

# Formulation and Evaluation of Lipstick using Herbal Colourant

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**Abstract:** Lipstick is a cosmetic item that gives the lips colour, texture, and protection. It also contains pigments, oils, waxes, and emollients. Lipstick comes in a variety of hues and designs, and like the majority of other beauty products, it is predominantly worn by women, albeit not exclusively. Since the dawn of time, there has been lipstick. The major goal of this research is to create and assess natural lipstick utilising the coloured pigments of the Beta vulgaris taproot while reducing the negative effects of synthetic formulations. The purpose of this study is to develop the lipstick recipe, extract coloured pigments from the Beta vulgaris taproot, and assess the outcomes.

**Objective:** Herbal colours are non-toxic, very lipophilic, antioxidant, anti-microbial, and anti-inflammatory and are utilised in leucoderm, particularly for lips. Colourant comes in a variety of authentic colour tones, including purplish red, ruby red, beetroot purple, dark violet, pastel red, light red, purplish red, rose red, deep magenta, dark purple, orange, and deep violet. More shades can be created from these colours by combining them in various ways. Using organic and inorganic acids and bases, colour can be altered to different shades.

**Purpose and Scope of the Current Work:** The design of the current work was based on several methods of guided study on herbal lipstick. Ingredients were created and listed. Next, a review of the literature was completed. A variety of herbal lipsticks were created using the materials that were gathered, the production process that was examined, and the identification tests for the colouring ingredients. The created formulations underwent evaluations for a number of attributes, with the findings being tabulated.

**Herbal Lipstick:** The goal of the current study was to create a formulation for herbal lipstick to treat fungal lip infections such as angular cheilitis. Formulation made with pomegranate arils extract and curcumin, two natural antifungal and colouring agents. Pomegranate arils extract and curcumin, which are both yellow in colour, are combined to produce a composition that is black in colour. It has a moisturising effect on the lips, which may lessen the negative effects and the price of the lipstick. A natural antifungal substance called curcumin was included in the formulation of the herbal lipstick, and it was evaluated for a number of different characteristics

**Keywords:** Natural components, Formulation, and Evaluation of herbal lipstick

## I. INTRODUCTION

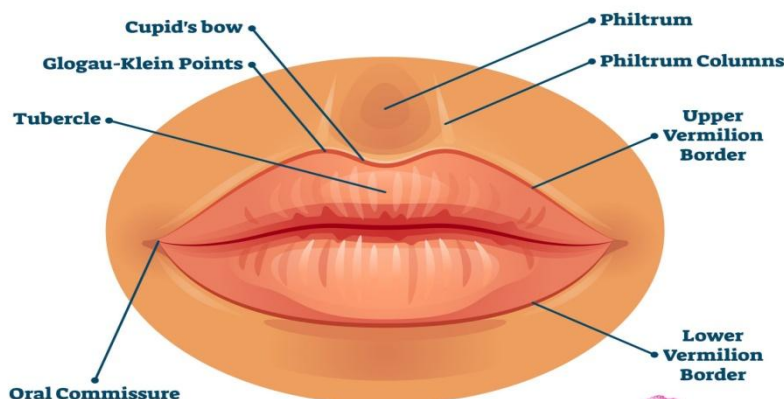
Cosmetics made from natural substances are thought to be safer than those made from chemicals, and they can also shield the skin from ultraviolet radiation. Lip colour in the shape of a crayon, or more often known as lipstick, is one of the most commonly used cosmetics in today's world. The improvement of the quality of the raw materials used to make the extracts must go hand in hand with attempts to produce natural cosmetic components. Raw materials are not guaranteed to have homogenous active constituents both qualitatively and quantitatively because of the numerous factors that affect the quantity and composition of components in a plant. Therefore, researchers in the field of herbal cosmetics are required to standardise raw material extracts from natural sources.

