A REVIEW ON HERBAL LIPSTICK AND NATURAL COLORS

Anju Varghese*, K. Krishnakumar, Dineshkumar B, Anish John

Dept. of Pharmaceutics, St James College of Pharmaceutical Sciences, Chalakudy, Kerala, INDIA

Abstract

From ancient times the demand of cosmetics are incredible. Lipstick formulations are used to augment the beauty of lips. Lipstick is a cosmetic product containing pigments, oils, waxes, and emollients that apply colour, texture, and protection to the lips. Many varieties of lipstick are available and that are exclusively worn by women. Continuous use of synthetic colours in the lipstick may cause serious adverse effects like skin irritation, skin discoloration, cancer etc. The adverse effect can be reduced by using natural colour extracts from different natural sources. This review mainly focus on formulation, extraction of natural colorants, evaluation of lipstick and defects in lipstick.

Keywords: Herbal lipstick, Natural colorants, Extraction.

Corresponding Author:

Anju Varghese
Dept. of Pharmaceutics,
St James College of Pharmaceutical Sciences,
Chalakudy, Kerala, INDIA
St James Hospital Trust Pharmaceutical Research Centre (DSIR Recognized), Chalakudy, Kerala
E-mail: stjamespharmacyproject@gmail.com
Phone: 0480 2710936

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INTRODUCTION

Cosmetics are the substances used to alter the appearance or fragrance of human body. Now a day’s the demand of herbal cosmetics in the world market are growing and are inevitable gifts of nature. There are a wide range of herbal cosmetic products to satisfy the needs of women. In contrast to the synthetic one the herbal cosmetics are safe on human health [1]. Lipsticks are most widely used cosmetic added in the makeup to enhance the beauty of lips. In present days the use of product has increased and a lot of changes occur in the choice of shades of colours, textures, lustre of the lipstick. A good lipstick should have persuading characteristics and be acceptable to consumers, such as having a suitable texture and antioxidant properties. Bases, oils, emollients and colorants are among the variety of components that contribute to the properties of fine lipstick. