

REVIEW ARTICLE OF FORMULATION AND EVALUATION OF HERBAL FACE CREAM

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Abstract

Aloe Vera, Amla and cucumber peel are therapeutic plants that have been utilized in numerous herbal remedies for centuries, including Ayurveda, Siddha, and Homeopathy. Cosmetics and various therapeutic goods are created from the mucilaginous tissue in the center of an aloe vera leaf, which is known as aloe vera gel. Aloe vera gel contains no Antraquinone. Which are responsible for aloe's strong laxative effects. However, whole leaf extract may include Antraquinone. Aloe vera has 75 potentially active ingredients, including vitamins, enzymes, minerals, sugars, saponins, and amino acids. Amla contains amino acids such as glutamic acid, proline, and aspartic acids. Protein and minerals. Cucumber peel is high in fiber and contains minerals such as magnesium, potassium, and silica.

Keywords: Aloe vera, Amla, Cucumber peels, face cream, Evaluation.

INTRODUCTION

Cosmeceuticals are becoming more and more in demand. This growth is brought about by the availability of new components, the financial incentives for creating profitable goods, and the necessity to maintain quality standards in consumer formulation. In terms of performance, a formulation's quality should meet the needs of the customer. A deeper comprehension of skin physiology should be required due to the plant parts used in cosmetic preparation. The goods designed to be used on the body with the intention of improving beauty and cleansing, beautifying, or changing look are called cosmetics. Cosmetics are made to combat acne, lessen wrinkles, and regulate oil production. Formulations such as skin protecting, sunscreen, anticancer, antiwrinkle, and antiaging are made with a variety of ingredients to address different kinds of skin conditions. The market for cosmeceuticals is growing quickly. The availability of novel components, the financial incentives for creating profitable goods, and the necessity to maintain quality standards in consumer formulation are the reasons for this increase. A formulation's quality should meet the needs of the customer in terms of performance. Plant elements used in cosmetic preparation ought to necessitate a deeper comprehension of skin physiology. Products designed for application on the body with the intention of cleaning, beautifying, or changing look and improving beauty are called cosmetics. Makeup is designed to combat acne, minimize wrinkles, and regulate oil production. Formulations such as skin protection, sunscreen, antiacne, antiwrinkle, and antiaging are made with a variety of ingredients to address different kinds of skin conditions.

Because of rising quality standards, consumer demands, new ingredients, and financial incentives, the market for cosmeceuticals is expanding rapidly. Formulations need to be grounded on a sound understanding of skin physiology and match consumer performance expectations. Cosmetics address problems including wrinkles, acne, and oil control, and are used to cleanse, beautify, and enhance look. Using natural or synthetic ingredients, different formulations are created for anti-aging, anti-acne, anti-wrinkle, and skin protection reasons. The herbal cosmetics business is driving the global demand for herbal goods, which are becoming more and more popular because they are said to have less adverse effects than synthetic products [1-6]. A review of the literature indicates that aloe vera is applied topically to protect and soothe skin. It also has antibacterial properties. [7]

Lanolin and Vaseline are two popular fat creams. The foundation of the skin is made of gelatin, which is produced from dry creams, and soap. Hair care is one of the industries in the beauty sector that is expanding the fastest. Many young men maintain and style their hair with oils and gels. Products like hair gels, oils, and lotions have been introduced to the market to help prevent dandruff and hair loss. Some professions, like those in show business, place a premium on appearances. Numerous famous people and artists have utilized makeup to counteract harsh lighting and camera flash glare.

They understand the importance of appearances and use a variety of cosmetics to keep their look. Recent research indicates that makeup can assist in protecting the skin from the sun's damaging effects.

