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PREPRATION AND EVALUATION OF NATURAL HERBAL LIP BALM

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ABSTRACT
Cosmetics are the substances used to alter the appearance of the human body. Current cosmetic lip products are based on use of toxic chemical ingredients with various adverse effects. Now a days the demands for herbal cosmetics in the world market are increasing leading to usage of natural ingredients for the production of lip balm. In the present work, Lip Balm using papaya as the main ingredient is prepared. The pH of the Lip balm was found to be 7.5 and the melting point was 60˚C - 61˚C. After performing stability studies at room temperature (27.0˚C ± 3.0˚C), refrigerated condition (5.0˚C ± 2.0˚C) and oven temperature (42.0˚C ± 2.0˚C), it proved that prepared Lip balm was uniform in nature, without any deformation at room temperature and refrigeration. The prepared lip balm was evaluated for the parameters such as colour, appearance, odour, pH, patch test, Spreadability, stability and melting point.
KEYWORDS: *Papaya extract, Coconut oil, Almond oil, Beeswax, Vitamin E, Rose oil*

1. INTRODUCTION

Cosmetics play a significant role in today's lifestyle. The trend across various industries, including cosmetics, is shifting towards natural and sustainable practices. Consumers increasingly prefer ingredients derived from natural foods, herbal medicines, and traditional healing methods, reflecting a broader demand for organic vegetable products. Among the widely used cosmetic items are lip care products.

Lip inflammation, characterized by broken, chapped, and painful corners of the mouth, necessitates the use of moisturizers to alleviate discomfort. Dry, cracked lips are a common issue, particularly in harsh weather conditions. While this problem is most prevalent in winter, it can persist throughout the summer as well. Certain ingredients, like menthol, camphor, and peppermint oil, can exacerbate dryness over time.

Herbal extract-based cosmetics are highly regarded for their effectiveness and reliability. For instance, papaya is valued for its anti-inflammatory enzymes that promote healing and its rich content of Vitamin C, a powerful antioxidant.

1.1 Types of Lip Balm

A. Tinted Lip Balm

Tinted lip balm not only moisturizes but also adds color to the lips. It is a great alternative for those who prefer a lighter application compared to lipstick. This balm provides hydration and a subtle, luminous color to the lips.

B. Plumping Lip Balm

Plumping lip balm goes beyond moisturizing by making the lips appear fuller. These balms contain special ingredients designed to enhance the lips' volume while also providing protection and hydration.

C. Medicated Lip Balm

Medicated lip balm is typically prescribed by doctors for treating chapped lips and other lip conditions. Although these balms are less soothing and can be irritating, they are effective for medical use as recommended by dermatologists.

D. Flavored Lip Balm

Flavored lip balm includes various flavorings such as vanilla, mint, mango, and other fruity tastes. These balms are designed to moisturize the lips while offering appealing scents and flavors to enhance the user experience

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E. Organic Lip Balm

Organic lip balm is made from natural or organic ingredients like avocado oil, jojoba oil, beeswax, vitamin E, hemp, and cocoa butter. Unlike other lip balms with chemical ingredients that may harm the lips, organic lip balms provide moisture and protection in a natural way.

2. ADVANTAGES AND DISADVANTAGES OF NATURAL LIP BALM

2.1 Advantages

- Natural lip balms help maintain the natural health and beauty of the lips. They can be used by both men and women and provide protection against cold sores, chapping, and dryness.

2.2 Disadvantages

- Lip balms made with low-quality ingredients can severely damage the lips.
- Homemade lip balms generally do not last as long on the lips compared to commercially-prepared ones.
- Natural oils in lip balms can be greasier and harder to spread.

2.3 Anatomy of the Lips

The anatomy of the lips includes various structures that contribute to their function and appearance:

