

# Cosmeceutical Innovation: Formulation and Standardization of an Organic Lip Balm

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**Abstract:** *The increasing awareness and demand for natural and chemical-free personal care products have led to the development of organic formulations in the cosmetic industry. This project focuses on the formulation and evaluation of an organic lip balm, using plant-based and naturally derived ingredients to provide a safe and effective alternative to synthetic lip care products. The formulation consists of key natural ingredients including beeswax (as a base and thickening agent), shea butter (for deep moisturization), Sandalwood oil (antiseptic and healing properties), and Rose extract (as an hydration). And also the petroleum jelly (for the texture and consistency provide smooth glossy texture).*

**Keywords:** organic formulation, texture and consistency, natural ingredients, moisturization

## I. INTRODUCTION

The increasing awareness and demand for natural and chemical-free personal care products have led to the development of organic formulations in the cosmetic industry. This project focuses on the formulation and evaluation of an organic lip balm, using plant-based and naturally derived ingredients to provide a safe and effective alternative to synthetic lip care products.

The formulation consists of key natural ingredients including beeswax (as a base and thickening agent), shea butter (for deep moisturization), Sandalwood oil (antiseptic and healing properties), and Rose extract (as an hydration). And also the petroleum jelly (for the texture and consistency provide smooth glossy texture).

**1.1 Bees wax :-** Beeswax plays multiple roles in lip balm: it acts as an emollient and moisturizer, locking in moisture to soothe and protect dry lips; forms a protective barrier against environmental stressors like wind and cold weather; and provides texture and structure, making the lip balm easier to apply and stay on. As a natural, renewable resource, beeswax is an appealing ingredient for eco-friendly products.

**1.2 Rose water:-** Rose water in lip balm helps hydrate and soothe dry, chapped lips with its natural astringent and anti-inflammatory properties. It also contains antioxidants that may protect lips from environmental stressors and promote overall lip health. Additionally, rose water adds a pleasant, subtle scent, enhancing the lip balm's aesthetic appeal. Its moisturizing and soothing benefits make it a valuable ingredient in your lip balm formulation.

**1.3 Petroleum jelly :-** Petroleum jelly in lip balm acts as an occlusive agent, creating a protective barrier that locks in moisture and shields lips from environmental stressors like wind, cold weather, and dry air. It helps hydrate and calm dry, chapped lips by preventing moisture loss and can aid in repairing dry, cracked lips.

**1.4 Sandalwood oil :-** Sandalwood oil in lip balm provides soothing and calming benefits due to its anti-inflammatory properties, which can help reduce lip irritation and inflammation. It also offers antimicrobial benefits, protecting lips from infections and promoting overall lip health. Additionally, sandalwood oil adds a woody, earthy scent, enhancing the lip balm's fragrance and aesthetic appeal.

**1.5 Orange oil :-** Orange oil in lip balm provides antioxidant and antimicrobial properties, helping protect lips from environmental stressors and supporting overall lip health. It also adds a fresh, citrusy aroma, enhancing the product's appeal and potentially uplifting the user's mood.

**1.6 Shea butter :-** Shea butter in lip balm moisturizes and nourishes dry, chapped lips with its rich content of vitamins A and E, fatty acids, and antioxidants. It forms a protective barrier to lock in moisture and shield lips from environmental stressors, while also soothing and repairing dry, cracked lips.



