

## FORMULATION AND EVALUATION OF HERBAL LIPSTICK

\*Mrs.Bachu Bhavani, <sup>1</sup>Dr.Rajaputana Lakshmi Manisha, <sup>2</sup>Mr. R.Murali Krishna, <sup>3</sup>Dr.M.Sudhakar

<sup>\*1</sup> Department of Pharmacology, MallaReddy college of pharmacy, Dhulapally, secunderabad, Telangana, 500100 (Affiliated to Osmania University)

<sup>1</sup> HOD, Department of Pharmacology, MallaReddy college of pharmacy, Dhulapally, secunderabad, Telangana, 500100 (Affiliated to Osmania University)

<sup>2</sup> B.Pharm, 4<sup>th</sup> year, MallaReddy college of pharmacy, Dhulapally, secunderabad , Telangana , 500100 (Affiliated to Osmania University)

<sup>3</sup>Principal, MallaReddy college of pharmacy, Dhulapally, secunderabad, Telangana, 500100 (Affiliated to Osmania University)

### ABSTRACT

**Aim:** Aim of the research is formulation, evaluation and comparison of herbal lipstick formulations.

**Materials and Methods:** Herbal lipstick was formulated using only natural components . The colouring agents used were dried fruit powders of plum, mulberry fruit, and lake colors. Fruit powder was ground into a fine powder after being dried by the technique of shade drying. Five separate formulations, each with a different set of chemicals, have been created. F1, F2, and F3 are the names of three formulations that were created using different waxes and the Saicol Red Lake colour. F4, F5, which were created using the powders of mulberry and plum fruits, are two further formulations. Following formulation, the lipsticks are tested for colour, texture, solubility, melting point, breaking point, skin irritability and other factors.

**Results:** The results demonstrate that the F2, F3 were unable to provide satisfactory results due to a lack of carnauba and candelilla waxes, but the F1, F4, and F5 were able to provide satisfactory results.

**Conclusion :** The formulation was created and assessed. It has been discovered that the waxes used in carnauba, candelilla, and ozokerite make lipstick smooth, glossy, and stable.

**Key words:** Lake red colour, mulberry, plum, and ozokerite, carnauba, and candelilla waxes.

## INTRODUCTION

Lipsticks are essentially dispersions of colourant matter in a base composed of a suitable blend of oils, fats, and waxes that have been appropriately perfumed and flavoured, formed into a stick, and housed in a container.<sup>1</sup>

Lipstick is used to give the lips a beautiful hue and a glossy, moist appearance, enhancing their greatest features while concealing their flaws. A bigger lip can be made to appear narrower by applying lipstick correctly, whilst narrow lips can be made to appear wider. It also helps to prevent lip cracking and chapping, which can lead to bacterial infection. Lipstick bases are also hydrating.<sup>1</sup>



Fig:1 lipsticks<sup>2</sup>

## IDEAL CHARACTERISTICS OF A GOOD LIPSTICK<sup>1</sup>

- Smooth and easy to apply; non-irritant and non-toxic; and appealing hue and gloss.
- It should be grittiness-free and non-drying.
- It should have demanded flexibility.
- It should have a pleasant flavour, aroma, and taste.
- It should not lose its smooth and shiny aspect while being stored.
- The term "stable" refers to the absence of bloom or perspiration during storage. □ It should not melt or become harder within a reasonable temperature range.

## LIPSTICK COMPOSITION

The lipstick is generally made up of a coloured material that has been spread and suspended in a suitable base made by different amounts of oils and waxes to obtain the desired melting point and viscosity. The human body temperature ranges from 36°C to 38°C, with the lips being the hottest part. To withstand exposure to high temperatures, the foundation's melting point must be much higher, preferably between 55°C and 75°C.<sup>1</sup> The basic raw materials required for formulation are classified as:<sup>1</sup>

- waxes
- oil mixtures
- bromo mixtures
- colors
- preservatives, fragrances, surfactant s, and other additives.

