

# A Review on Formulation and Evaluation of Herbal Face Serum

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**Abstract:** Facial wrinkles and skin aging are often caused by sun damage and UV rays, and there are currently no effective methods to slow down the aging process. Aloe Vera, glycerin, and honeybee venom are key ingredients in a concentrated face serum that helps improve skin health. Aloe Vera provides quick cosmetic benefits and also has psychological effects. The serum is easily absorbed and can penetrate deeper layers of the skin. Aloe Vera is known for treating skin issues like sunburns, minor cuts, and insect bites, and it has healing, anti-inflammatory, antibacterial, and antifungal properties. Bee venom, a toxin produced by bees, is believed to help improve blood flow and increase collagen production. The face serum was tested for its quality, including pH, consistency, and size of the droplets. Stability tests showed that the serum maintained its appearance, texture, and consistency without any changes.

**Keywords:** Facial wrinkles

## I. INTRODUCTION

The study of human skin is crucial in fields like dermatology, toxicology, pharmacology, and cosmetology, as it helps understand how external agents affect the skin, how they interact, and their potential toxicity. The desire for beauty and healthy skin has been important since ancient times, and this led to the development of cosmetics. The word “cosmetic” comes from the Greek word meaning “to adorn,” and cosmetology is the science of beautifying and improving skin, nails, and hair. In skincare, the goal is to deliver active ingredients effectively into the skin without harmful chemicals. Face serums are a solution for this, as they concentrate powerful ingredients to give quicker, more noticeable results. A serum is much more concentrated than a cream, containing up to ten times more active ingredients, either in water or oil form, making it a key product in cosmetology. Serum is packed with a bunch of beneficiary active components and nutrients such as antioxidants, Ceramides, amino acids and others. This explains why face serum always being the costliest item in a skin care Set. Weather it is moisturizer, anti-wrinkle or anti-aging product or skin serum, all these products should contain Antioxidants, cell-communicating ingredients and skinidentical ingredients. All skin type needs these ingredients to be as healthy as possible. Gel and liquids preparations are best For oily and combination skin, serums and light lotions are best for normal to dry skin, more emollient lotions And moisturizing creams are best for dry to very dry skin. Texture is all about skin type- but the brilliant Ingredients for healthy skin the same for everyone, regardless of product, texture, or personal preference. Skin is a protective and largest organ of body which is struggles to heal and repair itself 24 hours, but Sometimes skin can develop dry patches for many reasons like UV rays, pollutants, makeup left on overnight Can cause irritation or allergic reactions. The facial serum includes several ingredients associated with Improvement in the appearance of fine lines and wrinkles and increased barrier function including a neuro Peptide.

## HISTORY OF FACIAL SERUMS :

As defined in the dictionary – a serum is the clear, yellowish fluid obtained upon separating whole Blood into its solid and liquid components after it has been allowed to clot, so it is not surprising that the Precursors of modern-day serums were based on horse blood, egg albumin, and bovine placenta. Packaging these products in sterile ampoules preserved with oxyquinoline (and later, the invention of Parabens) made them available commercially. This is a practice that stayed with us since the early days of short Product shelf life, which meant small batches had to be made and used up quickly before the product spoiled. Exercise, cleanliness, and skincare were all held in high regard during the 1800s. Zinc oxide was used to lighten Skin, but often caused allergic reactions. Objective of Research The main objective of

this study is to determine the optimum and stable face serum. The specific objectives of This study are: To optimize the thickeners and emulsifiers of face serum formulation with regard to the viscosity and pH value. To determine the most stable face serum formulation in term of its physicochemical stability study and Microbiological study. To characterise the face serum formulation in term of its flow behavior and sensory pr

### Types of face serum :

#### 1. The oil serum

The oil serum is the simplest to make of all the face serums. It often starts with a base of just premium, fast-Absorbing carrier oils, also referred to as “dry” oils. In addition to having moisturising and barrier-repairing Characteristics, the premium oils used in the serum also include polyphenols, essential fatty acids, and other Substances that may be broken down by the skin.



