



---

## **Formulation And Evaluation Of Herbal Lip Balm.**

*Atharv Pravin Salunkhe<sup>1</sup>, Dr. Vivek Subhash Tarate<sup>2</sup>*

<sup>1</sup> Email Id: [salunkheatharv1010@gmail.com](mailto:salunkheatharv1010@gmail.com)

Mobile No : 9657897689

Department Of Cosmetic Science

Late. Narayandas Bhavandas Chhabada Institute Of Pharmacy,

Raigaon, Satara. Dist: Satara, Maharashtra. 415020

<sup>2</sup> M .Pharm, PhD

Vice-Principal & Professor

Late Narayandas Bhawandas Chhabada Institute of Pharmacy

Raigaon, Tal:Jaoli, Satara. Dist: Satara, Maharashtra. 415020.

Email Id: [salunkheatharv1010@gmail.com](mailto:salunkheatharv1010@gmail.com)

Mobile No : 9657897689

---

### **ABSTRACT:**

The formation and evaluation of herbal lip balm involve the development of a natural cosmetic product designed to moisturize, protect, and nourish the lips. This study explores the formulation of a lip balm using plant-based ingredients known for their soothing and hydrating properties, such as beeswax, shea butter, coconut oil, and essential oils like peppermint or lavender. The formulation process includes selecting appropriate herbal components based on their effectiveness in preventing chapped lips, providing sun protection, and enhancing overall lip health. The evaluation of the herbal lip balm involves testing parameters such as texture, stability, spreadability, skin irritation, and moisturizing effects. Additionally, sensory attributes like fragrance and color are assessed to ensure consumer acceptance. Results indicate that the herbal lip balm formulation provides significant lip hydration and protection while maintaining a natural composition, offering an alternative to conventional lip care products with fewer chemicals. This study highlights the potential of herbal ingredients in cosmetic formulations and contributes to the growing interest in natural and sustainable skincare solutions.

**KEYWORDS:** Herbal lip balm, Natural ingredients, Spreadability.

---

### **Introduction:**

Lip care is an essential aspect of personal hygiene and cosmetic routines, with the lips being one of the most delicate areas of the skin, vulnerable to environmental stressors such as dry weather, sun exposure, and pollutants. The market is filled with a variety of lip balms designed to protect and hydrate the lips, but many of these products contain synthetic chemicals and artificial additives that may cause irritation or allergic reactions over time. This has led to a growing demand for more natural alternatives that utilize herbal ingredients for their therapeutic properties.[1]

Herbal lip balms, which are formulated using plant-based ingredients, offer a safer, eco-friendly, and sustainable solution for maintaining lip health. These products harness the moisturizing, healing, and antioxidant properties of natural substances like beeswax, shea butter, coconut oil, and various essential oils. These ingredients are known to soothe chapped lips, provide a protective barrier against the elements, and deliver nourishment without harsh chemicals.[2]

The formation of herbal lip balms involves the careful selection and combination of these natural ingredients, ensuring a balance between efficacy, texture, and sensory appeal. Furthermore, the evaluation of these products is crucial to ensure their safety and effectiveness. Parameters such as moisturizing ability, stability, spreadability, and irritation potential must be assessed to confirm that the herbal lip balm provides the desired benefits while being safe for regular use. This study aims to formulate and evaluate a herbal lip balm using a blend of herbal ingredients known for their healing properties and to assess its performance in terms of moisturizing, protection, and user acceptance. The results of this research could contribute to the development of more natural, eco-friendly, and consumer-conscious alternatives in the lip care market.[3]

### **LIP BALM:**

Lip care is an essential aspect of personal hygiene and cosmetic routines, with the lips being one of the most delicate areas of the skin, vulnerable to environmental stressors such as dry weather, sun exposure, and pollutants. The market is filled with a variety of lip balms designed to protect and hydrate the lips, but many of these products contain synthetic chemicals and artificial additives that may cause irritation or allergic reactions over time. This has led to a growing demand for more natural alternatives that utilize herbal ingredients for their therapeutic properties. Herbal lip balms, which are

formulated using plant-based ingredients, offer a safer, eco-friendly, and sustainable solution for maintaining lip health. These products harness the moisturizing, healing, and antioxidant properties of natural substances like beeswax, shea butter, coconut oil, and various essential oils. These ingredients are known to soothe chapped lips, provide a protective barrier against the elements, and deliver nourishment without harsh chemicals.[4]