## **II. LITERATURE REVIEW**

- 1. Jadhav Apurva, Gavali College Vinodkumar(2019)** et al. Asst. Professor (M.Pharmacy) Arvind of Pharmacy, Jaitapur, Satara-415004, Maharashtra, India.  
Formulation and evaluation of organic lip balm (2019) Lip balms are formulations applied onto the lips to prevent drying and protect against adverse environmental factors.
- 2. Mayuri Kadu, Dr. Suchita Vishawasrao (2014)** Dr. Sonia Singh Department of Pharmaceutics, Alard College of Pharmacy, Sr. No. 50, Marunje Road, Hinjewadi, Pune, Maharashtra. Review on natural lip balm (2014) The cosmetic literature reports limited data on this type of formulation, although references related to lipstick apply because it is a cosmetic form similar to lip balm
- 3. Alessandra Ribeir Fernandes(2013)** .Department of Pharmacy, Faculty of Pharmaceutical Sciences, University of São Paulo. Brazilian Journal of pharmaceutical Sciences vol. 49, n. 2, apr./jun.  
To be certified as Organic, the cosmetic product must be formulated with at least 95% organic raw materials.
- 4. Siti Nuurul Huda Mohammad Azmina(2021)** .Faculty of Agro-Based Industry, Universitiy The Malaysia Kelantan Jeli Campus, Locked Bag 100, 17600 Jeli Kelantan, Malaysia. Italian Association of Chemical Engineering.  
Lip balm with moisturizing function formulated using all-natural ingredients is very significant because of the negative side effect awareness among people on using the unnatural or chemically derived ingredients of the lip balm.
- 5. Marcel Dekker (2001)** Andre O'Barel, Free University of Brussel, Belgium. Handbook of Cosmetic Science and Technology. New York: Cosmetic composition and formulation are becoming increasingly complex, and cosmetic ingredients more sophisticated and functional
- 6. v.p. Kapoor (2005)** Herbal cosmetics for skin and hair care, Natural Product Radiance The cosmetics are the utility products used extensively throughout the world for maintaining and improving general appearance of face and other parts of the body,
- 7. Bernard (2020)** Texas A&M University, College of dentistry. Merck Manuals consumer Version Sun damage may make the lips, especially the lower lip, hard and dry. People and people with light over age 45 skin who have had extensive exposure to the sun damage.
- 8. PL Kole .(2015)** Cosmetic products of herbal extracts, Natural Product Radiance. In India, the concept of using herbs for beautification finds its origin in traditional medicine literature like Ayurveda. The cosmetic preparations were used for the purpose of worship and sensual enjoyment.
- 9. Shweta.K. Gediya (2011)** Herbal Cosmetics, referred as Products, are formulated, using various permissible cosmetic ingredients to form the base in which one or more herbal ingredients are used to provide defined cosmetic benefits only, shall be called as Herbal Cosmetics\*
- 10. Pandey Shivanand(2010).** Herbs play **an important** role in the field of cosmetics, **International Journal of Pharm Tech Research**. Ayurvedic cosmetics not only beautified the skin but acted as the shield against any kind of external affects for the body. Ayurvedic cosmetics also known as the herbal cosmetics have the same estimable assets in the modern era as well.
- 11. P.K. Chattopadhyay (2005)** Herbal cosmetics institute of Industrial Research. allicils and ayurvedic medicines, National Ayurveda which means the complete knowledge or long life has popular these days on account of its minimum or zero side effects with been considerable very Power of curing Similarly herbal cosmetics have been of great value because of the least harm they cause to the skin and the radiance they add to the skin.

## **AIM & OBJECTIVES**

**2.1 : AIM :** formulation and evaluation of a herbal based organic lip balm

### **2.2 : OBJECTIVE :**

Prepare organic lip balm for healthier, softer, shinny, glowing lips

To prepare organic lip balm to nourishment of lips, prevent lips from dryness and chapping.

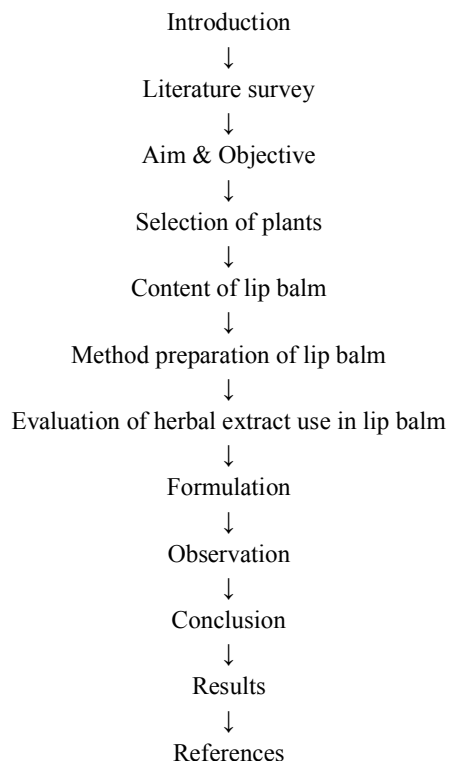
Make lips soft and glowing and provide all required nutrition to nourishment of lips.

To evaluate the lip balm's stability and texture over time.



To assess the lip balm's moisturizing and protective effects on lips through user testing.

#### Plan of work



### III. MATERIAL AND METHOD

#### DRUG PROFILE

##### 3.1 BEEZ WAX



Fig 1. Bees wax

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**Biological Source:**

Beeswax is a natural wax produced by **honey bees** (*Apis mellifera*) from the secretions of their abdominal glands.

**Family:**

**Apidae**

**Common Names:**

Beeswax

Cera alba (white beeswax)

Cera flava (yellow beeswax)

**Therapeutic Uses:**

Acts as a **protective barrier** on the skin

Aids in **retaining moisture**

Has **anti-inflammatory** and **antibacterial** properties

**Role in Lip Balm Formulation:**

Provides **structure and hardness** to the lip balm

### 3.2 Orange oil



**Fig 2. Orange oil**

**Biological Source:**

Orange oil is an essential oil obtained by cold pressing the peel of the fruit of *Citrus sinensis* (Sweet Orange).