Fig No.1.Oil serum

#### 2. The gel serum

Gel serums provide the skin a “tightening” sensation, giving your consumer the impression that their skin is Momentarily lifted or tightened in particular regions of the face. The gel serum provides you the chance to Include some fantastic water-based (hydrophilic) plant extracts because this formulation is water-based,



Figure 2 : Gel serum

### 3. The Water based serum

Water-based serums are comparable to gel serums, although they may contain none or very little gums and Thickeners. To administer high-performance hydrophilic plant extracts that are trapped against the skin beneath A cream or lotion, you would utilise a waterbased face serum. Layering an anti-ageing face mist under an Emulsion and then under an oil is the ideal technique to promote Higher penetration of water-based compounds into the skin, delivering their high performance elements slightly Deeper into the layers of the skin. The oils will form an occlusive barrier that will promote higher component Penetration.



Figure 3 : Water based serum

### 4. The emulsion serum

An emulsion-based face serum is a moisturiser that strengthens the skin's barrier function while also Delivering high performance components to the skin. Two "immiscible" phases like oil and water that Don't want to mix are



combined in an emulsion. An emulsifier is used to bind water and oil together and retain Them in a stable state. The best chance of delivering high performance actives deeply into the tissues of the skin is through an Emulsion. Given the skin's barrier function, it is highly difficult for any cosmetic component to penetrat dermis, yet an oil and water mixture is best suited to accomplish this remarkable feat. The skin's barrier function will be strengthened by the emulsion's moisturising characteristics.



Fig no.4

**5.The pressed balm serum**

A balm serum has a conventional balm basis of butters, waxes, and oils but also includes active substances that Are oil-soluble (lipophilic) and may help the skin. The butters and waxes form an occlusive barrier on the skin That hydrates and nourishes it while allowing the pressed serum's active components to do their job. In a balm Serum, dozens of intriguing unique butters and waxes can be combined with thousands of exquisite plant oils.



Figure 5: Pressed balm serum

**Ideal Qualities of Face Serum**

**1. Soothes irritated skin:**

It is well known that aloe vera possesses antiviral and cell-regenerating capabilities. The advantages of aloe gel are comparable to how applying it to a sunburn feels.

**2. Deep hydration:**

Possess a special capacity to raise and decrease skin moisture.

**3. Fight Acne and fades blemishes:**

Bael fruit stops the bacterial overgrowth that is the primary cause of acne and pimples.

**4. Remove dark circle and puffiness:**

**Vitamin E and antioxidants in abundance** aid with eyelid discolouration, and the cooling impact reduces Puffiness. It makes under-eye circles look less prominent. It removes dead skin cells, which encourages the synthesis of collagen.

**5. It contains antioxidant qualities that encourage healthy-looking skin**

**Advantages**

- Improves skin texture.
- Minimizes the skin pores.
- Hydrates and nourishes the skin.
- Improves skin elasticity.

**Disadvantages**

- The liquid or gel-like texture of a serum can be a poor match for people with chronic skin Conditions like eczema or rosacea, which weaken the skin barrier.
- For these people, serums may penetrate too quickly, causing irritation

**II. FORMULATION OF FACIAL SERUMS**

In formulating a face serum, the physical properties and stability are the main characteristics in Determining its quality. A face serum formulation is basically an emulsion consists of two immiscible liquids. In Order to prevent emulsion instabilities, thickener and emulsifier are introduced to the system. Emulsifier will balance the system by minimizing the interfacial tension between the two immiscible Liquids and at the same time stabilizes the dispersion phase from coalescence. Contributing to the system, Thickener also plays an important role as rheology modifier and provides flexibility to the flow characteristic of The emulsion.