The formation of herbal lip balms involves the careful selection and combination of these natural ingredients, ensuring a balance between efficacy, texture, and sensory appeal. Furthermore, the evaluation of these products is crucial to ensure their safety and effectiveness. Parameters such as moisturizing ability, stability, spreadability, and irritation potential must be assessed to confirm that the herbal lip balm provides the desired benefits while being safe for regular use. This study aims to formulate and evaluate a herbal lip balm using a blend of herbal ingredients known for their healing properties and to assess its performance in terms of moisturizing, protection, and user acceptance. The results of this research could contribute to the development of more natural, eco-friendly, and consumer-conscious alternatives in the lip care market.[4]

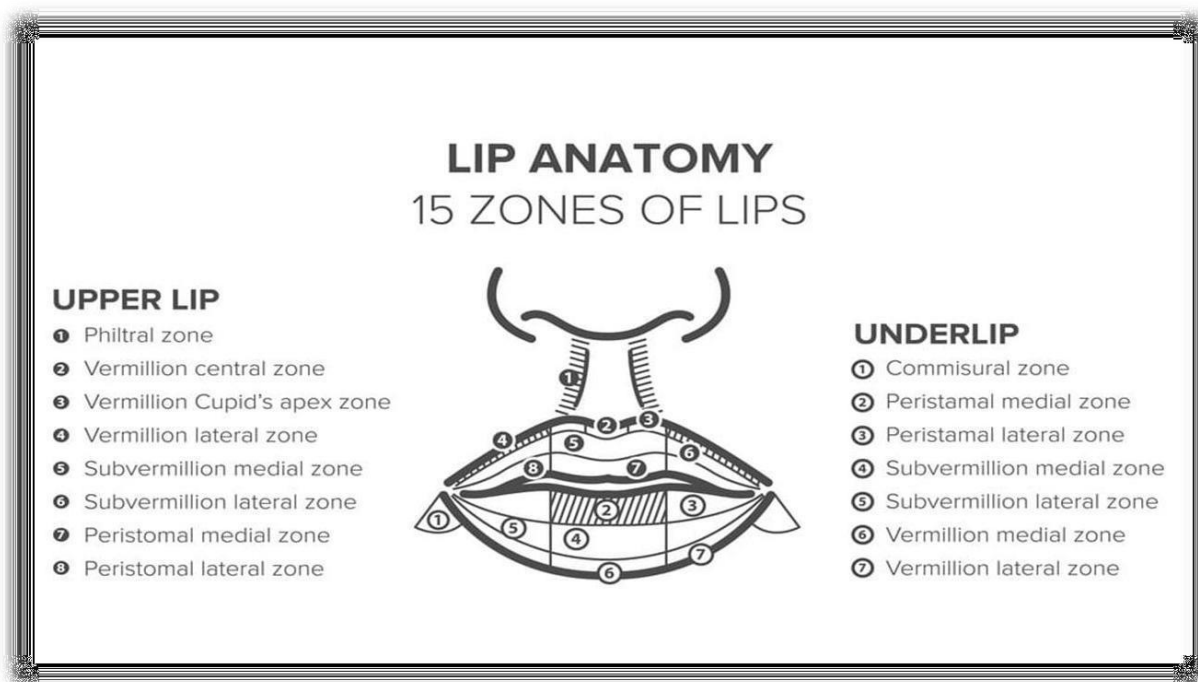
### Key Functions of Lip Balm:

