



## **"Formulation And Evaluation Of Orange Herbal Face Serum"**

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### **ABSTRACT:**

Cosmetic Serum is a highly concentrated product based on water or oil. When using concentrates we get not only a quick cosmetic effect, but also psychological satisfaction after the treatment because the result will be seen practically immediately. Serum has a property of rapid absorption and ability to penetrate into the deeper. Wrinkles on the face and skin aging are unfavorable effects of photodamage & UV radiation. Serum offer quick absorption and the capacity to penetrate deep layers of the skin, as well as a non-oily finish & a deep formula with a high concentration of active ingredients. The goals of this research was to create a serum using polyherbal extract based on these qualities. Faces serum made of orange peel powder, aloe vera gel, rice water, vitamin E oil, rose water, etc. When we use orange peel to our face it gives us vitamin C, it can be show glow our face when we use aloe vera we obtain not only immediate beauty effect but also psychological satisfactions because serum has the potential to absorb quickly and enter deeper layers. The physiochemical characteristics, pH globular size, & consistency of facial serum were assessed. The stability study results showed that there were no changes in visual appearance, homogeneity & globular size.

**Keywords-** Cosmetic, anti-inflammatory, anti-bacterial, anti-aging, anti-oxidant

### **Introduction:-**

Human life often avoiding exposure to sunlight and pollution from the environment, including eating food that are unhealthy, these factors are the mainly in the body can causes negative effects on the skin as well as such dull skin, uneven skin tone, darkspots, freckles, rough skin, not smoothness, etc. Therefore it is important factors that makes people's turn to take care of more healthy skin, including the use of products. Such as cream, lotions, serum to help slow down to changes that occurs the skin, slow down wrinkles. A good skin serum provide your skin a firmer, smoother texture it makes pore appear smaller & increase moisture levels.

A serum is products typified by its rapid absorption and ability to penetrate the deeper layers of the skin together with its non greasy finish and the intensive with a very high concentration of active substances. The serum is a skincare product containing a gel or lightweight lotion or moisturising consistency that can penetrate deeper to deliver active ingredients into the skin. A good skin serum may provide your skin with a smoother, texture, makes pores appear smaller & increase moisture level.

In that a serum is a skin care product with a gel, light lotion, or hydrating consistency that can penetrate the skin more deeply to deliver active ingredients. A highly concentrated product based on water and oil is a cosmetic serum. It has an extremely high concentration of an active ingredients. Serum gives your skin a smoother, denser texture, decreases pore generation, moisturizer deeply, prevents wrinkles and acts as anti-aging skin product. Many more natural herbs advised by Ayurvedic for a variety of skin problems. Orange peel, Aloe vera, rice water, sandalwood oil, containing face serum is highly concentrated cosmetic products.

All skin types needs these ingredients to be as healthy as possible. A good serum mat provide your skin a firmer, smoother texture, make pores appear smaller and increase moisture levels. Whether it is moisturizer, anti-aging or anti-wrinkle product or skin serum. Orange peel and Aloe vera both have a unique anti-aging formulation to maintain healthy fresh looking skin. Aloe vera extract have antibacterial and antifungal activities, which may help in the treatment of minor skin infections.

Orange peel helps to lighten and brighten the skin naturally and it's help to hydrating dull and dehydrated skin. Serum was categorized based on how well it absorbed based on how well it absorbed and could reach the deeper layers of the skin. Today, there is a huge need for cosmetic many people use them. in daily life, and ma

Skin is a protective and largest organ of body which is struggling 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. Aloe Vera and bee venom both have an unique anti-aging formulations to maintain healthy fresh looking skin. These products are useful in various skin conditions like psoriasis, shingles and other associated with itching, in addition- cuts, abrasions and burns are said to be benefit from topically applying the leaf's gel to the affected area.

The polysaccharides present in Aloe Vera have excellent moisturizing property and when mixed with essential oils, it makes an excellent skin smoothening moisturizer and sun block lotions. Due to its soothing and cooling qualities Ayurveda recommends Aloe Vera for a number of skin disorders. Aloe Vera extract have antibacterial and anti-fungal activities, which may help in the treatment of minor skin infections.

Herbal medicine has been used huge amount in all over the world. As well as in India for primary health Care. In this the aloe vera plant is used as medicinal & skin care properties. Skin aging, acne & facial wrinkle are major problems of skin due to photodamage & Ultraviolet rays. There is no effective cosmetics present to resist skin aging & acne. Aloe vera, vitamin e, Glycerin and citric acid is a highly concentrated cosmetic product of face serum.

