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COSMECEUTICAL LIP BALM: HARNESSING THE POWER OF HERBAL INGREDIENTS

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ABSTRACT

The growing demand for herbal cosmetic formulations has led the way for new approaches, technologies, and tactics in the creation of organic lip balms. This study focuses on the selection and methodical growing of organic raw materials, ensuring that they are free of dangerous chemical pesticides or manures and that they are preserved naturally. Lips are prone to dryness, cracking, and pain due to a lack of oil glands, especially under extreme weather circumstances. As a result, they require special attention, moisturization, and protection throughout the day. The development of a natural and secure lip balm recipe employing organic materials is the main goal of this study. Cosmeceuticals are the products of cosmetics which contain biologically active ingredients. In this study, lip balms made from natural ingredients like beetroot, coconut oil, cocoa butter, honey, marigold, vitamin E, rose essence etc. were formulated and evaluated. Homogenous mixing method was used to produce the lip balm. Various parameters such as physical stability, pH, melting point, and spreadability were carried out for the evaluation of lip balm. The pH was found to be 5.5-6.5 and the melting point was 63-65 °C. After performing stability studies at room temperature (25.0±3.0°C) and refrigerated condition (4.0± 2.0°C), it proved that prepared lip balm was uniform in nature and could be perfectly applied without any deformation at room temperature and on refrigeration. Lip balm prepared from herbal ingredients could be a better option for treatment of various lip issues.

KEYWORDS: Herbal formulation, Lip balm, lack of oil glands, Spreadability, Homogenous.

INTRODUCTION

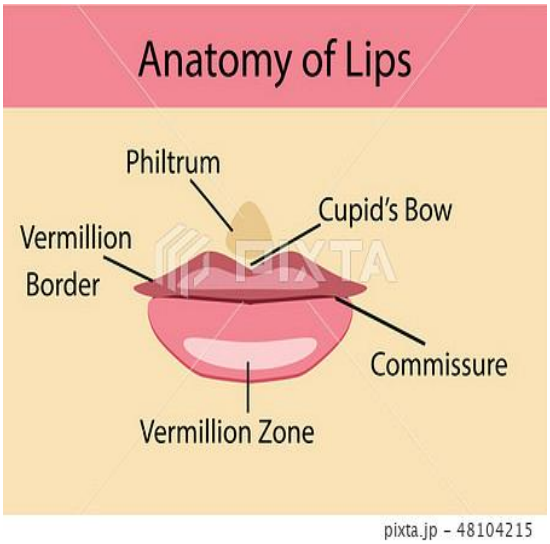
A lip balm is a wax-like substance that moisturises our lips and keeps them hydrated. It protects our lips from cold temperatures and dry air that robs moisture. The skin on the lips is thin and lacks oil glands. It makes lips susceptible to dryness.[1] Our lips are the first to show signs of dryness. Products such as lip balms and petroleum jelly prevent lips from drying and heal dry and chapped lips. Lip balms usually contain beeswax, camphor, paraffin, acetyl alcohol, and other dyes, fragrances, and flavours. However, skincare brands have realised the importance of using natural ingredients for manufacturing skincare products over time. They have introduced lip care products that do not contain harmful chemicals like sulphates and parabens. Furthermore, lip care products are now environment-friendly, clean, and cruelty-free.[1]

ANATOMY OF LIPS

Lip anatomy includes a variety of structures that contribute to its function and appearance. Here's a quick rundown of the anatomy of the lips:

- **Skin:** The outer layer of the lips, like the rest of the body, is made up of skin. The skin of the lips, on the other hand, is thinner and more sensitive.
- **Vermilion border:** This is the noticeable margin that separates the red-colored vermilion region of the lips from the surrounding skin.
- **Vermilion zone:** The vermilion zone is the reddened area of the lips. It has a higher concentration of blood vessels, which gives it a reddish color.

Philtrum: The philtrum is a vertical groove or indentation in the center of the top lip that extends from the base.



Cupid's bow: The centre portion of the top lip's double curve or V-shaped area is known as the cupid's bow.

