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Review Article

Formulation and Evaluation of Herbal Lip Serum

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ABSTRACT

Lips are highly sensitive and prone to dryness, cracking, and damage because they lack sebaceous glands and natural protective pigmentation. As a result, there is an increasing demand for natural lip care products that provide moisture, nourishment, and protection without relying on synthetic ingredients. Herbal lip serums have gained popularity due to their lightweight texture, rapid absorption, and ability to deliver concentrated active compounds directly to the lips. This study focuses on developing a herbal lip serum using almond oil, rose oil, vitamin E, glycerin, lecithin, dragon fruit juice, and aloe vera gel. These ingredients were selected for their moisturizing, soothing, antioxidant, and healing properties. Almond oil acts as a nourishing emollient, rose oil provides calming effects, vitamin E supports antioxidant protection, and glycerin enhances moisture retention. Aloe vera gel contributes cooling and repairing benefits, while dragon fruit juice offers natural pigmentation and additional antioxidant activity. Lecithin serves as a natural emulsifier that improves the serum's texture and stability. A key novelty of this formulation is the incorporation of dragon fruit juice, a vibrant botanical source rich in betalains, vitamin C, and polyphenolic antioxidants. These compounds contribute not only to antioxidant protection but also to a naturally tinted aesthetic effect desirable in cosmetic lip care. Aloe vera gel, known for its healing, cooling, and moisture-binding properties, further enhances the therapeutic value of the serum by supporting barrier repair and reducing irritation. The combination of these ingredients creates a synergistic herbal profile targeted at nourishment, protection, and mild coloration. The serum was prepared through a two-phase emulsification process and evaluated for physical appearance, pH, spreadability, homogeneity, and stability. The final formulation showed a smooth consistency, pleasant color, good spreadability, and overall stability under different storage conditions. It demonstrated effective moisturizing properties and left the lips soft, hydrated, and refreshed. At last, the formulated herbal lip serum is a safe, stable, and effective natural product suitable for daily lip care, offering hydration, nourishment, and antioxidant protection. Further optimization may enhance its long-term stability and functional benefits.

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INTRODUCTION

Lips are an essential and highly sensitive part of the human body, yet they are often exposed to environmental factors that make them vulnerable to dryness, cracking, pigmentation, and premature aging. Unlike the rest of the skin, the lips lack sebaceous glands, have a thinner protective barrier, and contain very little melanin, making them more prone to dehydration and UV-induced damage. Because of these factors, maintaining lip health through effective and natural lip care products has become increasingly important.

Herbal ingredients such as plant oils, emollients, humectants, antioxidants, and botanical extracts are widely used in modern cosmetic preparations due to their therapeutic properties and minimal side effects. Textbooks on natural cosmetic formulation describe that combining multiple herbal components enhances the overall activity of a formulation because of synergistic interactions between vitamins, fatty acids, phytochemicals, and mineral

Herbal lip serums are advanced lip-care formulations specifically designed to deliver deep hydration, nourishment, and antioxidant protection. They are typically lightweight, rich in active natural compounds, and easily absorbed into the skin, making them more effective than traditional lip balms. Ingredients such as almond oil, rose oil, glycerin, vitamin E, aloe vera gel, and fruit extracts are widely recognized for their beneficial properties. Almond oil provides deep nourishment and softening effects, while rose oil offers soothing, anti-inflammatory, and aromatic benefits. Vitamin E functions as a powerful antioxidant that protects against oxidative stress and improves skin repair. Glycerin acts as an excellent humectant, drawing moisture into the lips, and aloe vera gel contributes cooling, healing, and hydrating effects. Dragon fruit juice, and

lecithin provide nourishment, healing, and natural coloration without synthetic additive

With increasing consumer awareness about the harmful effects of synthetic chemicals, artificial colors, and petroleum-based lip products, herbal lip serums have gained popularity for being safe, non-toxic, and derived from natural plant sources. They offer a holistic approach to lip care by combining moisturization, protection, healing, and aesthetic enhancement. In pharmacy and cosmetic science education, the formulation of herbal lip serums also helps students understand the principles of natural ingredient selection, emulsification, stability evaluation, and therapeutic benefits of botanical extracts