Serum shows property to penetrate into deeper layer of the skin. Aloe vera plant contain number of Vitamins such as vit B12, VitA, Vit c, Vit E & also contain anthraquinones, minerals folic acid, Enzyme, carbohydrates, proteins, Hormones, saponins & lignin. Aloe vera has anti-inflammatory & antibacterial properties therefore it can decrease acne & reduce skin inflammation, Citric acid is appeared from orange fruit shows antioxidant properties which fight infections & keep our skin toxin free due to presence of vitamin c. Citric present in Aloe Vera help in control of skin ageing, unclogs the pores & also moisturizes the skin.

## Drugs & Excipients:-

### 1) Orange:

Botanical name- Citrus aurantium

Kingdom- plantae

Family- Rutaceae

Order- Sapindales

Genus- Citrus

Part use- Orange peels

### Biological source-

It consist of fresh and dried outer part of the pericarp of citrus aurantium Linn.

### Role-

- \* Orange peela contain citric acid that helps to lighten and brighten the skin naturally.
- \* Vitamin C in the peels helps cleanse your skin deeply and fighting acne.
- \* Orange peela are rich in antioxidants that help hydrate and moisture your skin.
- \* It helps in toning your skin.
- \* It has incredible anti inflammatory properties
- \* Protective antioxidant

### 2) Aloe vera:

Botanical name- Aloe barbadensis miller

Kingdom- Plantae

Family- Asphodeloideae

Order- Asparagales

Genus- Aloe

### Biological source-

It consist of aloe is dried latex of leaves of it.

### Role-

- \* It can help to moisturize skin.
- \* It helps to treat various skin conditions, including acne, eczema and sunburn.
- \* It reduces skin infections
- \* It anti-aging properties
- \* Aloe vera also has high water content regular use of aloe vera in serum it can make skin radiant and youthful.

### 3) Vitamin E:

#### Role-

- \* Vitamin E helpful in controlling hyperpigmentation
- \* It is essential for preventing skin damage
- \* It requires for restore skin's natural health
- \* Reduces skin dullness
- \* Reduces skin itching
- \* Prevents blemishes and acne
- \* Minimizes the appearance of scars.

**4)Glycerine:****Role-**

- \* Glycerin is absolutely safe to use on the face.
- \* Glycerin is great for the skin because it act as a humectant, which is a substance that allows the skin to retain moisture.
- \* It can increase skin hydration, relieve dryness, and refresh the skin's surface.
- \* A type of moisturizing agent that pulls water the outer layer of skin from deeper level of the skin and air
- \* It improve the skin barrier function.

**5)Almond oil:****Roles-**

- \* Almond oil use as an moisturizer as well as emollient which responsible for skin smoothing
- \* Treat dry skin.
- \* Helps reverse sun damage.
- \* Reduce puffiness and under eye circles.
- \* Reduces the appearance of stretch marks.
- \* Improves complexion and skin tone.
- \* Improves acne.
- \* Reduces the appearance of scars.

**6)Rose water:****Role-**

- \* It helps to prevent and treats infections.
- \* Improve your complexion and reduce skin redness.
- \* Helps soothe skin irritation.
- \* Contain antioxidant.
- \* It has anti-aging properties.

**7)Sandalwood oil:****Roles-**

- \* anti-inflammatory
- \* antimicrobial
- \* antiproliferative, or inhibits undesirable cell
- \* growth
- \* antiviral
- \* antiseptic
- \* fever-reducing
- \* scabies sunburn

**8)Rice water:****Roles-**

- \* It can brighten your skin.
- \* It can boost your skin barrier health.
- \* It soothes sunburn and irritation.
- \* It can glowing and lightening the skin.
- \* It can shrink the pores.
- \* It can control the excess oil.

**Material Used:**

SR.NO	Material Name
1	Orange Peel Powder
2	Alovera Gel
3	Glycerin
4	Sandelwood Oil
5	Almond Oil

6	Vitamin E Oil
7	Rice Water
8	Rose Water
9	Mineral Water

### Method of Extraction:

Orange peel, aloe Vera plant, Sandlewood oil, vitamin E oil, Rice water, glycerin, etc.all other chemicals used where of suitable analytical grade.

### Emulsion preparation:

Orange can be collected from herbal garden .aloevera plant was also collected from it.

To make an extract for Orange peel can be converted into powder forms. And aloevera gel was homogenized at 1200 rpm under mechanical homogenizer. The Aloe vera gel was further filtered with vacuum filter to get a clear & transparent gel. To add them vitamin E oil for 2-3drops ,Sandlewood oil, glycerin as a preservative & rice water for fairness.

### Formula For Face Serum:

SR NO	Ingredients	Given Quantity 50 ml
1	Orange Peel	10 ml
2	Aloe vera Gel	10 ml
3	Glycerin	5 ml
4	Sandlewood Oil	2 ml
5	Almond Oil	2 ml
6	Vitamin E Oil	2 ml
7	Rice Water	10 ml
8	Rose Water	5 ml
9	Mineral Water	50 ml qs for it

### Formulation of face serum:

The emulsion (o/w) was prepared according to the formula given above. The oily component consisting of vitamin E oil, and Sandlewood oil between them and it mixed together for uniform solution. At the same time the water phase was prepared by mixing aloe vera gel ,glycerin,rose water,rice water and small amount of distilled water uniformly the oil phase is added to liquid phase by drop wise under mechanical vibration at to obtain oil in water based on biphasic emulsion.

