

## Formulation, Development and Evaluation of Herbal Antiaging Cream

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### ABSTRACT

In this study creams were formulated based on the anti-aging properties of herbal extracts and its evaluation. Ocimum tenuiflorum used as an active ingredients and extract as a Antibacterial property in these study cream are formulated by oil in water emulsion method. The cream were formulated with Aloeveragel, stearic acid, honey, Glycerin, olive oil, rose oil. The Stability for cream was performed at accelerated condition i.e. 40°C ± 2°C.

If can be concluded that herbal creams without side effects having anti-bacterial property can be used as provision of a barrier to protect the skin and avoid aging of the skin.

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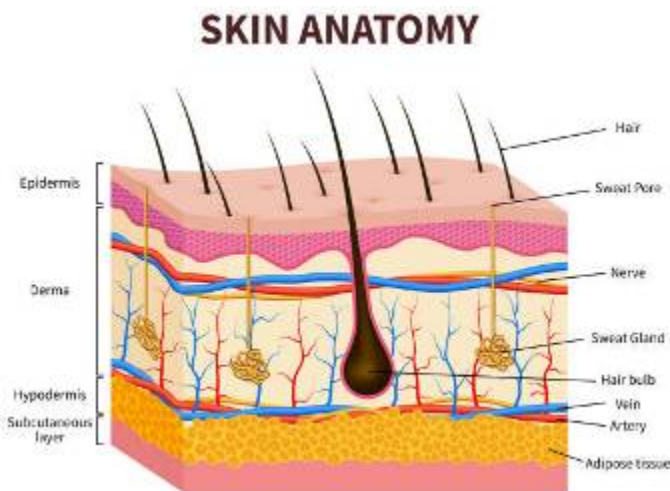


### INTRODUCTION

The skin is the body's biggest organ, made of water, protein, fats and minerals. Your skin shields your body from microbes and controls internal heat level. Nerves in the skin assist you with feeling sensations like hot and cold. Your skin, alongside your hair, nails, oil organs and sweat organs, is important for the integumentary (in-TEG-you-MEINT-a-ree) framework. "Integumentary" signifies a body's external covering. Three layers of tissue make up the skin: Epidermis, the top layer, Dermis, the center layer, Hypodermis, the base or greasy layer. Your epidermis is the top layer of the skin that you can see and contact. Keratin, a protein inside skin cells, makes up the skin cells and, alongside different proteins, remains together to frame this layer. The epidermis: 1) Acts as a defensive barrier Makes new skin, 2) Makes new skin,3) Protects your body. The

dermis makes up 90% of skin's thickness. This center layer of skin; 1) Has collagen and elastin,2) Grows hair,3) Keeps you in contact,4) Produces sweat,5) Supplies blood. The base layer of skin, or hypodermis, is the greasy layer. The hypodermis is the1) Cushions muscles and bone,2) Has connective tissue,3) Helps the nerves and veins,4) Regulates internal heat level.

Healthy and functioning skin barrier is very important protection against dehumidification, penetration of numerous microorganisms, allergens, irritants (annoyances) reactive oxygen species and radiation. The skin barrier could also be specifically adjusted to permit penetration. Due to that daily routine skin care increase skin regeneration, elasticity, smoothness, and thus temporarily change the skin condition.



**Fig no-1- SKIN ANATOMY** <sup>[11]</sup>

Dermis has a three-layer structure consisting of the

- papillary layer
- sub papillary layer c
- Reticular layer.

These three layers of dermis provides strength and elasticity to the skin.

Substances that composes the dermis are interstitial components (extracellular matrix), which made of fibrous tissues, and its productive cells.

The extracellular matrix has main component are

- Collagen fiber mainly type I collagen and type III collagen.
- components are elastic fiber (elastin fiber),
- proteoglycan (hyaluronan chondroitin sulfate and others)

collagen provides 70% dry weight of dermis which gives firmness to the skin elastic fiber are arranged in cross linked structure which provides 2% of elasticity to the skin moisture content controlled by the Proteoglycan which form the gel and it help to holding water for moisture to the skin dermis inside the dermis, sensory nerve endings sense feelings, comfort ability and temperature.