TOPICAL DRUG DELIVERY

Over the past few decades, drugs have been supplied to the human body by a variety of methods, including oral, sublingual, rectal, parental, topical, and inhalation, to treat illness. When a drug-containing formulation is applied topically to treat a cutaneous condition or the skin-related symptoms of a general illness (like psoriasis), this is referred to as "topical delivery". Restricting the drug's pharmacological effects to the skin's surface or inside it is the aim of topical administration. Though foams, sprays, medicated powders, solutions, and even medicated adhesive systems are used, semisolid formulation is the most often used method of topical delivery. [10]

ADVANTAGES OF TOPICAL DRUG DELIVERY SYSTEM

- Avoid making the first pass.
- Stopping the first-pass metabolism.
- Easy to use and practical.
- Stay away from danger.
- The disadvantages of IV treatment and the many variables surrounding absorption, including pH variations, the presence of enzymes, the time it takes for the stomach to empty, etc.
- Efficacy can be achieved with a lower total daily dosage of the medicine when it is administered continuously.
- Stop medication levels from changing both within and across patents.
- Dermatitis or skin irritation may be brought on by the medicine or its excipients.
- Most drugs cannot pass through mucous membranes or the skin because they are poorly fat soluble and have a high molecular weight.
- Extremely slow absorption; this is only appropriate for drugs whose effects are dependent on very low plasma concentrations. Possible allergic reactions.[11]

PHYSIOLOGY OF HUMAN SKIN EPIDERMIS:

Squamous epithelium that has been stratified and keratinized makes up the epidermis, the skin's outermost layer. It varies in thickness, with the palms of the hands and soles of the feet having the thickest layer. The dermis's interstitial fluid surrounds the epidermis's deeper layers, providing nutrients and oxygen before draining away as lymph. The epidermis lacks blood vessels and nerve endings.

DERMIS

Hardy and elastic is the dermis. Collagen and interwoven elastic fibers make up the matrix, which is composed of connective tissue. Ruptures of the skin's elastic fibers, which can occur during pregnancy or following obesity, give rise to stretch marks, often referred to as chronic striae. Collagen strands that provide skin its tensile strength and ability to bind water are lost as we age, leading to the appearance of wrinkles. Fibroblasts, macrophages, and mast cells make up the majority of the cells in the dermis. Its lowest layer is made up of varying amounts of areolar and adipose (fat) tissue.

Subcutaneous gland

The source tissue of the hair follicle gives rise to these secretory epithelial cells. They are present in every part of the body's skin, with the exception of the hands' and feet's soles, and they release sebum—an oily substance—into the hair follicles. They are most concentrated in the skin of the face, groyne, and axillae. In places where one kind of superficial epithelium transitions into another, such as the lips, eyelids, nipple, labia minora, and glans penis, sebaceous glands that are independent of hair follicles discharge sebum straight onto the surface.[12]

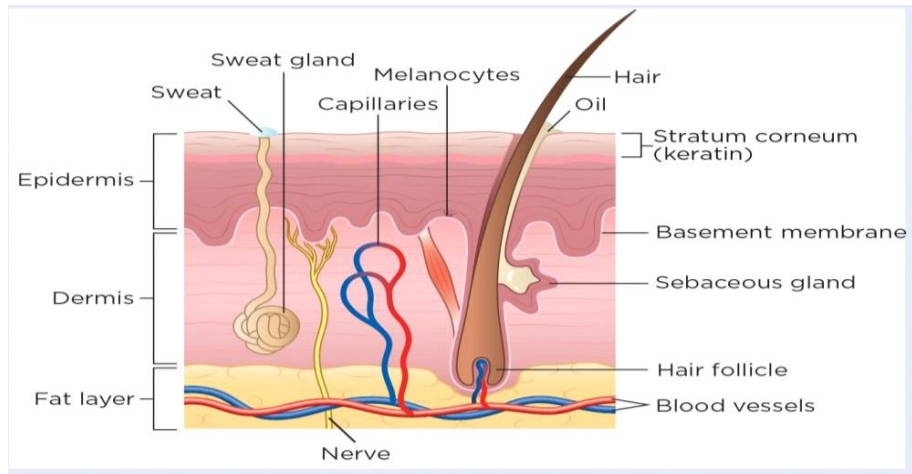


FIG 1: FUNCTION OF SKIN

a) Protection:

The skin's Langerhans cells serve as an anatomical barrier between the body's internal and external environments, shielding it from pathogens and harm. They belong to the immune system's adaptive component.

b) Sensation:

Includes a wide range of nerve endings that respond to temperature, pressure, touch, vibration, and damage to tissue; see to the somatosensory system and heptics for further information.

c) Heat regulation:

