

FORMULATION AND EVALUATION OF HERBAL LIP BALM

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ABSTRACT

Lips are highly susceptible to dryness, cracking, and environmental damage due to the absence of sweat glands and reduced melanin content. Lip balms are semisolid cosmetic preparations designed to protect, moisturize, and improve the appearance of lips. Herbal lip balms have gained considerable attention because they contain natural ingredients that provide nourishment with minimal side effects. The present study aimed to formulate and evaluate a herbal lip balm containing beeswax, cocoa butter, coconut oil, aloe vera extract, and vitamin E. The prepared formulation was evaluated for organoleptic properties, pH, melting point, spreadability, stability, skin irritation, and other quality parameters. The results demonstrated satisfactory physicochemical characteristics and stability. The study suggests that the developed herbal lip balm may serve as an effective and safe cosmetic product for lip care.

KEYWORDS: Herbal Lip Balm, Beeswax, Aloe vera, Cocoa Butter, Cosmetic Formulation, Evaluation.

INTRODUCTION

The lips are among the most sensitive parts of the human body and are continuously exposed to environmental conditions such as sunlight, wind, cold weather, pollution, and low humidity.^[1,2] Due to the absence of sebaceous and sweat glands, lips are more prone to dehydration and cracking than other parts of the skin.^[3] Lip care products are widely used to prevent lip dryness and improve lip texture. Lip balms are semisolid cosmetic formulations designed to provide lubrication, hydration, protection, and healing effects on the lips.^[4,5] Commercial lip balms often contain synthetic ingredients that may cause allergic reactions, irritation, or long-term adverse effects in sensitive individuals.^[6] Therefore, there has been increasing interest in herbal cosmetic formulations due to their safety, effectiveness, and consumer acceptance.^[7,8] Herbal ingredients such as aloe vera, coconut oil, cocoa butter, beeswax, and vitamin E possess moisturizing, antioxidant, anti-inflammatory, and wound-healing properties that are beneficial for lip care.^[9,10,11] Aloe vera contains polysaccharides and vitamins that promote hydration and tissue repair.^[12] Coconut oil acts as an emollient and protects the lips against moisture loss.^[13] Beeswax forms a protective barrier on the lip surface while cocoa butter provides

nourishment and softness.^[14] The present study was undertaken to formulate and evaluate a herbal lip balm using natural ingredients and assess its physicochemical characteristics and stability.

Herbal Lip Balm

Herbal lip balm is a semisolid cosmetic preparation formulated using natural ingredients that provide moisturization, protection, and healing to the lips.^[15] These formulations help prevent dryness, chapping, cracking, and environmental damage.

Types of Lip Balms

1. Moisturizing Lip Balm^[16]
2. Medicated Lip Balm^[16]
3. Herbal Lip Balm^[17]
4. Tinted Lip Balm^[17]
5. Sunscreen Lip Balm^[18]
6. Therapeutic Lip Balm^[18]
7. Flavored Lip Balm^[19]

Advantages

1. Provides long-lasting moisturization.^[20]
2. Protects lips from environmental damage.^[20]
3. Prevents cracking and chapping.^[21]

4. Improves softness and smoothness of lips.^[21]
5. Contains natural ingredients with minimal side effects.^[22]
6. Easy to apply and carry.^[22]
7. Cost-effective formulation.^[23]

Disadvantages

1. Frequent application may be required.^[23]
2. Some herbal ingredients may produce allergic reactions.^[24]
3. Product melting may occur at high temperatures.^[24]
4. Shorter shelf life compared to synthetic products.^[25]
5. Possibility of microbial contamination if improperly stored.^[25]

Uses of Herbal Lip Balm

➤ Formulation

Table 1: Composition of Herbal Lip Balm.

