



FORMULATION AND EVALUATION OF HERBAL MOISTURIZER USING AZADIRACHTA INDICA, CURCUMA LONGA, AEGLE MARMELLOS: A REVIEW

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ABSTRACT: A semi-solid product called moisturizer cream is applied to the skin to prevent wrinkles and reduce the risk of skin issues. The major goals of the study project are to make moisturizing creams with various herbs and assess how effective they are. The preparations include for amla, neem, turmeric, and powdered dry bael leaves. Herbs can be used to contribute antioxidants and other helpful substances, enhancing the moisturizer's ability to hydrate and treat dry skin. The formulation should also include skin types, potential allergies, and desired texture for a well-rounded herbal moisturizer. Additional types of moisturizers include of bath oils, ointments, lotions, creams, and substitutes for soap.

KEYWORDS: Antioxidant, antimicrobial, antiaging, antifungal, anti-inflammatory.

INTRODUCTION

The Greek word "kosmesticos," which meaning "to adorn," is the source of the English term "cosmetic." Since then, any substance used to enhance or beautify appearance is known as a cosmetic. In actuality, the word "cosmetics" originated in Ancient Rome. These were usually made by female slaves called "cosmetae," which is how the name "cosmetics" derived. The purpose of cosmetics is to improve appearance. The history of makeup extends many years. The Egyptians are known as being the first people who used makeup to improve their appearance (1). Dry creams are used in the production of soap and gelatin, which acts as the skin's foundation. The stratum corneum's water content and the lipids on the skin's surface are essential balanced to maintain the skin's appearance and function. Since the skin is the body's outermost covering, it is always in contact with a variety of environmental factors. The equilibrium may be disturbed by both endogenous and external influences (2). Numbers of moisturizers are available under the label of natural, safe, organic, herbal while the basic properties of humectancy, occlusivity and emolliency are consistent across all moisturizers. Most of the available moisturizers use synthetic adhesives, emulsifiers, perfuming agents, pigments, surfactants and thickeners to form the base. There is extensive need to replace toxic synthetic agent from the base using natural agents (3).

TOPICAL DRUG DELIVERY: In recent years, medications have been provided to treat diseases using a variety of routes, including oral, sublingual, rectal, parental, topical, and inhalation. In order to reduce the pharmacological or the effect of the drug to the skin's surface or within the skin, topical delivery refers to the application of a drug-containing formulation to the skin to treat cutaneous disorders or the superficial manifestations of general diseases (such as psoriasis). Semisolid formulations, in every form, dominate the system for topical delivery; however, foams, sprays, medicated powders, solutions, and even medicated adhesive systems are in use (4).

Advantages of using a topical medication delivery technique is that first pass metabolism is avoided, practical and simple to use, reduce risk of danger. Disadvantages associated with intravenous therapy and the various absorption conditions, such as pH fluctuations, enzyme presence, gastric emptying time, etc. Continuous drug input leads to efficacy with a reduced total daily dosage of the drug, prevent changes in medication levels between and within patents. The medication or its excipients may cause dermatitis or skin irritation, because most medications are poorly fat soluble and have a large molecular weight, they cannot be absorbed through the skin or mucous membranes. Absorption that is extremely sluggish. It is only appropriate for medications whose actions depend on extremely low plasma concentrations (5).

EPIDERMIS

The stratified keratinized squamous epithelium that makes up the epidermis, the outermost layer of skin, varies deep across the body. The skin is thickest on the soles of the feet and the palms of the hands.

The deeper layers of the epidermis are coated in dermal interstitial fluid, which supplies nutrients and oxygen while draining as lymph, while the epidermis itself contains blood vessels and nerve endings. The four layers of the epidermis, numbered from bottom to top, are as follows:

Basale stratum, also known as germinativum or basal cells

Spinosum stratum (layer of prickle or spiny cells)

stratum granulosum, or granular cell layer

horny layer, or corneum stratum (6).

SKIN DISEASES

1. **Vitiligo:** A slowly common pigmentary disorder, vitiligo is defined by patches of skin that have lost melanocytes in the epidermis, resulting in depigmented skin. This disease has an average incidence of between 0.1 and 2% (7).
2. **Scabies:** Scabies is a rare parasitic disease that poses a serious risk to public health in many locations with limited resources. Major mortality is caused by post-infective a result such acute post-streptococcal glomerulonephritis and secondary infections.
3. **Eczema:** Known by its common name, atopic dermatitis, or eczema, is a chronic, progressive skin condition defined by immunoglobulin E-mediated sensitivity to environmental and food allergens, as well as itching and impaired epidermal barrier function. Atopic dermatitis is a complicated condition carried on by genetic and environmental factors interacting.
4. **Rosacea:** Rosacea is a popular chronic skin diseases that presents as eye symptoms as well as inflammation, flushing, lesions, papules, pimples, and flushing. Management includes treating specific features, avoiding triggers, and taking skin care precautions (8).

SKIN CREAM TYPES:

They mostly belong to two kinds.

Oil- in- water (O/W): In an oil-in-water (O/W) emulsion, the oil is distributed as droplets across the aqueous phase, whereas small droplets of oil are spread in a continuous phase in creams.

Water-in-Oil (W/O): Creams consist of tiny water droplets scattered within a continuous oily phase. When water is the dispersed phase and oil is the dispersion medium, the resulting emulsion is known as water-in-oil (9).

GENERAL INGREDIENTS USED IN HERBAL MOISTURIZER

Lanoline: a substance made from sheep wool fat.

It serves as a grease, provides a clean appearance.

Fats: derived from plants, animals, or minerals.

Depending on the method utilized, they can be saponified to produce glycerin, soap, or acid.

Colors: derived from plants, such as indigo, saffron, and turmeric.