Anatomy of lips

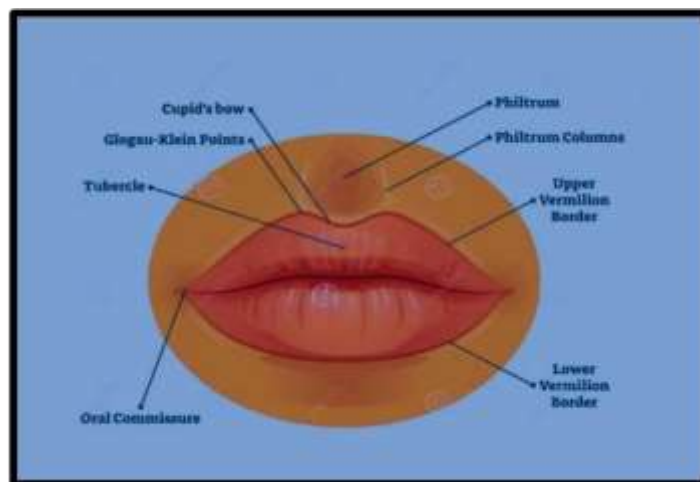
The lips serve as organs of prehension, suction and speech. It is composed of the skin, superficial fascia, orbicularis muscle and the muscles inserted around it (areolar tissue & mucous membrane). The margins of the lips are covered with dry, red mucous membrane, continuous with the skin and containing numerous vascular papillae and touch corpuscles. The mucous membrane internally is reflected from the upper and lower lip upon the gums, and in the median line forms two folds of superioris and inferioris the areolar tissue or submucous layer contains the coronary vessels which completely encircle the buccal orifice near the free margin of the lips. The coronary vessels are the superior and inferior coronary arteries which arise from the facial. The superior coronary is larger than the inferior, and anastomoses with its fellow of the opposite side and gives off a small artery to the septum arteria septi nasi. Compression of this artery will sometimes control nasal hemorrhage. The superior labial or coronary vein begins as a plexus in the orbicularis muscle of the upper lip, passes with the coronary artery and drains into the facial vein a little below the alae of



the nose of the veins which drain the lower lip the inferior coronary empties into the facial a little below the superior

labial; but the chief branch from the lower lip descends as a rule to the submental vein, thence to the facial or often to the anterior jugular. The nerves supplying the lower lip are derived from the mental which emerges from the bone through the mental foramen and sends large twigs to the

mucous membrane, the integument and the fascia of the lip and chin. Some of the lymphatic vessels of the lips pass to a gland just above the body of the hyoid bone, while others pass to the sub maxillary glands. The labial glands are in the submucous layer of the lips around the orifice of the mouth. They secrete a mucous fluid. Mucous retention cysts develop when the ducts of these glands become occluded.



Lip Disorders:

1. **Swelling:** An allergic reaction can make the lips swell. The reaction may be caused by sensitivity to certain foods or beverages, drugs, lipstick, or airborne irritants. When a cause can be identified and then eliminated, the lips usually return to normal. But frequently, the cause of the swelling remains a mystery. A condition called hereditary angioedema may cause recurring bouts of swelling. Nonhereditary conditions such as erythema multiforme, sunburn, cold and dry weather, or trauma may also cause the lips to swell
2. **Sun Damage:** Sun damage may make the lips, especially the lower lip, hard and dry. Red speckles or a white filmy look signal damage that increases the chance of subsequent cancer. This type of damage can be reduced by covering the lips with a lip balm containing sunscreen or by shielding the face from the sun's harmful rays with a wide-brimmed hat
3. **Inflammation:** With inflammation of the lips (cheilitis), the corners of the mouth may become painful, irritated, red, cracked, and scaly. Cheilitis may result from a deficiency of vitamin B2 in the diet.
4. **Discoloration:** Freckles and irregularly shaped brownish areas (melanotic macules) are common around the lips and may last for many years. These marks are not cause for concern. Multiple, small, scattered brownish black spots may be a sign of a hereditary disease called Peutz-Jeghers syndrome, in which polyps form in the stomach and intestines. Kawasaki disease, a disease of unknown cause that usually occurs in infants and children 8 years

old or younger, can cause dryness and cracking of the lips and reddening of the lining of the mouth.

5. Sores: A raised area or a sore with hard edges on the lip may be a form of skin cancer. Other sores may develop as symptoms of other medical conditions, such as oral herpes simplex virus infection or syphilis. Still others, such as keratoacanthoma.

