRODUCTION

Waterless ointment bases typically include one or more medications in solution or suspend form. The purpose of an antiseptic ointment is to prevent or inhibit the development of micro-organisms. Some of herbal creams are made utilising herbal plants as the base layer of the skin, which allows the ointment to penetrate and deliver the medication[1]. Topical formulations like ointments have higher patient compliance and are therefore more popular with patients.[2]. It is a semisolid doses form with a carrier made up of more than 50% hydrocarbons, waxes, or polyethylene glycols, 20% water and volatiles.[3] Ointments are applied topically for a variety of reasons, including as a barrier, antimicrobial, emollient, antipruritic, and kerotolytic, astringents.[4] Ointments, creams, pastes, and other semisolid medications designed for direct application to intact, damaged, or mucous membranes have been introduced and are utilised to provide a protective effect for the skin. All ointments are made up of a base that primarily serves as a vehicle for the medications. Its performance is also governed by the nature of the base. Thus choosing the right ointment base is a crucial one of their key components. To

comprehend how skin structure affects drug absorption, a scientific knowledge of ointment percutaneous absorption is essential[5]. Many medications are now available in semisolid consistency products with various names such as ointments, creams, salves, pastes, etc. that are meant for topical application to healthy or damaged skin or mucous membranes. These items serve mainly as emollients or protectors for the skin.

The same outcome is achieved by more recent ointments that also transport medications to the bloodstream. They are referred to as

a) Epidermatic - Intended to have a direct impact on the skin.

b) Endodermatic- meant to operate on deeper layers of cutaneous tissue.

c) Diadermic- Intended for deep penetration and the systemic circulation of medication through body fluids[6].

CHARACTERISTICS

1. It must be chemically and physically stable.
2. Ointment ingredients shouldn't have any pharmacological effects.
3. The cream shouldn't be gritty or uncomfortable to apply[7].

ADVANTAGES

1. Appropriate for patients who are unconscious and are trouble taking.
2. They bypass first pass metabolism.
3. They are the right dosage form for unappealing medications.
4. They are easier to use and more chemically enduring than liquid dosage forms.

DISADVANTAGES

1. Ointment applied with a finger tip may become contaminated, which could irritate the skin during application.
2. They are also more difficult to handle than solid dosage forms because they are semisolids.
3. Semisolid preparations physically and chemically show less stability as compared to solid dosage forms[8].

OINTMENT BASES

Bases of ointment are waterless and typically a drug or multiple medications added, suspended or as a fluid. To stop or slow down the development of microorganisms is the aim of an antiseptic cream. Using herbal plants, different herbal ointments are made. The base layer of the skin serves as the ointment's delivery system for medication.

CHARACTERISTICS

1. Insoluble in water.
2. It should be stable.
3. Should be free from greetiness[9].

INGREDIENTS USED FOR THE FORMULATION OF OINTMENT

1. NEEM

Neem trees develop quickly and can occasionally reach heights of 35–40 meters. It is evergreen, but during periods of drought, the majority or nearly all of its leaves may drop. The limbs are also widely spaced. Azadirachta Indica is the botanical name of neem.

MELIACEAE FAMILY[10].

Fig. 1 NEEM [12]

2. GARLIC

Allium sativum's ripe bulb is what we call garlic. It is a perennial herb with a multi-covered bulb that is surrounded with a silky white or pink membraneous sheath.

Name of the plant: Allium sativum

Liliaceae family

Synonyms: lasan and allium (hindi)[11].

Fig.2 GARLIC [13]

3. CETYLSTEARYL ALCOHOL

It is a combination of fatty alcohols that is categorised as a fatty alcohol. It primarily consists of cetyl (16 C) and stearyl alcohols (18 C). It is employed as a watery and nonaqueous viscosity-increasing agent, emulsion stabilizer, opacifying agent, and foam-boosting surfactant[2].

4. HARD PARAFFIN

A mixture of solid straight-chain hydrocarbons with melting points varying from about 48° to 66° C (120° to 150° F) make up paraffin wax, a hard wax that is colourless or white and somewhat translucent. Petroleum is converted into paraffin wax by dewaxing stockpiles of light lubricating oil[2].