Sr. No	Ingredients	Quantity (%)	Role of Ingredients
1	Paraffin wax	18%	Provides hardness and structure to the lip balm; helps maintain shape and improves stability.
2	Bees wax	27%	Acts as a natural thickening agent and emollient; forms a protective barrier on the lips to prevent moisture loss.
3	Coconut oil	36%	Moisturizing and nourishing agent; softens lips, prevents dryness, and improves spreadability.
4	Strawberry	11%	Provides natural flavor, color, antioxidants, and moisturizing properties; enhances the appearance and attractiveness of the lip balm.
5	Vitamin E	4%	Antioxidant; protects lips from free radical damage, promotes healing, and prevents rancidity of oils.
6	Rose water	4%	Provides soothing, refreshing, and moisturizing effects; improves fragrance and lip comfort.

Method of Preparation

- Beeswax and cocoa butter were melted using a water bath at 70°C.^[30]
- Coconut oil and castor oil were added to the molten mixture with continuous stirring.^[31]
- Strawberry extract and vitamin E were incorporated after cooling to approximately 45°C.^[31]
- Rose water, flavor, and color were added.^[32]
- The molten mass was poured into lip balm containers.^[32]
- The formulation was allowed to cool and solidify at room temperature.^[33]

Evaluation

1. Organoleptic Properties

Color, odor, appearance, texture, and consistency were evaluated visually.^[34]

2. pH Determination

The pH was measured using a calibrated digital pH meter.^[34]

3. Melting Point

The melting point was determined using the capillary tube method.^[35]

- Moisturizes dry and dehydrated lips.
- Prevents lip cracking and chapping.
- Protects lips from environmental damage such as wind, cold weather, and sunlight.
- Maintains softness and smoothness of lips.
- Forms a protective barrier to reduce moisture loss.
- Helps heal minor lip fissures and irritation.
- Improves lip texture and appearance.
- Provides nourishment through natural oils and herbal ingredients.
- Protects lips from oxidative damage due to antioxidants.
- Enhances lip comfort and hydration throughout the day.^[25]

4. Spreadability

Spreadability was evaluated by applying the formulation onto a glass slide.^[35]

5. Skin Irritation Test

The lip balm was applied to a small skin area and observed for irritation.^[36]

6. Homogeneity

The formulation was examined visually for uniformity and absence of particulate matter.^[36]

7. Stability Study

The formulation was stored at room temperature and accelerated conditions for three months and observed periodically for changes in appearance, odor, pH, and texture.^[37]

8. Washability

Ease of removal from the skin surface was assessed using water.^[38]

9. Softening Point

The softening point was determined to assess storage stability.^[39]

10. Aging Stability

The lip balm was evaluated under varying temperature conditions to determine formulation stability.^[40]

RESULT AND DISCUSSION

Evaluation	Inference
Colour	Red
Texture	Smooth
Odor	Aromatic
pH	6.2
Skin irritation test	No
Melting Point	60-62

CONCLUSION

The present study successfully formulated and evaluated a herbal lip balm containing paraffin wax, beeswax, coconut oil, strawberry extract, vitamin E, and rose water. The prepared formulation exhibited satisfactory physicochemical properties including good appearance, smooth texture, adequate spreadability, acceptable melting point, and stability.

The combination of beeswax and paraffin wax provided suitable hardness and structural integrity, while coconut oil contributed excellent moisturizing and emollient properties. Strawberry extract enhanced the formulation by providing natural antioxidants and aesthetic appeal, whereas vitamin E offered antioxidant protection and promoted lip health. Rose water imparted soothing and refreshing effects to the formulation.

The evaluation studies indicated that the lip balm was homogeneous, non-irritant, stable, and easy to apply. The formulation effectively moisturized and protected the lips against dryness and environmental damage. Therefore, the developed herbal lip balm can be considered a safe, effective, and economical cosmetic preparation for lip care.

Further studies involving accelerated stability testing, microbial evaluation, and consumer acceptability studies are recommended to establish the long-term efficacy and commercial potential of the formulation.

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