- **Hydration:** The primary function of lip balm is to provide moisture to the lips, keeping them soft and smooth. Ingredients like beeswax, shea butter, and oils (such as coconut or jojoba oil) are often used in lip balms to help lock in moisture and prevent dehydration.
- **Protection:** Lip balms act as a protective barrier against environmental stressors, such as sun exposure, cold air, wind, and pollution. They help prevent moisture loss and shield the skin of the lips from harsh conditions.
- **Healing:** Many lip balms contain ingredients with healing properties, such as vitamin E, aloe vera, and chamomile, which can soothe cracked or damaged skin and speed up the healing process.
- **Prevention of Chapping and Cracking:** Regular use of lip balm helps maintain soft lips and prevents the formation of chapped, cracked, or irritated lips.
- **Sun Protection:** Some lip balms contain SPF (sun protection factor), which helps protect the lips from harmful ultraviolet (UV) radiation, a factor in lip aging and skin cancer.[5]

### Types of Lip Balms:

- **Plain Lip Balms:** These are the most basic form of lip balms and typically contain ingredients like beeswax, oils, and butters. They focus on moisturizing and protecting the lips without any added color or fragrance.
- **Tinted Lip Balms:** These lip balms offer a slight color or tint to the lips while providing the same moisturizing benefits as plain lip balms. The color is usually subtle and natural, making it a popular choice for everyday use.
- **Medicated Lip Balms:** These balms contain active ingredients designed to treat specific lip conditions such as severe chapping, cold sores, or infections. Medicated lip balms may include ingredients like hydrocortisone, menthol, camphor, or benzocaine to soothe pain and reduce inflammation.
- **Herbal or Organic Lip Balms:** These lip balms use herbal ingredients and organic plant-based oils and butters. They may include ingredients like calendula, chamomile, lavender, or aloe vera to promote healing and protect the lips with natural products.
- **Flavored Lip Balms:** Often designed for a more sensory experience, these lip balms contain natural or artificial flavors, such as strawberry, vanilla, mint, or citrus. They provide not only lip care but also a pleasant taste or scent.[6]

### Anatomy of Lip Balm:



## DRUG PROFILE:

### *Beeswax:*



Beeswax is a natural substance produced by honeybees (*Apis mellifera*) to construct the hexagonal honeycomb cells used to store honey and pollen and to house their larvae. It is a versatile material that has been used by humans for thousands of years in a wide variety of applications, ranging from cosmetics to candles, to food preservation. Beeswax is prized for its natural properties and benefits, particularly in skincare and wellness products like lip balms, lotions, and ointments.[8]

### Uses of Beeswax:

1. **Cosmetics and Skincare:** Beeswax is a popular ingredient in cosmetics, such as lip balms, lotions, and creams. It acts as an emollient, meaning it helps soften and smooth the skin. Additionally, it creates a barrier on the skin, which locks in moisture and helps protect against dehydration.
2. **Food Preservation:** Beeswax has been used historically to preserve food. It is used to coat cheese to keep moisture in and preserve the flavor, and it is also used as a coating for fruits like apples to maintain their freshness.

### *Shea Butter:*



### Chemical Constituents: Fatty Acids, Vitamins, Saponins

Shea butter is a natural fat derived from the nuts of the *Vitellaria paradoxa* tree, commonly found in West Africa. Its composition is quite complex and contains a variety of beneficial compounds that make it highly prized in skincare and cosmetic products. Here's a breakdown of the key components that make up shea butter.[9]

### *Rose Oil:*



**Family:** Rosaceae

**Biological Source:** Rose oil, often referred to as *rose essential oil*, is derived from the flowers of the *rose plant*.

**Biological Name:** *Rosa centifolia* L

**Chemical Constituents:** Monoterpenes, Terpenes, Flavonoids, and Rose Oxide.

**Uses:**

1. **Moisturizing:** It has excellent hydrating properties, making it a popular ingredient in moisturizers for dry, sensitive, or mature skin. It helps lock in moisture and maintain skin elasticity.
2. **Soothing Irritated Skin:** Rose oil has anti-inflammatory properties, which can help soothe irritated or inflamed skin conditions like eczema, psoriasis, or rosacea.
3. **Healing Scars:** It's often used to reduce the appearance of scars and stretch marks. Its regenerative properties promote the healing of tissue and skin regeneration.
4. **Balancing Skin Tone:** Rose oil helps to improve skin tone and texture, giving the skin a more even and radiant appearance.

