

REVIEW ON INNOVATIVE HERBAL FACE SERUM: SYNERGISTIC APPROACH TO SKINCARE

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• ABSTRACT

The increasing demand for herbal skincare products has driven the need for safe, effective, and naturally derived solutions for common skin problems such as acne. This study focuses on the formulation and evaluation of a herbal face serum using bioactive plant-based ingredients known for their antibacterial, anti-inflammatory, antioxidant, and skin-healing properties. The formulation incorporates Ratanjot roots, guava leaves, green tea leaves, tea tree oil, jojoba oil, lavender oil, aloe vera gel, vitamin E, salicylic acid, and Tween 20 as an emulsifying agent. Each component was selected based on its proven effectiveness in acne treatment and skin nourishment.

• **KEYWORDS:** Herbal face serum, guava, rice, fenugreek, pomegranate, orange peel powders, evaluation and applications.

1. INTRODUCTION Face Serum is a highly concentrated emulsion which is available in water based and oil based.

Serums or defined a concentrate, contain approximately ten times more of biologically active substances than creams, there fore allows better skin problems treatment. Incorporating a few

drops of face serum with daily skin care routine will deliver noticeable results within a month or less.

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, antiwrinkle or anti-aging product or skin serum, all these products should contain antioxidants, cell-communicating ingredients and skin-identical ingredients.

2. ADVANTAGES

- Antioxidant & Anti-Aging Action
- Brightening & Skin Tone Improvement
- Anti-inflammatory and Soothing Effect

3. DISADVANTAGES

- Certain serums may include strong active components that can trigger skin irritation or allergic reactions.
- Ensuring correct storage and appropriate packaging is vital to preserve the serum's potency and effectiveness.
- Applying multiple products at the same time or directly to the skin without caution may lead to harmful or adverse effects.

4. TYPES OF FACE SERUM

4.1 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.



Fig.1 Oil Serum.

4.2 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.



Fig. 2 Gel serum.

4.3 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 water-based 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.



Fig. 3 water Based Serum.

4.4 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-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 penetrate the 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.

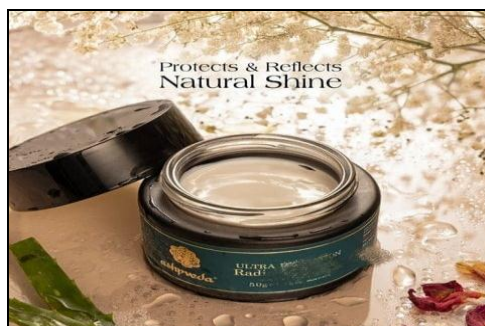


Fig.4 Emulsion Serum.

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.



Fig.5 Pressed Balm Serum.

5. CLASSIFICATION OF FACE SERUM

Face serums can be categorized by their active ingredients and benefits, including hydrating serums with hyaluronic acid, brightening serums with vitamin C, antiaging serums with retinol, and acne- fighting serums with niacinamide or salicylic acid. Other types include serums that address specific concerns like hyperpigmentation (using ingredients like kojic acid), and those with nourishing ingredients like green tea.

5.1 Hydrating Serum

These serums use ingredients like hyaluronic acid to attract and retain moisture, making skin feel plump and well-hydrated.

5.2 Brightening Serums

Typically contain vitamin C to help reduce dark spots, even out skin tone, and protect against environmental damage.

5.3 Anti-Aging Serums

Retinol is a common anti-aging ingredient that helps reduce the appearance of finelines and wrinkles, improves skin texture, and boosts collagen production.

5.4 Acne-Fighting Serums

These serums target breakouts, unclog pores, and reduce inflammation. Ingredients like niacinamide and salicylic acid are effective for this purpose.

5.5 Niacinamide Serums

Niacinamide is a versatile ingredient that can help with multiple concerns, including acne, redness, and fine lines.

5.6 Peptide Serums

Another type of anti-aging serum, peptides can help improve skin elasticity prone skin.

6. IDEAL QUALITIES OF FACE SERUM

6.1 Soothes irritated skin

Aloe vera is widely recognized for its antiviral properties and its ability to promote cellular regeneration. The of aloe gel can be likened to the soothing sensation experienced when it is applied to sunburned skin.

6.2 Fight Acne and fades blemishes

Bael fruit inhibits the excessive proliferation of bacteria, which is the main contributor to the development of pimples.