A chemical property which is considered important in formulating is pH value. If the pH value of the Skin is changed, the skin's natural microbiology and function will be interrupted. This in turn causes numerous Skin problems including acne, skin flakiness, excessive sebum secretion and other serious conditions. The natural skin micro flora is intact on the skin with pH value ranging from 4 to 4.5, while pH value Ranging from 8 to 9 eliminates the skin natural micro flora. Formulating a face serum with suitable pH range Can help in improving the skin barrier function. Formulating a face serum or any other formulation can be challenging. This is because the traditional One Factor at a Time' (OFAT) method was highly time consuming and may result in unnecessary experiment That consume costs. OFAT was done by changing one factor at a time while keeping the other factor as constant. It requires large number of tests. On the contrary, optimization using Design Expert software could save time, Costs and labor. D-optimal design is suitable to be used in formulating cosmetic formulations thus it is applied In the formulation studies widely

**Method Of Preparation :**

The emulsion (o / w) was prepared according to the formula given below. The oily component consisting Of Olive oil, sandalwood oil, tween 20 and coconut oil is mixed together for 10 minutes to obtain a uniform solution. At the same

time the water phase was prepared by mixing aloe vera gel, glycerin, and a small amount Of distilled water uniformly. The oil phase is added to the liquid phase by drop wise under mechanical vibration At 2500 rpm to obtain oil in water based on biphasic emulsion.

#### Prepared Face Serum

A proper method has to be carried out while formulating the herbal face serum.

- 1.Selection of active
- 2.collection of active ingredient
- 3.Extraction method of Aegle marmelos,aloevera.
- 4.formulation of placebo herbal face serum
- 5.formulation of herbal face serum6.Evaluation of herbal face serum
- 7.Result

#### Active Ingredient Used In Herbal Face Serum

##### 1) Aloe Vera

Kingdom : Plantae

Order : Asparagales

Family :Asphodelaceae

Subfamily :Asphodeloideae

Genus : Aloe

Sprcies : Aloe vera

Botanical name : Aloe barbadensis miller •English : India aloe

Aloe Vera has been used to treat wounds and infections. Aloe Vera is now recognised as a crucial Ingredient in makeup thanks to advancements in beauty. It has nearly 20 amino acids, enough amounts of Nutrients like calcium, magnesium, and sodium, enzymes, vitamins, and Its polysaccharides, nitrogen, and other Ingredients make it a wonder plant for attractiveness. Here is a short explanation of some of the most significant Uses of aloe Vera for cosmetic purposes.

##### 2) Sandalwood Oil

With its anti-inflammatory and skin-clearing properties, sandalwood essential oil can help clear acne and Pimples and soothe skin.



Figure : sandalwood oil

**3) Olive oil**

Help to decrease our acne by killing off the bacteria that causes the acne. Olive oil is also known to Moisturize and hydrate your skin,



Figure : Olive oil

**4) Coconut oil**

It contains nourishing fatty acids and linoleic acid which help retain the moisture in the skin and help Protect and hydrate your skin.



Figure : Coconut oil



**Material**

Table.. composition of face serum  
Sr.no. Ingrident Collection Cateryory  
Aloe vera , Anti-aging  
Olive oil,Moisturizer  
Scandalwood oil , Essencial oil  
Glycerin toner  
Coconut oil

**Ingredients Standard Formula (100ml)**

**Working Formula (30 ml)**

Aloe vera gel 50% 10%  
Olive oil 9% 1.8ml  
Sandalwood oil 0.1% 0.02ml  
Glycerin 25% 5ml  
Coconut oil 2% 0.4ml  
De-mineralized  
Water

**III. CONCLUSION**

The aim of this report was to study about what exactly are facial serums and their history Along with Their overall importance. The study includes its proper selection and correct Sequence of application. With Tremendous amount of serums available in the market for Each and Every skin type and skin problem these days, it's essential for one to know what

They are looking for in a serum Precisely. When a righteous formulation is selected by Scrutinizing every major skin issue, it is safe to say that Significant improvements can be Seen, leading to good results. Skin health is a crucial element of the altogether Health of The body and having a proper skin care routine with an accurate serum for you, can sustain The ageing Skin and ward off the ongoing damage. It eliminates fine lines, wrinkles, dark Spots, and further blemishes if Paired with appropriate moisturizer and sunscreen.

Specific ingredients deal with a certain skin concern, as a result a combination of all the Finest Ingredients could show miraculous benefits. The report also shows numerous skin Care brands for serums Available in the market and a brief description of each product. This Concludes that a facial serum is a boon for The cosmetic community and it's addition is Crucial in the skin care regime.

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