### Procedure:

1. Orange peel powder add in boiling water into Beaker heat them after filter it and cooling them
2. Aloe vera gel also boil them in Beaker Heat it and filter the Aloe vera gel.
3. Add almond oil, Sandlewood oil, and vitamin E oil Stirred it, after it add rose water
4. Add glycerin as a preservative
5. Add rice water for glowing skin.

### Formulation of Orange Face Serum --



***Rheological parameters:***

Emulsion are non Newtonian system so the viscosity of the formulation was determined by multipoint viscometer at 100 rpm. Some amount of the serum was taken in a beaker and the spindle was dipped in it about 5 minutes and the reading were noted.

***Colour and appearance:***

The colour and appearance of the formulation (aloe vera face serum) was observed visually which appeared light yellow in colour.

***Homogeneity:***

The formulation prepared had even distribution of the extract made. The homogeneity of the preparation was confirmed visually by the absence of any particulate matter and also feeling the product by touch.

***pH of serum:***

A pH meter was calibrated using a standard buffer solution. Nearly 1 ml of serum was properly weighed and dissolved in 50 ml of distilled water and finally its pH was calculated.

***Spread ability:***

Spreadability denotes the extent of area to which the gel readily spreads on applications to skin on affected part the time required to separate the upper slide from surface was taken as a measure of spreadability.

***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 products.

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**Photochemical screening of secondary metabolites:*****Test for alkaloids-***

- a. Dragendorff's test- Take 2 ml of each extract, few drops of Dragendorff's reagent (potassium bismuth iodide solution) was added. A turbid orange/red precipitate was observed in the presence of alkaloids.
- b. Wagner's test- A few drops of Wagner's reagent was added in 2-3 ml extract. Then, a reddish-brown precipitate was observed that confirms positive.
- c. Hager's test- few drops of Hager's reagent poured on the extracts and if yellow colour precipitate was observed, this confirms the test positive.

***Test for Phenolic Compounds-***

An equal amount of 1% Ferric chloride solution and 1% Potassium Ferro cyanide was mixed, 3 drops of this prepared mixture were added to the 2ml of extracts. The positive result shows the formation of a bluish colour.

***Test for Tannins-***

- a. Ferric chloride reagent test: 2-3 drops of 5% ferric chloride solution were taken and they are poured on both extracts. Then the formation of green/greenish-black colour indicates the presence of tannins
- b. Potassium dichromate test: Each extract solution was taken and 1ml of 10% of aqueous potassium dichromate solution was poured. The formation of yellowish-brown precipitate confirms the presence of tannins.

***Test for Flavonoids-***

- a. Alkaline reagent test: 1ml of 10% sodium hydroxide solution was taken and added to the extracts to form yellow colour, which confirms the presence of flavonoids in the sample

b. Lead acetate test: both extracts were taken and few drops of 10% lead acetate solution were added to it, this forms a yellow colour precipitate which suggests the presence of flavonoids.

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### Result- Discussion & Evaluation Tests:

Preliminary phytochemical screening of orange peel and aloe vera extracts: Phytochemical screening of secondary metabolites and aqueous extract contain Alkaloids, Proteins, Flavanoids, Carbohydrates, Tannins, Glycosides, Saponins and Steroids. Phytochemical screening of revealed that extract-Citrus aurantium, contains Saponins, Alkaloids, Flavonoids and Alcoholic extract contain Carbohydrates, Proteins and Flavonoids and Aqueous extract contain Carbohydrates, Proteins, Saponins, Flavonoids.

**Physical appearance-** Serum formulation was Brownish yellow viscous liquid preparation with a smooth homogeneous texture and glossy appearance. Consistency was found to be good.

**Physical evaluation-** The formulation was dispersed within seconds after doing the redispersion test. The percentage spread by area.

#### Physical Evaluation-

Colour- light yellow

Odour- characteristics odour

Taste- tasteless

Homogeneity- good

**Chemical evaluation-** The pH of the formulation was found to be 5.1. As the skin is having an acidic pH of around 4-6, this pH range of the formulation is suitable. The formulation was found to be free from heavy metals.

**Biological evaluation-** The skin irritation studies revealed that the formulation was non-sensitizing and safe for use.

**Test for microbial growth in formulated serum-** The formulation was free from microbes as they have not produced any microbial growth.

**Stability studies-** The formulation was undertaken stability studies for physical and chemical change. No considerable variations in properties of the formulation were observed. The result was shown in it.

