Preparation and Evaluation of Herbal Lip Balm

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***Abstract*—Herbal cosmetics have gained considerable attention due to their enhanced safety profile, biocompatibility, and reduced adverse effects compared to synthetic products. Lip balm is a widely used cosmetic preparation intended to protect the lips against dryness, cracking, environmental stress, and microbial contamination. The present research work focuses on the preparation and evaluation of herbal lip balm using natural ingredients such as beeswax, shea butter, coconut oil, almond oil, aloe vera gel, beetroot extract, vitamin E, and rose oil. The prepared formulations were evaluated for organoleptic properties, melting point, pH, spreadability, stability, skin irritation, consistency, and moisturizing effect. Different formulations were prepared by varying the concentration of wax and oils to obtain optimum consistency and therapeutic effectiveness. The results revealed that the optimized formulation exhibited satisfactory physicochemical characteristics, excellent spreadability, good stability, pleasant appearance, and enhanced moisturizing action without causing irritation. The study concluded that herbal lip balm can be effectively formulated using natural ingredients and may serve as a safe and economical alternative to synthetic lip care products.**

***Index Terms*—Herbal lip balm, Natural cosmetics, Beeswax, Moisturizing agent, Evaluation parameters, Herbal formulation.**

I. INTRODUCTION

Cosmetics are products intended for beautification, cleansing, and protection of various body parts. Herbal cosmetics are preparations containing active bioingredients derived from natural sources such as plants, herbs, oils, and waxes. The increasing awareness regarding the harmful effects associated with synthetic chemicals has significantly enhanced the demand for herbal cosmetic products worldwide. Herbal products are generally considered safer, eco-friendly, biocompatible, and less irritating than synthetic cosmetic preparations. Lips are among the most delicate parts of the human body due to the absence of sebaceous glands and reduced melanocyte protection. Environmental conditions such as cold weather, sunlight, pollution, low humidity, and dehydration may cause dryness, chapping, cracking, inflammation, and pigmentation of lips. Lip balm is a semisolid preparation used to protect lips from dryness and maintain softness and hydration.

Conventional lip balms available in the market often contain synthetic ingredients, artificial colors, preservatives, parabens, and petroleum-based compounds that may produce allergic reactions or long-term adverse effects. Herbal lip balm formulations containing natural waxes, oils, and plant extracts provide nourishment, moisturization, healing action, and antioxidant benefits with minimal side effects. Natural ingredients such as beeswax act as excellent emollients and provide protective barriers against moisture loss. Coconut oil possesses moisturizing and antimicrobial properties. Almond oil contains vitamins and fatty acids beneficial for skin nourishment. Aloe vera exhibits soothing and wound-healing effects, whereas beetroot extract acts as a natural coloring agent and antioxidant source.

Cosmetics are products or preparations intended for application on various parts of the human body for cleansing, beautifying, promoting attractiveness, and enhancing appearance. The cosmetic industry has experienced rapid growth globally due to increasing awareness regarding personal hygiene, skin care,

beauty enhancement, and health maintenance. Cosmetics are no longer considered luxury products; instead, they have become essential components of daily life for people of all age groups. Among different categories of cosmetic products, herbal cosmetics have gained significant importance because of their natural origin, better safety profile, reduced side effects, and therapeutic value. Herbal cosmetics are formulations that contain active ingredients derived from plants, herbs, flowers, fruits, oils, waxes, and naturally occurring substances. These products combine cosmetic benefits with medicinal and therapeutic properties. Herbal cosmetics are widely accepted because they are eco-friendly, biodegradable, biocompatible, and comparatively safer than synthetic formulations. The growing preference for herbal products among consumers is mainly due to increasing concern regarding the harmful effects associated with synthetic chemicals used in conventional cosmetic products.

In recent decades, industrialization and modernization have contributed to increased use of synthetic chemicals in cosmetic manufacturing. Conventional cosmetic products often contain parabens, petroleum derivatives, synthetic fragrances, artificial colorants, heavy metals, alcohols, and chemical preservatives. Continuous use of such substances may lead to skin irritation, allergic reactions, dermatitis, dryness, pigmentation, toxicity, and other adverse effects. Some synthetic chemicals are also associated with carcinogenic and endocrine-disrupting potential. Due to these concerns, there has been a shift in consumer preference toward herbal and natural cosmetic products. The concept of herbal cosmetics is deeply rooted in ancient systems of medicine such as Ayurveda, Siddha, Unani, and Traditional Chinese Medicine. Herbal preparations have been used for centuries for maintaining skin health, beauty, and overall wellness. Ancient civilizations utilized natural ingredients such as oils, waxes, herbs, and plant extracts for preparing skin creams, ointments, perfumes, and lip care products. In Ayurveda, several medicinal plants are described for their rejuvenating, healing, moisturizing, and protective effects on the skin and lips.