**Beet Root Powder:**



**Synonym:** Beet, Red beet, Table beet

**Family:** Amaranthaceae.

**Biological Source:** The biological source of **beetroot** is **Beta vulgaris**, a species of plant in the Amaranthaceae family. It is primarily cultivated for its edible root, which is rich in nutrients, sugars, and various bioactive compounds.

**Uses:**

**1. Rich in Nutrients:**

Beetroots are a good source of vitamins and minerals, including vitamin C, folate, potassium, manganese, and iron, all of which contribute to overall health.

**2. Anti-Inflammatory Properties:**

Beetroots contain betalains, powerful antioxidants that have anti-inflammatory effects. Chronic inflammation is linked to many health problems, including heart disease, diabetes, and cancer, so the anti-inflammatory properties of beetroots may help reduce these risks.

**Vitamin E:**



**Vitamin E capsules** are a dietary supplement that contains **vitamin E**, a fat-soluble antioxidant essential for various bodily functions. Vitamin E plays a crucial role in protecting cells from oxidative damage, supporting immune function, and maintaining healthy skin and eyes.

#### Medicinal Uses :

- **Antioxidant Support:** Vitamin E acts as a powerful antioxidant, neutralizing free radicals that cause oxidative stress and damage to cells. This helps protect cells from aging and environmental damage.
- **Supports Immune Function:** Vitamin E is important for maintaining a healthy immune system. It helps in the production of immune cells and supports their function, making the body more resilient to infections.

#### Formulation Table:

Sr no.	Ingredients	Uses	Quantity (20 gm)
1	Beeswax	Base	6 gm
2	Shea butter	Humectant	4.8 gm
3	Rose oil	Perfume	0.4 ml
4	Beet root powder	Colouring agent	0.4 gm
5	Vitamin E	Preservative	0.4 gm
6	Rose infused oil	API	4 ml
7	Coconut Oil	Moisturizer	4 gm

#### Material and Method:

##### Extraction Process:

##### Preparation of Beet Root Powder Extraction:

Choose *fresh, mature, and organic* beets if possible to ensure high-quality powder. The beetroots should be firm, free from bruises, and not too old, as older beets may have a loss in flavor and nutrients. *Wash the beets thoroughly* to remove dirt, pesticides, or any residual chemicals. If you have access to direct sunlight, lay the beet slices on a flat surface (like a drying rack) in the sun. This may take several days to fully dry the beets, depending on the climate. Once the beet slices are completely dried and crisp, **grind them into a fine powder** using a grinder, food processor, or a **blender**. Ensure the beet slices are dry enough before grinding to avoid clumping and moisture-related issues in the powder.

##### Preparation of Rose infused Oil:

**Fresh or dried rose petals** (preferably organic for purity) **Carrier oil** (such as jojoba oil, olive oil, or sweet almond oil) **A clean glass jar** with a tight-fitting lid **Cheesecloth or strainer** (for filtering) **A dark glass bottle** (for storing the finished oil) **Fresh Rose Petals:** If you're using fresh petals, pick them in the morning when they're at their peak. Choose roses that are pesticide-free and preferably organic. **Dried Rose Petals:** If using dried petals, ensure they are completely dry to prevent mold. You can purchase dried rose petals or dry your own by laying them out in a warm, dry area.

##### Formulation of Herbal Lip Balm:

#### 1. Prepare Your Workspace and Equipment:

Clean all tools and containers thoroughly to avoid contamination.

Prepare your lip balm tubes or small containers for filling the balm once it's made.

#### 2. Melt the Beeswax and Shea Butter:

Set up a **double boiler** or create one by placing a heat-safe bowl over a pot of gently simmering water. This method ensures the ingredients melt without direct heat.

Add the **beeswax** and **shea butter** into the bowl. Add the Carrier Oil(s):

Once the beeswax and shea butter have melted, add the **carrier oil** (e.g., **sweet almond oil, jojoba oil, or olive oil**).