Oral mucosa: The oral mucosa is a thin, moist layer of tissue that covers the inner surface of the lips. It helps to keep the lips moist and is distinct from the outer skin.

Lips include tiny glands called labia that generate saliva to keep the lips moisturized and make speaking and eating easier.

The orbicularis oris muscle, which surrounds the mouth and aids in smiling and puckering, is one of the several muscles that make up the lips and are responsible for their movement and expression.

Nerve endings: The lips have a high density of nerve endings, making them highly sensitive to touch, temperature, and pain.

Blood vessels: The lips have a rich blood supply, which gives them their characteristic red color and plays a role in maintaining their health and vitality. Understanding the anatomy of the lips is crucial for various medical and cosmetic procedures, including lip augmentation, reconstruction, and treating lip-related conditions.[2,3,4]

PROBLEMS RELATED TO LIPS

The lips may be impacted by a number of conditions or issues. The following are some typical lip-related issues:

Dry lips: When the lips lose moisture and become dried, dry lips develop. Environmental variables like low temperatures, dry air, or very frequent lip-licking can all contribute to this. Lips that are dry can feel tight, split, and even peel.

Chapped Lips: A more extreme form of dryness, chapped lips can be painful, uncomfortable, and even bleed. Long-term dryness, sun exposure, wind exposure, or severe weather can all lead to chapped lips.

Fever Blisters: Also known as cold sores, fever blisters are tiny, uncomfortable, fluid-filled blisters that develop on or around the lips. The herpes simplex virus is the culprit behind them, and are highly contagious. Cold sores can be recurrent and tend to flare up during periods of stress or illness.

Angular cheilitis: An inflammation and cracking of the mouth's corners are symptoms of the illness known as angular cheilitis. It may result from conditions including bacterial or yeast infections, poor nutrition, or protracted moisture exposure.[11]

Lip infections: Bacteria, viruses, or fungus can cause an infection on the lips. Swelling, redness, discomfort, and the development of pus-filled blisters or sores are all signs of infection.

Allergic responses: Some people may experience allergic responses to certain components in food, cosmetics, or lip care products. Swelling, itching, redness, and even lip blistering are all symptoms of allergic responses.

Lip discoloration: Numerous factors, such as sun exposure, smoking, some medicines, or underlying medical disorders, can cause changes in lip color. Lips might seem darker in this condition.[2,3,4]

There are various ingredients used in lip balms that can help treat lip disorders and promote lip health. Here are some common ingredients found in lip balms for treating lip disorders:

Beeswax is a natural wax derived from bees. It forms a protective barrier on the lips, helping to lock in moisture and prevent dryness. It also provides a smooth texture to lip balms.Shea butter is a fat extracted from the nuts of the shea tree. It is highly moisturizing and nourishing for the lips.[12,13] Shea butter helps to hydrate and soften the lips, promoting healing and

reducing dryness and cracking.14Coconut oil is known for its moisturizing properties. It helps to hydrate and condition the lips, keeping them soft and supple.[3]

Coconut oil also has antimicrobial properties that can protect against lip infections. Vitamin E is an antioxidant that helps protect the lips from damage caused by free radicals. It also has moisturizing properties and promotes healing of dry and chapped lips.Jojoba oil is a natural oil that closely resembles the skin's own sebum, making it easily absorbed and moisturizing for the lips. It helps to soothe and protect dry, irritated lips.[4]

Calendula extract is derived from the marigold flower and has anti-inflammatory and wound-healing properties.[12] It can help soothe and repair dry, chapped lips. Aloe vera is known for its soothing and healing properties. It can help relieve dryness, inflammation, and irritation on the lips, promoting faster healing. Lanolin is a natural wax-like substance derived from sheep's wool. It acts as an occlusive agent, sealing in moisture and preventing dehydration of the lips. Lip balms may also contain antioxidants such as green tea extract, grape seed extract, or vitamin C.[13] These ingredients help protect the lips from environmental damage and promote overall lip health.[4,5]

TYPES OF LIPBALM

1. Tinted Lip Balm

The tinted lip balm is a kind of lip balm used to moisturize and colour the lips. Tinted lip balms are a great substitute if the user doesn’t want to apply a deep coat of lipstick. The tinted lip balm is used by users not just for moisturizing but also gives the lips a luminous wash colour.[9]