## Mulberry



Fig:2 Mulberry<sup>3</sup>

Mulberry is also known as *Morus nigra*, sometimes known as black mulberry. The black mulberry is well-known for having a large number of chromosomes. The fruit is a complex cluster of numerous tiny drupes that are dark purple to virtually black when mature and 2.5 cm in diameter. Mulberries are also popular in Greece, notably in the

Peloponnese, which was known as Morea in the Middle Ages, derived from the Greek term for the tree.<sup>3</sup>

### Scientific Classification:<sup>4</sup>

- Kingdom: Plantae
- Order: Rosales
- Family: Moraceae
- Genus: *Morus*
- Species: *nigra*
- Binomial name: *Morus nigra*

## Plum:



Fig:3 Plum<sup>5</sup>

Plums are a wide family of plants. Fruits are typically medium in size, ranging from globose to oval and measuring between 2 and 7 centimetres (0.79-2.76 in) in diameter. The meat is tender and delicious. The peel of the fruit is smooth and has a natural waxy covering that sticks to the meat. Plum fruit is round and green, red, purple, and yellow in hue. It contains a lot of anti-oxidants, polyphenols, and carotenoids. It is found in tropical and temperate climates in West Asia, India, Australia, South America, Pakistan, Europe, and Africa. It is cultivated in Uttarakhand, Himachal Pradesh, Kashmir, and Punjab in India.<sup>6</sup>

### Scientific Classification:<sup>7</sup>

- Kingdom: Plantae
- Order: Rosales Family: Rosaceae
- Genus: Prunus
- Species: P.salicina
- Binomial name: Prunus salicina
- Common Name: Japanese or Chinese Plum

## **METHODOLOGY AND MATERIALS REQUIRED**

**Table: 1 Equipment's required**

<b>Hot plate</b>	<b>Weighing machine</b>
<b>China dish</b>	<b>Spatula</b>
<b>Beaker</b>	<b>Lipstick moulds</b>
<b>Measuring cylinder</b>	<b>Ice pack</b>
<b>Glass rod</b>	<b>Mortar pestle</b>
<b>Beakers</b>	<b>Thermometer</b>
<b>Ph meter</b>	

**Table: 2 Chemicals Required**

<b>Carnauba wax</b>	<b>Lake colours (amaranth, red)</b>
<b>Candelilla wax</b>	<b>Perfume (rose oil)</b>
<b>Ozokerite wax</b>	<b>Water</b>
<b>Bees wax</b>	<b>Plum fruit powder</b>
<b>Lanolin</b>	<b>Mulberry fruit powder</b>
<b>Castor oil</b>	<b>Acacia</b>
<b>Isopropyl myristate</b>	

## Formulation of herbal lipstick

**Table: 3 Formulation 1**

<b>Ingredients</b>	<b>Standard formula</b>	<b>Required formula</b>
<b>Carnauba wax</b>	<b>2.50 gm</b>	<b>0.625 gm</b>
<b>Candelilla wax</b>	<b>6.00 gm</b>	<b>1.50 gm</b>
<b>Ozokerite wax</b>	<b>2.50 gm</b>	<b>0.625 gm</b>
<b>Beeswax</b>	<b>6.00 gm</b>	<b>1.50 gm</b>
<b>Lanolin</b>	<b>8.00 gm</b>	<b>2.00 gm</b>
<b>Castor oil</b>	<b>55.00 gm</b>	<b>13.75 gm</b>
<b>Isopropyl myristate</b>	<b>4.00 gm</b>	<b>1.00 gm</b>
<b>Saicol lake red food colour (lake color)</b>	<b>12.00 gm</b>	<b>3.00 gm</b>
<b>Perfume</b>	<b>0.80 gm</b>	<b>0.20 gm</b>

**Table: 4 Formulation 2**

<b>Ingredients</b>	<b>Standard formula</b>	<b>Required formula</b>
<b>Carnauba wax</b>	<b>2.50 gm</b>	<b>0.625 gm</b>
<b>Candelilla wax</b>	<b>6.00 gm</b>	<b>1.50 gm</b>
<b>Beeswax</b>	<b>6.00 gm</b>	<b>1.50 gm</b>
<b>Lanolin</b>	<b>8.00 gm</b>	<b>2.00 gm</b>
<b>Castor oil</b>	<b>55.00 gm</b>	<b>13.75 gm</b>
<b>Isopropyl myristate</b>	<b>4.00 gm</b>	<b>1.00 gm</b>
<b>Saicol lake red food colour (lake color)</b>	<b>12.00 gm</b>	<b>3.00 gm</b>
<b>Perfume</b>	<b>0.80 gm</b>	<b>0.20 gm</b>