The skin is the largest organ of the body and acts as a protective barrier against environmental factors. Lips form an important part of facial aesthetics and contribute significantly to speech, expression, and appearance. Healthy lips are generally soft, smooth, moist, and naturally colored. However, lips are highly delicate and sensitive because of their unique anatomical and physiological characteristics. Unlike normal skin, lips possess a thin epithelial covering and lack sebaceous glands and sweat glands. Sebaceous glands normally secrete oils that help maintain skin hydration and protection. Since lips lack these glands, they are unable to retain adequate moisture and are more prone to dryness and dehydration. Furthermore, lips contain lower amounts of melanin pigment, which reduces their natural protection against ultraviolet radiation from sunlight.

Environmental conditions such as excessive sunlight exposure, cold climate, wind, pollution, low humidity, dehydration, nutritional deficiencies, smoking, and frequent lip licking can damage the lips. These conditions may lead to dryness, cracking, inflammation, scaling, peeling, pigmentation, soreness, and bleeding. Chapped lips are among the most common lip problems affecting individuals worldwide. In severe conditions, untreated dry lips may become painful and susceptible to secondary infections. Several physiological and pathological factors may also contribute to lip disorders. Nutritional deficiencies such as lack of vitamins A, B-complex, C, and E may impair lip health and cause cracking or inflammation. Dehydration reduces moisture content in lip tissues and contributes to dryness. Allergic reactions caused by synthetic cosmetics, dental products, and environmental allergens may also produce irritation and sensitivity. Lip care is therefore considered an essential aspect of cosmetic and personal care routines. Lip care products help maintain hydration, softness, protection, and appearance of the lips. Among different lip care products, lip balm is one of the most widely used preparations due to its moisturizing and protective effects.

Lip balm is a semisolid cosmetic preparation designed to protect lips from environmental damage and moisture loss. Lip balms are generally formulated using waxes, oils, emollients, antioxidants, fragrances, flavors, and colorants. The primary function of lip balm is to form a protective layer over the lips that prevents transepidermal water loss and maintains hydration. In addition to moisturization, lip balms provide nourishment,

lubrication, healing, smoothness, and aesthetic enhancement. Commercially available lip balms commonly contain petroleum jelly, paraffin wax, synthetic waxes, mineral oils, artificial fragrances, preservatives, synthetic colors, and chemical stabilizers. Although these formulations provide temporary relief from dryness, prolonged use may produce undesirable side effects such as irritation, hypersensitivity, peeling, pigmentation, and allergic reactions. Petroleum-based products may also create dependency by causing repeated dryness after discontinuation. Increasing awareness regarding the adverse effects of synthetic chemicals has encouraged researchers and manufacturers to explore herbal alternatives for lip care formulations. Herbal lip balms are formulations prepared using naturally occurring ingredients such as beeswax, shea butter, cocoa butter, coconut oil, almond oil, herbal extracts, essential oils, and natural colorants. These formulations provide both cosmetic and therapeutic benefits while minimizing adverse effects. Herbal lip balms are advantageous because they contain bioactive phytoconstituents such as flavonoids, tannins, phenolics, vitamins, fatty acids, terpenoids, and antioxidants. These compounds contribute to moisturizing, healing, antimicrobial, antioxidant, anti-inflammatory, and protective activities. Herbal formulations are generally considered safer for long-term use and are well accepted by consumers due to their natural origin.

Natural waxes play an important role in lip balm formulations. Waxes provide consistency, stability, hardness, and structural integrity to the product. Beeswax is one of the most commonly used natural waxes in cosmetic formulations. It is secreted by honeybees and possesses excellent emulsifying, stiffening, and protective properties. Beeswax forms a thin protective layer over the lips that prevents moisture loss and protects against environmental damage. Beeswax also improves the texture and stability of lip balm formulations. It contains esters, hydrocarbons, fatty acids, and long-chain alcohols that contribute to emollient and moisturizing properties. Due to its natural origin and excellent compatibility with skin, beeswax is widely preferred in herbal cosmetic preparations. Shea butter is another important ingredient frequently used in herbal lip balm formulations. Shea butter is obtained from the nuts of the shea tree and is rich in fatty acids, vitamins, and antioxidants. It acts as a natural emollient and moisturizer that nourishes and softens the lips. Shea butter helps restore skin elasticity, reduce dryness, and improve smoothness.

