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A Review on Formulation and Evaluation of Miconazole Nitrate Topical Cream

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Abstract: *The development of topical drug delivery systems designed to have systemic effects appears to be Beneficial for a large number of drugs on account of the several advantages over conventional routes of Drug administration in order to optimize both the release of the drug from the topical vehicle and skin Permeation1. The topical antifungal agents have varying mechanisms of action and different spectrums of Activity and have few adverse reactions or drug interactions.*

Keywords: Anti-bacterial activity and antifungal activity and corticosteroid

I. INTRODUCTION

- **Antifungal agent**- A drug that selectively eliminates fungal pathogens from a host with minimal toxicity to the host.
- **Antibacterial agent-** A group of materials that fight against pathogenic bacteria.
- **Corticosteroids**- Any group of the steroid hormones produced in the adrenal cortex

This research was develop a novel cream formulation consisting of combination of Miconazole nitrate , Mupirocin and Hydrocortisone for the treatment of secondary skin infection. Topical route is most suitable route for skin infection.

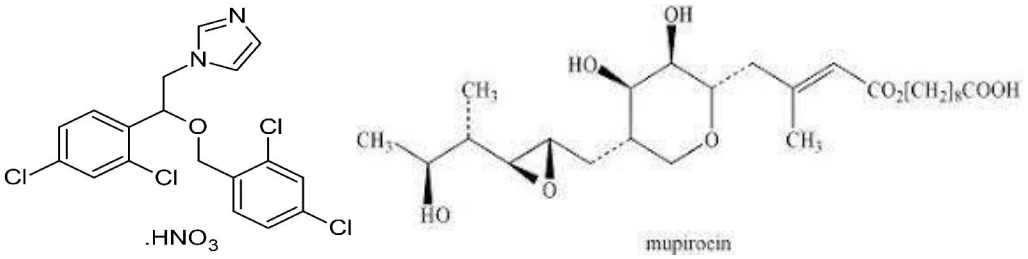

Fig. of Miconazole Nitrate Fig. Mupirocin

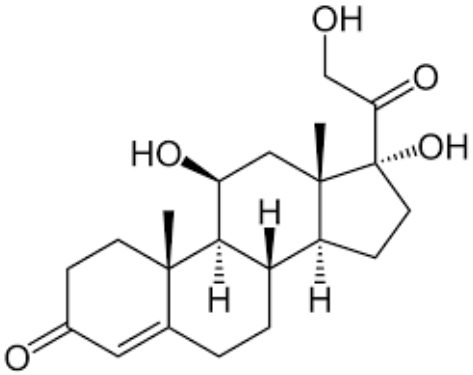

Fig. corticosteroids

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1.1 Ingredients Table:

SR.NO	*Ingredients*	*Quantity*
1)	Miconazole Nitrate	2 gm
2)	Mupirocin	2 gm
3)	Hydrocortisone	0.5 gm
4)	Cetostearyl alcohol	2.5 gm
5)	Cetomacrogol 1000	1.2 gm
6)	Glyceryl monostearate	0.5 gm
7)	Liquid paraffin	5 ml
8)	Propylene glycol	25 ml
9)	Benzoic acid	0.1 gm
10)	White soft paraffin	2.5 gm
11)	Stearic acid	3 gm
12)	Potassium hydroxide	0.1 gm
13)	Beeswax	0.9
14)	Distilled water	Q . S
15)	Almond oil	2 ml

II. MATERIALS AND METHODS

2.1 Materials

Mupirocin was obtained from Teva pharmaceuticals, Ahmedabad. Hydrocortisone was procured fromTinjin Jinjin Pharmaceuticals, Tianjin, China. Miconazole nitrate was purchased from Gufic bioscience, Gujarat. Cetomacrogol 1000 was purchased from India Glycols, Uttar Pradesh. Isopropyl myristate, Benzoic acid, Cetostearyl alcohol, Propylene glycol, White soft paraffin, Glyceryl monostearate, Butylated hydroxyl anisole, Liquid paraffin, Ethanol (AR grade) Acetonitrile (HPLC grade), Methanol (HPLC grade) were obtained from Merck, Germany. Triple distilled water was obtained from Milli Q unit.

2.2 Preparation of Cream Formulation

A. Preparation of Oil Phase

Cetomacrogol 1000, Cetostearyl alcohol, white soft paraffin and Glyceryl monostearate were melted in a stainless steel vessel. To this mixture Isopropyl myristate, Liquid paraffin, Butylated hydroxyl anisole were added and allowed to melt. The temperature of oil phase maintained between 65 – 70°C and mupirocin is introduced into the oil phase just prior to addition into the aqueous phase .

B. Preparation of Aqueous Phase

Water was heated to 65 – 70°C. In this weighed benzoic acid were added the temperature of the phase was maintained at 65 – 70°C.

Dispersion Part

Miconazole nitrate and hydrocortisone were sieved through appropriate mesh and dispersed in propylene glycol

Development of Cream formulation

Oil portion was then slowly incorporated into the aqueous phase at 65-70°C and mixed for 10 to 15 minutes. Then dispersion part was added into the above part slowly when temperature reaches to 40°C. pH of cream between 3.5 - 4.5.

Evaluation Parameter

Organoleptic Evaluation

The Face Cream thus obtained was evaluated for its organoleptic properties like colour,odour and state. The appearance of the cream was judged by its colour and roughness and graded.

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Stability Test:
In the mechanical test cream samples were inserted into centrifuge tube at a speed of 3750 RPM for half an hour or 5000 to10000 RPM for 15 Minutes then observed whether as paration exist or not.

Homogeneity:
Homogeneity of the prepared creams was confirm by the visual appearance of touch.

After Feel:
Emolliency , slipperiness and amount of residue left after the application of the fixed amount of cream was found to be good.

Removal:
All the cream formulations are applied on the skin was easily removed by was hing with tap water.

Irritancy Test:
All formulations shows no redness edema inflammation and irritation and during irritancy studies these formulations are found to be safe to use for the skin.

Test for microbial growth in formulated cream :
The formulated cream were inoculated on the plates of agar media by streak plate method and control was prepared by incubator and arc incubated at 37C for 24 hours . After the incubation period , plates were taken out and checked for the microbial growth by comparing it with the control.

Results:

SR.NO	Parameter	Observations
1)	Color	Cream
2)	Odour	Characteristic
3)	PH	5.6
4)	Stability test	No separation occurs so its form to be stable
5)	Homogeneity	Satisfied
6)	After feel	Emollient
7)	Removal	Easy remove by tap water
8)	Irritancy test	No irritancy on the application
9)	Microbial growth	Absence

III. CONCLUSION

It is concluded that the cream is to get multipurpose effect of such as antiwrinkle, antifungal and antibacterial also sunscreen of skin . The cosmetics properties of prepared product research will carry out to check scientific action of selected formulation.

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