Formulation And Evaluation of Face Serum

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Abstract
The study of human skin is pivotal in various scientific fields, including dermatology, toxicology, pharmacology, and cosmetology, to understand the effects of external agents, their interactions, absorption mechanisms, and toxicity. The historical and cultural importance of beautification has led to the development of cosmetology, which focuses on the enhancement and care of skin, nails, and hair. A crucial advancement in skincare is the development of face serums, which are highly concentrated formulations designed to deliver potent active ingredients deep into the skin. These serums, available in both water-based and oil-based forms, are significantly more concentrated than traditional creams, providing more effective treatment for various skin concerns. By incorporating a small amount of face serum into daily skincare routines, users can achieve noticeable improvements in skin health and appearance due to the high concentration of beneficial components such as antioxidants, ceramides, and amino acids.

Keywords : Humanskin, Dermatology, Toxicology, Pharmacology, Cosmetology, Faceserum, Skincare

INTRODUCTION:

Study of human skin represents an important area of research and development in dermatology, toxicology, pharmacology, and cosmetology, in order to assess the effects of exogenous agents, their interaction, their absorption mechanism, and/or their toxicity towards the different cutaneous structures. The importance of beautification to the mankind has been known since the prehistoric time and the desire to look beautiful and healthy has been developing in the society. Cosmetic is a Greek word which means to _adorn‘ (addition of something decorative to a person or a thing). Cosmetology is the study and application of beauty treatment. It‘s an art or science of beautifying and improving the skin, nails and hair and the study of cosmetics and their application. A skin care formulation must be able to deliver the powerful agent into the skin to fulfil the intended objective. Face serum is the answer to deliver the precious active ingredient into the skin thus eliminating the use of hazardous chemicals in giving instant results. Serum is a concentrated product which is widely used in Cosmetology. The name comes from itself in professional cosmetology. The cosmetic serum is as concentrated in water or oil as any other cream. Serums are defined as concentrated product that contains ten times more organic matter than cream. Therefore, deals with the cosmetic problem quickly and effectively[1,2]. What is face serum ? 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, therefore 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. This is because face serums are made of very small molecules that help it to penetrate deep into the skin quickly. 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 skin-identical ingredients. All skin type needs these ingredients to be as healthy as possible. Gel and liquids preparations are best for oily

Why face serum better than creams and lotions:

Face serums are often considered superior to creams and lotions for several reasons

1. Higher Concentration of Active Ingredients: Face serums contain a higher concentration of active ingredients compared to creams and lotions. This allows serums to deliver more potent doses of beneficial compounds, such as antioxidants, vitamins, peptides, and hyaluronic acid, to the skin.[5]
2. Lightweight and Fast-Absorbing: Serums typically have a lightweight, fluid texture that allows them to penetrate deeper into the skin quickly. This means
3. Targeted Formulations: Face serums are often formulated to target specific skin concerns, such as hydration, brightening, anti-aging, or acne treatment. This targeted approach allows users to address their specific skincare needs more effectively than with a generic cream or lotion.[8]
4. Customizable Skincare Routine: Because serums are lightweight and fast absorbing, they can be easily layered with other skincare products, such as moisturizers and sunscreens. This allows users to customize their skincare routine based on their individual needs and preferences.[9]
5. Versatility: Face serums are suitable for all skin types, including oily, dry, combination, and sensitive skin. They can be used both morning and night and can address a wide range of skincare concerns, making them a versatile addition to any skincare regimen.[10]

Drug Profile: Aloevera:

Figure no. 1 Aloevera

1. Common Name: Aloe vera

2. Scientific Name: Aloe barbadensis miller

3. Therapeutic Class: Aloe vera is commonly used in dermatological, cosmetic, and pharmaceutical preparations. It's also used in traditional medicine for various purposes. 4. Active Constituents:

- Polysaccharides (including acemannan)
- Anthraquinones (such as aloin and emodin)
- Amino acids • Enzymes (e.g., bradykinase)
- Vitamins (A, C, E, and B12)
- Minerals (e.g., calcium, magnesium, zinc)
- Saponins
- Sterols

Pharmacological Actions:

- Anti-inflammatory: Aloe vera has demonstrated anti-inflammatory effects, which can be beneficial for various skin conditions and wound healing.

4. Pharmacological Actions:

- Cardioprotective: The high content of monounsaturated fatty acids in olive oil, particularly oleic acid, is associated with a reduced risk of cardiovascular diseases. Olive oil consumption has been linked to lower levels of LDL cholesterol and improved heart health.