Advantages of Lip Serum

1. Deep Hydration

Many lip serums have humectant ingredients like hyaluronic acid, which can draw in moisture and hydrate more deeply than a simple balm. This helps keep lips plumper and less prone to cracking.

2. Targeted Treatment

Serums are often “active-rich”: they may contain peptides, vitamin E, antioxidants, or oils that help repair and strengthen lip skin. This means you can address specific lip concerns for instance, pigmentation, dryness, fine lines, or loss of volume.

3. Anti-Aging / Plumping Effects

Ingredients like peptides can stimulate collagen or improve elasticity, giving a plumper lip appearance over time without harsh plumping agents. Some serums protect against environmental aging (sun, pollution) with antioxidants.

According to CosMedical, a lip serum with tripeptides can help increase lip volume, reduce perioral lines, and improve tone.

4. Long-Lasting Benefits

Because the actives penetrate deeper, the benefits (hydration, smoothing, repair) can last longer than a simple emollient. Regular use can lead to sustained improvement in lip texture and health.

5. Protection & Barrier Support

Serums often include oils or waxes that help restore or reinforce the lip barrier, making lips more resilient to wind, cold, or drying weather.

Antioxidants in serums also protect lips from free radical damage.

6. Lightweight Texture

Unlike thick balms, serums are typically lightweight and non-greasy.

This makes them good for layering (e.g., applying serum first, then balm or lipstick) without feeling heavy.

7. Improved Lip Tone / Brightening

Some lip serums are formulated to reduce pigmentation or dark lips, giving a more even, natural lip color over time.

Ingredients like Vitamin C, niacinamide, or plant extracts can help brighten lip color.

8. Versatility in Use

You can use lip serums as a base (before lipstick) or a treatment (overnight or in the day). For example, a plumping or hydrating serum can act like a primer.

Some are also marketed for protection, smoothing, or enhancing lip definition.

Disadvantages of lip serum:

1. Temporary Results



Lip serums often provide short-term benefits, such as hydration and plumping, but the effects usually wear off after a few hours, requiring frequent reapplication. This can be inconvenient if you're looking for something longer-lasting.

2. Potential for Overuse

Some lip serums contain active ingredients like peptides, hyaluronic acid, or collagen boosters. While these can be great in moderation, overuse can lead to irritation or sensitivity, especially if the formula is strong or if your lips are already prone to dryness or allergies.

3. Stickiness or Greasiness

Depending on the formulation, some lip serums can feel sticky, greasy, or heavy on the lips, which might not be comfortable for some people. If you're sensitive to texture, this could be a downside.

4. Can Cause Build-up

If you apply lip serum too often or in thick layers, it can lead to product build-up. This can cause your lips to feel slick and uncomfortable, or it can block pores around the lip area, leading to breakouts or clogged skin.

5. Not All Formulas Are Suitable for Sensitive Skin

People with sensitive skin might experience irritation, allergic reactions, or a tingling sensation if the serum contains fragrances, alcohol, or certain active ingredients. Always patch-test first to avoid unwanted reactions.

6. Not a Substitute for Lip Balm

While lip serums hydrate and add a plumping effect, they don't necessarily provide long-lasting

moisture like a thicker lip balm or ointment. If you're dealing with very dry lips, you may need a more substantial treatment alongside the serum.

7. Expensive for the Benefits

Some lip serums can be pricey, especially those marketed with fancy ingredients or claims like "anti-aging" or "plumping." If you're not seeing significant long-term benefits, it can feel like you're spending money on something that doesn't justify the cost.

8. Not Ideal for Chapped Lips

While lip serums can help keep your lips hydrated, they may not be the best choice for severely chapped or cracked lips. A thicker balm or ointment with a healing component (like petroleum jelly or beeswax) may be more effective in that case.



Applications of lip serum:

- 1) Hydrations and moisture
- 2) Lip repair & healing
- 3) Anti-aging / smoothing
- 4) Lip brightening
- 5) Lip plumping
- 6) Prevent cracking

- Best glossy effect
- Best quick absorbing capacity

Factors bioavailability of lip serum:

1. Molecular size
2. Lipophilicity
3. Stability of ingredients
4. PH of serum
5. Conditions of lip
6. Skin temperature

Ideal properties of lip serum:

- Best hydrating and conditioning property
- Best long-lasting effect
- Best anti-aging property

2. LITERATURE REVIEW

Sr. No.	Ingredients	Extraction methods	Reference
1	Honey, Coconut Oil, Almond Oil, Beeswax	Centrifugation, staining Cold pressing, solvent extraction Cold pressing Steam distillation	Formulation, Development and Evaluation of Lip Serum Authors: A. S. Jadhav, P. B. Sutar, S. K. Mohite International journal of pharmaceutical science (IJPS)2025 vol3 issue 4,1891-1896
2	Carrot Extract, Glycerin, Vitamin E	Cold pressing, Solvent extraction saponification (ethanol or water) Mechanical crushing	Preparation of Antioxidant Lip Serum from <i>Daucus carota</i> L. (Carrot) Author: N. A. H. Binti Norfarizal (UITM) university research project
3	Argan Oil, Vitamin E, Essential Oils (Peppermint)	Cold pressing or maceration for oils Mechanical crushing Maceration of oil	Formulation of Lip Serum with Argan Oil Authors: Devilke Yandriyani Universitas Ma Chung Indonesia research paper
4	Lycopene (Tomato), Honey Aloe Vera	Solvent extraction (acetone for lycopene) Centrifugation, staining Gel pressing and solvent extraction	Design and Development of Antioxidant Lip Care Formulations (including Lip Serum) Authors: Vivek Bundhada et al. Abhijit saigaonkar International journal of all research education and scientific method vol12 issued 5 may 2024
5	Levan, Sophorolipids, Essential Oils (Rosemary, Lavender)	By Fermentation Lipid extraction (from yeast) Steam distillation and maceration	Multifunctional Biotechnological Lip Moisturizer for Lip Repair and Hydration Authors: Thays Amélio Bergamini, et al. Journal of cosmetic (MDPI)2023 10 (6)

6	Sunflower Oil, Argan Oil, Vitamin E, Aloe Vera	Cold pressing and steam distillation Mechanical pressing Mechanical crushing By maceration	Formulation and SPF Evaluation of a Lip Oil Serum Authors: N. Salsabila et al. Journal of cosmetic science
7	Chamomile, Aloe Vera, Green Tea Extract	Water extraction or Cold pressing and filtration decoction for herbal extracts	Randomized Double-Blind Controlled Evaluation of a Polyherbal Lip Hydrant Authors: P. Sutthiboonyapan et al. journal of cosmetic dermatology 2025 24 (3)
8	Jjoba oil Almond oil coconut oil vitamin e vitamin c hyaluronic acid glycerin green tea extract aloe vera	Cold pressing from jjoba seed Cold pressing Cold pressing Extracted from vegetable oils Esterification of ascorbic acid By biotechnological fermentation By hydrolysis of plant oil Water extraction from tea leaves Cold pressing and filtration aloe leaves	A Review of Formulations, Ingredients, Advances, and Future Perspectives in Lipcare Cosmetics. Authors: Veludurthi PA, Vadaga AK. Journal of Pharma Insights & Research. 2024;2(3):123–128.
9	Shea butter Zinc oxide Coconut oil Carrot seed oil Bees wax Vit e Aloe vera gel	Mechanical pressing Mechanical crushing Cold pressing Cold pressing Steam distillation Mechanical crushing Gel pressing and solvent extraction	Formulation and evaluation of herbal lip serum with Spf Authors: Sandra Jomon, nainunus, Alif S International journal of creative research thought (IJCRT) vol 13 issue April 2025
10	Almond oil Calendula Rose oil Kumkumadi	Cold pressing Solvent extraction Steam distillation & water extraction Herbal oil infusion	Advanced beet root lip serum Mfg by: Intimify
11	Orange oil Vitamin e Shea butter Olive oil Lemon oil	Cold pressing Mechanical crushing Mechanical pressing Cold press and centrifugation Steam distillation	Lip serum rolls on Mfg by: Elibliss
12	Extra Virgin Olive Oil Peppermint Oil Vitamin E Aloe Vera Licorice Extract Camellia Japonica Seed Oil	Steam distillation of olea europaea Steam distillation, water extraction Mechanical crushing Gel pressing Centrifugation and staining Cold pressing, solvent extraction	Namaya natural lip serum Mfg by: R G biocosmetic Pvt Ltd

