

A Review on Formulation and Evaluation of Herbal Face Cream

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Abstract: *Aloe vera, amla, and cucumber peel have long been utilized in traditional herbal medicines like Ayurveda, siddha, and Homeopathic. The gel derived from the mucilaginous tissue at the center of the aloe vera leaf is used in cosmetics and certain medicinal products. Aloe vera gel does not contain Anthraquinone, the compound responsible for aloes' strong laxative effects. However, the total leaf extract may contain Anthraquinone. Aloe vera is rich in 75 potentially active constituents, including enzymes, vitamins, minerals, sugars, saponins, and amino acids. Amla is packed with amino acids like glutamic acid, proline, and aspartic acids, as well as protein and minerals. Cucumber peels are fiber-rich and packed with minerals such as magnesium and potassium. The presence of aloe vera, amla, and cucumber peels ensures that the product contains silica, which is crucial for maintaining the health of muscles, bones, and tendons. Furthermore, it contributes to skin hydration, enhances complexion, and promotes better vision. The item in question is a face cream that requires evaluation.*

Keywords: Aloe, Amla, Cucumber

I. INTRODUCTION

The demand for herbal cosmetics has increased due to the introduction of new ingredients, leading to financial incentives for creating successful products and maintaining quality standards. Cosmetics refer to products applied on the body, such as face creams used for softening and cleansing. The Ayurvedic system of medicine is a significant user of herbal plants and extracts for treating and managing various diseases. Aloe vera, also known as Aloe Barbadense and belonging to the Liliaceae family with 300 species, is one such herbal plant. Aloe vera, a plant that resembles a cactus, grows well in hot, dry regions and is grown in enormous quantities. Aloe vera gel, or the mucilaginous tissue found in the centre of aloe vera leaves, is used in cosmetics and certain pharmaceutical items. Anthraquinone is not present in aloe vera gel. They are in charge of aloes' potent laxative effects. However, anthraquinone may be present in whole leaf extract. Seventy-five potentially active ingredients, including vitamins, enzymes, minerals, sugars, saponins, and amino acids, are found in aloe vera^{2,3} Amla and Embolic Officinalis are synonyms. The Euphorbiaceae family. It goes by the name Indian gooseberry as well. It has vitamin C, which is thought to be crucial for reducing aging radicals. also contain Amino acid like glutamic acid, proline, And Aspartic acids etc. Protein, Minerals. [4,5] Amla having shown Antioxidant, Anti-cancer, Antibacterial Activity. [6,7,8,9] Cucumber (Cucumis sativus L.) belongs to Cucurbitaceae family such as melon, watermelon, pumpkin and zucchini. It can be eaten fresh in salads, fermented (pickled), or as a boiled vegetable. It is widely used for various skin problems such as swelling under the eyes and sunburn. They are believed to have a cooling, refreshing, healing, soothing, skin softening effect and an anti-itching effect on irritated skin. The Nutritional Profile of Cucumis sativus L. includes water (96.4%), protein (0.4%), fat (0.1%), carbohydrates (2.8%), minerals (0.3%), calcium (0.01%), phosphorus (0.03%), iron (1.5 mg/100 g) and vitamin B (30 IU/100 g). Ascorbic acid and enzymes such as Crespin, a proteolytic enzyme, oxidase, succinic, malic dehydrogenase also were found in fruits. Bio acts the isolated compounds containing cucurbitacin's, cucumegastigmanes I and II, cucumérine A and B, vitexin, orientin, isoscoparine 2"-O-(6"-(E)-p-coumaroyl) glucoside, apigenin 7- O-(6 "-O-p-coumaroyl glucoside) [10]

Cosmetological Importance of Aloe

Aloe vera has been used since ancient times to treat infections and burns, but with the development of cosmetology, it has proven to be a very important ingredient in cosmetic products. It is a miracle beauty herb that contains nearly 20 kinds of amino acids, sufficient amounts of minerals like calcium, magnesium, sodium, enzymes, vitamins, polysaccharides, nitrogen and other ingredients. Here we briefly discuss some of the most important uses of aloe vera for beauty purpose.



Fig no.1 Aloe vera

Itching and Blisters

- Aloe vera offers relief from itching and aids in the healing of blisters. It is rich in vitamins B1, B2, B6, B12, and vitamin C, which provide a soothing and enjoyable feeling to the skin ^[11,12].

Skin Aging

- Aloe vera stimulates the production of elastin and collagen, which are crucial for slowing down skin aging ^[13,14].

Acne

- Aloe vera helps to remove acne scars by acting as an immune booster and reducing inflammation. Products containing Aloe vera can lessen the severity of acne. It also contains chemical components that help protect the skin and promote healing of acne ^[15,16].