Herbal products are becoming more and more popular because most women today prefer natural over chemical products for their personal care to enhance their beauty because they give the body nutrients, improve health, and give satisfaction because they are free from artificial preparations used to colour lips and shield them from the environment. Lip colouring is an old custom that dates to the prehistoric era. The usage of herbal products has grown recently, and the range of colour tones, texture options, and lustre has expanded. This is evident from the fact that lipstick is sold in a huge variety of colours to fulfil chemical demands and has far less adverse effects than synthetic cosmetics. The current cosmetic trend among ladies is lipstick. Cosmeceuticals are cosmetic pharmaceutical medicines designed to enhance the health and attractiveness of the skin by achieving a particular goal, such as reducing the appearance of wrinkles and controlling acne. According to the theory developed by Dr Albert Klingman, topical agents known as cosmetics fall halfway between the categories of pure drugs (antibiotics, corticosteroids) and pure cosmetics (lipstick and rouge). Cosmeceuticals are products that combine cosmetics that enhance skin beauty with physiologically active chemicals that have therapeutic or drug-like effects. Cosmeceuticals are topical preparations with active chemicals that modify how the skin functions biologically. Integral skin components like DNA, collagen, and cellular membranes are harmed by external elements including air pollution, sun exposure, and the natural ageing process. The majority of cosmetics contain vitamins, herbs, different oils, and botanical extracts. Efficacy, safety, formulation stability, and innovation are desirable qualities of cosmeceutical agents.

Today, cosmetics are a necessary component of every woman's life. Herbal cosmetics are items created using a combination of legal cosmetic components, where one or more herbal elements are used for specific cosmetic effects. They go by the name "herbal cosmetics." The newest fashion and beauty trend is using herbal cosmetics. The market for herbal cosmetics is growing, and the products are becoming more and more popular all around the world. Cosmetics made from natural substances are thought to be safer than those made from chemicals, and they can also shield the skin from ultraviolet rays. Lip colour in the form of crayons, or more often known as lipsticks, is one of the most commonly used cosmetics in today's world. Due to increased environmental consciousness throughout the world, there has been a recent resurgence of interest in using non-toxic and eco-friendly natural dyes on natural textiles.

The various qualities of the herbs employed in cosmetic preparations include anti-inflammatory, antiseptic, and antibacterial effects. These herbal goods assert that they don't have any of the frequent adverse effects associated with products containing synthetic ingredients. Several medicinal plants were mentioned in the Ayurvedic literature, particularly Charaka Samitha[10–13]. Numerous antioxidants used in cosmetics are among the well-liked functional natural ingredients, and research has shown that they have additional advantages for supporting skin texture, appearance, and tone. The desirable qualities of lipsticks include not being poisonous or irritating, being stable chemically and physically, being free of grit, and retaining lip colour for a longer amount of time after application.

**Anatomy of lips:**



**Fig 1: Anatomy of lips.**

## II. LITERATURE SURVEY

### **Meher Dipali, et.al.(2011)**

The market for herbal cosmetics is expanding and they are a unique gift from nature. There are many ways to satisfy your beauty regimen, and including herbal ingredients in cosmetics is highly skin-safe. With the growth of science and technology, the utilisation of natural resources, including plants, has decreased, with the exception of food, which is why vegetarians consume exclusively plants. Humans have been using herbs for a variety of purposes, including food, medicine, and beauty. However, the usage of herbs in both drugs and cosmetics is on the rise.

### **Pooja Mishra et. al (2012)**

Lip colouring is an old custom that dates to the prehistoric era. The use of products has grown in the modern era, and the range of colour shades, textures, and lustres available has expanded. This is evident from the fact that lipstick is available in 100 different colour colours to meet female demand. which, with great assurance and satisfaction, the women of communities will utilise extensively

### **Raulteal Sunlite. al (2013)**

Cosmetics include skin-care creams, lotions, powder, perfume, lipstick, fingernail, eye and facial makeup. Permanent waves, coloured contact lenses, hair colour, hair spray and gels, deodorant, baby product are in great demand in both developing and developed countries. The present investigating was done to formulate herbal lipstick, since lipstick are one of the key cosmetics to be used by the women. Due to various adverse effect of available **synthetic preparation** on the present work was conceived by us to formulate lipstick having minimal or side effect.