The anti-inflammatory and healing properties of shea butter make it highly beneficial in treating cracked and damaged lips. It also provides protection against environmental stress and ultraviolet radiation. Due to its creamy texture and excellent moisturizing effect, shea butter is widely incorporated into cosmetic products such as creams, lotions, lip balms, and ointments. Coconut oil is extensively used in cosmetic and pharmaceutical preparations because of its moisturizing and antimicrobial activities. Coconut oil contains medium-chain fatty acids such as lauric acid, capric acid, and caprylic acid that exhibit antimicrobial and nourishing properties. It penetrates effectively into the skin and helps maintain hydration. Coconut oil acts as an excellent emollient and helps soften dry lips. Its antioxidant properties protect the lips against oxidative damage caused by environmental pollutants and ultraviolet radiation. Coconut oil also provides soothing and anti-inflammatory effects that reduce irritation and discomfort associated with chapped lips.

Almond oil is another valuable natural ingredient used in lip care products. Almond oil is rich in vitamins A, D, and E along with essential fatty acids and antioxidants. It nourishes and softens the lips while improving skin texture and elasticity. Vitamin E present in almond oil helps protect lip tissues from oxidative stress and premature aging. Almond oil also exhibits moisturizing and healing activities that help repair damaged lips. Due to its light texture and excellent skin compatibility, almond oil is commonly used in cosmetic formulations such as lip balms, creams, lotions, and massage oils. Aloe vera is a medicinal plant extensively used in traditional and modern medicine. Aloe vera gel contains polysaccharides, amino acids, vitamins, enzymes, minerals, and antioxidants that contribute to its therapeutic properties. Aloe vera exhibits soothing, moisturizing, anti-inflammatory, antimicrobial, and wound-healing activities. In lip care formulations, aloe vera helps reduce dryness, irritation, inflammation, and cracking. It accelerates healing of damaged lip tissues and improves hydration. Aloe vera also provides a cooling and soothing effect that enhances user comfort. Due to its multiple

therapeutic benefits, aloe vera is widely used in cosmetic products such as lip balms, creams, gels, shampoos, and lotions. Honey is a natural sweet substance produced by honeybees and has been used since ancient times for medicinal and cosmetic purposes. Honey contains sugars, amino acids, vitamins, minerals, enzymes, and antioxidants that contribute to its therapeutic value. It acts as a natural humectant by attracting and retaining moisture.

In herbal lip balm formulations, honey improves hydration and softness of the lips. It also exhibits antimicrobial and wound-healing activities that help prevent infections and promote healing of cracked lips. Honey enhances the texture and acceptability of cosmetic formulations due to its soothing and nourishing effects. Natural colorants are increasingly preferred in cosmetic formulations because of safety concerns associated with synthetic dyes. Synthetic colorants may produce allergic reactions, toxicity, and skin sensitivity upon prolonged use. Therefore, researchers are exploring plant-derived colorants for cosmetic applications. Beetroot extract is commonly used as a natural coloring agent in herbal lip balms. Beetroot contains betalain pigments that impart attractive pink to red coloration. In addition to its coloring property, beetroot extract exhibits antioxidant activity due to the presence of phenolic compounds and vitamins.

The antioxidant activity of beetroot extract helps protect lip tissues from oxidative stress and environmental damage. Its natural origin and attractive appearance make it highly suitable for cosmetic formulations. Vitamin E is widely used in cosmetic and pharmaceutical products because of its antioxidant and skin-protective activities. It helps prevent oxidation and rancidity of oils present in formulations and thereby improves product stability and shelf life. Vitamin E also nourishes and protects the lips by reducing oxidative damage caused by free radicals. It improves softness, hydration, and healing of lip tissues. Due to these benefits, vitamin E is commonly incorporated into lip balms, creams, lotions, and other topical preparations. Essential oils are frequently added to herbal cosmetic formulations to provide pleasant fragrance and therapeutic benefits. Rose oil is one of the most commonly used essential oils in cosmetic products. It possesses soothing, refreshing, and aromatic properties that improve consumer acceptability. Rose oil also exhibits mild antimicrobial and antioxidant activities that contribute to lip protection. The pleasant fragrance of rose oil enhances the sensory appeal of herbal lip balm formulations.

The increasing demand for herbal cosmetic products has created significant opportunities for research and development in natural formulations. Consumers are increasingly inclined toward products that are safe, environmentally friendly, biodegradable, and free from harmful chemicals. Herbal lip balms fulfill these requirements and offer several advantages over synthetic products. One of the major advantages of herbal lip balms is their safety profile. Since these formulations are prepared using naturally derived ingredients, they are less likely to cause irritation and adverse reactions. Herbal formulations are generally well tolerated and suitable for long-term use. Another important advantage of herbal lip balms is their therapeutic value. Natural ingredients used in these formulations provide moisturizing, antioxidant, antimicrobial, anti-inflammatory, and healing effects. These properties help maintain healthy lips and prevent lip disorders. Herbal lip balms are also environmentally friendly because they are prepared using biodegradable and renewable resources. Unlike synthetic products, herbal formulations generate less environmental pollution and are considered sustainable alternatives. In addition to therapeutic benefits, herbal lip balms also provide aesthetic enhancement. Natural colorants and essential oils improve the appearance, fragrance, and acceptability of the formulations. Consumers often prefer herbal products because they offer both beauty and wellness benefits.

The preparation of herbal lip balm involves careful selection of ingredients and formulation techniques to achieve optimum quality and stability. Different concentrations of waxes, oils, and herbal extracts may influence properties such as consistency, spreadability, melting point, texture, stability, and moisturizing effect. Evaluation of herbal lip balm formulations is essential to ensure their safety, quality, and effectiveness. Various physicochemical and performance parameters are evaluated during formulation development. Organoleptic properties such as color, odor, texture, and appearance are assessed to determine consumer acceptability. The pH of the formulation is evaluated to ensure compatibility with lip tissues and prevent irritation.

Melting point determination is important to assess thermal stability and suitability for storage under different conditions. Spreadability studies are performed to determine ease of application and uniform distribution over the lips. Stability studies help evaluate changes in color, odor, texture, and consistency during storage. Skin irritation studies are carried out to confirm the safety of the formulation. Moisturizing studies help determine the hydration and protective effects of the lip balm. These evaluation parameters are essential for developing an effective and stable cosmetic product.

The present research work focuses on the preparation and evaluation of herbal lip balm using natural ingredients such as beeswax, shea butter, coconut oil, almond oil, aloe vera gel, honey, beetroot extract, vitamin E, and rose oil. Different formulations were prepared using varying concentrations of waxes and oils to optimize product characteristics. The prepared formulations were evaluated for physicochemical properties including color, odor, appearance, texture, pH, melting point, spreadability, consistency, stability, skin irritation, and moisturizing effect. The objective of the study was to develop a safe, effective, economical, stable, and aesthetically appealing herbal lip care product that can serve as a suitable alternative to conventional synthetic lip balms.

II. MATERIALS AND METHODS

2.1 Materials

The following materials were used for the preparation of herbal lip balm:

Sr. No.	Ingredient	Category	Function
1	Beeswax	Natural wax	Stiffening agent
2	Shea butter	Emollient	Moisturizer
3	Coconut oil	Oil phase	Nourishing agent
4	Almond oil	Emollient	Softening agent
5	Aloe vera gel	Herbal extract	Soothing agent
6	Beetroot extract	Natural colorant	Coloring agent
7	Vitamin E	Antioxidant	Preservative and skin protectant
8	Rose oil	Flavoring agent	Fragrance
9	Honey	Humectant	Moisturizer

2.2 Instruments Used

Sr. No.	Instrument	Purpose
1	Electronic balance	Weighing ingredients
2	Water bath	Heating process
3	Beaker	Mixing ingredients
4	Glass rod	Stirring
5	pH meter	Determination of pH
6	Melting point apparatus	Determination of melting point
7	Refrigerator	Stability studies

2.3 Formula for Herbal Lip Balm

Ingredients	F1 (%)	F2 (%)	F3 (%)
Beeswax	15	18	20
Shea butter	10	12	15
Coconut oil	25	22	20
Almond oil	20	18	15
Aloe vera gel	10	10	10
Honey	5	5	5
Beetroot extract	5	5	5
Vitamin E	2	2	2
Rose oil	q.s.	q.s.	q.s.

