

Creating, Developing, and Evaluating Herbal Lipstick Utilising “Beta Vulgaris”

Arti Balu Shendage
Dr. Rupali Bendgude
Rutuja Rajesh Bagwale
Sandhyarani Gajare
Rutuja Sunil Pawar

Shri Ganpati Institute of Pharmaceutical Sciences and Research, Tembhurni

Abstract:- Herbal lipsticks are made from natural ingredients like plant extracts and oils, often avoiding synthetic chemicals. They're popular for their nourishing properties and sometimes offer subtle tints. Beetroot extract is prized for its rich colour and potential benefits for the lips, like hydration and nourishment. The cosmetics industry is witnessing a paradigm shift towards natural and sustainable beauty products, driven by consumer demand for safer alternatives. In response, this study explores the formulation and evaluation of herbal lipstick utilising Beta Vulgaris, commonly known as beetroot, as a natural colourant. Beetroot extract, rich in betacyanins, not only imparts vibrant hues but also offers potential skincare benefits due to its antioxidant properties. This report outlines the formulation process, detailing the extraction of colourant from Beta Vulgaris and its integration into lipstick bases. Through the exploration of Beta Vulgaris as a natural colourant for herbal lipstick formulations, this research contributes to the advancement of natural cosmetics and underscores the potential of plant-based ingredients in meeting the growing demand for clean beauty products.

Herbal lipstick formulations typically include a combination of pigments, perfumes, waxes, preservatives, antioxidants, oils, and colours. The advantages of herbal lipstick lie in its safety, cost-effectiveness, non-toxicity, and utilisation of pigments sourced from readily available plants and vegetables. Given the prevalence of side effects associated with synthetic formulations, this study sought to develop and evaluate herbal lipstick formulations using natural colourants. The evaluation parameters included colour intensity, pH levels, skin irritation potential, perfume stability, solubility, surface anomalies, and ageing stability. The findings of this study indicate that herbal lipstick formulations utilising natural colourants exhibit fewer or no side effects compared to synthetic alternatives. Furthermore, they have the potential to enhance consumer acceptance due to the incorporation of diverse natural ingredients and harmless colourants.

Keywords:- Herbal Lipstick, Beetroot, Formulation, Evaluation, Natural Colorant.

I. INTRODUCTION

Herbal cosmetics, also known as natural cosmetics, are made by combining cosmetic ingredients to create a base using one or more ingredients of natural origin. Plants play an important role in the development of new drugs for beauty treatment. In cosmetics, herbs are used in raw or extracted form and include materials such as fruits, flowers, leaves, seeds, wood, stems, rhizomes, roots, or other plants that can be combined, broken, or crushed. The use of plants is increasing rapidly because they are good for the skin and have few side effects. One of the main benefits of herbal cosmetics is that they are often derived from plants, thus reducing the risk of side effects. The natural ingredients in the plant provide good health and nutritional benefits to the body. The term "cosmeceuticals" was coined in 1961 by Raymond Read, a member of the American Society of Cosmetic Chemists. Lip cosmetics, called lipsticks, contain pigments, oils, waxes, emollients, colourants and preservatives. While the dyes in traditional lipsticks can pose risks to your lips, natural lipsticks use safe and natural ingredients. A recent study developed an herbal ointment with fewer side effects to prevent chapped lips and damage that could lead to infection. Lipstick often contains ingredients such as vegetable oils (such as castor oil and almond oil), mineral derivatives (such as petroleum jelly and white petroleum), as well as pigments and waxes. These ingredients not only improve appearance but also provide bioactive properties such as UV protection, especially in extreme weather conditions.

II. DIFFERENT VARIETIES OF LIPSTICK AND THEIR PURPOSES

A variety of types of lipsticks are available, each serving a different purpose based on one's preference or lip shape. In today's market, there is a wide range of lipstick products with various effects and qualities. Here are some categories of lipsticks with their basic characteristics:

➤ *Moisturising Lipsticks:*

Recommended for individuals with dry lips, moisturising lipsticks help keep lips soft and smooth by containing ingredients like vitamin E, glycerin, and aloe. These lipsticks provide a wet and glossy finish.