5. YELLOW SOFT PARAFFIN

Yellow petroleum oil is another name for yellow soft paraffin. Although it is not an active component, this acts as a moisturizer by coating the skin's surface in oil to stop water from evaporating. This moisturizer is extremely sticky[2].

FORMULA USED FOR HERBAL OINTMENT

Wool fat, cetosterayl alcohol, hard paraffin and yellow soft paraffin are used in the formulation of ointment bases. A suitable procedure will be used to combine the extracted components with the ointment base.

NAME OF INGREDIENTS	QUANTITY
Wool fat	0.5 gm
Cetostearyl alcohol	0.5 gm
Hard paraffin	0.5 gm
Yellow soft paraffin	8.5 gm
Prepared Neem extract	0.06 gm
Prepared Garlic extract	0.06gm
Ointment base q.s.	10gm

METHOD OF PREPARATION

a) The initial preparation of the ointment base involves precisely weighing the grated brittle wax, which is then placed over a water bath in an evaporating container. The hard paraffin has dissolved after the remaining ingredients will be added and gently stirred to help with melting and homogeneous mixing. The ointment base will then cool.

b) An herbal ointment will be made by using the levigation method to combine precisely weighed neem and garlic extract with the ointment base. Making a smooth paste with a base that weighs two or three times as much as the base, gradually adding more base until the ointment is uniform, and then transferring it into an appropriate container.

Fig. 3 OINTMENT[14]

EVALUATION PARAMETERS

1. COLOR AND ODOUR: Visual examination will be used to assess physical characteristics like colour and odour.

2. CONSISTENCY: Smooth and no signs of grittyness will be seen.

3. NON-IRRITANCY TEST: A prepared herbal ointment will be applied to human skin, and the outcome will be tracked.

4. STUDY OF PHYSICAL STABILITY: A four-week physical stability test on herbal ointment will be conducted at various temps, including 200°C, 25°C, and 37°C. The herbal ointment will be discarded after being physically tried at 2°C, 25°C, and 37°C over the course of four weeks.

CONCLUSION

Since ancient times, neem and garlic have been used to treat various diseases for the betterment of the society. Along with this, these extracts have antioxidant properties as well as anti microbial property. Various researchers conclude that garlic and neem extract can be developed as ointment thus consisting various therapeutic effects to cure and treat various diseases such as infectious illness, wounds, atherosclerosis and many more.

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REFERENCES

1.Sehlke Ushay and Mahajan Ashish**.** 'A Review on Ointment'. International Journal of Pharmacy & Pharmaceutical Research.2015; 4(2): 170-192.

2. Rajasree PH, Vishwanad V, Cherian M, Eldhose J, Singh R. Formulation and evaluation of antiseptic polyherbal ointment. Int J Pharm life sci. 2012; 3(10):2021-2031.

3. Khandelwal KR, Sethi V. Practical Pharmacognosy Techniques and experiments. 23rd Edition, 2013; 3.1-3.5.

4. Elsaied HE, Dawaba HM, Ibrahim EA, Afouna MI. Investigation of proniosomes gel as a promising carrier for transdermal delivery of Glimepiride. Univ J Pharm Res. 2016; 1(2): 1-18.

5.Lachman.L, Lieberman H.A and Kanig,J.L, "Theory & Practice of industrial pharmacy", Lea &Fepharbieger, Philadelphia 2nd edition 1976: 534

6.Kohli DP Sand, Shah .D.H. "Drug formulation manual",first edition1991,2008:335-433.

7. Aulton M.E. "Pharmaceutics the science of dosage form design",2nd edition 1988:529.

8. Aditi Kotiyal. An advance review on salicyclic acid ointment for treatment of acne. World journal of pharmaceutical research.2020;9(5):1940-1949

9. Rawlins E.A., "Bentleys textbook of pharmaceutics", A.I.T.B.S.publishers, eighth edition 2004:353-354.

10. Leos, M.J. and R.P. Salazar S. The insecticide neem tree Azadirachta indica A. Juss in México. 2002.

11.Toefilo macario Espinoza tellez. Garlic and its beneficial properties for health. Agroindutrial science.2020;10(1):103-115.

12. https://www.shutterstock.com/search/neem

13. https://www.shutterstock.com/search/garlic

14. https://www.canstockphoto.com/balm-ointment-12763144.