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### Conclusion:

The aim of the study was to formulate Different herbal into serum from moisturizing and glowing activity on skin cosmetic are skincare products that cater both cosmetic and drugs. In serum orange peel and aloe vera are mainly used. The serum contain the properties of Sandalwood oil, aloe vera, vitamin -E oil that help to provide luminous glow on the skin. It is enriched in natural vitamin c that helps to reduce discoloration of the skin giving you a flowness glow.

Stability studies revealed that there was no significant difference in the physical and chemical parameters. Thus the formulation was found to be stable for three months. Biological evaluation of serum revealed that the formulation is non-sensitizing and safe for use. The spreadability was found to be good. No residues were formed and was easy to wash out. The pharmacological evaluation of serum proved that it produces the fairness action.

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### REFERENCES:

- 1) Cho JM, Lee YH, Beak RM, Lee SW effect of platelet rich plasma on UV induced skin wrinkles in nude mice, *Plast Reconstr Aesthet Surg*, 2011;64(2)
- 2) Burlando B, Verotta L, Cornora L, Bottin M, Massa E. Herbal principles in cosmetic properties and mechanism of action. *United States CRC Press*, 2010.
- 3) Salvini L, Morelli L, Ochoa E, Labra M, Fiandra L, Palugan, et al. The emerging role of nanotechnology in skincare, *Adv Coll Interface Sci* 2021;293:102437.
- 4) Kokate C.K, Purohit Ap & Gokhale Sbi. *Pharmacognosy Nirali Publication*, edition 50, P95.
- 5) Han SM, Lee KG, Pak SC, effect of cosmetics containing purified honey bee, *J Integr Med*, 2013 11(5):320-6
- 6) RCA Ribeiro, S Maria AG Barreto, EA Ostrosky, PA Rocha- Filho LM, Verisimilitude and Marcio Ferrari, production & characterization of cosmetic, nano emulsion containing Opuntia ficus indica (L), mill extract as moisturising agent, *Molecules*, 2015, 20-2492-2509.
- 7) Mumtaz BT M, Sultan Suhai Budden optimization, stability and characterization of face serum formulation 2018.
- 8) J.M Gillbro & M.J Olson, the melanogenesis of skin lightening agent existing and new approaches *International Journal of Cosmetic Science* 2011,33 210-221
- 9) Spreadability-application department APP09: 1-2 Shan Sasidharn et al *Int J Pharma* 2014: 4(3) 105-112
- 10) Agnihotri S. formulation and development of herbal serum *Pharmacies* 2021; 13 (4): 211-217
- 11) Lupo MP *Cosmeceutical peptides, Dermatol Surg*. 2005 31 (51): 832-836
- 12) Orange fruit- Wikipedia.
- 13) Shi, V., Tran, K. and Lio, P. (2012). A comparison of physicochemical properties of a selection of modern
- 14) moisturizers: hydrophilic index and pH. *J Drugs Dermatol*. 11, 633-636.
- 15) J.M. Gillbro & M.J. Olsson, the melanogenesis of skin Lightening agent-existing and new approaches
- 16) *International Journal of Cosmetic Science*, 2011,33,210-221.
- 17) Drallos and Thaman, "Cosmetic formulation of skin care products" volume 30, 167-180.

- 18) <http://www.skinbiology.com> Leveque and Agache "Ageing skin, properties and functional changes". Decker A, Graber EM. Over-the-counter acne treatments: A review. *J Clin Aesthet Dermatol* 2012;5:32.
- 19) Raghuwanshi K, Mishra A. Anti-acne phytoconstituents-an intensive review. *Int J Rec Adv Med Pharma Res* 2020;3:1.
- 20) Simonart T. Newer approaches to the treatment of Acne vulgaris. *Am J Clin Dermatol* 2012;13:357-64.
- 21) Thielitz A, Gollnick H. Topical retinoids in Acne vulgaris. *Am J Clin Dermatol* 2008;9:369-81.
- 22) Dispenza MC, Wolpert EB, Gilliland KL, Dai JP, Cong Z, Nelson AM, et al. Systemic isotretinoin therapy normalizes exaggerated TLR-2-mediated innate immune responses in acne patients. *J Invest Dermatol* 2012;132:2198-205.
- 23) Toyoda M, Morohashi MJ. An overview of topical antibiotics for acne treatment. *Dermatology* 1998;196:130-4.
- 24) Elsaie ML. Hormonal treatment of Acne vulgaris: An update. *Clin Cosmet Investig Dermatol* 2016;9:241.
- 25) Kim GK, Del Rosso JQ. Oral spironolactone in post-teenage female patients with Acne vulgaris: Practical considerations for the clinician based on current data and clinical experience. *J Clin Aesthet Dermatol* 2012;5:37.