Freshness

- Vitality Aloe vera delivers a feeling of vitality. It aids in enhancing blood flow, which facilitates a smoother exchange of oxygen to the cells, thereby nourishing them ^[17]

Sun burns

- Treatment for Sunburns Aloe Vera is highly effective in reducing the discomfort of sunburns. To achieve this, it is applied directly to the skin. The new, fresh liquid from the plant or after sun creams that contain Aloe vera can be used to treat sunburns. ^[18]

Colouring in plant and animal

Melanin is a substance that determines the hue of human skin. Hyperpigmentation occurs when a significant quantity of melanin is produced. This typically occurs because the skin is overly exposed to the sun. When exposed to UV rays from the sun, melanocytes in the skin begin producing melanin. The heightened production of melanin causes the appearance of dark patches on the skin. Aloe vera is known for its ability to reduce pigmentation and dark spots on the face [21,22].

Skin Eruption

Creams containing Aloe vera are advantageous for addressing skin eruptions. Aloe vera gels have been recognized as highly effective treatments for burns and wounds. The properties of Aloe vera, including cellular regeneration and its anti-bacterial and anti-fungal effects, contribute to its efficacy in managing skin eruptions.

Cosmetological Importance of Amla

You may be curious about the application of gooseberry for skin care. It can be ingested with honey or applied directly to the skin to harness its benefits. If the tart flavour of this fruit poses a challenge, consider preparing juice from it for consumption. This approach can be beneficial for your skin. Below are some health advantages of gooseberry for skin health.



Fig No:2 Amla

Anti-Aging Benefits

Incorporating gooseberry juice into your diet can contribute to a more gradual aging process for your skin. As one progresses through the stages of life, the desire to maintain a youthful appearance often becomes paramount. It is a common aspiration to look younger. To achieve this, consider preparing amla juice and enhancing it with honey before consumption. This beverage is rich in antioxidants, which can improve skin health and combat the effects of aging. Amla is also a significant source of Vitamin C, which promotes a radiant complexion. Consistent consumption of amla juice can help avert premature aging, as well as the development of fine lines, dark spots, and wrinkles.

Amla is effective in treating acne. You may prepare a paste from amla and apply it to the affected areas of your face, allowing it to dry for no longer than 15 minutes. This application aids in controlling pimples, minimizing fine lines, and reducing acne-related scarring. As a natural blood purifier, amla helps prevent the occurrence of pimples and their subsequent effects. Consequently, amla juice contributes to achieving clear and flawless skin.

1. Enhanced Skin Tone

A high concentration of collagen in the skin contributes to its firmness and imparts a soft appearance. Regular intake of amla juice elevates vitamin C levels, which in turn stimulates collagen production in the skin. This process results in a softer and more youthful complexion.

Reduction of Skin Pigmentation

The application or consumption of amla juice is believed to purify the skin and diminish pigmentation issues. To utilize this remedy, simply apply amla juice to your face and allow it to dry. Afterward, gently wipe it off with a small piece of cotton, ensuring that your eyes remain closed during the process. Consistent use of this method can help lighten skin blemishes and reduce pigmentation.

Removes Dead Skin Cells

1. Amla juice is renowned for its ability to revitalize the skin, imparting an additional layer of radiance that enhances its natural glow. The resulting brightness can significantly elevate your confidence, as your skin appears more vibrant and livelier. Furthermore, amla juice serves as an effective cleanser, whether applied topically or ingested, aiding in the removal of dead skin cells and contributing to anti-aging benefits.

Cosmetological Significance of Cucumber Peels

Cucumber peels should not be thrown away, as they offer numerous health advantages. These benefits encompass their positive impact on eye conditions, deficiencies in vitamins A and C, constipation, and disorders affecting bones and muscles. Rich in fibre, cucumber peels also provide essential minerals such as magnesium, potassium, and silica. Silica plays a crucial role in maintaining the health of muscles, bones, and tendons. Additionally, cucumber peels contribute to skin hydration, enhance complexion, and support vision.



Fig No:3 Cucumber Peels

Beneficial for the skin:

Cucumber peels are advantageous for skin health, as they aid in rejuvenating the skin from the inside out. Consistent use of face packs made from cucumber or the application of grated cucumber has proven effective in diminishing the visible signs of aging. Additionally, it is beneficial for addressing dark circles, enlarged pores, and blemishes.

Reverses Skin Tanning:

Cucumber also possesses gentle bleaching properties that can assist in reversing skin tanning. By grating the cucumber and applying its juice to the face, one can effectively prepare the skin to combat the damaging effects of harsh UV rays.