Hair follicle present in dermis, secretory glands (sweat glands and sebaceous glands), (folliculuspili), blood vessels controlling body temperature, providing moisture to the skin and maintaining a resilient condition. In dermis subcutaneous tissues is fatty layer thickness of several mm located. Their thickness is different for different body parts it absorbes the schoks and act as cushioning for heat or the cold of outside air. Whereas adipose tissue fats plays the role of energy storage. <sup>[12-18]</sup>

### HERBAL COSMETICS

Herbal cosmetics also known as natural cosmetics or Ayurvedic cosmetics. With the beginning of the civilization, mankind had the magnetic dip towards impressing others with their looks.

At the time, there were no fancy fairness creams or any cosmetic surgeries. The only thing they had was the knowledge of nature, compiled in the Ayurveda.

With the science of Ayurveda, several herbs and floras were used to make Ayurvedic cosmetics that really worked.

Ayurvedic cosmetics not only beautified the skin but acted as the shield against any kind of external affects for the body.

### ANTI AGING

Spices are plentiful in nutrients; they are against maturing, reviving and restoring specialist. The spices like carrot, and ginkgo.is prosperous in engineered sap compounds, acknowledge to have hostile to oxidant properties. Aloe vera is home grown plant species having a place with Liliaceae family that is tracked down solely in development, having no normally present populaces, however firmly associated aloes in all actuality do have presence in northern Africa. Aloe vera contains amino acids like fundamental amino corrosive leucine, isoleucine, saponin glycosides that give purging activity, nutrients A, C, E, B, choline, B12 and folate and provide inhibitor movement. Maturing is an unavoidable interaction for every living creature. Maturing peculiarities begins from the snapshot of our introduction to the world and is especially apparent on the skin in moderate years. Upheld upgraded lifetime expectancy, it is assessed that there will be over 1.2 billion more established grown-ups (north of 60 years of age) overall in 2025. 1 Aging is unquestionably somewhat ascribed to an age related expansion in shortcoming and safe sence and maybe mitochondrial brokenness. 2 Maintenance of the actual capacity in more seasoned grown-ups is thusly a significant public and clinical need. In people the skin is the tissue generally extraordinarily impacted. Skin is a defensive hindrance against the outside climate. Its capacity is to control temperature, liquid equilibrium and to shield from unsafe organisms and UV radiation in daylight. Two sorts of skin maturing exist: age-subordinate/ordered maturing and untimely maturing/photoageing. Photoageing is brought about by extraneous factors and incorporates signs like a rugged appearance, dim/light pigmentation and profound wrinkles. Regular maturing is noticeable as wrinkling of the skin. The skin is partitioned into three layers; the epidermis, dermis and subcutaneous tissue. It additionally works with the trading of supplements and side-effects and is taking an interest in quick tissue expansion, recovery and fix. With maturing, collagen, elastin and hyaluronic corrosive levels declines, prompting a deficiency of solidarity and

adaptability in the skin which brings about apparent kinks related with the thickened epidermis, mottled staining, laxity, bluntness and unpleasantness of the skin. The present day science and innovation gives plastic medical procedure, laser restoration, and a lot more obtrusive strategies. (3) 1591 impacts when contrasted with the obtrusive strategies which are more agonizing and arduous. In the course of the last ten years, there has been an expansion in the utilization of natural concentrates in beauty care products to lessen the maturing system. The concentrates of Aloe Vera, Amla, Turmeric, Cucumber, Ginseng, Honey, Wheat, Liquorice, Arjuna, Jatamansi are broadly utilized in natural restorative businesses because of their skin valuable properties. The extracellular network (ECM) is the furthest piece of the skin and is made out of fibroblasts and proteins including collagen and elastin. After the age of 20, its side effects shows up as the collagen content per unit region begins diminishing, there is 1% reduction in collagen content per unit region of the skin consistently. The ECM gives an underlying supporting design which is fundamental for development and versatility of the skin and assumes a significant part in the upkeep of physiological elements of the body. Degeneration of the ECM has straightforwardly been connected to skin maturing and is associated with an expansion in movement of specific chemicals associated with skin ageing. Reactive oxygen species (ROS) assume a significant part in numerous phone component. Whenever UV radiation is consumed by the skin, it prompts improved ROS age and enlistment of oxidative pressure. Oxidative harm might prompt lipid peroxide development, mitochondrial and DNA harm, and protein and quality alteration which change protein construction and capacity. Elevated degrees of ROS lead to the enactment of hyaluronidase, collagenase and elastase, which can additionally add to skin maturing. The chemical angiotensin 2