The skin has a blood supply that is significantly greater than what is required, which allows for fine regulation of energy loss by convection, radiation, and conduction. While dilated blood vessels encourage perfusion and heat dissipation, constricted blood vessels dramatically reduce cutaneous blood flow and store heat.

d) Control of evaporation:

The skin preserves bodily fluids by acting as a semi-impermeable, generally dry barrier. The lack of this function accounts for the considerable fluid loss in burns.

e) Aesthetics and communication:

People are only able to assess our feelings, appearance, and physical state based on the skin we wear.

f) Storage and synthesis:

Helps to store fats and water and acts as a catalyst to produce vitamin D when sunlight hits certain parts of the skin.

g) Water resistance:

The skin acts as an impermeable water-resistant barrier to keep the body from losing essential nutrients.

e) Melanoma

Cutaneous malignant melanoma is the term for the disease that results from skin pigment cells turning cancerous. If treatment is received early, the prognosis is usually good. It can't be spread. The name "melanoma" comes from the Greek word "melas," which means black. Skin gets its natural color from a material that is black and is called melanin.

f) Eczema (Atopic Eczema)

An inflammatory skin disorder is atopic eczema. Atopic disorders, which frequently have a hereditary foundation, include eczema, asthma, seasonal rhinitis, and hay fever. Changes in the epidermis, such as redness, blistering, oozing, crusting, scaling, thickening, and occasionally pigmentation, are referred to as eczema.

CREAM

Topical medications that can be applied topically to the skin are called creams. The description describes creams as "viscous liquid or semi-solid emulsions of either the water-in-oil or oil-in-water type," with varying dose forms based on the type of oil and water required.[13] Creams have several cosmetic uses, such as cleaning, cosmetic enhancement, beautifying, protecting, and therapeutic. The goal of these topical preparations is to locally administer the medication via penetrating the skin's underlying layer or mucous membrane. These products are meant to be used exclusively with the upgraded website. delivery of skin-specific medicine for skin disorders.[14]

They are made up of one or more drug ingredients combined or dissolved in an appropriate base. Based on phases, creams can be categorized as o/w or w/o types of emulsions. Paste formulations that are semisolid and either oil-in-water (like vanishing cream) or water-in-oil (like cold cream) have been called "cream." [15]

TYEPS OF CREAM

- Water in oil
- Oil in water

An oil-in-water (O/W) emulsion is one in which the oil is spread as droplets throughout the aqueous phase, as opposed to in-water (O/W) creams, which consist of small oil droplets dispersed in a continuous phase.[16] Creams called Water-in-Oil (W/O) are made of tiny water droplets scattered throughout an oily phase that is constant. The emulsion is of the water-in-oil (W/O) type when the dispersed phase is water and the dispersion medium is oil. [17–18]

Varieties of creams based on their purpose, attributes, and emulsion type

- Make-up cream (o/w emulsion)
 - a) Vanishing creams.
 - b) Foundation creams, emulsion)
- Winter cream (w/o emulsion):
 - a) Cold cream or moisturizing creams.
- All-purpose cream and general creams.
- Night cream and massage creams.
- Skin protective cream.
- Hand and body creams.

MAKEUP CREAM

These are primarily o/w emulsions. It is a cream-based product that gives the skin a matte or smooth, moisturized look. It gives skin nourishment, a dewy sheen, and is essentially sweat-resistant.

Vanishing cream:

The reason these creams are dubbed "vanishing" is that when applied to the skin, they appear to vanish. Stearic acid is the foundation of these compositions. The cream dries out the skin and leaves behind a sticky, dry residue layer after use. For this reason, products are especially used in hot locations where skin perspires.



FIG 2: VANISHING CREAM

Foundation cream:

These creams are used as a base for makeup foundations. It serves as a basic application that adheres to makeup powders. They give skin that is neither too dry nor too oily an emollient texture as well as environmental protection. It is makeup applied to the face in multiple colors to alter skin tones, conceal imperfections, and produce a uniform color that is identical to the complexion.



FIG 3: FOUNDATION CREAM

Cleansing cream

These creams are used for personal hygiene and beautifying, which is crucial for makeup, as well as for cleansing the body. Cleansing lotions or creams are useful for removing oil, grime, and makeup, especially from the face and neck.