**Family:**

Rutaceae

**Common Names:**

Sweet Orange Oil

Citrus Oil

Santra Tel (in Hindi)

**Therapeutic Uses:**

Acts as a **natural antioxidant**

Possesses **anti-inflammatory** and **antibacterial** effects

**Role in Lip Balm Formulation:**

Provides a **natural citrus fragrance and flavor**

Acts as a **mild preservative** due to antimicrobial properties

Aids in **healing and soothing** damaged lips



### 3.3 Petroleum jelly



**Fig 3. Petroleum jelly**

**Biological Source:**

A semi-solid substance obtained as a by-product during the **refining of crude petroleum**.

**Family:**

Not applicable (synthetic/mineral origin)

**Common Names:**

Petrolatum

Soft Paraffin

Vaseline

**Therapeutic Uses:**

Protects and soothes **dry, chapped lips**

Acts as a **moisture barrier**

Helps in **healing and softening** the lips

Prevents **cracking and irritation**

**Role in Lip Balm Formulation:**

Acts as a **base and thickening agent**

Provides a **smooth and glossy texture**

Improves **spreadability** of the lip bal

### 3.4 Sandalwood Oil



**Fig 4. Sandalwood oil**





**Biological Source:**

Essential oil obtained by steam distillation of the **heartwood of *Santalum album***.

**Family:**

Santalaceae

**Common Names:**

Chandan Oil

Sandalwood Essential Oil

**Therapeutic Uses:**

Soothes and calms irritated skin

Helps in healing dry and cracked lips

Acts as a natural moisturizer

Provides a cooling and refreshing effect

**Role in Lip Balm Formulation:**

Adds a pleasant fragrance and cooling sensation

Helps in moisturizing and softening the lips

Reduces inflammation and irritation

### 3.5 Rose Water



Fig 5. Rose water

**Biological Source:**

Aromatic water obtained by steam distillation of the petals of ***Rosa damascena* or *Rosa centifolia***.

**Family:**

Rosaceae

**Common Names:**

Gulab Jal

Rose Floral Water

**Therapeutic Uses:**

Acts as a natural moisturizer

Soothes and refreshes dry or irritated skin

Has anti-inflammatory and cooling properties

Provides a pleasant fragrance

**Role in Lip Balm Formulation:**

Adds hydration and softness to lips

Provides a mild cooling effect

Enhances fragrance and appeal



### 3.6 Shea Butter



**Fig 6. Shea butter**

#### **Biological Source:**

Fat extracted from the nuts of the **shea tree** (*Vitellaria paradoxa*).

#### **Family:**

Sapotaceae

#### **Common Names:**

Shea Butter

Karite Butter

#### **Therapeutic Uses:**

Provides **deep moisturizing** and nourishment to dry lips

Helps in **healing cracked or chapped skin**

Has **anti-inflammatory** and **softening** properties

Protects lips from **environmental damage**

#### **Role in Lip Balm Formulation:**

Acts as an **emollient**, making lips soft and smooth

Enhances the **hydrating property** of the balm

Improves the **texture and spreadability** of the lip balm

### 3.7 Collection of ingredients for prepreparation of lip balm:-

#### **1. Materials Required:**

Beeswax

Shea butter

Petroleum jelly

Rose water

Sandalwood oil

Orange oil

#### **3.8 . Equipment Used:**

Beakers

Hot plate or water bath

Stirring rod

Weighing balance

Thermometer

Lip balm containers or molds



### 3.9 Quantity of herbs

**Table no 1 : - herbs taken quantity**

Sr no	Herb	F1	F2	F3
1	Bees wax	6.6 gm	6.6 gm	6.6 gm
2	Orange oil	1 ml	1 ml	1 ml
3	Petroleum jelly	8.3 gm	8.3 gm	8.3 gm
4	Sandalwood oil	1 ml	1 ml	1 ml
5	Shea butter	5 gm	5 gm	5 gm
6	Rose water	1.3 ml	1.3 ml	1.3 ml

### 3.10 Formulation of lip balm

**Step 1:** Accurately weigh the required quantities of beeswax, shea butter, and petroleum jelly.

**Step 2:** Place the mixture in a beaker and melt gently using a water bath or hot plate at a temperature of around 60–70°C with constant stirring.

**Step 3:** Once fully melted and uniform, remove from heat and allow to cool slightly (but not solidify).

**Step 4:** Add measured amounts of rose water, sandalwood oil, and orange oil to the mixture. Stir continuously to ensure even distribution.

