

RESEARCH ARTICLE: ANTIFUNGAL MARKER**Aditya Singh^{*1}, Shubhrat Maheshwari² and Dr. Poonam Khushwa³**

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ABSTRACT

Antifungal marker is a pharmaceutical device used to deliver a controlled released medication at a targeted point against the fungal infection for treating and preventing the fungicide of fungistatic by applying in infected area. Pharmaceutics is the discipline of pharmacy that deals with the process of turning new dosage form of the oldest drug by changing their route of administration. Fluconazole is an imidazole derivative used for treating local and systemic fungal infection. The oral and intravenous use of fluconazole has many side effects. Commercially marker preparation are not available in market and the half life of fluconazole is 27 to 34 hours once a daily dose.

Currently 50mg, 100mg, 150mg and 200mg tablets are available and intravenous formulation exists in 200 to 400 doses. There is a higher possibility of cost effectiveness by applying marker one time it will provide you relief from itching and provide cooling effect by releasing the effective dose that present in marker so it provide work like sustain and controlled release in a targeted area.

KEYWORDS: Marker, antifungal, sustain, targeted.

INTRODUCTION

Topical delivery is an attractive route for local and systemic treatments. The delivery of drugs on the skin is recognized as an effective means of therapy for local dermatological diseases. Drug may penetrate deeper in to the skin hence give better absorption. Topical preparation avoids the GI-irritation, prevent the metabolism of the drug in the liver and increase the bioavailability of the drug. Topical preparations gives its action directly at the site of action.^[1] Topical administration is a localized drug delivery system anywhere in the body through skin as topical route.^[2,3] Number of medicated product is applied to the skin that enhances

fundamental function of the skin or pharmacologically alters an action in the underlined tissues.^[4] Hydroxypropyl methylcellulose (HPMC), Carbapol 934p, Sodium alginate has been used as hydrophilic polymers topically for marker preparation.^[5,6] It is necessary to understand the anatomy, physiology, physiochemical properties of the skin to utilize the phenomenon of percutaneous absorption successfully. The skin of an average adult human covers a surface area of approximately 2 meter square and receive one third of the blood circulation through the body. The skin is composed of three layer : Epidermis, Dermis, Hypodermis (Subcutaneous layer).

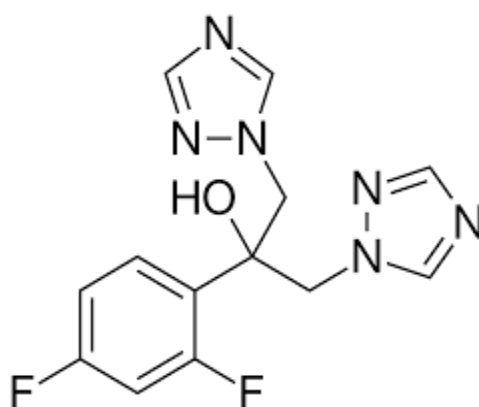


Fig. fluconazole.

Fuconazole is a newer water soluble triazole having wide range of activity. It can cure vaginal candidiasis, tinea infection, cutaneous candidiasis, coccidioidal meningitis, fungal keratitis and other systemic fungal infection.^[8]

The goal of our research is to developed a innovative and creative idea because I was to produce the pharmaceutical device for human welfare and this marker released the measured and effective dose so avoid the wastage of drug and there is no need applied rub by hand and this idea help to attract peoples towards the marker and beneficial for consumer as well as producer. Fluconazole is available commercially as tablet, capsule, injection, and eyedrops. The tablet and capsule dosage form have well known side effects including nausea, headache, abdominal pain, vomiting and diarrhea.^[9]

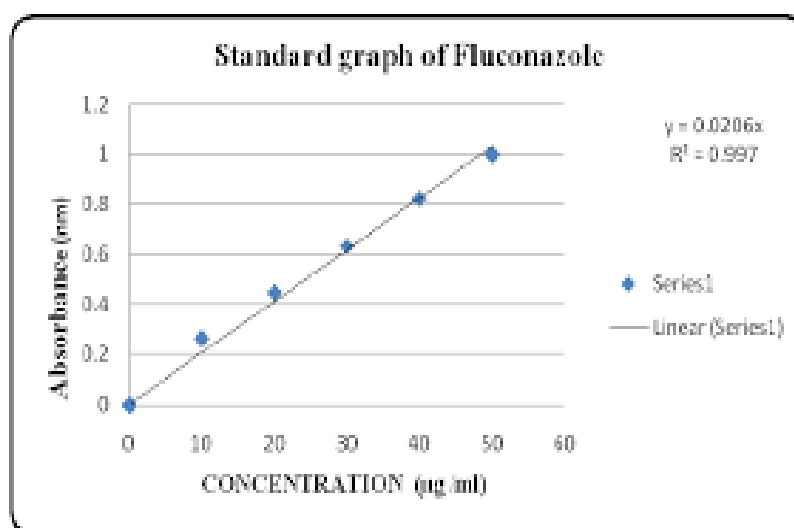
The antifungal marker developed product.



Preparation of marker formulation.

Fluconazole (1% w/w) was dissolved in hot mixture containing propylene glycol (20% w/w) and glycerine (10%) as moistening agent.^[10] Carbopol 934 polymer and purified water taken in beaker and allowed to soak for 24 hour and than the previous mixture add in this than the pH of carbopol gel was adjusted using TEA and continuous stirring add little minute quantity of $Kmno_4$ menthol for cooling effect and and methyl paraben and propyle paraben than this gel preparation put in a marker form container.^[11,12,13]

Standard graph of fluconazole



Evaluation parameter

Determination of pH: the pH of the sample is determined by using pH meter^[14] (3310, Jenway, UK). The reading were taken for average 3 times (pH 6.1, 5.99, 5.60).

Visual examination: All developed gel formulae were inspected for their homogeneity^[15], color; syneresis and presence of lumps by visual inspection after gels have been set in the container.

Spreadability test: A sample of 0.5 of each formula was pressed between two slides and left about 5 minutes. Where no spreading was expected.^[16] Diameters of spreaded circles were measured in cm and were taken as comparative values for spreadability. The results obtained by 3 times reading (4.5 ,4 ,5).

Drug content determination : A specific quantity of developed gel was taken and dissolved in 100ml of phosphate buffer of pH 5.5. the volumetric flask containing gel solution was shaken for 2hr on mechanical shaker in order to get complete stability of drug. The solution was filtered using Milipore filter (0.45) micrometer. After the suitable dilution drug absorbance was recorded by using UV- visible spectrophotometer (UV-1700, Shimadzu, Japan) at wavelength 260nm using phosphate buffer as a blank result are (9.55, 9.7, 9.99, 9.78, 9.99,).

CONCLUSION

Fluconazole was successfully incorporated into the different topical marker preparation. From among all the developed formulation the formula shows good spreadability and this device can treat infectious diseases by the application releasing the exact amount of drug through the infectious get destroyed. This is a innovative and creative idea to produce a pharmaceutical device and the effective dose avoid the side effects of drug this is successful and future demanding device.

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