2. Medicated Lip Balm

The medicated lip balm is a kind of lip balm that is used or is prescribed by doctors for chapped lips. Medicated lip balms are most likely to be the least soothing and irritating lip balms amongst the others. This lip balm is usually prescribed by dermatologists in medication for chapped lips and other conditions regarding the lips.[9,10]

3. Flavoured Lip Balm

The flavoured lip balm is a kind of lip balm which has flavourings. Flavoured lip balms are lip balms that are added with flavour such as vanilla, mint, mango and many more fruity

flavours. This lip balm is made for moisturizing and is also added with special flavours in order to entice the taste buds and smell of the users.[6]

4. Organic Lip Balm

The organic lip balm is a kind of lip balm which have organic or natural ingredients. While there are other lip balms which has chemical ingredients that may harm the lips and skin, the organic lip balm is usually made from organic ingredients such as avocado oils, jojoba oils, beeswax, vitamin E, hemp, and cocoa butter. The organic lip balm still functions like any other lip balms, which provides moisture and protection from dry and chapped lips.[11,12]

5. SPF Lip Balm

The SPF lip balm are a kind of lip balm which contains ingredients that protect the lips from the harmful effects of the Sun's rays. The SPF lip balm functions like a sunscreen to protect the lips from sun damage, burning, and even skin cancer.[7,8]

6. Plumping Lip Balm

The plumping lip balm is a kind of lip balm that doesn't just moisturize the lips, but also makes the lips look more round. Plumping lip balms is made to give protection to the lips, but at the same time it has special ingredients to make the lips look fuller.[5]

MATERIAL AND METHOD

The ingredient which are used in the formulation of lipbalm that are

INGREDIENTS	QUANTITY				USES
	F1	F2	F3	F4	
Beeswax	5g	4g	5.5g	5.8g	Used as base, provides texture and helps create a protective barrier)
Calendula infused oil	2.6g	2.3g	2g	3g	Moisturizes and nourishes the lips
Shea butter	2g	3g	2.5g	3.5g	Humectant
Vitamin E	0.15g	0.10g	0.25g	0.20g	Preservative
Rose oil	0.25g	0.25g	0.25g	0.25g	Perfume
Beetroot powder	0.5g	0.5g	0.5g	0.5g	Coloring agent

Collection and Preparation

All the products that are used for the preparation were bought directly from the market and was dried .infusin was made to prepare infused oil.

Other excipients such AS BEES WAX COAOA BUTTER VITAMIN E WAS

METHODOLOGY

Melt the beeswax and coconut oil together in a double boiler or microwave-safe bowl until completely melted and mixed. Stir in the calendula officinalis until it is completely incorporated. thoroughly mix with the vitamin E oil.Mix in the mentha oil to evenly disperse the pleasant scent. Add the beetroot powder and stir until uniformly distributed. Whisk honey into the mixture until fully combined. Fill lip balm tubes or jars to the brim with the mixture. Allow the lip balm to completely cool and firm before using or capping the containers. Label the lip balm once it has set.[11]

EVALUATION OF LIPBALM

1. Melting Point

For melting point, the sample of lip balm was taken in a glass capillary whose one end was sealed by flame. The capillary containing drug was dipped in liquid paraffin inside the melting point apparatus which was equipped with magnetic stirring facility. Melting was determined visually and melting point was reported.[10,14,15]

2. Organoleptic Properties

The lip balm was studied for the basic organoleptic characters such as colour, odour, taste and appearance.

3. Test of spreadability

The product was applied (at room temperature) repeatedly onto a glass slide to visually observe the uniformity in the formation of the protective layer and whether the stick fragmented, deformed or broke during application.

G - Good: uniform, no fragmentation; perfect application, without deformation of the lip balm.

I - Intermediate: uniform; leaves few fragments; appropriate application; little deformation of the lip balm.