III. METHOD OF PREPARATION

The herbal lip balm formulations were prepared by using the fusion method, which is one of the most commonly employed techniques for preparing semisolid cosmetic formulations. The method was selected because it ensures uniform mixing of ingredients and provides smooth texture and consistency. Initially, all ingredients required for the formulation were accurately weighed using an electronic balance to maintain precision and uniformity. Beeswax and shea butter were transferred into a clean beaker and heated using a water bath maintained at approximately 70°C. Continuous heating was carried out until complete melting of the wax and butter occurred. After complete melting, coconut oil and almond oil were slowly added to the molten mixture with constant stirring using a glass rod. Proper stirring was necessary to obtain a homogeneous oily phase and prevent phase

separation. The heating process was continued until all oily ingredients were uniformly mixed. Aloe vera gel and honey were then incorporated carefully into the mixture with continuous stirring to ensure uniform distribution throughout the formulation. Beetroot extract was added gradually to impart natural pink coloration to the lip balm. The quantity of beetroot extract was optimized to obtain an attractive appearance without affecting formulation stability.

The molten mixture was allowed to cool slightly, after which vitamin E and rose oil were added. Vitamin E was incorporated at lower temperatures to prevent degradation due to excessive heat. Rose oil was added to improve fragrance and consumer acceptability. The final homogeneous mixture was poured carefully into lip balm containers and allowed to cool at room temperature until solidification occurred. After complete cooling, the formulations were stored in airtight containers to protect them from environmental contamination and moisture. The prepared lip balm formulations were then subjected to various evaluation parameters to determine their quality, stability, safety, and effectiveness.

The herbal lip balm formulations were prepared by fusion method.

1. Beeswax and shea butter were accurately weighed and melted in a water bath at 70°C.
2. Coconut oil and almond oil were added slowly with continuous stirring.
3. Aloe vera gel and honey were incorporated into the molten mixture.
4. Beetroot extract was added as a natural coloring agent.
5. Vitamin E and rose oil were added after cooling slightly to preserve their activity.
6. The molten mixture was poured into lip balm containers and allowed to cool at room temperature.
7. The prepared formulations were stored in airtight containers for further evaluation.

IV. EVALUATION PARAMETERS

4.1 Organoleptic Evaluation

The prepared formulations were evaluated visually for color, odor, texture, smoothness, homogeneity, and appearance. The formulations were observed for the presence of any grittiness, phase separation, roughness, or undesirable characteristics. Organoleptic evaluation is essential because cosmetic products must possess attractive appearance and acceptable sensory properties for consumer satisfaction.

4.2 pH Determination

The pH of the herbal lip balm was determined to ensure compatibility with the skin and lips. One gram of the formulation was dispersed in distilled water and the pH was measured using a calibrated digital pH meter. A suitable pH range is necessary to prevent irritation and maintain lip health.

4.3 Melting Point

The melting point of the formulations was determined using a melting point apparatus. This test was performed to assess the thermal stability of the lip balm and determine whether the formulation could withstand room temperature conditions without melting excessively. A suitable melting point ensures convenient application and storage stability.

4.4 Spreadability

Spreadability is an important parameter that determines the ease of application of lip balm on the lips. The formulations were applied on a glass slide and spread manually to observe smoothness and uniformity of application. Formulations with good spreadability provide better patient compliance and comfort during use.

4.5 Skin Irritation Test

The skin irritation study was carried out to evaluate the safety of the prepared herbal formulations. A small quantity of lip balm was applied on the skin surface and observed for redness, itching, inflammation, or irritation for a specific period. Herbal formulations are generally considered safer; however, irritation studies are necessary to confirm product safety.

4.6 Stability Study

Stability studies were performed by storing the formulations at room temperature and refrigerated conditions for a period of one month. During storage, the formulations were evaluated periodically for changes in color, odor, texture, consistency, and phase separation. Stability testing helps determine the

shelf life and storage suitability of cosmetic preparations.

4.7 Consistency

Consistency of the lip balm formulations was evaluated manually by applying slight pressure on the formulation. The consistency should neither be too hard nor too soft. Appropriate consistency is necessary for smooth application and product acceptability.

4.8 Moisturizing Effect

The moisturizing effect was evaluated by applying the formulation on dry lips and observing hydration, smoothness, and softness over time. Ingredients such as shea butter, coconut oil, almond oil, and honey contributed significantly to lip moisturization.

4.9 Washability Test

The washability test was performed by applying the formulation on the skin and washing with water. The ease of removal was observed. The prepared formulations showed satisfactory washability due to the balanced composition of waxes and oils.

4.10 Force of Application

The force of application was determined by applying the lip balm on the skin surface and evaluating the pressure required for application. An ideal formulation should spread easily without excessive force.