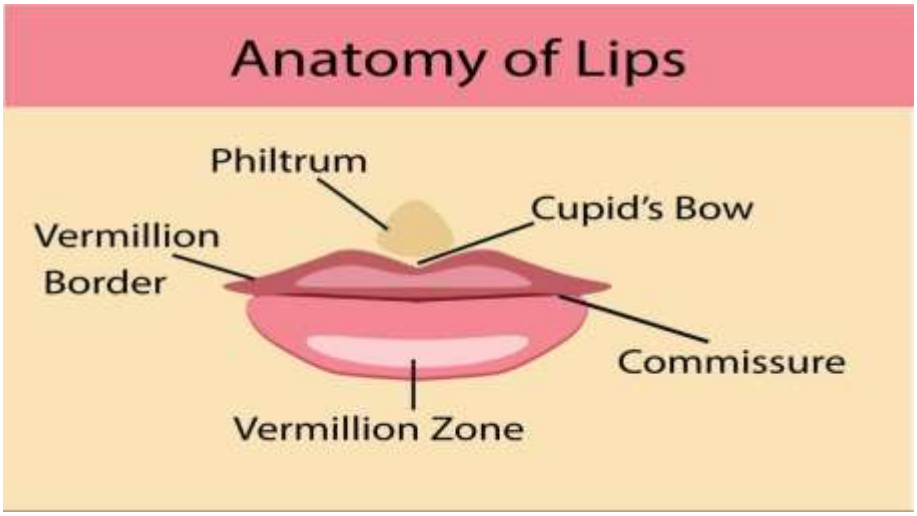


Figure no 1: Anatomy of lips

- **Skin:** The outer layer of the lips is made of skin, which is thinner and more sensitive than the skin on other parts of the body.
- **Vermilion Border:** This is the distinct margin that separates the red-colored vermilion area of the lips from the surrounding skin.
- **Vermilion Zone:** The red area of the lips, which has a high concentration of blood vessels, giving it its color.
- **Philtrum:** The vertical groove or indentation in the center of the upper lip.
- **Cupid's Bow:** The V-shaped area in the center of the upper lip's double curve.
- **Oral Mucosa:** A thin, moist tissue layer covering the inner surface of the lips, helping to keep them moist.
- **Muscles:** The orbicularis oris muscle surrounds the mouth and aids in movements like smiling and puckering.
- **Nerve Endings:** The lips have a high density of nerve endings, making them very sensitive to touch, temperature, and pain.

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3. PROBLEMS RELATED TO LIPS

- Several conditions can affect the lips, including:
- **Cheilitis:** Inflammation, allergies, or irritants causing dry, cracked, and possibly swollen and painful lips.
- **Dry Lips:** Loss of moisture due to environmental factors like cold temperatures, dry air, or frequent lip-licking, leading to tight, cracked, or peeling lips.
- **Chapped Lips:** Severe dryness resulting in painful, bleeding, and uncomfortable lips, often due to prolonged dryness, sun, wind, or harsh weather.
- **Fever Blisters (Cold Sores):** Painful, fluid-filled blisters caused by the herpes simplex virus, often flaring up during stress or illness.
- **Angular Cheilitis:** Inflammation and cracking at the corners of the mouth, possibly due to infections, poor nutrition, or prolonged moisture exposure.
- **Lip Infections:** Bacterial, viral, or fungal infections causing swelling, redness, pain, and pus-filled blisters or sores.
- **Allergic Reactions:** Swelling, itching, redness, and blistering due to allergic reactions to certain foods, cosmetics, or lip care products.
- **Lip Discoloration:** Changes in lip color due to sun exposure, smoking, medications, or underlying health conditions.

3.1 Difference between conventional lip balm and herbal lip balm:

CONVENTIONAL LIP BALM	HERBAL LIP BALM
Conventional lip balm contains petroleum, syntheticwax, alumina, paraben, hydrogenated oils and artificial fragrances which possess harmful effects sometimes.	They are made with natural and organic ingredients, free from synthetic chemicals and additives
Lip balm are often eaten by the users, so the health regulators have toxic effect due to ingredient that goes with lip balm.	They prioritize using plant based oils , butters, and waxes to moisturize and nourish the lips.

4. INGREDIENTS

- **BEESWAX**



Figure no 2: Beeswax

- **PAPAYA EXTRACT**



Figure no 3: Papaya Extract

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- **COCONUT OIL**



Figure no:4 Coconut oil

- **VITAMIN E**



Figure no 5: vitamin E

- **ALMOND OIL**



Figure no 6: Almond oil

- **ROSE OIL:-**



Figure no7: Rose oil

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5. PHARMACOGNOSY OF PAPAYA

- **Biological Name:** Carica papaya
- **Common Names:** Tree melon, papayero, papaw
- **Biological Source:** Papain, a dried and purified latex from the green fruits and leaves of Carica papaya , family Caricaceae. The plant is cultivated in Sri Lanka, Tanzania, Hawaii, and Florida, growing to a height of 5-6 meters and producing fruits up to 30 cm long and weighing up to 5 kg.

Uses

1. Papaya has potent skin-lightening effects due to its exfoliating action and the enzyme papain.
2. Papain helps restore even-toned skin by accelerating the shedding of dead skin cells.
3. The pulp of ripe papaya provides hydration and nutrition to the skin.

