

## Formulation and Evaluation of Herbal lip balm.

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### Abstract:

The formulation and evaluation of herbal lip balm aim to develop a natural, effective, and safe lip care product by incorporating herbal ingredients with known therapeutic properties. This study focuses on selecting herbal components that provide moisturizing, healing, and protective benefits, and combining them into a lip balm formulation. Key ingredients include beeswax, shea butter, coconut oil, and a blend of herbal extracts such as aloe vera, calendula, and chamomile. The formulation process involves the careful mixing and melting of these ingredients to achieve a homogeneous and stable product. Evaluation of the herbal lip balm includes assessing its physicochemical properties, such as texture, spreadability, and melting point, as well as its effectiveness in terms of hydration, healing of chapped lips, and overall user satisfaction. Stability tests are conducted to ensure the product maintains its quality over time under various environmental conditions.

**Keyword:** Herbal products, Cosmetics, Herbal lip balm, Formulation, Evaluation

### Introduction:

Lip balms are essential cosmetic products designed to provide moisture and protection to the lips, which are particularly vulnerable to environmental factors such as wind, cold, and dry air. The trend towards natural and organic products has increased interest in herbal lip balms, which utilize plant-based ingredients to offer a safer and more skin-friendly alternative to synthetic formulations. Herbal lip balms harness the therapeutic properties of natural oils, waxes, and botanical extracts. Ingredients like beeswax, shea butter, coconut oil, and essential oils not only provide emollient and moisturizing effects but also impart beneficial properties such as antioxidant, anti-inflammatory, and antimicrobial actions. These characteristics make herbal lip balms suitable for sensitive skin and for those seeking a more natural skincare routine. The formulation of a herbal lip balm involves selecting appropriate ingredients that ensure the product's stability, efficacy, and sensory attributes.

### Objective:

1. Protect and nourish the lips
2. To replace chemical product with organic products
3. seal moisture in lips and protect them from external exposure

### Advantages:

1. **Natural Ingredients:** Herbal lip balms are made from plant-based ingredients, avoiding synthetic chemicals that can cause irritation or allergic reactions. Common natural ingredients include beeswax, shea butter, and essential oils, which are generally well-tolerated by most skin types.
2. **Moisturizing Properties:** Many herbal ingredients, such as coconut oil and shea butter, are excellent moisturizers. They help to keep the lips hydrated and prevent dryness and cracking.

3. **Therapeutic Benefits:** Herbal lip balms often contain botanical extracts with medicinal properties, such as anti-inflammatory, antioxidant, and antimicrobial effects. For instance, chamomile and calendula extracts can soothe irritated skin, while tea tree oil offers antimicrobial benefits.
4. **Environmentally Friendly:** Using natural and organic ingredients reduces the environmental impact associated with the production and disposal of synthetic chemicals. Additionally, many herbal lip balms come in eco-friendly packaging.
5. **Free from Harmful Chemicals:** Herbal lip balms typically do not contain harmful substances like parabens, phthalates, or synthetic fragrances, making them a safer choice for long-term use.
6. **Pleasant Natural Scent and Flavor:** Essential oils and natural extracts provide a pleasant aroma and taste without the need for artificial fragrances or flavors, enhancing the user experience.

#### **Disadvantages:**

1. **Shorter Shelf Life:** Natural ingredients, especially those that are minimally processed, often have a shorter shelf life compared to synthetic counterparts. This can lead to quicker spoilage if the product is not used within a certain period.
2. **Variable Consistency:** The consistency and texture of herbal lip balms can vary due to natural variations in raw materials. This can affect the user experience, as the balm may not always feel the same.
3. **Potential Allergens:** Despite being natural, some herbal ingredients can still cause allergic reactions in sensitive individuals. For example, certain essential oils may irritate the skin or cause contact dermatitis.
4. **Less Potent Preservation:** Natural preservatives are often less effective than synthetic ones, which can result in a higher risk of microbial contamination. This necessitates careful handling and storage.
5. **Higher Cost:** High-quality herbal ingredients and eco-friendly packaging can make herbal lip balms more expensive than their synthetic counterparts.
6. **Limited Availability:** Herbal lip balms may not be as widely available as conventional ones, and consumers might need to seek out specialty stores or online retailers to purchase them.