### **Swati Deshmukh et. al(2013)**

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The usage of herbal products and the adoption of a more natural lifestyle are becoming more popular worldwide these days. For a healthy lifestyle, people prefer natural foods, herbal remedies, cosmetics, and medicines. There is also a lot of interest in vegetable products that are grown organically without the use of pesticides and synthetic fertilisers. In the personal care industry, the usage of herbal cosmetics has multiplied significantly.

a significant demand exists for herbal cosmetics. For thousands of years, people all throughout the world have employed natural items for folk medicine.

### **Farida Hayati et. al (2016)**

Cosmetics made from natural substances are thought to be safer than those made from chemicals, and they can also shield the skin from ultraviolet radiation. Lipstick, commonly known as lip colour, is one of the most popular cosmetics on the market today. Lipstick can be both chemical and natural. The improvement of the quality of the raw materials used in extracts must go hand in hand with the development of natural cosmetics ingredients.

## III. BEET ROOT INFORMATION

The family Chenopodiaceae includes the beetroot (*Beta vulgaris rubra*). Important food crops including spinach (*Spinacia oleracea*) and chard (*Beta vulgaris cicla*) are members of this family. It is a wholesome food typically eaten in juices, salads, pickles, or cooked dishes. Beetroot extract has been utilised as a pigment in the food, drug, and cosmetic sectors. Additionally, it has the potential to be a source of nutrients and can be a component of healthy foods. A special type of antioxidants called betalains is present in beets. These are divided into two groups: betaxanthins, which add a yellow-orange pigmentation, and betacyanins, which exhibit a red-violet coloration. The FDA has given beetroot extract the colour approval code 73.40, while the EU has given it the E162 designation.

### 3.1 Content

#### Good lipstick should have these qualities:

- It should not aggravate anyone.
- Plasticity ought to have been necessary.
- It ought to be nontoxic.
- Physically and chemically, it ought to be feasible.
- Don't let it dry out when storing.
- Gritty particles should not be present.
- It should have a lengthy lifespan.
- Smooth, glossy, and sweat-free should be its outside look.
- It should have a pleasing flavour, smell, and taste.
- Within a fair change of climatic temperature, it should not melt or harden.

In the creation of lipstick, both synthetic and natural pigments are employed. Because of their toxic chemicals, lipsticks are currently a major cause of health-related issues. The lips also take on a blackish hue. Consuming this type of synthetic colour by the user is extremely risky. It might lead to very serious forms of cancer. In the current study, we can make a herbal lipstick from papaya extract that may have very few or no side effects due to this type of negative effect.

#### Benefits of natural cosmetics over synthetic ones:

Herbal cosmetics are popular nowadays and preferred to chemical cosmetics since they provide the body with nutrients that improve health, are devoid of synthetic chemicals, and have no negative side effects as chemical cosmetics do. Natural cosmetics have certain benefits over synthetic ones, like being safe to use, compatible with the body, naturally occurring, inexpensive and non-expensive, diversity of goods, no adverse effects, and not being tested on animals.

#### How to extract colour from beetroot:

The primary ingredient of the naturally occurring red colour known as "Beetroot root red" is beetroot root. Red colourants obtained from common beetroot are mostly betanine. The roots are normally deep red or purple, although they can also be found in a wide range of other colours, including golden yellow and red and white striped. The homogenization of fruit pulp and solvents at a 1:1 w:v ratio is how pigment is extracted. Using 100 ml of Solvents (Et OH, 50:50 aqueous ethanol) and 100 g of watery, peeled fruit, macerate it for 15 minutes in an ice bath. The aqueous mixture should be centrifuged at 9,000 RPM for 45 minutes at 4°C, and it should be filtered right away through nylon mesh. The extract under vacuum at 35°C is concentrated to 3–4 ml using a rotary evaporator. Keep the samples in a dark container after completely eliminating the alcohol using a concentration process.

