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Provision and Analysis of Poly-herbal Soap to Treat Eczema

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ABSTRACT:

[Eczema may be a chronic skin condition and is also called dermatitis. The most common type is atopic eczema, in which a dry, itchy rash develops.]¹[Atopic is a chronic cutaneous inflammatory disorder characterized by skin barrier disruption. Clinically atopic eczema is characterized by intense itching, dry skin, and periodic flares of eczema.]². Bacterial and fungal infections are normal among people, so these infections require significant observations for their treatment. The use of traditional herbal medicines is very ordinary to treat skin disorders like eczema, psoriasis, vitiligo, etc. [Herbal medicine is as old as civilization. The application of traditional herbal medicine is widespread in different regions of the world. It is more regular in villages and desert areas where medical services are less accessible.]³. Herbal treatments are generally perceived as effective and have lesser side effects. The herbal plant extracts are known to possess diverse curative anti-inflammatory, antibacterial, and antifungal properties which are included in various forms, for human use. One such usage is an herbal soap formulation that's used not only for treating microbial infections but also for using it daily. This study aims to formulate a polyherbal soap using fenugreek seeds (*Trigonella foenum-graecum*), peepal (*Ficus religiosa*), and burn plant (*Aloe barbadensis miller*), tamarind (*Tamarindus indica*), oats (*Avena sativa*) and turmeric powder (*Curcuma longa*). The prepared polyherbal formulation exhibited good antibacterial, and anti-inflammatory effects. This polyherbal formulation was evaluated for various physicochemical parameters and the formulation showed stable observations of pH, appearance, etc.

KEYWORDS: Polyherbal soap, cleansing, eczema.

INTRODUCTION:

Skin diseases are critical public health problems as they need a considerable impact on individuals and communities. They cause pain, worsening of normal functions, and lower quality of life. Eczema may be a common inflammatory skin disease that causes irritation to the skin. The foremost common type of eczema is known as atopic dermatitis or atopic eczema. Atopic refers to a gaggle of diseases with an often inherited tendency to develop other allergic conditions, like asthma. [It is a chronic, relapsing, and itchy inflammatory skin condition. In the acute stage, eczematous lesions are characterized by poorly defined erythema with surface change (edema, vesicles, and weeping). In the chronic stage, lesions are marked by skin thickening (lichenification). Although lesions can occur anywhere on the body, infants often have eczematous lesions on their cheeks and outer limbs before they develop eczema in the typical flexural areas such as behind the knees and the folds of the elbow and neck. About 50% of people suffering from eczema also become sensitized to environmental allergens, such as house dust mite, and may then be classified as having atopic eczema under the revised WAO nomenclature.]⁴

Whichever a part of the skin is affected, eczema is nearly always itchy. Sometimes the itching initiates before the rash appears, but mostly the rash appears on the face, back of the knees, wrists, hands, or feet. It's going to influence other areas as well.

It's considered to be associated with the hyperactive response by the body's immune system to an irritant. This is often the response that causes the symptoms of eczema. [The causes of eczema remain unclear.]⁵

How to treat?

Treatment for eczema aims to appease and restrict itching, which may lead to infection. Since the disease tends to form skin dry and itchy, lotions and creams are suggested to stay the skin moist. These products are usually applied after bathing within 3 minutes to assist the skin to retain moisture. Mostly the soap present today within the market may cause irritation, and dryness to the skin, therefore the use of such chemical soaps should be avoided in patients and mild or herbal soaps should be used. Herbal medicine has been commonly used over the years for treatment and prevention of diseases and health promotion also as for enhancement of the span and quality of life. [Traditional herbal medicines

are naturally occurring, plant-derived substances with minimal or no industrial processing that have been used to treat illness within local or regional healing practices.]⁷

To treat eczema we've included some natural herbs possessing curative properties, they're as follows:

Peepal bark (Ficus religiosa): [The bark contains phytochemicals like tannins, saponins, flavonoids, etc. which show beneficial effects in health conditions such as diarrhea, dysentery, inflammation, bacterial infections, bleeding and paralysis.]^{8,9}

Tamarind (Tamarindus indica): [It has antifungal & antibacterial properties.]¹⁰

Turmeric (Curcuma longa): [Turmeric (Curcuma longa), a commonly used spice throughout the world, has been shown to exhibit anti-inflammatory, antimicrobial, antioxidant, and anti-neoplastic properties.]¹¹

Chamomile oil (Matricaria chamomile): [Essential oils of chamomile are used widely in cosmetics and aromatherapy because the chamomile has anti-inflammatory, antibacterial, anti-oxidant activity.]³

Fenugreek seeds (Trigonella foenum-graecum): [In traditional medicine, the fenugreek seed is used externally to treat furunculosis, eczema, ulcers, and local inflammations of the skin.]¹²

Oats (Avenasativa): [Oats have compounds called avenanthramides, which are powerful anti-inflammatory agents and also display anti-oxidant activity.]³

Aloe vera (Aloe barbadensis miller): [It has anti-inflammatory, antioxidant, antimicrobial, anticancer, immune-boosting, and hypoglycemic properties. Its gel is directly applied to the eczematous skin. Because of its moisturizing effect, the skin becomes softer and wounds heal rapidly.]³

MATERIAL & METHODOLOGY:

Plant material: Peepal bark & fenugreek seeds were collected.