#### **Material:**

##### **1. Beet Root:**

Antioxidants included in beet root give lips supple, smooth skin. The human lip is a component of the body. Despite having three to four layers of skin, the lips are much thinner than the skin of the face. Lips are extremely sensitive, and conditions like edema and inflammation can transpire swiftly. As a result, lip balm or any other lip product moisturizes lips. Lip balms are applied to the lips to shield them from the sun's rays and stop them from drying out. Lip balms are products that are meant to keep lips safe rather than to adorn them. They create a thin, pliable, oily layer that is resistant to moisture.

##### **2. Beeswax:**

In addition to being hydrating, beeswax has a gentle scent and can shield lips from the sun's harmful UV rays. One natural emulsifier is beeswax. Additionally, studies have shown that a tiny amount of wax has inherent antibacterial properties. The need to strike a balance between the concentration of the primary components used to create lip balms, such as the base, oils, coloring, and flavoring. Lips become softer naturally thanks to natural lip balms. Those with really dry and cracked lips will find this to be especially beneficial. These antimicrobial substances can lessen excruciating inflammation. That an illness brings with it.

##### **3. Almond Oil:**

The adipose acids in almond oil penetrate deeply into the skin tissue, providing moisturization to the lips. Almond oil's anti-inflammatory properties lessen the discomfort of chapped and sunburned lips. Aloe vera treats inflammation by acting as an anti-inflammatory. Antioxidants that combat wrinkles and other skin damage are infused into the lips.

##### **4. Vitamin E:**

Vitamin E functions as an organic moisturizer. By lessening the appearance of aging, vitamin E contributes to the preservation of the lips' rough, velvety texture. Dry, chapped lips can be soothed with vitamin E oil. Applying vitamin E to dry lips encourages the growth and rejuvenation of new cells because it does just that. The another aid for irritation is the thickness of vitamin E oil. A product's hues might also give clues about its quality and freshness.

##### **5. Cocoa Butter :**

Cocoa butter is an excellent moisturizer. It hydrates and nourishes the lips, helping to prevent dryness and chapping. It forms protective barrier on the lips, locking in moisture and shielding them from environmental damage, such as wind and cold weather. It contain antioxidants like vitamin E, which helps to protect the lips from free radical damage and promotr healing. It provides sooyh and creamy texture to lip balms, making them easy to apply and comfortable to wear.

**6. Shea Butter:**

It act as a natural emollient, creating a protective barrier that locks in moisture and protects the lips from harsh environmental factors. Shea butter has anti-inflammatory properties, which can help reduce redness and irritation on the lips.

**7. Gerbera Flower:**

Extract from gerbera flowers could be used in natural lip balms. The petals contain essential oils and compounds that can provide moisturizing and soothing effects. Gerbera flowers, due to their vivid colors, could potentially be used as a natural pigment in lip products. This would involve extracting the natural dyes from the petals and incorporating them into a lipsticks or lip glosses.

**8. Glycerin:**

Glycerin is humectant, which means it attracts water from the environmentand helps retain moisture in the skin. This is particularly useful for keeping the lips hydrated and preventing dryness and chapping. It aids in the healing process of cracked or damaged lips by keeping the area moist, which promotes faster recovery

**9. Aloe Vera:**

Aloe vera is highly moisturizing and helps keep the lips hydrated. It forms a protective barrier on the lips, shielding them from environmental damage. Aloe vera can soothe irritated inflamed lips due to its anti-inflammatory properties.