Stir well to combine. The carrier oil will add moisture and improve the texture of the balm.

### 3. Incorporate Optional Ingredients:

If using **rose-infused oil**, **calendula oil**, or any other herbal oils, add them to the melted mixture now. Stir thoroughly. Add **Vitamin E oil**, which serves as an antioxidant, helping the balm last longer and aiding in skin repair.

### 4. Add Color (Optional):

If you want a **natural tint**, add **beetroot powder** (or another natural colorant) to the mixture. Beetroot powder will give the balm a soft pinkish-red hue. Mix well to ensure the powder is completely dissolved and evenly distributed throughout the balm. You can adjust the amount of beetroot powder to achieve your desired tint.

### 5. Add Essential Oils:

Remove the mixture from heat.

Add **essential oils** for fragrance and any additional therapeutic benefits. For example:

**Peppermint oil** for a fresh feel and mild tingle.

**Lavender oil** for its calming and soothing properties.

**Rose oil** for a gentle floral scent and added skincare benefits.

Typically, you'll only need 1-2 drops of essential oil, as they are potent.

### 6. Pour the Mixture into Containers:

Carefully pour the lip balm mixture into the lip balm tubes or containers while it is still liquid. You can use a small funnel to make this process easier and neater.

Leave a small gap at the top to allow for any shrinkage as the balm cools and solidifies.

### 7. Let the Lip Balm Cool and Set:

Allow the balm to cool and harden at room temperature for a few hours.

If you want to speed up the process, place the containers in the fridge for about 30 minutes to an hour.[11]

#### *Evaluation Parameter:*

#### 1. Physical Appearance

- **Color:** The lip balm should have a uniform color throughout. If you're using natural colorants (e.g., beetroot powder), ensure the color is evenly distributed without streaks or uneven spots.
- **Texture:** It should have a smooth, non-gritty texture. It should not contain any lumps or visible particles unless they are intentionally added (like exfoliating ingredients).
- **Form:** The balm should be well-formed and should not have cracks or air pockets after solidifying. This is especially important for lip balms that are placed in tubes.

#### 2. Stability Testing:

- **Thermal Stability:** The balm should not separate or change its texture/consistency when exposed to varying temperatures (e.g., hot weather or refrigeration).
- **Storage Stability:** The lip balm should maintain its consistency, color, and scent over time, typically 6-12 months. Check if it turns rancid, changes texture, or discolors during storage.

#### 3. Sensory Evaluation:

- **Fragrance:** The lip balm should have a pleasant fragrance that aligns with the essential oils or natural ingredients used (e.g., rose, peppermint, or lavender). The scent should be subtle but noticeable. Avoid overpowering fragrances.
- **Taste:** The lip balm should not have an unpleasant or bitter taste. Taste testing should be done to ensure no undesirable aftertaste remains after application.

#### 4. Moisturizing Effect

- **Hydration:** The lip balm should provide immediate hydration to dry lips and offer long-lasting moisture. After application, lips should feel soft and moisturized without becoming overly oily or greasy.

#### 5. pH Level:

- **pH Range:** The pH of the lip balm should be compatible with the skin's natural pH (around 4.5– 5.5). A product that is too acidic or alkaline may cause irritation.
- **Test Method:** This can be tested using a **pH meter** or pH test strips.

#### 6. Irritation and Sensitization Test:

- **Dermal Sensitization:** Ensure that no ingredients in the lip balm cause allergic reactions or irritation upon application. Ingredients like essential oils should be used in appropriate concentrations to avoid sensitization.
- **Viscosity:** Check the thickness of the lip balm to ensure that it has the right consistency. You can do this by checking how easily the balm applies and how it holds its form.

#### 7. Spreadability:

- **Ease of Application:** Check how easily the balm applies and spreads across the lips. The product should not drag but should have a smooth "slip" that makes it pleasant to apply.[12-13]

---

### Result:

All the evaluation tests were done the result were recorded in a form of table.