Cools You Off

Cucumber possesses inherent cooling properties that can soothe and revitalize you during the sweltering heat. Simply combine water with some cucumber peels in an infuser, and you will be well-equipped to combat the heat.

II. MATERIAL AND METHOD

Plant Materials: The study focuses on Aloe vera, Amla, and cucumber peel, which were sourced from the local region.

Preparation of Extract: Aloe vera, Amla, and cucumber peel were air-dried and coarsely powdered. Each was placed separately in a Soxhlet apparatus, first utilizing petroleum ether and subsequently ethanol. The resulting extract was concentrated to dryness under reduced pressure and controlled temperature, and the final product was stored in a refrigerator.

Cream Formulation:

Beeswax and propylene glycol were initially placed in the first beaker. The mixture was then heated in a water bath to ensure thorough blending. After several minutes, an oil phase was established. In a second beaker, aloe vera extract, amla extract, cucumber peel extract, distilled water, white soft paraffin, glycerine, zinc oxide, and sodium benzoate were combined. These ingredients were mixed through heating in a water bath, resulting in the formation of an aqueous phase. Subsequently, the oil phase was incorporated into the aqueous phase, and continuous stirring was maintained until a semisolid mass was achieved.

Table No.1 Formula of cream formulation

Sr. No	INGREDIENTS	QUANTITY
1.	Aloe vera	1.5 gm
2.	Amla	1 gm
3.	Cucumber peels	0.8 gm
4.	Bees wax	3.2 gm
5.	White soft paraffin	9 ml
6.	Methyl paraben	0.3 ml
7.	Distilled water	q. s
8.	Menthol	0.2 ml
9.	Glycerine	1 ml
10.	Propylene glycol	1 ml
11.	Zinc oxide	0.7 gm

Evaluation of cream

The assessment of the herbal cream as conducted as follows. The formulated herbal creams underwent further evaluation based on several physical parameters, including colour, odour, consistency, and state of the formulation.

- a) **Colour:** The colour of the cream was assessed through visual inspection, with the results presented in Table 2.
- b) **Odor:** The cream exhibited a characteristic odour.
- c) **State:** The physical state of the cream was visually examined, confirming it to be solid, as indicated in Table 2.
- d) **Consistency:** The formulation's consistency was evaluated by manually rubbing the cream on the hand, revealing a smooth texture.
- e) **pH:** The pH of the prepared herbal cream was measured using a digital pH meter. A solution of the cream was prepared with 100 ml of distilled water and allowed to stand for 2 hours. The pH was determined three times, and the average value was calculated, with results shown in Table 2.
- f) **Spreadability:** The spreadability of the formulated cream was assessed by placing a sample between two glass slides and compressing it to a uniform thickness using a specified weight for a defined duration. The time required to separate the two slides was recorded as a measure of spreadability; a shorter separation time indicated better spreadability. The spreadability was calculated using the following formula:

$$\text{Spreadability (S)} = (\text{Weight tied to upper slide (W)} \times \text{Length of glass slide (L)}) / \text{Time taken to separate slides (T)}$$
 Results are presented in Table 2.

g) Washability: The formulation was applied to the skin, and the ease of washing it off with water was evaluated, with results shown in Table 2.

h) Non- irritancy test: Herbal cream formulation was evaluated for the non-irritancy test. Preparation shown no redness and irritancy. Observation of the state was done for 24 h 28 [29]. results were shown in table 2.

Table 2: Results of polyherbal cream

S.NO	Parameter	Results
1	Colour	White green
2	Odour	Characteristics
3	State	Semisolid
4	Consistency	Smooth
5	Ph	6.7
6	Spreadability	7.4 g.cm/cm
7	Washability	Easy washable
8	Non-irritancy test	Non-irritant
9	Viscosity	39015
10	Phase separation	No phase separation
11	After peel	Emollient

I) Viscosity - The viscosity of the cream was measured using a Brookfield viscometer at a temperature of 25 degrees Celsius, employing spindle number 63 at a specified RPM. The results are presented in Table 2.\

J) Phase separation-

The prepared cream was placed in an appropriate wide-mouth container for storage. After 24 hours, the separation of the oil phase and aqueous phase was observed. The results are presented in Table No. 2.

K) After feel- Following the application, the emollient properties, slipperiness, and the quantity of residue remaining from the specified amount of cream were assessed to be satisfactory, as indicated in Table 2.

III. CONCLUSION

The cream was formulated using the slab method and subsequently assessed through a range of evaluation parameters, including physical properties, pH, spreadability, washability, non-irritancy tests, viscosity, and phase separation. The results obtained were satisfactory.

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