**Some methods commonly used for preparing herbal lip balm:**

1. Double Boiler Method
2. Microwave Method
3. Solar Infusion Method
4. Cold Infusion Method

**Table No1- Ingredients and use.**

Sr. No.	Ingredients	Uses
1.	Bees Wax	Hardness
2.	Beetroot	Colouring agent
3.	Cocoa butter	Emollient
4.	Shea butter	Moisturizing agent
5.	Almond Oil	Fragrance, Flavotring agent
6.	Aloe-vera	Antioxidant, Anti-inflammatory
7.	Vitamin-E	Antioxidant, maintain the stability
8.	Gerbera	Anti- Inflammatory, Pigment

9.	Glycerin	Glossy effect
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### Types Of Lip Balm:-

- 1. Moisturizing Lip Balm:** Provides hydration to dry and chapped lips, typically containing ingredients like beeswax, shea butter, and oils such as coconut oil or almond oil.
- 2. SPF Lip Balm:** Contains sun protection factor (SPF) to shield lips from the sun's harmful UV rays, helping to prevent sunburn and reduce the risk of skin cancer.
- 3. Tinted Lip Balm:** Adds a hint of color to the lips while providing moisture and protection, combining the benefits of a lip balm with a sheer tint of color.
- 4. Medicated Lip Balm:** Contains active ingredients like menthol, camphor, or salicylic acid to provide relief from pain, itching, or cold sores, and to promote healing.
- 5. Vegan Lip Balm:** Formulated without any animal-derived ingredients, suitable for individuals following a vegan lifestyle or those with allergies to animal products.
- 6. Flavored Lip Balm:** Infused with natural or artificial flavors to enhance the sensory experience and make application more enjoyable, with popular flavors like mint, cherry, or citrus.
- 7. Hypoallergenic Lip Balm:** Formulated without common allergens or irritants, suitable for individuals with sensitive skin or allergies.
- 8. Natural and Organic Lip Balm:** Made with organic and natural ingredients, free from synthetic fragrances, dyes, and preservatives, appealing to those seeking more eco-friendly and skin-friendly options.
- 9. Matte Lip Balm:** Provides moisture and protection without a glossy finish, ideal for those who prefer a more matte or natural look.
- 10. Long-Lasting Lip Balm:** Formulated to provide extended hydration and protection, ideal for use in harsh weather conditions or for individuals with chronically dry lips.



Table no

Sr.No.	Ingredients	Formulation 1 (10gm)	Formulation 2 (15gm)	Formulation 3 (15gm)
1	Bees wax	2gm	3.5gm	2.5gm
2	Beet root	0.5ml	1ml	2ml
3	Cocoa butter	2gm	3.5gm	2gm

4	Shea butter	2gm	2.5gm	2gm
5	Almond oil	2.5ml	2.5ml	2.5ml
6	Aloe-vera	-	-	1gm
7	Vitamin.E	1ml	1ml	1ml
8	Gerbera	-	-	1ml
9	Glycerin	0.5ml	1ml	1ml

#### Formulation Of Herbal Lip Balm:

1. Weigh all the excipients.
2. Add dried wax, shea butter, Cocoa butter and almond oil in measured quantity and melt it In water bath at 55- 600C.
3. Add all other ingredients like vitamin E, beet root juice, Gerbera extract, Aleo-vera, Glycerin were mixed and add to the mixture and mixture was stirred continuously till Homogenous mixture was formed.
4. A mixture was poured into the vessel and it was let to be air dried at room temperature.
5. Put the filled molds into ice bath for 10 min.

#### Evaluation Study:

##### 1. Organoleptic properties:

The characteristics of lip balm such as colour, flavour, texture, odour, appearance are observed and studied.

N – Normal;

M – Modified;

IM- Intensively Modified.

##### 2. Determination of pH:

The pH of lip balm were determined to avoid any further side effect on lip's skin. The pH study was performed by using pH paper. The small amount of lip balm are applied on the pH paper and colour observed. Compared with pH scale.



Fig no.2

**3. Melting point:**

The lip balm sample is taken in a glass capillary with a flame seals end. The sample containing capillary inside the liquid paraffin dipped.