additionally assumes an imperative part in photoaging of skin as it associated with recuperating wounds and scar arrangement, appearance of scars prompts wrinkles. So by utilizing angiotensin changing over catalyst (ACE) inhibitors which forestall the transformation of angiotensinogen (latent) to vasoconstrictor (dynamic) we can diminish the impact of angiotensin 2 a couple evoked skin maturing and wrinkles. Changes in the skin can be perceived as visual data and are related with the visual impression of maturing. Variables of maturing in visual impressions from the perspective of magnificence are the downfall of skin surface, almost negligible differences and kinks, a dull viewpoint, the decay of versatility and flexibility, the deficiency of firm and graceful skin surface and the downfall of skin capacities. Seen age for maturing skin appearance. People will generally pass judgment on others' age by actual appearance. Facial skin appearances could be a compelling data hotspot for insight, like the states of kinks, immovability, drooping, tone, brilliance and surface 4). Seen age doesn't be guaranteed to relate to chronological age. Seen age could be extraordinarily not the same as chronological age, contingent upon life conditions, ways of life, dietary patterns and different variables. Particularly parts of the body like the face, which is typically apparent to other people, are handily perceived as indications of maturing. <sup>[1-10]</sup>

## FORMULATION - CREAM FORMULATION

Oil in water (o/w) Emulsion. (semisolid formulation) is formulated. Weigh all ingredients properly. The Tulsi powder was pass through 20# 40# sieve and collect those retained on 40# sieve, for more fine powder. The oily phase and aqueous phase were added up to mixer and triturate it all by addition of Tulsi powder, olive oil and Rose oil for fragrance. With constant mixing, remaining distilled water was added and stirring was continuing until mixture was viscous and opaque.

**FORMYLATION TABLE**

INGREDIENTS	H1	H2	H3	H4	H5	USES
Tulsi powder	2 gm	2gm	3gm	4gm	5gm	Anti-bacterial
Aloe vera gel	18gm	18gm	18gm	20gm	20gm	Anti-oxidant
Stearic acid	20gm	20gm	20gm	20gm	20gm	Anti-oxidant
Honey	5gm	5gm	10gm	10gm	15gm	Anti-oxidant
Glycerin	5gm	5gm	10gm	10gm	10gm	Skin moisturizer
Olive oil	5ml	10ml	10ml	15ml	20ml	Penetration enhancer
Rose oil	5ml	5ml	5ml	5ml	5ml	Fragrance

## EVALUATION TEST

### 1. PHYSICAL APPEARANCE -

In this test, the cream was observed for colour, odour, texture, state.

### 2. HOMOGENEITY-

In this test, the cream was observed for homogeneity by touch the cream and by appearance.

### 3. PH-

The pH of the all the formulation cream was checked with the help of pH meter.

### 4. AFTER FEEL-

In this test, we are apply the some amount of cream on skin of hand and the observed the cream. Emolliency, slipperiness and amount of residue left after the application.

### 5. REMOVAL-

In this test, we taken small amount of cream apply on skin of hand. After some time wash the hand with tap water and observe the removability of cream.

### 6. SPREADABILITY-

In this test, we taken the two set of glass slide of standard dimensions. the cream formulation place on one slide and other slide is place on the top of the formulation

Then a weight or certain load was placed on the upper slide so that the cream between the two slides was pressed uniformly to form a thin layer. Then the weight was removed and excess of formulation adhering to the slides was scrapped off. and then observed the spread ability of cream.

### 7. STABILITY-

The purpose of stability testing is to provide evidence on how the quality of drug substance or drug product varies with time under the influence, of variety of environment factors such as temperature, humidity and light and enables to recommended storage condition and to predict the shelf life. Stability for cream was performed at accelerated condition i.e.  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ .

## RESULT AND DISCUSSION

### 1. PHYSICAL APPERARANCE;

The appearance of cream is smooth and odourless. The color of formulation will be Pinkish, Brownish. Given formulation is O/w emulsion. When formulation is kept for long time it found that no color change.