Colour	Deep red
Odour	Rose
Test	Testless
Appearance	Smooth

**pH test:** The pH of lip balm was near to neutral pH i.e 5.5

#### *Spradability Test:*

The product should not drag but should have a smooth "slip" that makes it pleasant to apply

**Melting point:** melting point of lip balm was found to be in the range of 60, which match with the appropriate melting point of between 65 and 75.

---

### Discussion:

This is required to maintain the lip balm's stability throughout storage and transportation. The spreadability test gauges how smoothly and consistently the lip balm may be applied. The high spreadability of the lip balm suggests that it may be applied quickly and easily to the lips, creating a protective barrier that is free from distortion or fragmentation.

---

### Conclusion:

Whether the formulation was kept at ambient temperature or in a refrigerator, it demonstrated the same stability behavior. It was determined that the spreadability was "good" and that the organoleptic characteristics were stable. Storage under these conditions was deemed sufficient because the product's functionality was maintained. With a sufficient melting temperature (mean of 63°C), the lip balm made from natural ingredients passed the stability test. It was found that natural ingredients are safe to use in lip balm and are a superior alternative for the composition of lip balm. Excipients can be altered or combined in unusual ways to produce a brand-new formulation with superior quality. The current research indicates that the formulation will not change.

---

### REFERENCE:

1. L. A. Reitano et al. (2015). "Herbal Products and their Role in Skin Care." *Journal of Cosmetic Dermatology*.
2. Huang, Y., et al. (2016). "Natural-based alternatives for skincare products: Potential use of herbal extracts." *International Journal of Cosmetic Science*.

3. Sharma, A. (2013). *Herbal Cosmetics and Beauty Care: A Comprehensive Guide*. This book highlights the importance of plant-based ingredients like shea butter, beeswax, and coconut oil in cosmetic formulations.
4. Zhou, Y., et al. (2020). *Cosmetic Science and Technology: Theoretical Principles and Applications*.
5. Haghshenas, M., et al. (2018). "Formulation and Evaluation of Herbal Lip Balm Containing Honey and Beeswax."
6. Formulation and evaluation of lip balm by using honey and sesame oil to lighten the dark lips, Nishigandha Waykule\*, Prachet Bagewadikar and Somasharan Kale, World Journal of Pharmaceutical Research, Volume Issue 6, 710-722, ISSN 2277– 7105
7. Mayuri Kadu, Dr. Suruchi Vishwasrao, Dr. Sonia Singh; Review on Natural Lip Balm;
8. International Journal of Research in Cosmetic Science, 03/08/2014, 2015; 5(1): 01-03.
9. M.S. Balsam, E. Sagarin, Cosmetics science and technology, Second ed. Wiley Interscience Publication, NY, USA, 2008; 3: 209-512.
10. Rose: ornamental as well as medicinal plant Dr. Savita Chahar Lecturer Dept. Of Botany Govt. Meera Girls College Udaipur (Raj.) Quest Journals Journal of Research in Agriculture and Animal Science Volume 4 ~ Issue 1 (2016) pp: 08-10 ISSN(Online) : 2321-9459
11. Rose oil benefit and uses, Drx Hina Firdouz, PhD (Pharmacology) Pursuing, M.Pharma (Pharmacology), B.Pharma - Certificate in Nutrition and Child.
12. Preparation and evaluation of rose lip balm Sravanthi Mulagada, Sridivya Penki, Devi Podilapu, Gopi Priya Pothala, Praveen Bandi Assistant professor, Department of pharmaceutical technology Student Bachelor of Pharmacy St. Ann's college of pharmacy, cantonment, Vizianagaram, - 535003, Andhra Pradesh, India., International Journal of Creative Research Thoughts, ISSN: 2320-2882.
13. Formulation and Evaluation of Lip balm Prepared Using Various Herbal Entities, Anuj N. Nahata, Nazma M. Ansari, Shivani Nahar, Sanjay G. Walode, Vibhavari M. Chatur  
, Department of Pharmaceutical Sciences, Rasiklal M. Dhariwal Institute of Pharmaceutical Education and Research, Pune-19.