Preparation of the extract: Peepal bark was first purified with the assistance of water and then its ethanolic extract was prepared by using Soxhlet.

Preparation of the soap base:

Ingredients:

Coconut oil (280g)
Lye (68.4g)
Stearic acid (120g)
Glycerine (68.4g)
Denatured alcohol 95% (280g)
Propylene glycol (360g)
Sorbitol 70% (400g)

The coconut oil is first heated and stearic acid is added to it. The lye solution containing an equal amount of sodium hydroxide, water, and glycerine is added to the oil. After cooking the above solution for some time, further denatured alcohol, propylene glycol, and sorbitol is been added, and therefore the solution is allowed to be heated again. Here the soap base is ready.

Preparation of polyherbal soap:

The fenugreek seeds were soaked within the water overnight and then its fine paste was formed; this paste was added to the soap base. The tiny quantity of tamarind was added to 10ml water to form its liquid pulp; this was added to the soap base. Oats were grounded into fine powder and added to the soap base (0.3g). Aloe vera gel of about 0.2g and turmeric powder (0.2g) was taken further into the soap base followed by 15ml of peepal bark extract and finally the essential oils such as chamomile oil & lemon oil (for fragrance) were added about 3-4 drops each. These all-natural ingredients were



mixed into the soap base when it had been quite warm and the mixture was poured into the mould and allowed to cool. Thus the polyherbal soap was prepared.



Figure No. 1



Figure No.2

EVALUATION PARAMETERS:

Sr.No.	Test	Observation
1.	Color	Dark Green
2.	Odor	Fragrant
3.	Appearance	Good
4.	pH: The formulation was dissolved in 100ml of distilled water and stored for two hours. The measurement of pH was done using calibrated digital pH meter.	6.8
5.	Foam height:0.5g sample was taken and dispersed into 25ml distilled water. Then, transferred into a 100ml measuring cylinder; the volume was made up to 50ml with water. 25 strokes were given and stood till the aqueous volume measured up to 50ml and measured the foam height, above the aqueous volume.	11cm
6.	Foam retention: 25ml of 1% soap solution was taken into a 100ml graduated measuring cylinder. The cylinder was covered with a hand and shaken 10 times. The volume of foam at the 1-minute interval for 4 minutes was recorded.	4ml
7.	%free alkali: About 5gm of the sample was taken in a conical flask and added to it into 50ml of neutralized alcohol. It was boiled under reflux on a water bath for 30 minutes, cooled, and 1ml of phenolphthalein solution was added. It was then titrated with 0.1N HCL.	0.42%



8.	Alcohol insoluble matter: 5g of the sample was taken in a conical flask. Added it to 50ml warm ethanol and shaken vigorously to dissolve. The solution was filtered through tarred filter paper with 20ml warm ethanol and dried at 105° Celcius for 1 hour. The weight of the dried paper was taken and alcohol insoluble matter was calculated.	9.8%
9.	High-temperature stability:	It withstands temperatures above 50° Celcius
10.	Skin irritation test:	No irritation to the skin

13] Table No.1

RESULT & DISCUSSION:

The organoleptic evaluations like color, odor, and therefore appearance were visually detected. The polyherbal soap was dark green in color with a fragrant smell and good appearance. Furthermore, the prepared polyherbal soap was standardized by evaluating various physicochemical properties like foam height, foam retention, %free alkali, high-temperature stability, and skin irritation test.

CONCLUSION:

[Medicinal plants have great potential to cure different diseases. many of us worldwide use various plant-based products for treating skin problems. These herbs are an upscalesource of active ingredients and can be safer and more cost-effective for the treatment of different skin diseases.]3 In eczema, the mostsymptoms are dry skin and itchy rashes. To cure such skin diseases an effortwas made to formulate polyherbal soap containing fenugreek seeds, oats, peepal, tamarind, aloe vera, turmeric, and chamomile oil. These natural ingredients possess anti-inflammatory, antibacterial, antimicrobial, antioxidant, and soothing effects. The formulation had shown stable results for evaluation parameters like organoleptic properties, pH, foam retention, foam height, %free alkali, high-temperature stability.

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