Fig no-2 APPERANCE OF CREAM

### 2. HOMOGENIETY;

All formulation produced uniform distribution of extract in cream this was confirmed by visual appearance and by touch.

### 3. PH;

The pH of the cream was found to be in range of 5.6 to 6.8 which is good for skin pH. All the formulations of cream were shown pH nearer to skin required i.e. pH of H5.

### 4. AFTER FEEL;

The optimises cream has Emolliency, slipperiness and amount of residue left after the application of fixed amount of cream was found good.

### 5. REMOVAL;

The cream of H5 formulation applied on skin was easily removed by washing with tap water

### 6. SPREADABILITY;

The both formulation easily spred on skin

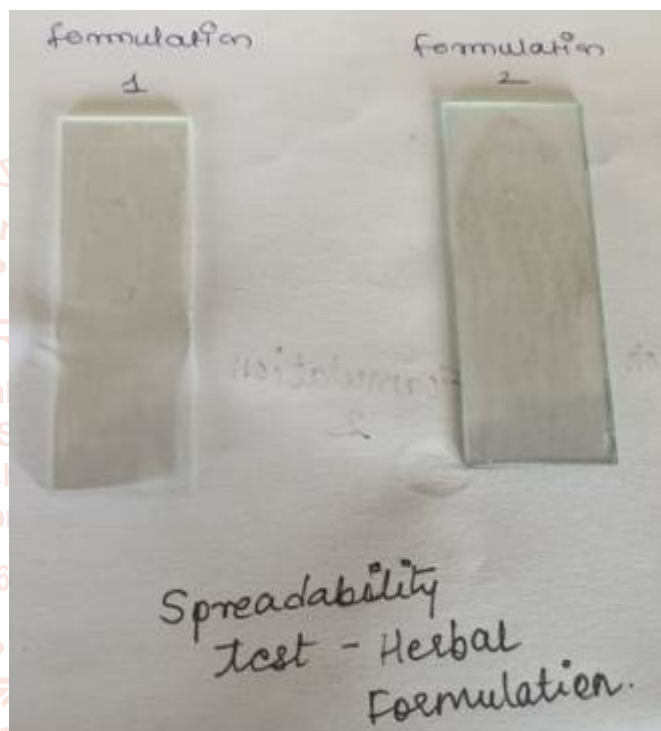


Fig no-3 SPREDABILITY OF CREAM

### 7. STABILITY;

The stability of formulation is stable at temperature  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The shelf life of formulation is 6 month. Storage of cream in cool and dry place.

### DISCUSSION;

From above result it is conclude that on the given extract of tulsi powder this component gives multipurpose effet such as antiaging, anti-wrinkle, whitening, sunscreen effect on skin. by adding herbal component we can increase efficacy of cram and dosenot give side effect. this study suggest that component of cream of H5 formulation are more stable up to 6month and safe it may produce synergistic action as this cream comprises of many natural substance.

### CONCLUSION

The use of natural ingredients in cosmetics has been increased to many folds in personal care system and

there is a most demand for herbal cosmetics. The use of bioactive ingredients in cosmetics which enhance biological functions of the skin and provide nutrients necessary for healthy skin. The anti-aging cream was slow down the aging of skin by regenerating and activating the cells and protect against ultraviolet rays, free radicals etc. As artificial cream has many side effects it's better to use cream prepared by natural ingredients as it does not show any side effect rather is beneficial to skin. The result demonstrated that the formulated anti-aging cream is safe and usable for skin.

In this study Antiaging cream were made by using Tulsi powder as active ingredients. *Tulsi* has been used in Ayurveda and Siddha practices for its supposed treatment of many diseases. The anti-aging properties of *Tulsi* have been revered in Ayurvedic medicine for thousands of years. Studies have found that *Tulsi* is protective against oxidative damage and reduces free radicals, while it balances antioxidant enzymes. Which having the property of antioxidant, antiaging, for decrease stress. *Tulsi* contain various vitamins, minerals, electrolytes and phytonutrients.

The result of Antiaging cream preparation with variation in concentration to produce that *Tulsi* cream brownish and odourless.

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