FIG 4: CLEANSING CREAM

Winter cream

These are w/o formulations, meaning that there will be more oil than water in the mixture. The primary usage of these creams is for dry, cracked skin. Ice cream: It's referred to as moisturizing cream or moisturizer. There must be an emollient effect to cold cream. When used, it should feel cool to the touch and leave a non-occlusive oil film on the skin.



FIG 5: WINTER CREAM

All purpose cream and general cream

These days, more people than ever before utilize these creams. These creams spread easily over the skin and have a somewhat oily but non-greasy texture. Additionally, you can use this as a night cream, nourishing cream, protective cream to avoid or treat sunburns, or to treat parts of your skin that have become harsh.



FIG 6: GENERAL CREAM

Night cream or massage cream

These creams are mostly used to cure dry skin or to nourish the skin. Night creams are primarily defined as creams that are applied to the skin and left for a few or many hours during the night. Massage creams are emollients that are applied to the skin and work as a massage agent.

Skin protective cream

These thick-bodied, silky creams are designed to provide the skin a consistent, undetectable layer of protective film. It assists in preserving the skin's protective layer against substances that could cause skin irritation (such as contact dermatitis and occupational dermatitis). preserves the equilibrium of normal to mixture skin and fortifies the skin's inherent qualities.

Hand and body cream

One of the earliest body parts to age is the hands. We frequently wash our hands multiple times a day, which removes moisture from them. Using cream keeps the skin looking youthful while protecting and softening it. Using hand creams that replenish a significant amount of oil is a sensible choice because the skin on our palms and fingers requires oil to remain supple and avoid chapping and cracking. More often than not, it is applied to the hands.[19–22]



FIG 7: HAND CREAM

IDEAL PROPERTIES OF CREAM

- They spread well on the skin;
- They are easy to apply;
- They have a pleasing appearance.
- They should melt or liquify;
- They irritate the skin less.
- They ought to cause the skin's pore opening and flushing effect.
- After application, they ought to leave the skin with an emollient coating.[23]

ADVANTAGES OF FACE CRAEM

- Practical and simple to use.
- Preventing first-pass metabolism.
- Disadvantages associated with intravenous therapy and different absorption conditions, such as PH fluctuations, the presence of enzymes, gastric emptying times, etc.
- Steer clear of danger.
- Prevent medication level variations within and across patents.
- Continuous drug input results in efficacy with a reduced total daily dosage of the medicine.[24]
- Convenient and easy to apply
- Avoidance of first pass metabolism

HERBAL FACE CREAM

The availability of novel ingredients and the financial rewards for producing lucrative goods while maintaining quality standards have led to a growth in the market for herbal cosmetics. Skincare items are those that are applied topically. As cosmetics, face creams provide a softening and cleansing effect. The Ayurvedic system of medicine is one of the most prominent that uses herbal plants and extracts to treat a wide range of ailments. [25]

Aloevera Synonyms: *Aloe barbadensis* is a cactus-like plant that thrives in hot, dry climates. It is one of the 300 species in the *Liliaceae* family. Aloe vera is cultivated in vast numbers. Cosmetics and certain pharmaceutical products contain aloe vera gel, which is the mucilaginous tissue located in the heart of aloe vera leaves. Aloe vera gel does not contain anthraquinone. They are responsible for the strong laxative properties of aloes. However, whole leaf extract may include anthraquinone.[26]

Aloevera has seventy-five potentially active compounds, which include vitamins, minerals, enzymes, sugars, saponins, and amino acids.[27]

Emblica officinalis and amla are synonymous. The family *Euphorbiaceae*. It is also known as Indian gooseberry. It has vitamin C, which is believed to be essential for lowering free radicals that cause aging.

Vitamin C scavenges free radicals and neutralizes and eliminates them. further incorporate amino acids such glutamic acid, proline, and aspartic acid. Protein and minerals.[28, 29]

Cosmetological Importance of Aloe

Aloe vera has long been used to treat burns and illnesses. Nonetheless, it has become clear that aloe vera is crucial to cosmetics as the profession of cosmetology has grown. This herb is a visual marvel, containing more than 20 amino acids, enough amounts of salt, calcium, and magnesium, as well as vitamins, enzymes, polysaccharides, nitrogen, and other elements. Here's a brief summary of some of the most significant cosmetic uses for aloe vera.