**Table: 5 Formulation 3**

<b>Ingredients</b>	<b>Standard formula</b>	<b>Required formula</b>
<b>Ozokerite wax</b>	<b>2.50 gm</b>	<b>0.625 gm</b>
<b>Beeswax</b>	<b>6.00 gm</b>	<b>1.50 gm</b>
<b>Lanolin</b>	<b>8.00 gm</b>	<b>2.00 gm</b>
<b>Castor oil</b>	<b>55.00 gm</b>	<b>13.75 gm</b>
<b>Isopropyl myristate</b>	<b>4.00 gm</b>	<b>1.00 gm</b>
<b>Saicol lake red food colour (lake color)</b>	<b>12.00 gm</b>	<b>3.00 gm</b>
<b>Perfume</b>	<b>0.80 gm</b>	<b>0.20 gm</b>

**Table: 6 Formulation 4**

<b>Ingredients</b>	<b>Standard formula</b>	<b>Required formula</b>
<b>Carnauba wax</b>	<b>2.50 gm</b>	<b>0.625 gm</b>
<b>Candelilla wax</b>	<b>6.00 gm</b>	<b>1.50 gm</b>
<b>Ozokerite wax</b>	<b>2.50 gm</b>	<b>0.625 gm</b>
<b>Beeswax</b>	<b>6.00 gm</b>	<b>1.50 gm</b>
<b>Lanolin</b>	<b>8.00 gm</b>	<b>2.00 gm</b>
<b>Castor oil</b>	<b>55.00 gm</b>	<b>13.75 gm</b>
<b>Isopropyl myristate</b>	<b>4.00 gm</b>	<b>1.00 gm</b>
<b>Mulberry powder</b>	<b>12.00 gm</b>	<b>3.00 gm</b>
<b>Perfume</b>	<b>0.80 gm</b>	<b>0.20 gm</b>

**Table: 7 Formulation 5**

<b>Ingredients</b>	<b>Standard formula</b>	<b>Required formula</b>
<b>Carnauba wax</b>	<b>2.50 gm</b>	<b>0.625 gm</b>
<b>Candelilla wax</b>	<b>6.00 gm</b>	<b>1.50 gm</b>
<b>Ozokerite wax</b>	<b>2.50 gm</b>	<b>0.625 gm</b>
<b>Beeswax</b>	<b>6.00 gm</b>	<b>1.50 gm</b>
<b>Lanolin</b>	<b>8.00 gm</b>	<b>2.00 gm</b>
<b>Castor oil</b>	<b>55.00 gm</b>	<b>13.75 gm</b>
<b>Isopropyl myristate</b>	<b>4.00 gm</b>	<b>1.00 gm</b>
<b>Plum powder</b>	<b>12.00 gm</b>	<b>3.00 gm</b>
<b>Perfume</b>	<b>0.80 gm</b>	<b>0.20 gm</b>

#### **Procedure for the preparation of herbal lipstick<sup>1</sup>**

- According to the formula, each ingredient was precisely weighed.
- The temperature of 70 °C on the hot plate by turning it on was achieved.
- The waxes are placed one by one in the China dish and warmed on the hot plate and the waxes are dissolved to form a thick liquid.
- The lake colour was added to china dish with continuous stirring and the mixture was combined with perfume.
- The lipstick mould was made ready by lubricating it with paraffin in the interim by the time the mixture has evenly dissolved all of the colour
- The mixture was poured into the lipstick mould at a consistent rate once till the uniform product is produced.
- The mixture was kept on the ice pack after it takes on the shape of the mould
- the lipsticks were removed from the mould gradually.