#### Different Lip Problem:

Lip issues might include dryness, cracking, sores, discomfort, numbness, and swelling. Lip symptoms can have a variety of minor to severe causes. Depending on the aetiology, lip symptoms might last for a long time or progress differently. Injury to the lips, such as biting them or burning them with hot food, can lead to lip problems. Symptoms of a common infection might also occur. Lip symptoms can be a sign of diseases or disorders that affect the nerves and muscles, such as neuropathy or nerve injury.

Additionally, cold and dry weather, infections, nutritional deficiencies, or medication side effects may cause lip symptoms. Locally acting on the lips, calming, anti-irritant, skin-protecting, keratolytic, steroid, antibiotic, and anti-inflammatory drugs are good pharmacological choices for medicated lipsticks.

#### IV. MATERIAL AND METHOD

##### Excipient Profile:

##### Waxes:

The purpose of waxes is to give lipsticks structure and make them sturdy even in hot weather. The kind and quantity of the waxes used have a big impact on the glossiness and hardness of lipstick.

##### Beeswax:

An effective substance for binding waxes with higher melting points and oils. Beeswax is the traditional and widely used stiffening ingredient for lipstick, and higher concentrations result in a dull waxy look and cause the stick to disintegrate while being used. melting point between 62 and 64 °C. If just wax is used, the lipstick lacks shine and tends to droop when applied. The component that gives a honeycomb its structure is bees wax. These wax create wax from nectar and create honeycombs to keep their honey. A pound of wax equals ten pounds of honey product. It smells like honey and may be used to make fragrance.



Fig. 2 Beeswax

##### Castor oil:

It's also helpful to know that you probably already use it. Castor oil is frequently used to products like shampoo, moisturiser, lipstick, the Balm Dotcom, and more to give gentle hydration without causing any negative side effects. (The International journal of Toxicology considers castor oil to be safe and notes that it is not known to produce allergic responses.)

It is thick, cough syrup-like, and great to put on lips and cuticles as an all-natural remedy for anything chapped in its pure, bottle form. It's also known to encourage hair growth, so I've started applying a bit on my brows every day because of that.

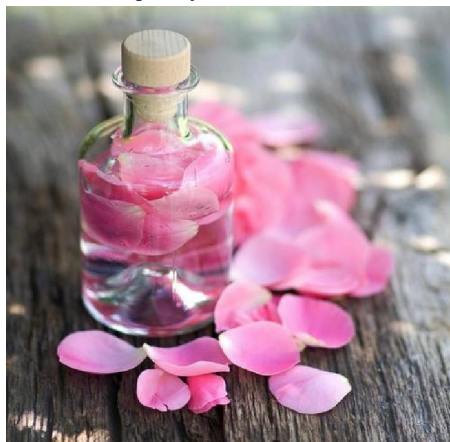


Fig. 3 Castor Oil

##### Rose essence:

Rose oil is an essential oil that is derived from several types of rose petals. Rose absolute is derived using solvent extraction, whilst rose ottos are extracted using steam distillation; the absolute is more frequently employed in perfumery. Rose oils are still possibly the most often used essential oil in perfumery, despite their high cost and the

development of chemical synthesis. Beta-damascenone, beta-damacone, beta-ionone, and rose oxide, however, are the main flavouring substances that contribute to the characteristic aroma of rose oil. The quantity and existence of beta-damascenone are regarded as indicators of rose oil's quality



**Fig. 4 Rose Oil**

**Lemon juice:**

We all want to have soft, pink lips. It not only makes you look better, but it also indicates that your lips are in good health. Lips that are chapped are ugly, and in extreme situations, they might bleed. Many people worry about chapped or heavily pigmented lips, but there are easy ways to lighten, soften, and pinken your lips.



