

# Formulation and Evolution of Herbal Face Cream

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**Abstract:** *Aloe vera, orange peel, and cucumber peel have been traditionally used in various herbal medicines such as Ayurveda, Siddha, and Homeopathic practices. Aloe vera gel, derived from the mucilaginous tissue in the leaf's Center, is utilized in cosmetics and medicinal products. Notably, Aloe vera gel lacks Antraquinone, responsible For the strong laxative effects of aloes. However, total leaf extract may contain Antraquinone. Aloe vera contains 75 potentially active constituents, including vitamins, enzymes, minerals, sugars, saponins, and amino acids. The Current research aims to develop and analyze a cost-effective herbal nourishment cream (o/w) incorporating aloe Vera gel and orange peel powder. The cream base composition remains consistent across four batches, with Variations in the concentrations of aloe vera gel and orange peel powder in the oil and aqueous phases. Characterization involves standard tests like homogeneity, smear types, irritancy, pH, stability, spreadability, and Acid value. This economically formulated herbal cream, with minimal chemicals, offers skin benefits and Moisturizing properties. Enhancing efficiency is possible by increasing the concentrations of aloe vera gel and Orange peel powder.*

**Keywords:** Aloe Vera, Orange peel, Cucumber peel, Face cream

## I. INTRODUCTION

Skin serves as the outermost layer of the body, functioning as the largest organ by both weight and Surface area. With approximately 16,000 cm<sup>2</sup> for an adult, it constitutes about 8% of the body Weight. Multiple layers composed of cells, fibers, and various components. This multilayered structure Includes extensive networks of veins, capillaries, and nerves. Additionally, the presence of hairs Protruding from the skin's interior, along with numerous fine hair furrows on the surface, contributes to Its complexity. Skin plays a crucial role in various physiological functions driven by chemical and Physical reactions within its components. The major function of skin is to act as a barrier to the exterior Environment. It protects the body from friction and impact wounds with its flexibility and toughness. Harmful chemicals, bacteria, viruses and ultraviolet light are also prevented from entering the body by The skin. It also prevents water loss and regulates body temperature by blood flow and evaporation of Sweat. The Skin is the outermost tissue of the body and the largest organ in terms of both weight and Surface area. Numerous fine hair furrows are scattered over the surface of skin. Skin performs a wide Variety of functions resulting from chemical and pPhysical reactions inside these components. The Demand for herbal cosmetics has increased due to the availability of new ingredients, financial rewards For successful products, and the maintenance of quality standards. Herbal ingredients, such as Aloe Vera, are widely used in cosmetics and medicinal products. Aloe vera, belonging to the Liliaceae family, Is cultivated in large quantities for its mucilaginous tissue, known as Aloe vera gel, which is used in Various cosmetic and medicinal formulations. The plant contains 75 potentially active constituents, Including vitamins, enzymes, minerals, sugars, saponins, and amino acids.

### Function of Skin

#### Protection against wear and tear:

Skin thickness varies based on the level of friction and pressure it experiences. For instance, it's around 1mm thick on the eyelids, but can reach up to 1cm on the palms and soles due to increased pressure. The resilience of skin is attributed to the presence of the tough protein keratin. Areas with minimal friction, like the inner lips, have little to no keratin, while those under constant external pressure have more. Subcutaneous fat beneath the skin serves as a cushion, absorbing shocks and safeguarding the body from injury.

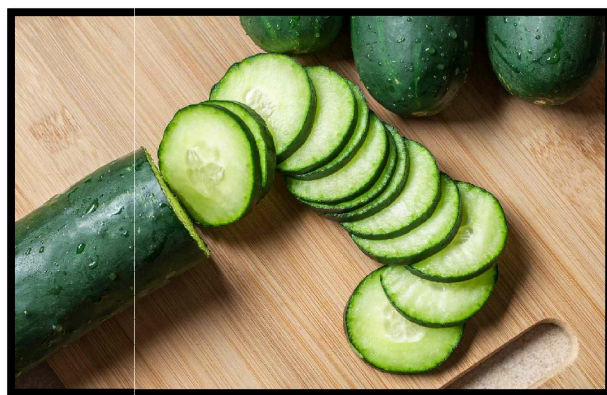
#### **Protection against ultraviolet radiation:**