## Evaluation of lipsticks<sup>8</sup>

The evaluation studies are important in order to determine the efficiency, stability and the consistency of the finished product. The evaluation tests for the lipsticks are as follows:

1. **Color:** Set up a well-lit area with a mirror and a clean surface for swatching and applying the lipsticks. Make sure there is good lighting to accurately assess the colours. Start by swatching each lipstick on the back of your hand or on a white sheet of paper. This allows you to see the true colour and pigmentation of the lipstick outside of the tube.
2. **Texture:** Evaluate the texture of the lipstick. It should feel smooth and creamy when applied, without being too greasy or dry. A comfortable texture makes for easy and precise application.
3. **Skin irritation test:** This test is done by applying the lipstick on the skin and wait for 10-15 minutes to check the irritation to the skin.
4. **Melting point determination:** Melting point of lipstick is determined by capillary tube method. The capillary is filled with lipstick and attached to the thermometer. At temperature which lipstick is melted recorded as melting point. The rising point of lipstick should be between 60 to 65°C.
5. **Breaking point Test:** This test is done to determine the strength and hardness of prepared lipstick. In this method the prepared lipstick is placed horizontal position 1 inch from the base. Weight is gradually loads on attached. At the weight on which lipstick starts to Break, it is known as breaking point.
6. **Perfume Stability:** in this test the perfume stability is tested by recording how many days the perfume lasts in the lipstick.
7. **Force of application:** In this the force of the application of the lipstick is tested by applying the lipstick on the skin with a significant amount of force.
8. **Solubility test:** to check the solubility of the lipstick the lipstick is dissolved in various solvents like, distilled water, acetone, methanol, and ethanol

**Table: 8 Evaluation of herbal lipstick**

<b>Evaluation test</b>	<b>Formulation 1</b>	<b>Formulation 2</b>	<b>Formulation 3</b>	<b>Formulation 4</b>	<b>Formulation 5</b>
<b>Colour</b>	<b>Dark pink</b>	<b>Dark pink</b>	<b>Dark pink</b>	<b>Dark purple</b>	<b>Whitish brown</b>
<b>Texture</b>	<b>Smooth and glossy</b>	<b>Smooth and Glossy</b>	<b>Sticky</b>	<b>Smooth</b>	<b>Smooth</b>
<b>Skin irritation test</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Perfume stability test</b>	<b>+++</b>	<b>++</b>	<b>+</b>	<b>+++</b>	<b>+++</b>
<b>Breaking point</b>	<b>35gm</b>	<b>25gm</b>	<b>20gm</b>	<b>35gm</b>	<b>34gm</b>
<b>Force of application</b>	<b>Good</b>	<b>Easy</b>	<b>Easy</b>	<b>Good</b>	<b>Good</b>
<b>Melting point</b>	<b>65°C</b>	<b>55°C</b>	<b>45°C</b>	<b>65°C</b>	<b>55°C</b>
<b>Solubility test</b>	<b>Not soluble</b>	<b>Lightly Soluble</b>	<b>Soluble</b>	<b>Not soluble</b>	<b>Not soluble</b>
<b>Aging stability</b>	<b>Smooth</b>	<b>Smooth</b>	<b>Sticky</b>	<b>Smooth</b>	<b>Smooth</b>

**DISCUSSION**

- The goal of the current study on the formulation and assessment of herbal lipsticks was to create a lipstick with herbal ingredients and understand the function of waxes in the formulations.
- Using various ingredients, we created five formulations. The waxes used in three formulations all have the same color. The other two formulations come from the powdered fruit of mulberry and plum.
- The formulations were assessed for various tests, and it was discovered that formulation 3 with ozokerite did not exhibit the anticipated outcomes. Formulation 2 contains candelilla and carnauba waxes, making it slightly superior. The three waxes Carnauba wax, Candelilla wax, and ozokerite wax was found in Formulations 1, 4, and 5 were found to be stable.
- Except plum all the formulations exhibited good colour.
- With the exception of formulation 3, all of the formulations F1, F2, F4, and F5 exhibited a good texture.
- The carnauba wax containing formulations, namely Formulations 1, 2, 4, 5 turned out to have a higher breaking point.
- No formulation of lipstick caused skin irritation.

- In the solutions of distilled water, ethanol, and acetone, all of the formulations were dissolved. F1, F4 and F5 were found to be insoluble in the solutions, in contrast to F2, and F3.

## **CONCLUSION**

There has been an enormous growth in the application of cosmetics products by women in the past several decades, but the toxic effects occurring due to the cosmetics have been a problem only recently.

The current project aims to formulate and evaluate the lipstick formulation with the dried powder of mulberry and plum fruit. To check the stability of the product by formulating the lipstick with the little change in the ingredients and evaluating them to study how the formulation is affected by the excipients, and to know the best formulation that can be formulated.

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