List of Marketed products:

Sr. No	Marketed product	Manufacturer
1	House of Beauty Lip Color Corrector Serum	HOB Cosmetics Pvt Ltd.
2	7 Days Lip Lightening Serum	7 Days Organics Pvt Ltd.
3	Namyaa Natural Lip Serum	R G Biocosmetic Pvt Ltd.
4	Elibliss Hydrating Lip Serum	Elibliss
5	Biocule Plump Lip Serum	Biocule
6	Laneige Glaze Craze Tinted Lip Serum	Amorepacific Corporation



7	Pilgrim Squalane Bubblegum Lip Serum	Naturis cosmetic Pvt Ltd.
8	Bobbi Brown Extra Plump Lip Serum	The Estee Lauder companies Inc
9	Namyaa Lip Serum Advanced Brightening Therapy	R G Biocosmetic Pvt Ltd.
10	Kumkumadi Lip Serum	AG Organica
11	Nourishing Lip Serum (Labangerry)	The Rich Daddy International, Gujarat, India.
12	Fixderma brightening lip serum	Derma co
13	Bee and beauty honey ceramide lip serum	Bee and beauty
14	Juicy Chemistry Lip Conditioning Serum	Juicy Chemistry Pvt Ltd.

Common ingredients used in natural lip serum:

Base	Oils	Coloring Agent	Flavouring Agent
Cocca butter	Coconut oil	Beet root	Strawberry
Bees Wax	Olive oil	Pomegranate	Honey
Shea Wax	Almond Oil	Marigold	Orange
Shea butter	Vitamin E oil	Tomato	Saffron/Kesar
White bees wax	Peanut Oil	Jabul	Raspberry
Yellow bees wax	Tea tree oil	Watermelon	Vanilla
Carnauba wax	Glycerin	Honey	Mango
Candelilla wax	Castor oil	Saffron	Rose oil
Mango butter	Jobba oil	Turmeric	Sandalwood
Avocado butter	Corn oil	Capsicum	Jasmine
Olive wax	Arachis oil	Cherry	Cherry
Jobba wax	Lemon oil	Orange	Apple
Olive butter	Avocado oil	Strawberry	Lemon
Sweet Almond butter	Sesame oil	Mango	Apricot
Sweet almond wax	Sunflower oil	Carrot	Rosemary
Raspberry butter	Grape seed oil	Lemon	Pineapple

Need for the Study

In today's environment, the lips are constantly exposed to dryness, pollutants, temperature changes, and cosmetic chemicals that can lead to cracking, discoloration, and irritation. Individuals of all age groups commonly experience lip dryness due to dehydration, nutritional deficiencies, excessive sun exposure, and environmental stressors. There is a growing demand for natural lip care products that provide safe, effective, and long-lasting hydration without dependence on synthetic additives.

A herbal lip serum formulated with natural oils, plant extracts, and antioxidants offers a gentle yet effective solution for maintaining lip moisture, enhancing repair, and improving overall lip appearance. Serums are preferred over traditional balms because of their lightweight consistency, faster absorption, deeper nourishment, and higher concentration of active ingredients. They are suitable for adolescents, adults, and elderly individuals seeking smooth, healthy, and naturally enhanced lips.

Therefore, the present study aims to formulate and evaluate a herbal lip serum that supports hydration, protection, and natural lip healing using safe,

traditional botanical ingredients supported by functional benefits.

3. AIM AND OBJECTIVES

Aim:

To formulate and evaluate a stable and effective Herbal Lip Serum using natural plant-based ingredients that provide hydration, nourishment, and protection to the lips.

Objectives:

1. To select suitable herbal ingredients with proven moisturizing, healing, and antioxidant properties for lip care.
2. To develop an optimized herbal lip serum formulation using almond oil, rose oil, vitamin E, glycerin, aloe vera gel, lecithin, and dragon fruit extract.
3. To evaluate the prepared herbal lip serum for:
 - Physical appearance
 - pH
 - Spreadability
 - Viscosity
 - Moisturizing Ability
 - Stability studies
 - Colour and fragrance
 - acceptability
4. To compare the performance of the formulated herbal lip serum with a marketed lip-care product.
5. To assess consumer acceptance and safety through a small volunteer study (if feasible).

