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A REVIEW ON FORMULATION AND EVALUATION OF POLYHERBAL ANTIFUNGAL CREAM

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Abstract:

Mimosa pudica, Lawsonia inermis, Azardirecta indica, and Curcuma longa are medicinal plants that have been employed for antifungal activity in numerous herbal medicinal systems for thousands of years, including Ayurveda, Homeopathy, and Siddha. The current study looked at the antifungal properties of poly herbal cream and how they were made. Excipients such borax, triethanolamine, potassium hydroxide, beeswax, liquid paraffin, and other additives like methyl paraben, propyl paraben, and distilled water were used to create the cream. The PH, viscosity, spreadability, and antifungal activity of each formulation were all tested. The polyherbal cream remained steady throughout the trial, and the values of several parameters were judged to be optimal. The poly herbal cream has antifungal action against Candida albicans, according to the study.

Key Words:

Polyherbal cream, Lawsonia inermis, Azardirecta indica, Curcuma longa

Introduction

COSMECEUTICALS

The word "cosmetics" comes from the Greek word "kosmtikos," which means "power, arrangement, and ability in beautifying."

Cosmetic pharmaceutical hybrids known as 'cosmeceuticals' are topical cosmetic pharmaceutical hybrids designed to enhance appearance by including substances that have extra health-related activities or advantages. Skin moisturisers, perfumes, lipsticks, fingernail polishes, eye and face makeup preparations, shampoos, permanent waves, hair colours, teeth pastes, and deodorants, as well as any item intended for use as a component of a cosmetic product, are all covered in this definition. Cosmeceuticals are products that combine the benefits of medications and cosmetics to improve the health and appearance of the skin through external application.

HERBAL COSMETICS

Herbal cosmetics are products that contain phytochemicals derived from a variety of botanical sources, which influence skin functions and give nutrients for healthy skin and hair. Herbal cosmetics are natural plants and their products that are utilised in cosmetic preparations for their aromatic value. Herbs and essential oils used in cosmetics must not promise to penetrate beyond the skin's surface layers or have any therapeutic benefit, according to the Drug and Cosmetic Act. The rising demand for natural products has opened up new opportunities in the cosmeceutical business. [3]

CREAM

Creams are homogenous, semi-solid, or viscous formulations with a fluid consistency that are designed for external application to the skin or mucous membranes for protective, medicinal, or preventive purposes, especially where an occlusive effect is not required.

They are semisolids made up of one or more medicaments in solution or dispersion in a suitable base. They're made with hydrophilic or hydrophobic bases to make treatments that are almost miscible with skin secretions. [4]

Advantages:

- Convenient and simple to use.
- First-pass metabolism should be avoided.
- Intravenous therapy is inconvenient, as are the many circumstances of absorption, such as PH changes, the presence of gastric emptying time, and so on.
- Avoid medication level fluctuations due to inter- and intra-patient changes.

Disadvantages:

- Continuous drug input achieves efficacy with a lower total daily dose of medicine.
- Contact dermatitis skin irritation may occur as a result of the medicine and/or excipients.
- Allergic reactions are a possibility.
- Some drugs have a low permeability through the skin.
- Can only be used for medications that require very low plasma concentrations to work.

Ideal properties:

- Easy to apply is one of the best qualities.
- Easily spread over the skin.
- It has a pleasant aspect.
- Skin irritation is reduced.
- When applied to the skin, it will melt or liquefy.

Types:

- Oil-in-water (o/w) type
- Water-in-oil (w/o) type
- Cosmetic creams
- Medicated creams

Oil-in-water (o/w)

oil is in dispersed phase.

Water in a continuous phase.

They are less greasy and easier to remove with water.

Example: Fluocinolone Acetonide Cream

Water in oil (w/o) type

Oil – Continuous phase

Water - Dispersed phase

It's more difficult to deal with.

A W/O cream will release them more quickly than an O/W cream because they are hydrophobic.

Example : Moisturizing and cold cream

Cosmetic Creams

These creams are widely used to treat a wide range of skin problems (dermatoses).

Vanishing creams, foundation creams, all-purpose creams, night creams, skin protectors, and hand creams are only a few examples.

Medicated Creams

These creams are semisolid emulsions that include medication that is suspended or dissolved.