B - Bad: not uniform; leaves many fragments; difficult or inappropriate application, intense deformation of the lip balm.[8][9]

4. pH measurement

The pH study was carried out by dissolving 1 gm of sample into 100 ml water. The pH measurement was done using pH paper.[8]

5. Stability studies

Prepared lip balm was placed for accelerated stability studies at room temperature (25.0 ± 3.0 ºC), refrigeration (4± 2.0 ºC) and oven temperature (40.0 ± 2.0 ºC) for 30 days. After 30 days, it was again characterized for organoleptic properties, melting point, spreadability, and pH.[7]

RESULT AND DISCUSSIOTION

Organoleptic Characteristics

Parameters	Observation
Colour	Deep reddish
Odour	Pleasant
Appearance	Smooth

Melting Point

Melting point of lipbalm was found to be in the range of 64, which matches with the appropriate melting point of between 65 and 75.

Test of Spreadability: Prepared lip balm was tested for its ability of spreading which initially has shown uniform application in room temperature.

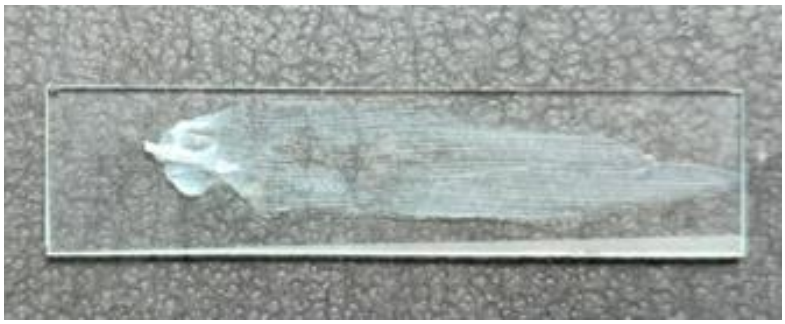


Fig: Spreadability (G).

MEASUREMENT OF pH

The Ph of lipbalm was near to neutral pH i.e 6.5

STABILITY STUDIES

Parameters Temperature condition	Colour	Odour	Melting point	Spreadability	Ph
25±3°C	Deep red	Pleasant	64	G	6.5
4±2.0°C	Deep red	Pleasant	65	G	6
40±2.0°C	Deep red	Pleasant	65	I	6.5

G- Good

I- Intermediate

B- Bad

DISCUSSION

The assessment of the organoleptic features of the lip balm, such as color, odor, taste, and look, guarantees that the product is aesthetically and sensory pleasing to users. Positive organoleptic qualities help to provide a pleasurable user experience.The lip balm formulation's melting point was proven to be within the acceptable range, suggesting that it can tolerate standard storage conditions without melting or losing its texture. This is necessary to keep the lip balm stable throughout shipping and storage. The spreadability test evaluates the ease and consistency with which the lip balm is applied. The lip balm demonstrated high spreadability, suggesting that it may be applied easily to the lips, providing a protective layer that is free of fragmentation or distortion.

4 formulations were made, out of which formulation 1(F1) shows the maximum effective result. The pH of the lip balm was determined to be around neutral (pH 6.5), which is good since it corresponds to the natural pH of the lips. A neutral pH helps to maintain the equilibrium of the lips and avoids irritation or discomfort.Stability experiments were carried out to evaluate the lip balm's performance and quality for a set amount of time under various storage settings. For 30 days, the lip balm was tested for accelerated stability at ambient temperature, refrigeration, and oven temperature. Following the stability tests, the lip balm was examined for organoleptic characteristics, melting point, spreadability, and pH.

CONCLUSION

It is possible to draw the conclusion that the developed lip balm formulation has desirable organoleptic properties, an adequate melting point, good spreadability, and a pH that is close

to neutral. These results show that the formulation of the lip balm is stable and acceptable for usage as a natural and secure lip care product. Beeswax, coconut oil, calendula officinalis, and vitamin E are examples of organic compounds that may be useful in hydrating and defending the lips.

This research helps to address the requirements of people with dry lips by providing an alternative to synthetic lip balms and encourages the use of organic and natural components in skincare products. The results of this research can help in the creation of organic lip balms that provide effective lip care while prioritizing safety and sustainability.

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