➤ *Satin and Sheer Lipsticks:*

These lipsticks not only moisturise and nourish the lips but also give them a shiny and glossy appearance. Due to their high oil content, satin and sheer lipsticks may appear darker in the packaging compared to how they look on the lips.

➤ *Matte Lipsticks:*

Ideal for those looking for vibrant and vibrant colours, matte lipsticks provide a flat and non-shiny finish to the lips, making them look smoother and younger. It is recommended to combine matte lipsticks with products containing vitamin E and aloe.

➤ *Cream Lipsticks:*

Individuals with small lips can opt for cream lipsticks, which provide a smooth effect without being shiny. These lipsticks contain more wax to protect the lips but may lead to dryness, requiring the use of lip gloss for desired results.

➤ *Pearl and Frosted Lipsticks:*

Creating a sparkling and glistening effect on the lips, frosted lipstick reflects light and gives a shiny appearance. However, these lipsticks may make the lips feel heavy, crack, and dry, hence moisturising the lips before application is recommended.

➤ *Gloss Lipsticks:*

Popular among those with thin or small lips, gloss lipsticks add shine and enhance the depth of the lips. They can be used in combination with traditional lipsticks.

➤ *Long-Wearing and Transfer-Resistant Lipsticks:*

Designed for individuals with less time for frequent reapplication, long-wearing lipsticks offer a formula that keeps the lips looking perfect for 4-8 hours. These lipsticks are durable and resistant, lasting until exposed to greasy or oily foods, with some containing moisturisers to combat dryness in the lips.

❖ *Characteristics*

- The surface of the lipstick should be smooth and shiny, free from imperfections like air holes, sweating, blooming, laddering, or cracking.
- It should have a softening effect on the lips.
- To withstand varying climatic conditions, the melting point range of lipsticks should be maintained between 50-60 °C. This ensures durability in tropical temperatures (60-70 °C) and easy application as a thin layer at 37± 2 °C.
- The colour intensity should remain consistent without any alterations in shade.
- The lipstick film must stick well to the lips without becoming brittle or sticky, without any gritty texture, and without drying out.
- It should possess the right level of flexibility.
- The formula should not cause skin irritation.
- A pleasant scent and taste are essential.

- Lipstick should essentially give good colour, apply easily and gives a very natural look

❖ *Composition:*

The primary ingredients needed for lipstick formulation include:

- A blend of waxes like solid base wax and softer waxes.
- A mix of oils and emollients.
- Preservatives, fragrances, surfactants, antioxidants.

❖ *Advantages of Herbal Lipstick:*

- It contains natural ingredients thus no side effects.
- Keeps the lip moisturised.
- It keeps the lip healthy.
- Physically and chemically more stable.
- Shiny and smooth in appearance.
- Non irritant to skin.

III. MATERIALS AND PROCEDURE:

➤ *Material*

In the ongoing study, various materials like beeswax, white soft paraffin, oil, pigment betanin, acacia lemon juice, and vanilla essence were utilised. The selection of herbs for the herbal lipstick formulation was based on a thorough literature survey.

➤ *Extraction Procedure*

Wash and peel the beetroot and cut it into small pieces. These small pieces are spread on a butter paper, covered with a fine mesh and left in a cool place for a day. If there is moisture, then dry it in the oven. Then dry the beet and grind it into a fine powder using a grinder. This wealth has passed through a fine sieve. Check the flour for flour and sift again if necessary. Measure the amount of powder and store it.

Table 1- Ingredients of Herbal Lipstick

Ingredients	Use
Castor oil	Blending agent
Paraffin wax	Glossy and hardness
Beeswax	Glossy and hardness
Beet root powder	Colouring agent
Rose water	Flavouring agent
Lemon juice	Antioxidant
Vanilla essence	Preservatives

➤ *Procedure*

Herbal lipsticks are prepared using the universal lipstick formulation method. Dry the wax and paraffin in a bowl (porcelain) in a water bath until it becomes a hot liquid. Mix the beetroot powder with the amount of castor

oil and heat it. The first formulation is then added to the second formulation. Now add required lemon juice and heat properly. Then add the desired amount of vanilla extract and

rose water. The resulting milk was stored in moulds and cooled by placing it on ice for 30 minutes. Remove after 30 minutes and store the prepared lipstick in the refrigerator.