Plan of Work:

Literature Survey



Selection of Herbal Ingredients



Procurement of Materials



Preparation of Herbal Components



Formulation of Lip Serum



Evaluation Test



Discussion & Conclusion



Result

4. MATERIALS USED:

Almond Oil (*Prunus dulcis*)

Biological Source: Obtain from dried Seeds of the almond tree (*prunus dulcis*)

Constituents: Fatty acids (oleic acid, linoleic acid), vitamin E, phytosterols, proteins.

Action: Almond oil is widely recognized as a natural emollient that softens, nourishes, and conditions the skin

It supports barrier repair, reduces dryness, and enhances smoothness.

Cosmetic science literature highlights its ability to restore moisture, improve texture Protect delicate tissues such as the lips.

Its vitamin E content aids healing and protects against oxidative stress

Rose Oil (*Rosa damascena*)

Biological Source: Obtained from the petals of certain rose species (*Rosa damascene*)

Constituents: Citronellol, geraniol, nerol, phenolic compounds, flavonoids.



Action: Rose oil is known for its soothing, calming, and aromatic properties.

It reduces irritation, supports healing of minor cracks or dryness. Provides a pleasant natural fragrance.

Rose oil as a gentle skin rejuvenator with anti-inflammatory and toning effects,

Vitamin E (Tocopherol)

Source: Natural oils and seeds

Constituents: Tocopherols and tocotrienols (fat-soluble antioxidants).

Action: Vitamin E is a powerful antioxidant widely used in dermatology and cosmetic Formulations.

It protects the lips from oxidative stress, pollution, and environmental damage. Vitamin E enhances healing, prevents dryness, reduces cracking,

Improves moisture retention. It also stabilizes oils in the formulation and improves shelf life

Glycerin

Source: Plant-based oils; natural humectant
Constituents: Polyhydric alcohol (glycerol).

Action: Glycerin is a highly effective humectant that attracts moisture from the environment Helps retain hydration in the skin. It enhances softness, smoothness, and prevents dryness.

Glycerin improves product spread ability supports moisture balance. Protects the delicate lip surface from dehydration.

Aloe Vera Gel (*Aloe barbadensis*)

Biological Source: Obtained from the dried juice of (*aloe barbadensis miller*)

Constituents: Polysaccharides, vitamins (A, C, E, B12), amino acids, minerals, enzymes.

Action: Aloe vera is widely documented for its cooling, soothing, and healing properties. It reduces irritation, inflammation, and supports the repair of dry or chapped lips.

Standard herbal texts describe aloe vera gel as a hydrating agent that improves moisture and cell regeneration. provides protective antioxidant benefits.

Dragon Fruit Juice (*Hylocereus spp.*)

Biological Source: Obtained from the pulp of the dragon fruit by juicing

Constituents: Vitamins (C, B-complex), antioxidants, betalains, phenolic compounds, minerals.

Action: Dragon fruit is rich in antioxidants and natural pigments.

It helps brighten, protect, and nourish the lips.

The presence of betalains and vitamin C supports tissue repair and protects against environmental damage

Reference materials on natural pigments highlight dragon fruit's use in cosmetic formulations for its safe, natural coloring and antioxidant properties.

Beeswax

Source: Obtained naturally from honeycombs produced by honey bees (*Apis mellifera*).



Constituents: Contains esters of fatty acids and long-chain alcohols, hydrocarbons, free fatty acids, and natural wax compounds.

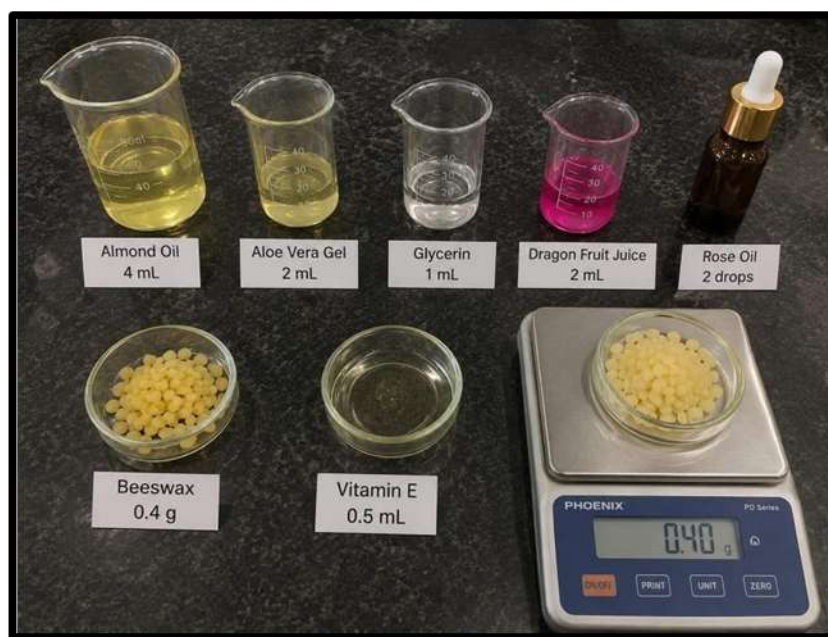
Cosmetic science literature explains that beeswax forms a protective barrier on the lips, helping to prevent moisture loss and dryness.