**Step 5:** While still warm and liquid, pour the mixture into lip balm containers or molds.

**Step 6:** Allow it to cool and solidify at room temperature for several hours.

**Step 7:** Label and store the containers for evaluation and further testing

### 3.11 . Evaluation of lip balm

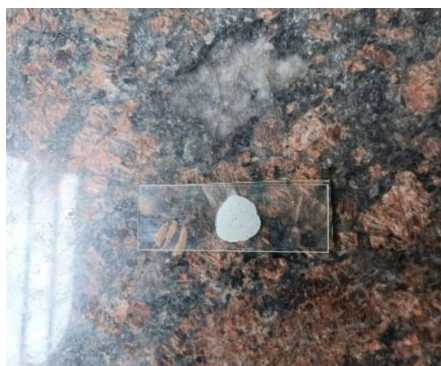
#### 3.11.1. Melting Point –

Small amount of lip balm is placed in a capillary tube and heated.

Recorded the temperature at which it starts to melt.

Ensured it melts easily upon contact with lips and remains stable at room temperature

#### 3.11.2 - Spread ability-



The sample was applied between two glass slides and was compressed to uniform thickness by placing 100 g weight for 5 minutes. Weight was added to the pan. The time required to shape the two sides, i.e., the time in which the upper glass slide moves over the lower slide, was taken as a measure of spreadability.

It was calculated using the formula :  $S = m \cdot L / T$

Where, S – spreadability

M – weight tied to upper glass slide

L – length moved on glass slide

T – time taken the determination were carried out in triplicate and the average of three reading were recorded





**3.11.3. PH test :-** The pH of lip balm was determined in order to investigate the possibility of any side effect as an acidic or alkaline pH may cause irritation of lip it was determined to keep the pH of tablet as close to neutral  
Ph test result :- 6.2

**3.11 4. Organoleptic character**

**Colour :** pale yellow

**Odour:** aromatic

**3.11 5. Homogeneity :**

The formulation was tested for homogeneity by visual appearance and touch.

**3.11 6. Irritancy test :**

Make an (one sq. cm) on the left upper lips surface . the lip balm was applied to the specified area and time was noted  
Irritancy , were checked if any for regular intervals up to 24 hours and reported

**3.11.7. wash ability**

This test is carried out by simply washing the applied lip balm with water

**IV. RESULT**

**4.1 determination of ph :**

The determination of ph for the lip balm was used as result paper showed 6.2 metered on paper

**4.2 organoleptic characters**

**Colour :** pale yellow

**Odour :** aromatic

**4.3 texture of organic lip balm**

use a small amount of balm and spread it on lips and smooth texture and uniform can be obtained

**4.4 wash ability**

Carried out by washing the applied lip balm

And the Result is washable

**4.5 melting point**

The melting point of the lip balm was major 58°C – 60°C

**4.6 irritancy test**

In the irritancy test the lip balm was applied in upper side of lip and after results no irritancy occurred

**4.7 spreadability**

The lip balm was spread on a particular site for the test and spreaded effortlessly



Formulation and evaluation of organic herbal based lip balm

**Final product**



Sr no	parameter	observation
1	Color	Light orange / beige (as observed)
2	Odor	Pleasant, natural fragrance
3	Texture	Smooth and uniform
4	pH	6.2 (within acceptable range)
5	Melting Point	58°C – 60°C
6	Spreadability	Good; smooth application on lips
7	Irritancy Test	No irritation or redness observed

Observation table :

Table . no2: determination of physical parameter of prepared lip balm



### Observation Summary:

The lip balm had **good aesthetic appeal** and a **pleasant fragrance**.

It showed **no signs of phase separation, rancidity, or irritation** during the test period.

pH and melting point were within the desired range for lip applications.

The product was **stable** and **safe** for topical use.

## V. CONCLUSION

### SUMMARY AND CONCLUSION

The present study involved the **formulation and evaluation** of a herbal-based lip balm using natural ingredients such as **beeswax, shea butter, petroleum jelly, rose water, sandalwood oil, and orange oil**.

The prepared lip balm exhibited **good physical characteristics**, including **pleasant color, fragrance, smooth texture, and acceptable spreadability**. The **pH was within the safe range** for topical application, and the **melting point was suitable** for use in varying climates. The **stability study** showed that the formulation remained **physically and chemically stable** over the observation period, with **no signs of irritation** or adverse effects.

The results support that the developed herbal lip balm can serve as a **safe, effective, and skin-friendly alternative** to synthetic lip care products. With its **moisturizing, soothing, and natural properties**, it offers both **functional benefits and consumer appeal**.

Further studies may include **microbial stability, long-term shelf-life analysis, or comparative studies** with commercial products to enhance the formulation's potential for marketability.

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