Table 2. Formulation Table of Herbal Lipstick

Sr. No.	Ingredients	Use	F1	F2	F3	F4	F5	F6
1.	Castor Oil	Blending agent	4ml	4ml	4ml	4ml	4ml	4ml
2.	Paraffin wax	Glossy and hardness	1gm	1.5gm	2gm	2.5gm	3gm	3.5gm
3.	Bees wax	Glossy and hardness	2gm	2.5gm	3gm	3.5gm	4gm	4.5gm
4.	Beetroot powder	Coloring agent	1.5gm	2gm	2.5gm	3gm	3.5gm	4gm
5.	Rose water	Flavouring agent	1ml	1ml	1ml	1ml	1ml	1ml
6.	Lemon juice	Antioxidant	0.5ml	0.5ml	0.5ml	0.5ml	0.5ml	0.5ml
7.	Vanilla essence	Preservative, Q.S.	q. s.					

IV. EVALUATION OF HERBAL LIPSTICK

Produced lipsticks are subjected to different tests such as melting points, skin irritation, odour stability, surface changes, ageing stability, solubility test and pH. Sensory Features:

Properties of the developed lipsticks such as colour, smell and texture are analysed.

➤ Solubility Test

Soluble the herbal lipstick in acetone, hexane, petroleum ether, water, alcohol etc. dissolve in various solvents and measure the solubility.

➤ Melting Point

Determination of melting point indicates the limit of storage stability. The melting point of the lipstick formulation is determined by the capillary method. The melting point of the lip is measured by placing the molten sample into a capillary tube, placing the capillary tube in ice water to cool for 2 hours, and then connecting the capillary tube to the thermometer. The capillary is then immersed in a container of water and stirred regularly. The temperature at which the sample begins to rise with the capillary is considered the melting point.

➤ Skin Irritation Test

A skin irritation test was performed on the prepared lotion. Apply the herbal ointment to your skin for 15 minutes, do a skin test and observe the results.

➤ Determination of Ph Value:

Measure the pH value of cosmetics with a pH metre.

➤ Perfume Stability:

To measure the stability of perfume is to store the perfume at 40 °C and constantly compare it with fresh lipstick after cooling.

➤ Surface Abnormalities:

Formation of surface crystals, mould, fungus, etc. Examine surface abnormalities caused by surface defects such as contamination. Formation of wrinkles, leakage of liquid and oily products.

➤ Ageing Stability:

Ageing stability testing is performed with products stored at 40 °C. Check regularly for oil leakage and surface wax crystallisation.

V. RESULT

In the assessment of the developed natural lipstick, batch F4 emerged as the most effective among six variations. This study suggests that the natural formulation of the lipstick presents a preferable choice for women due to its minimal adverse reactions. The primary objective of this research was to create and evaluate a lipstick using herbal components with lower side effects and a cost advantage compared to synthetic alternatives.

Table 3 Evaluation Parameters for Lipstick

Evaluation Parameters	F1	F2	F3	F4	F5	F6
Colour	Faint Pink	Faint Pink	Pink	Dark Pink	Dark Pink	Wine
Texture	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth
Melting point	54	57	53	60	63	67
Ph	6.24	6.33	6.55	6.62	6.80	6.84
Skin irritation	No	No	No	No	No	No
Perfume stability	Good	Good	Good	Good	Good	Good
Surface anomalies	No Defect	No Defect	No Defect	No Defect	No Defect	No

VI. CONCLUSION

Different natural or herbal ingredients such as beeswax, paraffin, castor oil, rose water, beetroot powder, lemon juice and vanilla extract are used in the formulation of herbal lip balms. Beetroot extract obtained from sugar beets is used as a dye. The lipsticks are then evaluated based on various criteria. From the above tests, it can be concluded that the F4 formula passes all these standards without side effects, showing good local results and good properties such as shine, spread and smoothness. The F4 formulation is considered a good formulation, although it showed good results in safety studies.

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