Blisters and Itching

Aloe vera also helps to heal blisters and reduce inflammation. Aloe vera contains vitamins B1, B2, B6, B12, and C, which have a relaxing and pleasant effect on skin. [30–31]

Skin Aging

Collagen and elastin are formed in part by aloe vera. These proteins are essential for preventing aging of the skin. [32–33]

Acne

Aloe vera has anti-inflammatory and immune-stimulating properties that help fade acne scars. Beauty products containing aloe vera may help to decrease the severity of acne. Additionally, it contains chemical ingredients that can stop acne before it even appears on the skin. [34–35]

Freshness

Aloevera emanates a sense of freshness. Improved blood distribution makes it simpler for cells to exchange oxygen and supplies nutrition.. [36]

Sun-burns

Aloe vera's capacity to reduce sunburn pain is one of its best benefits. For this purpose, it is placed directly onto the skin. Aloe vera, which contains after-sun creams, or the fresh plant fluid can be used to cure sunburns. [37]

Moisturizing Agent

Aloe vera is also useful for softening and moisturizing skin. Many products available on the market contain aloe vera, which can be used to achieve incredibly smooth skin after taking a shower. Aloe vera gel, cream, or lotion forms a beautiful screen that shields the skin from outside elements like dust and other potentially dangerous chemicals. [38–39]

Pigmentation

The pigment that gives human skin its color is called melanin. An overabundance of melanin synthesis results in a condition called hyperpigmentation. This commonly happens when the skin is exposed to too much sunlight. The UV rays from sunbeams cause the skin cells called melanocytes to start producing melanin. This increased synthesis of melanin is what gives the skin its darker patches. Aloe vera can lessen dark spots and pigmentation on the face. [40–41].

Skin Eruption

Aloe vera-based creams are beneficial for skin breakouts. It has been demonstrated that the best therapy for burns and wounds is aloe vera gel. Aloe vera is indeed helpful for skin eruptions due to its antifungal, antibacterial, and cellular regeneration qualities [42–43].

HERBAL COSMETICS

Herbal cosmetics are often known as "natural cosmetics." People have been drawn to leaving an impact on others through their appearance since the beginning of civilization.

At the time, there were no advanced fairness creams or cosmetic procedures accessible. The natural knowledge found in the Ayurveda was their only recourse. Using the principles of Ayurveda, numerous plants and herbs were employed to make potent Ayurvedic cosmetics. Ayurvedic cosmetics shielded the body in addition to improving the appearance of the skin.

Herbal cosmetics, sometimes known as cosmetics, are still in use in the modern era. There are many different types of herbal cosmetics that are widely utilized in daily life.

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The medical systems of Unani, Ayurveda, Rigveda, Yajurveda, and homoeopathy are all based on the fundamentals of skin care cosmetics. Modern cosmetic technology is being mixed with the knowledge and experience of utilizing herbs to develop a sophisticated and safe beauty product that is more appealing to a wider range of consumers. Essentially, technology refines and nature creates beauty [44].

The following benefits come from effectively maintaining herbal cosmetics:

- Because it is natural, it has the least negative effects on the skin or other body parts. It is also comparatively safer. Because it is used in tradition and culture, customers experience more of a placebo effect.
- Adaptability in design
- People's evidence of ancient impacts
- Current situation

MATERIALS AND METHOD

Sr. No	Ingredients	Uses
1.	Ethanol extract of aloe vera	Inhibit effect against tested pathogen seen by antimicrobial susceptibility testing.
2.	Ethanol extract of curcuma longa	Anti microbial ,anti-inflammatory ,anti cancer.
3.	Ethanol extract of glycyrrhiza glabra	Used to many diseases ,such as a respiratory disorders.
4.	Stearic acid	Used as emulsifying agent.
5.	Cetyl alcohol	Help prevent creams from separating into oil and liquid.
6.	Coconut oil	Growth in pre-mature infants.
7.	Methyl paraben	Preservation
8.	Triethanolamine	Used to treat Minor Aches and pains of the muscle and joints.
9.	Water	Used for washing surgical tools and equipments.

