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## Review Article

# Herbal Antifungal Foot Cream

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## ABSTRACT

Skin conditions, including cracked heels, are prevalent and cause significant discomfort across various age groups. These conditions can be exacerbated by environmental factors that promote the growth of germs and fungi on the skin. To address this, a HERBAL ANTIFUNGAL FOOT CREAM was developed to hydrate and protect the heel. This cream features an emulsion that forms an oily layer on the skin, reducing water loss and aiding in skin hydration. It contains beeswax and kokum butter, which act as emollients to soften and smooth the skin. Key ingredients include coconut oil and kokum butter for their hydrating properties. Additionally, crude drugs like *Azadirachta indica* (neem leaves) and *Aloe barbadensis* (aloe vera leaves) are incorporated for their antibacterial and antifungal benefits. The cream is homogeneous, spreads easily, and maintains a naturally fatty consistency.

## INTRODUCTION

### HERBAL COSMETICS

Herbal cosmetics utilize natural plant, herb, and mineral ingredients to support and enhance skin and hair health. By avoiding harsh synthetic chemicals, these products provide a milder alternative for those preferring a natural approach. Ingredients like aloe vera, tea tree oil, lavender, and rosehip are valued for their soothing, moisturizing, and antioxidant properties<sup>[1]</sup>. A fungal infection of the foot is generally called tinea pedis, commonly known as athlete's foot or foot ringworm. This condition usually affects the skin

of the feet or toes. In contrast, a fungal infection of the nail is typically referred to as onychomycosis, also known as:

### Tinea pedis:

**Causes:** It is caused by dermatophyte fungi, which need keratin to thrive and can infect the skin, hair, and nails. The most common fungi responsible for tinea pedis include: *Trichophyton rubrum*, *Epidermophyton floccosum*, *Trichophyton interdigitale*<sup>[10]</sup>

### 1. Onychomycosis:

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Causes: It can be caused by various organisms, including:  
dermatophytes like *Trichophyton rubrum* and *T. interdigitale*  
yeasts such as *Candida albicans* molds including *Scopulariopsis brevicaulis*.

#### **Ingredients used :**

##### **1.ALOE VERA:**

Synonyms: Aloe, Musabbar, Kumari.

Biological source: Aloe is dried juice of the leaves of *Aloe barbadensis* Miller, known as curacao aloes.

Family: Liliaceae<sup>[3]</sup>

Functions: Creates a protective skin barrier, soothes climate/environmental irritation, supplies essential skin nutrients, offers anti-acne, anti-aging, and sun protection benefits moisturizes, repairs, and relieves burns, enhances skin elasticity and whitening<sup>[4]</sup>

##### **2.NEEM:**

Synonyms: Margosa.

Biological source: It consist of all aerial parts of plant known as *Azadirachta indica*.

Family: Meliaceae<sup>[3]</sup>

Functions: Neem is a powerful antioxidant and antimicrobial, with anti-inflammatory properties. It helps neutralize free radicals and may be effective against various bacteria, viruses, and fungi<sup>[4]</sup>

##### **3.BEESWAX**

Synonyms: : Cera Alba

Biological source: Bees wax is made from the honeycomb of the honeybee and other bees.

Family: Apidae<sup>[3]</sup>

Functions: It acts as a thickening agent and is primarily used as a water-in-oil (W/O) emulsifier. This means it creates rich, greasy creams, making it ideal for cold creams. However, beeswax can only emulsify a small amount of water, leading to unstable emulsions over time<sup>[4]</sup>

##### **4.KOKUM BUTTER**

Synonyms: Goa butter, kokum oil, Mangosteen oil, Amsul.

Biological source: It is the fat expressed from the seeds of *Garcinia indica* Chois. Family: Guttiferae<sup>[3]</sup>

Functions: It is used in anti-aging, anti-diabetic, cardioprotective, antibacterial, anticancer, anti-obesity, and antioxidant effects. Its emollient properties make it an excellent natural moisturizer, ideal for keeping skin soft and smooth. It is particularly useful for treating severely dry skin and conditions like lip, hand, and foot fissures<sup>[5]</sup>

##### **1.COCONUT OIL:**

Synonyms: Copra oil.

Biological source: It is a fixed oil obtained by expression from thoroughly dried kernels of the *Cocos nucifera* .

Family: Palmae<sup>[3]</sup>

Functions: Coconut oil excels by forming a protective barrier against infections, softening and moisturizing the skin, and helping to prevent wrinkles, sagging, and age spots<sup>[6]</sup>

##### **2.VITAMIN E**

Synonyms: tocopherol

Biological source: Vitamin E is found in the following foods: Vegetable oils (such as wheat germ, sunflower, safflower, corn, and soybean oils) Nuts (such as almonds, peanuts, and hazelnuts/filberts).

Family: four tocopherols and four tocotrienols<sup>[3]</sup>

Functions: Vitamin E, play a vital role in skin's antioxidant defense system.It mitigates free radical damage, reducing aging and cancer risk, offers antioxidant and moisturizing properties, protects against UVB radiation, reduces erythema (redness) and photoaging<sup>[7]</sup>

##### **METHODOLOGY**



**Table 1: Formulation table**

| Sr. No. | Ingredient    | Uses  |
|---------|---------------|---|
| 1.      | Aloe vera gel | Moisturizer and hydration                   |
| 2.      | Neem extract  | Antibacterial and Antifungal                |
| 3.      | Coconut oil   | Highly moisturising and reduce inflammation |
| 4.      | Kokum butter  | Nourish dry skin deeply                     |
| 5.      | Vitamin E     | Good for dry skin                           |
| 6.      | Bees Wax      | Skin soothing                               |
| 1.      | Aloe vera gel | Moisturizer and hydration                   |

## PROCEDURE FOR PREPARATION OF FOOT CREAM

In the beaker, take 5 gm of Bees wax and 3 gm of Coconut oil. Place the beaker in hot water bath for melting the wax. Then add 10.37 gm of Kokum butter and mix it well. Then prepare water phase by mixing Aloe vera gel of 0.48 gm, and vitamin E of 0.6 gm. Transfer oil phase into mortar pestle and make it normal cool. Add water phase drop by drop and avoid phase separation. Store it in a suitable container<sup>[14]</sup>

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## CONCLUSION

Herbal products are in much demand as they have fewer side effects than that of the synthetic ones. Formulation and evaluation of herbal Antifungal foot Cream containing vitamin E, is very helpful in mending the foot heel. Neem has good Antifungal and antibacterial Activity. Cream is water in an oil type. As a result, evaporation of water from skin reduces and prevent the skin from

drying. Aloe vera has moisturizing and skin repairing properties. cream base is non-greasy in nature and easily removable. It maintains its physical state at room temperature. Mild cases of athlete's foot, a common fungal infection of the foot, can be treated with over-the-counter ointments. The intersection of traditional herbal knowledge and modern scientific validation enhances the credibility of herbal antifungal remedies. Hence this Drug Delivery System is very useful to treat cracked heels as well as it shows good patient compliance.

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