Fragrances: for a pleasing and delightful fragrance.

Vitamins: Vitamins A, B, C, and E are the primary vitamins used for the production of herbal creams (10).

TYPES OF MOISTURIZER: There are several different kinds of moisturizers in the market. Although being one of the best moisturizers, petroleum jelly is disliked due to its greasy texture. Popular moisturizers include lanolin, silicone oils, stearic acid, stearyl alcohol, cacao butter, ethanol myristate, ethanol palmate, lanolin, fluid paraffin, ethylene glycols, shea butter, and castor oil. In addition, moisturizers come in the shape of moisturizers, lotions, ointments, creams, bath petroleum products, and soap solutions.

ADVANTAGES

Skin problems are reduced when skin is moisturized.

Moistening reduces other problems.

Keeping your skin moisturized helps it look younger.

Moisturize to minimize wrinkles.

DISADVANTAGES

Insufficient moisture content Allergens (11–13).

CLASSIFICATION OF CREAMS: Emulsion type, function, and distinctive features are used to categorize different types of creams. 1. Emulsion cosmetics (o/w): a) Disappearing creams. (b) Creams for foundation.

2. Emulsion-free cleansing lotion, cleansing cream, and cleansing milk

3. Emulsion-free winter cream: a) Moisturizers or cold creams.

4. General purpose and all-purpose creams.

5. Massage and night creams.

6. Cream for protecting the skin.

7. Creams for hands and body (14–17).

HERBS USED IN HERBAL MOISTURIZER

AEGLE MARMELLOS (Beal): Usually referred to as Bael or Bilva, *Aegle marmelos* (L) Correa is a member of the Rutaceae family and has been used widely in traditional Indian medicinal systems due to its many therapeutic advantages.



Hindus consider the *Aegle marmelos* tree to be sacred and offer it up in prayers to Lord Shiva and Parvati. It is also referred to as *Shiva duma*, or the *Shiva tree*. The Bael tree is indigenous to the Eastern Ghats and Central India. It is common to the Indian subcontinent and is primarily found in tropical and subtropical areas. *Betula* is one of India's most important medicinal plants. More than one hundred phytochemical compounds, including phenols, flavonoids, which alkaloid compounds, glycosides of the heart, the saponins terpenoids, steroid, and tannins that have been found from different plant groups.

It is well recognized that the biological and pharmacological effects of these medicines are not effective in treating a number of chronic conditions, including cancer, cardiovascular disease, and gastrointestinal issues. The crude extract of this plant has been shown in animal models to possess antibacterial, anticancer, anti-inflammatory, antiulcer, and antioxidant properties.

Bael leaves possess anti-inflammatory, anti-bacterial, anti-fungal, a hemolytic, and anti-ulcer properties (18–19).

AMLA: Amalki, Emblica, Indian Goose Berry are synonyms for it.

Source of Biological Information: *Emblica Officonails Gaerth Phyllanthus emblica* Linn., both fresh and dried fruits utilized. Plant that falls within the family Euphorbiaceae.



Geographical Source: Its main home is the forests of India. In addition, Sri Lanka and Myanmar are host to these plants.

Collection and cultivation: It is grown through the process of seed germination. produced by budding or cutting. Drip irrigation is the most effective way to water amla. Plants create grows that are male and female in different ways.

Benefits include antibacterial, antifungal, and anti-inflammatory qualities (20).

NEEM: Margosa is a synonym

The plant known as *Azadirachta indica*, a member of the Meliaceae family, is the source of its genetic makeup.



Macroscopic characteristics: leaves: 5.0–10 cm long, tightly grouped at the terminals of branches; alternate, estipulate, imparipinnate leaflets. The leaves are bitter, green in color, and have a pointed border.

Chemical Constituents: It is known that the plant contains a wide range of distinct compounds, including chemical compounds (Sugiol), triterpenes (stimasterol), and nimbol (Bark).

Geographic Source: Some of the nations where it is found are Pakistan, Bangladesh, India, Sri Lanka, Malaysia, Thailand, Mauritius's Fiji, South Africa, Namibia, and East Africa.

ADVANTAGES: Improve skin tone, reduce inflammation, reduce dark circles, shield from environmental damage, lessen tanning, and have antibacterial properties (21-23).

TURMERIC: Indian saffron, Haldi, and Haridra are synonyms.

Biological Source: Originated from the both fresh and dry roots of *Curcuma longa*, a plant belonging to the Zingiberaceae family.



Geographical Source: Turmeric is widely grown on both the mainland and the island in the Indian Ocean native to southern India and Indonesia.

Large-scale Features: Lateral rhizomes, or long turmeric, are more tubular and have fewer branches. The term "round or bulb turmeric" is frequently used in shops to describe the oval, circular, or bulb-shaped main roots.

Chemical Components: Turmeric contains substances known as curcuminoids, which have a yellow color. Curcumin (50–60%) makes up the majority of curcuminoids. In addition to volatile oil, it also contains resin, camphor and camphene.

ADVANTAGES: Reduce inflammation and dark circles.

Increase skin radiance, decrease tanning, and promote skin health (24–25).

CONCLUSION: To develop a herbal moisturizer, carefully selected natural components with moisturizing properties are blended together. This process aims to provide a product that not only nourishes the skin but also promotes overall skin health. Herbs can improve the moisturizing and anti-drying properties of a moisturizer by adding antioxidants and other beneficial ingredients. Skin types, potential allergies, and preferred texture should all be considered in the formulation of a well-rounded herbal moisturizer. The study's primary goals are to make moisturizing creams with various herbs and then evaluate how effective they are. The moisturizing and anti-drying qualities of moisturizers can be enhanced by the addition of antioxidants and other beneficial compounds derived from herbs.

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