1. Plant Material:

For the intended study, the following plants were collected from the Pathankot locality: Glycyrrhiza glabra, Solanum lycopersicum, Daucus carota, Brassica oleracea, Curcuma longa, and Emblica officinalis.

2. Getting the extract ready:

Following an air-drying process, 500 gm of finely powdered aloe vera, Brassica oleracea, Curcuma longa, Daucus carota, Emblica officinalis, Glycyrrhiza glabra, and Solanum lycopersicum were added to separate soxhlets using petroleum ether and ethanol, in that sequence. The extracts were kept in a refrigerator once they had been dried out under reduced pressure and controlled temperature.

3. Cream Formulation

A cream with a semesolid formulation—an oil-in-water (O/W) emulsion base—was developed. After dissolving the emulsifier (stearic acid) and other oil-soluble components (almond oil, cetyl alcohol), the oil phase (Part A) was heated to 75° C. The aqueous phase (Part B) was heated to 75 degrees Celsius and the preservatives and additional water-soluble ingredients (ethanol extract of Aloe vera, Brassica oleracea, Curcuma longa, Daucus carota, Emblica officinalis, Glycyrrhiza glabra, and Solanum lycopersicum), water, and triethanolamine were dissolved in it. After heating, the emulsifier was continuously swirled while the aqueous phase was gradually added to the oil phase until it cooled. [68-69]

Master formula

Sr no.	Ingradients	Quantities (in ml)
1.	Ethanol extract of aloe vera	1
2.	Ethanol extract of curcuma longa	0.85
3.	Ethanol extract of glycyrrhizaglabra	0.9
4.	Stearic acid	12
5.	Cetylalchol	2
6.	Coconut oil	4
7.	Mthyleparabene	0.02
8.	Triethanolamine	Qs
9.	water	Qs

RESULT

Preformulation Parameters

Sr. No	Parameters	Observation
1.	Colour	Light yellowish
2.	Odour	Characteristic
3.	Texture	Thick and greasy

Evualtion Parameters

Sr. No.	Parameters	Observation
1.	PH	4.5
2.	Solubility	Soluble in alcohol
3.	Consistency	smooth
4.	Spreadability	7
5.	Diffusion study	7 cm
6.	Loss of drying	30%
7.	Washbility	Good
8.	Non irritancy	Non irritant

CONCLUSION

From above discussion it is concluded that on combining the extracts of Aloe vera, Brassica oleracea, Curcuma longa, Daucuscarota, Emblica officinalis, Glycyrrhizaglabra and Solanum lycopersicum in different ratio to get multipurpose effect such as whitening, antiwrinkle, antiaging and sunscreen effect on skin. As we know that it is not possible to increase the extent of efficiency of medicinal and cosmetic property of single plant extract, but by combining the different plant extracts it can be possible to increase the efficacy of extracts. In this regard, we mixed the extracts of Aloe vera, Brassica oleracea, Curcuma longa, Daucuscarota, Emblica officinalis, Glycyrrhizaglabra and Solanum lycopersicum to improve as well synergize the cosmetic properties of prepared products compare to individual extracts. Further research will carry out to check scientifically the synergistic action of selected formulation. These studies suggest that composition of extracts and base of cream of F4 and F5 are more stable and safe; it may produce synergistic action. From above discussion it is concluded that on combining the extracts of Aloe vera, Brassica oleracea, Curcuma longa, Daucuscarota, Emblica officinalis, Glycyrrhizaglabra and Solanum lycopersicum in different ratio to get multipurpose

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Based on the preceding discussion, it can be inferred that a variety of multipurpose effects, including skin whitening, anti-aging, and anti-wrinkle properties, can be achieved by combining extracts of Aloe vera, Curcuma longa, and Glycyrrhiza glabra in different ratios. As far as we are aware, a single plant extract's effectiveness as a medicine or cosmetic cannot be increased; nevertheless, the efficacy of extracts can be increased by combining other plant extracts. Regarding this, we combined the extracts of Glycyrrhiza glabra, Curcuma longa, and Aloe vera to enhance and complement the cosmetic qualities of the final goods in comparison to the extracts alone. To verify the chosen formulation's synergistic effect scientifically, more research will be conducted. According to these research, the base of the cream and the extract composition are safer and more stable, and they may have a synergistic effect.

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