The skin shields the body from harmful UV rays. Melanin, a pigment, is synthesized in melanocytes, specialized cells located at the base of the epidermis. Sunlight influences melanin production. Prolonged exposure to the sun leads to erythema, a reddening of the skin due to increased blood vessel dilation in the dermis, followed by tanning as melanin production increases. Melanin absorbs UV light, preventing damage to cellular DNA. Hair, composed of keratin, also aids in protecting against UV radiation, as well as extremes of temperature and physical injury

#### **Protection against infection and chemicals:**

While numerous microorganisms inhabit the skin, they are unable to breach the barrier formed by intact, healthy skin. Skin trauma, however, presents an opportunity for microbial invasion, triggering an inflammatory reaction marked by redness, swelling, localized warmth, pain, and fever. Increased blood flow facilitates the transportation of white blood cells and macrophages to the site of injury, aiding in infection control and tissue repair. Additionally, the skin offers defense against mild chemicals and gases.

#### **Herbal history**



Cucumber

Fig no.1

Synonyms: Cucumissativus, cucumber vine

Biological Source: Cucumber belongs to the Cucurbitaceae family. Of the 30 species of Cucumis, C. sativus has the greatest economic significance.

Scientific Name: Cucumissativus

Ayurvedic Name: Trapusha

Uses: Prevent premature ageing, soothes skin irritation, hydrates skin, keeps skin healthy

#### **Aloe Vera:**



Fig no.2

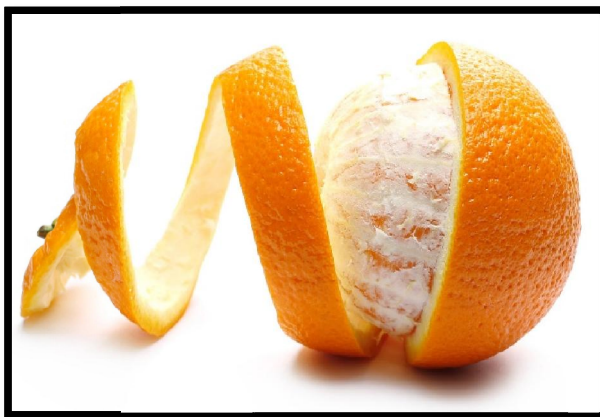
Synonyms: Aloe barbadensis mill, Aloe indicaroyale.

Biological Source: Aloe is the dried juice collected by incision, from the bases of the leaves of Various species of Aloe belonging to family Liliaceae.

Scientific Name: Aloe Vera

Ayurvedic Name: GhritKumari

Uses: Antioxidant, Skin Improvement, Prevent Wrinkles, Antibacterial Properties, Moisturize The skin.



**Orange peel:**

Fig. No. 3

Synonyms :-Apricott

Biological source :-The orange peel is the fresh or dried outer part of the pericarp of Citrus aurantiumLinn, belonging to family Rutaceae

Scientific Name :- Citrus reticulate

Ayurvedic Name:-Rasa,sweetish,guna

Uses :- Tighten the pores, brighten the skin, remove skin tanning

Ingredients	Quantity	Role
Aloe vera	1.5	Antibacterial
Orange peel	1	Skin brightening
Cucumber peel	0.8	Antioxidant
Bees wax	3.2	Thickening agent
White soft paraffin	9	Emollient
Methyl paraben	0.3	Preservative
Distilled water	Q.S	Diluent
Menthol	0.2	Cooling sensation
Glycerine	1	Penetration enhancer
Propylene glycol	1	Humectant
Zinc oxide	0.7	Sun protection
Sodium benzoate	0.1	Preservative

Table No. 1

#### Preparation of extract

Aloe Vera : After the dried powder of Aloe vera were ground,The resulting powder was macerate in the distilled water for the three hours. After that filteredIt out .

Orange peel powder : Take the 15 gm orange peel powder macerate in the methanol for the3 hours . And then filter it properly. Take a filtrate and concentrate it.5gm extract is used.