5.1 Chemical Constituents

Sr. No:	Ingredients	Chemical condtituents	Uses
1.	Beeswax	Wax ester	Used as a base provides texture create protective barrier
2.	Papaya extract	Carpaine	Moisturize and treat chapped lips
3.	Vitamin e	Alpha- tocopherol	Preservative
4.	Almond oil	Oleic acid 68%	Gives softness
5.	Coconut oil	Fatty acid	Moisturize and nourishes the lips

Table 2: Chemical Constituents

6. BENEFITS OF USING A PAPAYA LIP BALM

Papaya, rich in antioxidants and vitamin A, helps remove dead cells, whiten skin, reduce unwanted hair, exfoliate dead skin, and repair aging skin. The fruit is rich in papain enzyme, vitamins (especially vitamin A), minerals, flavonoids, and fibers.

- **Soothes Inflammation:** Papaya has anti-inflammatory and antioxidant properties that help speed healing and reduce inflammation from allergic reactions, sores, cheilitis, or minor burns.
- **Relieves Itchy Lips:** Calendula in papaya balm helps prevent dermatitis, offering a natural remedy for itchy lips.
- **Heals Skin Barrier:** Supports and hastens the skin's natural reparative process, especially effective when combined with soothing ingredients like beeswax and Vitamin E
- **Locks in Moisture:** Prevents moisture loss, ideal for winter use or as an overnight treatment.
- **Heals Infections:** Papaya has antibacterial and antiviral properties that soothe cold sores and fever blisters, potentially offering relief when combined with other herbs like lemon balm or St. John's wort.

6.1 Application of Natural Lip Balm

- Natural lip balms are used to prevent dryness and protect against environmental factors.
- Numerous chemical-based lip balms are available from brands like The Body Shop, Nivea, Himalaya, Blistex, and Babylip.
- Natural lip balms can be used by both men and women.
- Formulating lip balms requires balancing butters, oils, waxes, and other excipients.
- Since lip balms are often ingested, it is crucial that health regulators closely examine their ingredients.

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7. FORMULATION

Ingredients	Test 1	Test 2
Beeswax	2 gm	10 gm
Papaya extract	2 ml	10 ml
Vitamin e	0.1 gm (1 capsule)	1 gm
Almond oil	3 ml	15 ml
Coconut oil	2 ml	10 ml
Rose oil	2-3 drops	20-24 drops

Table 3: Formulation

7.1 Procedure

- The herbal lip balm is formulated by melting beeswax in a porcelain dish on a water bath. Coconut oil, almond oil, and rose oil are heated in a separate dish, then both phases are mixed at the same temperature. Fresh papaya extract and vitamin E are heated in another dish just before mixing. All contents are combined at 150°C with continuous stirring,
  then transferred to an ice bath to solidify. After cooling, the mixture is homogenized in a mortar and pestle to achieve the desired texture, then molded and refrigerated to cool completely.

Storage and precautions

- Store in a cool, dry place.
- Away from direct heat.

8. EVALUATION PARAMETERS

- To maintain a consistent standard, the formulated herbal lip balm was evaluated for various parameters:

8.1 Physical Appearance: Color, odor, and taste were determined.

8.2 Melting Point: Determined by melting the material to fill capillaries, then immersing in a vial of water with a controlled temperature.

8.3 Spreadability: Tested by applying the product on a glass slide to observe uniformity and integrity.

8.4 Stability: Placed for accelerated stability studies at room temperature (30°C) and oven temperature (40°C to 50°C).

8.5 Skin Irritation Test: Applied on the skin for 10 minutes to check for irritation.

8.6 pH Parameter: Determined using a pH meter calibrated with buffer solution, aiming for a neutral pH close to 7.

9. RESULTS

Evaluation Parameters	Observed Value
Color	Pink
Odour	Pleasant
Melting point	60c
Spreadability test	Good
Stability test	Good
Skin irritancy test	No irritation
PH	7.5

Table No 4: Result

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10. CONCLUSION

This research aimed to create a lip balm using herbal and natural ingredients. The formulation was developed and assessed for its organoleptic properties, as well as other parameters such as pH, spreadability, and melting point. Stability testing indicated that the formulations are safe for use. According to the stability data, the recommended storage temperature for the formulation is between 25°C and 35°C, with a neutral pH of 7 to 7.5. The melting point of the lip balm was found to be 60°C.

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