Fig no. 3

**4. Test of spreadability :**

In order to visually assess the homogeneity in the formulation, the product was applied repeatedly to a glass slide while it remained at room temperature. This process was known as Spreadability. For this examination,

The feedback form establish the following standards:

1. G- Good: consistent, flawless implementation
2. I- Intermediate: consistent, suitable implementation
3. B- Bad: Inconsistent, challenging or improper use



Fig no.4

**5. Skin sensitivity test:**

The process was applying the material as a skin patch, watching it for a half hour, and noting as the reply that was: N- No response

R-Skin redness

I-Itching or Irritancy



**Fig No.5**

### **6. Stability Test:**

The lip balm's formulation underwent a 30-day stability evaluation at a range of temperatures, primarily room temperature ( $25\pm 2^{\circ}\text{C}$ ), higher oven and refrigerator temperatures ( $40\pm 2^{\circ}\text{C}$  and  $5\pm 2^{\circ}\text{C}$ ). Features like spreadability and organoleptic qualities were assessed. For the days 7, 15, and 30.

**Table no.3-Evaluation parameter**

Sr.No.	Evaluation Test	Observation
1	Colour	Pinkish red
2	Odour	Sweet (Almond)
3	Apperance	Smooth
4	Texture	Creamy
5	PH	5

6	Melting Point	64°C
7	Spreadability	Good
8	Skin sensitivity	No response
9	Stability	Good

**Result:**

Women's use of cosmetics has increased massively while on the prior couple decades.

Nevertheless, the risks associated with these substances have gained significant attention recently. Following extensive clinical investigations, consumers can safely and effectively benefit from herbal lip redolences. In contrast when it comes to other cosmetics, natural cosmetics are safe.

**Discussion:**

As, conventional lip balm constantly contain petrolatum, synthetic waxes, alumina, parabens, Hydrogenated oils, artificial spices and colors which are toxic, the main motive behind the expression Was to incorporate as multitudinous natural ingredients to retain the natural parcels of lip balm. The Use of beetroot handed natural colours which are also less toxic compared to synthetic colors. The pinkish-red colour of lip balm were observed. The melting point was found to be 64°C and the pH was found to be 5. The spreadability was G- Good. There is no skin irritation. Stability was also found to be Good.

**Conclusion:**

The goal of the current dissertation study was to make lip balm with as many natural elements as workable. The flavoring agent was almond oil, moisturizing agent was shea butter and cocoa butter, the primary coloring agent was beetroot extract and Gerbera.

The antioxidant was a vitamin E capsule. Although beeswax was utilized as the base in this formulation.

**Reference:**

1. Mayuri Kadul, Dr. Suruchi Vishwasrao1, and Dr Sonia Singh11 Department of Pharmaceutics, review on Natural Lip Balm, International Journal of Research in Cosmetic Science, 2014.
2. Muskan A. Shaikh1, Umar A. Pathan1, Gauri Patil, review on Design and Evaluation of Herbal Lip Balm By using Beet Root, International Journal of Innovative Science and Research Technology, 2023.
3. Chaitanya Dnyaneshwar Gholap, Shubham Jalindar Vitnor, Dipali M. Pagire Review on Preparation and Evaluation of Herbal Lip Balm, Published in IJIRMPS. (E-ISSN: 2349-7300), Volume 11, Issue 3, 2023.
4. Telange -Patil P. V, Shaikh A. M, Assistant professor, Student. Pharmaceutics Department, Review on Formulation and Evaluation of Hearbal Lip Balm, International journal of creative Research thought, 2022.
5. Anuj N.Nahata, Nazma M. Ansari, Shivani Nahar, Sanjay G. Walode, Vibhavari M. Chatur, Department of Pharmaceutical Science review on Formulation and Evaluation of Lip balm Prepared Using Various Herbal Entities, International journal of creative research Thought,2022.
6. Mehta R C 2014 Clinical Assessment of a Combination Lip Treatment to Restore Moisturization and Fullness, The Journal of Clinical Aesthetic Dermatology 2(12)44-45.
7. Madans A, Katie P, Christine P, Shailly P 2012 Ithaca Got Your Lips Chapped: A Performance Analysis of Lip Balm.
8. Beetroot powder loaded medicated lip balm  
Prajakta Gawade1, Mansi Shelake1, Rahul Vishwakarma1, Shoheb Shakil Shaikh 1Piyush Yadav.
9. Kamlesh MD. Formulation and Evaluation of Herbal Lip Rouge. International Journal of Pharmaceutical Sciences Review and Research. 2019;55(1):13-17.