**Cucumber :** Take the fresh cucumber then wash it properly . Then remove the peel by using Knife. Then allow the peel in sun dry for 6 hours.After dried peel make a dry powder , thenCucumber peel powder is sieve by sieve no 22. These dried powder is placed in the thimbelOf soxhlet for extarction . 120ml ethanol is used as the solvent for the extaction .After 6Hours extract is obtain , then filter it out and concentrate it. Take a 4gm extract for Formulation.

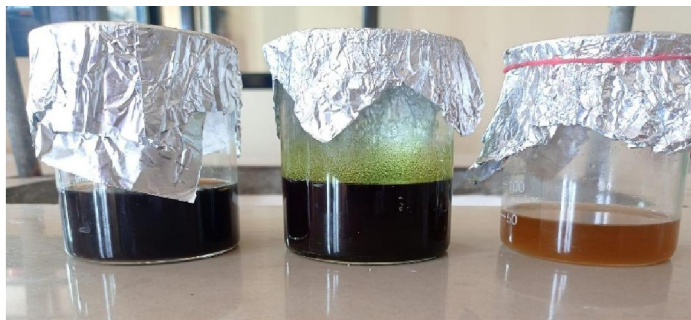


Fig.No. 4

#### **Cream formulation:**

Step 1 :Preparation of the Aqueous phase , Bees wax, propylene glycol, heat on water bath for Uniform mixing.

Step 2: Aloe vera , orange peel, and cucumber extract ,Distilled water ,White soft parafin, zinc Oxide , sodium benzoate mix these ingredients by heating on the water bath.

Step 3 :Oil phase added to the aqueous phase by continouse stirring . Then cool it and filled in Desired container.

#### **Prepared formulation:**



Fig. No. 5

#### **Evaluation Parameter:**

Evaluation of herbal cream was following.

##### **A] Physical Evaluation:**

The formulated herbal creams were additionally assessed by examining the following physical attributes: color, scent, texture, and overall state of the formulation.

Sr.No.	Parameter	Result
1	Colour	Light green
2	Odour	Characteristics
3	State	Semisolids
4	Consistency	Smooth
5	Ph	6.50
6	Spreadability	7.4g.cm/cm

7	Washability	Easy washable
8	Non irritancy test	Non irritant
9	Viscosity	39015
10	Phase separation	No
11	After feel	Emollient

Table no. 2

Colour:

The cream's color was assessed through visual inspection.

Odor:

The cream exhibited characteristic odor.

State:

The cream's state was visually examined, revealing a solid state.

Consistency:

The cream's consistency was evaluated by manually rubbing it on the hand, resulting in a smooth texture.

pH:

The pH of the prepared herbal cream was measured using a digital pH meter. A solution of the cream was prepared by diluting it in 100 ml of distilled water and allowing it to stand for 2 hours. pH was measured three times for the solution, and the average value was calculated

Spreadability:

The spreadability of the formulated cream was assessed by placing a sample between two slides and compressing it to a uniform thickness with a specific weight for a defined duration. The time required for the separation of the two slides was measured as spreadability. A shorter separation time indicates better spreadability. Spreadability was calculated using the following formula:

Spreadability (S) = Weight attached to upper slide (W) x Length of glass slide (L) / Time taken to separate slides

Washability:

The formulation was applied to the skin, and the ease of washing off with water was assessed.

Non-irritancy test:

The herbal cream formulation underwent a non-irritancy test. It showed no signs of redness or irritation upon application. Observation of the skin's condition was conducted for 24 hours.

## II. RESULTS AND DISCUSSION

This study focused on formulating and evaluating a multipurpose polyherbal cream. The evaluation parameters included physical assessment, pH measurement, spreadability, washability, non-irritancy test, viscosity, and phase separation, as summarized in Table 2.

The formulated polyherbal cream was of the oil-in-water (o/w) type emulsion, making it easily washable with plain water after application. It exhibited good spreadability and viscosity. There were no instances of pH phase separation during storage. Additionally, the cream had a non-greasy texture and was easily removable post-application. Importantly, the formulation proved to be non-irritating and safe for skin use.

## III. CONCLUSION

In the market, numerous face creams claim to protect the skin from UV radiation and sunlight exposure within a short time and at a reasonable price. However, through the formulation process, evaluating parameters such as pH, spreadability, washability, non-irritancy, viscosity, and phase separation of the cream yielded favorable

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