Antibiotic creams, antifungal creams, and zinc oxide cream, for example. [5]

ANTIFUNGAL CREAM

Antifungal creams are a generic word for a variety of treatments that contain antifungal drugs and are applied topically to the skin to treat and control fungal infections.

A moisture barrier may be included in the formulation to protect and condition the skin. Antifungal creams are used as a palliative treatment for existing fungal infections as well as a preventative approach in circumstances where a fungal infection is a possibility.

Antifungals function by taking advantage of distinctions between mammalian and fungal cells to eliminate the fungus without harming the host. Fungi and humans are both eukaryotics, unlike bacteria. At the molecular level, fungal and human cells are therefore identical.[6]

FORMULATION

A cream based on an oil-in-water emulsion (semisolid) was developed. The oil-soluble components (Liquid Paraffin, Bees Wax, and Wool Fat) were dissolved in the oil phase and heated to 75°C. Components that are water soluble (Methyl paraben, Propyl paraben, Triethanolamine, Glycerin, Borax, and Potassium Hydroxide) were dissolved in aqueous phase and heated to 75°C. Following the addition of ethanolic extracts of *Mimosa pudica*, *Lawsonia inermis*, *Azardirecta indica*, and *Aloe vera*, the oil phase was transferred in part to the water phase with constant stirring. Add one or two drops of rose oil to the mixture. [7]

COMPOSITION OF CREAM

INGREDIENTS	QUANTITY OF INGREDIENTS FOR 20 GRAMS			
	F1	F2	F3	F4
Liquid Paraffin	5.57ml	5.57ml	5.57ml	5.57ml
Wool Fat	0.4g	0.4g	0.4g	0.4g
Bees Wax	10g	10g	10g	10g
Borax	0.2g	0.2g	0.2g	0.2g
Potassium Hydroxide	0.2g	0.2g	0.2g	0.2g
Methyl Paraben	0.042g	0.042g	0.042g	0.042g
Propyl Paraben	0.042g	0.042g	0.042g	0.042g
Glycerin	2.14ml	2.14ml	2.14ml	2.14ml
Triethanolamine	0.342ml	0.342ml	0.342ml	0.342ml
Distilled Water	4ml	4ml	4ml	4ml
Rose Oil	1ml	1ml	1ml	1ml
Aloe vera	0.42ml	0.42ml	0.42ml	0.42ml
Ethanolic extract of <i>Azardirecta indica</i>	1ml	0.5ml	0.5ml	0.5ml
Ethanolic extract of <i>Lawsonia inermis</i>	0.5ml	1ml	0.5ml	0.5ml
Ethanolic extract of <i>Mimosa pudica</i>	0.5ml	0.5ml	1ml	0.5ml

EVALUATION OF CREAM

ORGANOLEPTIC PROPERTIES

The formulation was characterized for organoleptic properties such as color, odor. The formulations are visually inspected for its clarity and presence of any foreign particles.

DETERMINATION OF PH

The pH meter was calibrated using standard buffer. About 0.50g of the cream was weighed and dissolved in 50ml of distilled water and the pH was measured by using a digital pH meter.

HOMOGENICITY

The formulations were tested for the homogeneity, visual inspection and touch.

AFTER FEEL EFFECT

Emollient action, slipperiness and amount of residue left after the application of cream was checked.

REMOVAL

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

IRRITANCY

The cream was applied on the skin and leave for few minutes and the effect was studied.

STABILITY STUDY

The stability study is conducted by keeping the drug substance in their proposed pack or prototype containers in the case of bulk drugs, in sufficient number in room temperature away from light.

DISCUSSION AND CONCLUSION

In the present work, it was decided to extract and formulate polyherbal antifungal cream from *Mimosa pudica*, *Lawsonia inermis*, *Azardirecta indica*, *Curcuma longa*. The antifungal cream was o/w type emulsion, hence can be easily washed with plane water that is better customer compliance. There is an increasing demand for herbal cosmetics because of fewer side effects and is safe to use. The extracts exhibited good anti-fungal activity. The prepared formulation has no evidence of phase separation and good consistency during the study

period. Stability parameters like appearance, nature and odour of the formulations showed that there was no significant variation during the study period. The prepared formulations showed proper pH range that is approximately 5.5 and has good anti-fungal activity; it conforms the compatibility of the formulations to skin secretions. The cream is expected to produce protection to the skin from fungal infections.

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