Action: Beeswax acts as a natural thickening agent, stabilizer, and emollient in cosmetic formulations. It improves the texture, consistency, and stability of the lip serum.

It provides smoothness, glossiness, and enhances the long-lasting effect of the formulation. Beeswax also contributes to healing cracked lips and improves the overall softness of the lips

Formulation table:

Sr no.	Ingredients	Quantity F1	Quantity F2	Quantity F3	Properties
1	Almond oil	5 ml	4 ml	2 ml	Deep moisturization, softening, lightens lip pigmentation
2	Rose oil	2 drops	2 drops	2 drops	Soothing, fragrant, anti-inflammatory, repairs chapped lips
3	Vitamin e capsule	0.4 ml	0.4 ml	0.4 ml	Antioxidant, healing, increases moisture retention
4	Glycerin	1 ml	1.5 ml	2 ml	Hydrating, locks in moisture, smooths lips
5	Aloe vera gel	1 ml	2 ml	2 ml	Cooling, healing, reduces dryness and cracks
6	Dragon fruit juice	2 ml	2 ml	3 ml	Natural pink tint, antioxidant-rich, hydrating
7	Beeswax	0.5 g	0.5 g	0.5 g	Thickener and Stabilizing agent



Equipment and Instrument used:

Sr. No.	Equipment / Instrument	Purpose / Use
1.	Beaker	Preparation and mixing of oil and gel phases
2.	Glass Rod	Continuous stirring and mixing
3.	Measuring Cylinder	Measuring liquids accurately

4.	Dropper / Pipette	Addition of rose oil and dragon fruit juice dropwise
5.	Digital Weighing Balance	Accurate weighing of beeswax and other ingredients
6.	Water Bath	Gentle heating and melting of beeswax
7.	Blender / Mortar and Pestle	Crushing or blending dragon fruit pulp
8.	Fine Sieve / Muslin Cloth	Filtration of dragon fruit juice
9.	Magnetic Stirrer	Uniform emulsification and mixing
10.	pH Meter	Determination of pH of lip serum
11.	Viscometer	Measurement of viscosity
12.	Glass Plates	Spreadability test
13.	Microscope	Observation of consistency and particulate matter
14.	Sample Containers	Filling and storage of prepared lip serum
15.	Spatula	Transfer and handling of formulation
16.	Thermometer	Monitoring temperature during heating
17.	White Light Source	Physical appearance and clarity observation
18.	Stopwatch / Timer	Recording time during spreadability and mixing tests

5. METHOD OF PREPARATION:

Step 1: Prepare Dragon Fruit Juice

1. Take a small piece of fresh dragon fruit.
2. Wash, peel, and blend or mash it properly.

3. Strain the juice using a fine sieve or muslin cloth.
4. Collect only the clear juice without seeds or pulp.



Step 2: Prepare the Oil Phase

1. In a clean beaker, add:
4 mL Almond Oil, 2 drops Rose Oil
2. Pierce the Vitamin E capsule and add approximately 0.5 mL into the mixture
3. Add 0.3–0.5 g Beeswax to the oil mixture.
4. Heat gently using a water bath until the beeswax melts completely.
5. Stir continuously to obtain a smooth oily phase.
6. Remove from heat and allow it to cool slightly.