V. RESULTS AND DISCUSSION

5.1 Organoleptic Properties

Organoleptic Properties

Formulation	Color	Odor	Texture	Appearance
F1	Light pink	Pleasant	Smooth	Good
F2	Pink	Pleasant	Smooth	Excellent
F3	Dark pink	Pleasant	Slightly hard	Good

The prepared formulations exhibited attractive appearance and smooth texture. The natural pink color obtained from beetroot extract enhanced aesthetic appeal. All formulations possessed pleasant fragrance due to the presence of rose oil. No grittiness or phase separation was observed, indicating uniform mixing of ingredients.

5.2 pH Determination

Formulation	pH
F1	6.2
F2	6.4
F3	6.5

The pH values of all formulations were found to be within the acceptable range suitable for topical lip application. The formulations were compatible with lip tissue and were unlikely to cause irritation.

5.3 Melting Point

Formulation	Melting Point (°C)
F1	58
F2	61
F3	64

The melting point of the formulations increased with increasing concentration of beeswax. Higher wax concentration provided improved structural rigidity and stability. Formulation F2 showed optimum melting characteristics suitable for application and storage.

5.4 Spreadability

Formulation	Spreadability
F1	Good
F2	Excellent
F3	Moderate

Spreadability studies indicated that formulation F2 possessed excellent spreadability due to balanced concentration of waxes and oils. Good spreadability ensures easy application and uniform distribution over the lips.

5.5 Skin Irritation Test

No irritation, itching, redness, or inflammation was observed in any of the formulations during the skin irritation study. This indicated that the herbal ingredients used in the formulation were safe and compatible with skin tissues.

5.6 Stability Study

The formulations remained stable throughout the storage period. No significant changes in color, odor, texture, or consistency were observed during storage under room temperature and refrigerated conditions. Absence of phase separation and rancidity indicated good formulation stability.

5.7 Consistency Evaluation

The consistency of all formulations was found to be satisfactory. Formulation F1 was comparatively softer due to lower wax concentration, whereas formulation F3 was slightly harder because of higher beeswax content. Formulation F2 showed optimum consistency and smooth application characteristics.

5.8 Moisturizing Effect

The moisturizing study demonstrated that the prepared formulations effectively hydrated and softened dry lips. Ingredients such as coconut oil, almond oil, shea butter, aloe vera gel, and honey contributed significantly to moisturization and nourishment.

5.9 Overall Discussion

The results obtained from the evaluation studies demonstrated that herbal lip balm formulations prepared using natural ingredients possess satisfactory physicochemical and cosmetic characteristics. The formulations showed good spreadability, stability, consistency, and moisturizing effect. Natural ingredients provided additional therapeutic benefits such as antioxidant, healing, soothing, and protective activities.

Among all prepared formulations, F2 was found to be the optimized formulation due to its excellent appearance, smooth texture, optimum melting point, superior spreadability, and enhanced moisturizing effect. The balanced concentration of waxes and oils in F2 contributed to improved formulation performance.

The study confirmed that herbal lip balm can be effectively formulated using natural ingredients without the use of harmful synthetic chemicals. Such formulations provide safe, economical, eco-friendly, and effective alternatives to conventional synthetic lip care products.

VI. ADVANTAGES OF HERBAL LIP BALM

1. Provides natural moisturization and nourishment.
2. Prevents dryness and cracking of lips.
3. Contains fewer synthetic chemicals.
4. Reduces chances of allergic reactions.
5. Eco-friendly and biodegradable.
6. Economical and easy to prepare.
7. Possesses antioxidant and healing properties.

7. Applications of Herbal Lip Balm

1. Protection against dry and chapped lips.
2. Moisturization during cold weather.
3. Prevention of lip cracking and irritation.
4. Enhancement of lip softness and smoothness.
5. Daily cosmetic lip care.

VIII. CONCLUSION

The present study successfully formulated and evaluated herbal lip balm using natural ingredients such as beeswax, shea butter, coconut oil, almond oil, aloe vera, beetroot extract, and vitamin E. The prepared formulations showed satisfactory physicochemical properties, stability, spreadability, and safety. Among the prepared batches, formulation F2 demonstrated optimum characteristics and superior moisturizing effect. The herbal lip balm provided effective lip protection and hydration without causing irritation. The study concluded that herbal lip balm can serve as a safe, effective, economical, and eco-friendly alternative to synthetic lip care products.

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