- Anti-inflammatory: Olive oil contains phenolic compounds with anti inflammatory properties, which may help reduce inflammation in the body.
- Antioxidant: The presence of vitamin E and phenolic compounds makes olive oil a potent antioxidant, helping to neutralize free radicals and protect cells from oxidative damage.
- Antimicrobial: Some components of olive oil, such as oleuropein, have demonstrated antimicrobial activity against certain bacteria and fungi.
- Gastrointestinal Benefits: Olive oil consumption is associated with improved digestion and may help alleviate symptoms of gastrointestinal disorders such as gastritis and peptic ulcers. • Skin Health: Olive oil is used in skincare products due to its moisturizing properties and antioxidant content, which can help hydrate the skin and protect against oxidative stress.

Material and method Material and collection:

Material and collection Ingredient Collection Category Alovera SIOP, Washim Anti-aging Olive oil Local market Moisturizer Coconut oil Local market Nourishment of skin Honey Extract from honeycomb healing Glycerine SIOP, Washim Skin toner Rose water SIOP, Washim hydration Method Of Preparation : The emulsion (o / w) was prepared according to the formula given below. The oily component consisting of Olive 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, honey, rose water 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. 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 valu

- Composition of face serum:

Ingredient	Standard formulation (100ml)	Working formulation (30ml)
Alovera gel	50%	10%
Olive oil	9%	1.8ml
Coconut oil	2%	0.4ml
Honey	0.1%	0.02ml
Glycerine	25%	5ml
Rose water	25%	5ml

Table no 01

Evaluation of face serum:

Physical Evaluation: The Colour and appearance of the formulation was observed visually. The formulation procedure uniform distribution of extracts. This test was confirmed by visual appearance and by touch. pH Value : A pH meter was calibrated using a standard buffer solution. Nearly 1 ml of the face serum was properly weighed and dissolve in 50 ml of distilled water and finally its pH was calculated. The skin has an acidic range and the pH of the skin serum should be in the range of 4.1-

6.7. Determination of Spreadability : 2 gm of serum sample was placed on a surface. A slide was attached to a pan to which 20 gm weight was added. The time (seconds) required to separate the upper slide from surface was taken as a measure of Spreadability. Microbial Examination of the Product : In this method, the mixed culture is diluted directly in tubes of liquid agar medium. The medium is maintained in a liquid state at a temperature of 45℃ to allow thorough distribution of the inoculum. The inoculated agar medium is transferred into petri plates, allowed to solidify and incubated. In the series dilution technique, the original inoculum may be diluted by using sterile water or saline solution so that the concentration of the microbes

gradually become less. Mix 1 ml dilute in 20 ml of liquid nutrient agar medium at 45°C. Shake the liquid agar nutrient agar medium & pour in a sterile petri plate, solidify and incubate it. Stability Studies : Formulation and development of a pharmaceutical product is not complete without proper stability analysis carried out on it to determine physical and chemical stability and thus safety of the product. The stability studies is carried out as per ICH guidelines. Short term accelerated stability study was carried out for the period of few months for the prepared formulation. The samples were stored at different storage conditions of temperatures such as 3-5 0C, 250C RH=60% and 40oC±2% RH=75%

Result and discussion :

A well formulated and evaluated face serum can help to enhance the appearance of the face and also help in treatment of skin related problems such as aging, dryness, pimples etc.

Physical Evaluation: The Colour and appearance of the formulation was observed visually.

Summary and conclusion:

Summary: A face serum is a concentrated skincare product designed to deliver targeted benefits to the skin. Typically lightweight and fast-absorbing, serums contain high concentrations of active ingredients such as vitamins, antioxidants, and peptides. They are formulated to address specific skin concerns such as hydration, anti-aging, brightening, or acne. Regular use of a face serum can lead to improved skin texture, reduced fine lines and wrinkles, enhanced brightness, and overall healthier- looking skin. Incorporating a face serum into your skincare routine can help you achieve your desired complexion goals effectively.

Conclusion: Face serums offer a concentrated blend of active ingredients tailored to specific skincare needs. Their lightweight texture penetrates deeply into the skin, delivering potent benefits such as hydration, brightening, and anti-aging effects. Incorporating a serum into your skincare routine can enhance overall complexion and address targeted concerns effectively.

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