Step 3: Prepare the Water/Gel Phase

1. In another clean bowl, add: 2 mL Aloe Vera Gel: 1 mL Glycerin
2. Mix properly until a smooth gel forms.

3. Add 2 mL Dragon Fruit Juice slowly with continuous stirring.
4. Stir until a uniform mixture is obtained.



Step 4: Emulsification

1. Add the water/gel phase slowly into the oil phase dropwise.
2. Stir continuously for 10–15 minutes using a glass rod or magnetic stirrer.
3. Continue mixing until a smooth and homogeneous lip serum is formed.
4. Ensure there is no phase separation.

Step 6: Labelling and Storage:

1. Label the container properly.
2. Store in a cool and dry place away from sunlight.

Step 5: Filling

1. Allow the prepared lip serum to cool to room temperature.
2. Transfer the serum into sterilized airtight lip serum containers.



6. EVALUATION PARAMETER OF LIP SERUM:

Sr. no.	Evaluation parameter	Description	Acceptance Criteria
1.	pH Evaluation	The pH of the lip serum was determined using a digital pH meter to ensure compatibility with lips and to avoid irritation.	pH should be between 5.5–6.5
2.	Viscosity Test	The viscosity of the formulation was evaluated to determine flow property and ease of application on lips.	Medium viscosity with smooth flow
3.	Spreadability Test	Spreadability was checked to evaluate the ease and uniformity of serum spreading over the lip surface.	Should spread easily and uniformly without runniness
4.	Consistency Evaluation	The formulation was observed for uniformity, smooth texture, absence of lumps, and phase separation.	Smooth, homogeneous, and stable formulation
5.	Moisturizing Ability	The moisturizing effect of the serum was evaluated based on hydration, smoothness, and reduction in dryness after application.	Should provide good hydration and reduce dryness
6.	Physical Appearance	The prepared serum was visually examined for colour, odour, clarity, texture, and overall appearance.	Light pink colour, pleasant odour, smooth texture
7.	Sensory Evaluation	Sensory properties such as fragrance, feel, smoothness, and stickiness were assessed after application.	Non-sticky feel with pleasant fragrance and smooth application

7. RESULT:

The prepared herbal lip serum formulations (F1, F2, and F3) were evaluated for various physicochemical and sensory parameters such as pH, viscosity, spreadability, consistency,

moisturizing ability, physical appearance, and sensory characteristics to determine the quality, stability, and suitability of the formulation for lip application.

Result Table of Evaluation Parameters:

Sr. No.	Evaluation Parameter	F1	F2	F3
1.	pH	5.4	5.8	6.3
2.	Viscosity	Low viscosity	Medium viscosity	High viscosity
3.	Spreadability	Good	Excellent	Moderate
4.	Consistency	Slightly thin	Smooth & homogeneous	Thick consistency
5.	Moisturizing Ability	Good hydration	Excellent hydration	Moderate hydration
6.	Physical Appearance	Light pink, smooth	Attractive pink, glossy	Dark pink, slightly thick
7.	Sensory Evaluation	Pleasant	Highly pleasant	Slightly sticky

Optimized Formulation

Among all the prepared formulations, F2 was selected as the optimized formulation because it

showed suitable pH, medium viscosity, excellent spreadability, good consistency, enhanced moisturizing ability, attractive appearance, and better sensory acceptability without stickiness.



Therefore, F2 was considered the most stable and suitable herbal lip serum formulation for lip application.

8. DISCUSSION:

The herbal lip serum was successfully prepared using natural ingredients such as dragon fruit juice, almond oil, aloe vera gel, glycerin, rose oil, vitamin E, and beeswax. The formulation showed a smooth texture, light pink colour, pleasant aroma, and good consistency without phase separation.

The evaluation results indicated that the lip serum had suitable pH, good spreadability, medium viscosity, and excellent moisturizing property. The formulation was found to be smooth, non-sticky, and acceptable for lip application, indicating its potential as an effective herbal lip care product.

9. CONCLUSION:

A highly effective herbal lip serum was successfully formulated using natural oils, botanical extracts, and antioxidants. The product demonstrated excellent moisturizing, healing, and sensory properties and can be used as a natural alternative to chemical-based lip care formulations.

A lip serum is a more powerful, treatment-focused lip care product compared to a simple balm. It helps with deep hydration, anti-aging, plumping, protection, and targeted concerns like pigmentation or fine lines. If you want long-term improvement in lip texture and health (not just surface moisture), a lip serum is a very good addition to your routine.

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