6.3 Remove dark circle and puffiness

Vitamin E and a rich array of antioxidants contribute significantly to alleviating eyelid discoloration, who cooling properties help diminish puffiness. This combination effectively reduces the visibility of under-eye Additionally.

7. INGREDIENTS OF FACE SERUM

7.1 ALOE VERA



Fig.6 Aloe vera.

- **Synonyms:** Aloe
- **Family:** Liliaceae
- **Biological source:** the dried juice (latex) collected from the leaves of various species of the succulent plant, Aloe.
- **Chemical Constituents:** Aloin, aloesin, polysaccharides (glucomannan), enzymes, saponins, vitamins A, C, E.
- **Pharmacological Actions:** Moisturizing, anti-inflammatory, wound healing, antimicrobial.
- **Uses**
 - It is used to treat skin problems.
 - It is used as anti-bacterial and anti-inflammatory agent.
 - It is used for hydrating the skin.

7.2 GLYCERIN



Fig.7 Glycerin.

- **Synonyms:** Glycerol
- **Family:** Alcohol

- **Biological source:** The breakdown of animal plant fats which are triglycerides.
- **Chemical Constituents:** Three carbon atoms eight hydrogen atoms and three oxygen atoms.
- **Pharmacological Actions:** Glycerin's primary pharmacological actions stem from its osmotic and hygroscopic (moisture-retaining) properties.
- **Uses**
 - Moisturizes and hydrates
 - Improves skin texture
 - Strengthens skin barrier
 - Soothes irritation
 - Promotes healing
 - Suitable for all skin types

7.3 VITAMINE E



Fig.8 Vitamin E.

- **Synonyms:** Tocofersolan
- **Family:** Alpha Tocopherol
- **Biological source:** protects cells from damage, strengthens the immune system, helps form red blood cells, and widens blood vessels to prevent clotting
- **Chemical constitutes:** a group of eight fat-soluble compounds called tocopherols and tocotrienols
- **Pharmacological Actions:** an antioxidant, where it neutralizes free radicals within cell membranes and lipid- rich environments to protect against oxidative damage.
- **Uses**
 - Antioxidant: Protects the skin from free radical damage (from sun, pollution, etc.).
 - Moisturizing: Helps to strengthen the skin barrier and retain moisture.

7.4 LIQUORICE



Fig.8 Liquorice

- **Synonyms:** licorice
- **Family:** Fabaceae
- **Biological source:** dried, peeled or unpeeled roots, rhizomes, and stolons of *Glycyrrhiza glabra*.
- **Chemical constitutes:** Glycyrrhizin (a triterpenoid saponin), flavonoids, sugars (like glucose, sucrose, and mannitol), starch, and amines (asparagine, betaine, choline Saponin Glycosides).
- **Pharmacological Actions:** inhibiting enzymes like 11- β -HSD2 to affect cortisol and aldosterone levels, suppressing inflammatory signaling pathways like NF- KB, and exhibiting antioxidant, antiviral, and antibacterial properties
- **Uses**
 - Soothing: It has strong anti-inflammatory properties, calming redness and irritation.
 - Antioxidant Protection: Licorice is rich in flavonoids that help protect the skin from environmental stressors.
 - Respiratory Conditions: It helps treat coughs, sore throats, bronchitis, asthma, and respiratory tract infections.

7.5 ROSEMARY OIL



Fig.10 Rosemary oil.

- **Synonyms:** Rosemary
- **Family:** Lamiaceae
- **Biological source:** the perennial shrub *Rosmarinus officinalis* L. (rosemary), a plant from the Lamiaceae family.
- **Chemical constitutes:** oxygenated monoterpenes and monoterpene hydrocarbon
- **Pharmacological Actions:** anti-inflammatory, antioxidant, and antimicrobial properties
- **Uses**
 - Antioxidant: Helps protect skin from environmental damage.
 - Anti-inflammatory: Reduces puffiness and soothes irritation.
 - Antibacterial: Helps prevent acne- causing bacteria.
 - Improves Circulation: Boosts blood flow, promoting a healthy glow.
 - Astringent Properties: Tightens skin and reduces the appearance of pores

8. CONCLUSION

The herbal face serum developed through this project demonstrated excellent physical and chemical stability, good spreadability, an ideal pH for skin application, and was free of microbial contamination. The formulation remained stable at room temperature, though unstable in freezing conditions. Using natural ingredients like aloe vera, licorice, and vitamin E, the serum provided a hydrating, soothing, and brightening effect on the skin, making it a promising alternative to commercial skincare products.

9. REFERENCE

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