**Fig. 5 Lemon Juice**

**Table 1: Excipients of lipstick**

SR.NO	NAME OF INGREDIENTS	NAME OF SUPPLIER
1	Bees Wax	College lab
2	Caster Oil	College lab
3	Lanolin	College lab
4	Ripe fruit of shikakai	College lab
5	Beet root extract	Purchasing & prepared in college lab
6	Rose oil	Purchasing & prepared in college lab
7	Lemon juice	Purchasing & prepared in college lab

**Formulation strategy:**

The herbal lipstick was created using the standard lipstick creation process. All hard and soft waxes, in decreasing order of melting point, were melted in Chinadish on a water bath or heating mantle. Castor oil was heated while concentrated colouring pigment was added with it at the same temperature. At 40°C, the following ingredients were added: rose oil, lemon juice, eugenol, shikakai powder, and vanilla essences. The mixture was then overpoured into a lipstick mould, which was then placed in an ice bath. After scraping off the excess solidification material with a razor, the lipsticks were taken out of the mould and set on fire. The created lipsticks were placed in a container for lipsticks and utilised for further analysis.

**Formulation:**

**Table 2 Formulation**

Sr. no	Ingredients	Quantity	Role of ingredients
1	CasterOil	2ml	Blending oil
2	Beeswax	5g	Glossy & Hardness
3	Lanolin	6g	Glossy & Hardness
4	Ripe fruit of shikakai	8g	Surfactant
5	Beet root extract	10ml	Colouring agent
6	Rose oil	Q.s	Flavouring agent
7	Lemon juice	Q.s	Antioxident

**Evaluation metric Lipstick:**

Formulation was examined for colour and gloss.

**Texture:**

The smoothness of the lipstick formulation was examined.

**Odor:**

The smell of the prepared lipstick was evaluated.

**The herbal lipstick's melting point:**

The melting point is calculated in order to assess the product's storage properties. In order to prevent the feeling of friction or dryness during application, lipstick bases should have an initiating point of 60 to 65°C. The capillary tube technique is used to evaluate the melting point of herbal lipstick. Lipstick has been placed within the capillary, which is connected to the thermometer. Melting point is the temperature at which lipstick begins to melt.

**Hardness:**

The manufactured herbal lipstick ranged in hardness from 3.2 kg/cm<sup>2</sup> to 3.8 kg/cm<sup>2</sup>. The variation in the outcome is caused by the quantity of beetroot extract used.

**Breaking point:**

The purpose of this test is to evaluate the durability and hardness of prepared lipstick. The lipstick is positioned horizontally in this approach, 1 inch from the base. Loads are fastened to it, progressively increasing the weight. The breaking load point of lipstick is the weight at which it begins to break. The test must be conducted under certain circumstances and at a temperature of around 25 °C.

**The herbal lipstick's solubility:**

The herbal lipstick formulation's solubility in various solvents was investigated. The only solvents used to dissolve the formulation were ethanol and acetone.

**The herbal lipstick's pH is:**

All formulations had pH levels that were close to 7 and shouldn't cause any lip irritation.

**Fragrance stability:**

After 30 days, the formulation of the herbal lipsticks was evaluated to determine aroma.

**V. RESULT**  
**Table 3 Result**

Parameters	Result
Color	Brown
Odor	Aromatic
Texture	Smooth
Melting point	61°C.
Hardness	3.2 kg/cm <sup>2</sup> to 3.8 kg/cm <sup>2</sup>
Breaking point	30 to 39 Sec
Solubility	Soluble in Chloroform
pH	7
Perfume Stability	Stable



**Fig. 6 herbal Lipstick**

**VI. DISCUSSION**

The goal of the current effort was to create a herbal lipstick and evaluate it in order to reduce any negative effects that the existing synthetic chemicals might cause. The usage of cosmetics by women has greatly increased thanks to herbal lipstick. Additionally, it aids medications that moisturise, soothe, and soften lips.

**VII. CONCLUSION**

An herbal lipstick is used to rehydrate the lips' muscles, preserve the skin's suppleness, flush off stuck-on debris, and enhance blood flow. Herbal-based cosmetics have the advantages of being harmless. It moisturises the skin of the lips. This lipstick gives the lips the necessary hydration. It aids in the removal of wrinkles, cracking, dryness, and lip folds. Little skin is removed by lipstick, which also has a cooling, soothing, and soothing effect on the lips. They do so in the quickest possible time to restore the lip's natural gloss.

**Outcomes**

prepared natural lipsticks manufactured with beetroot extract that has been standardised.

A formulation of lipstick was evaluated



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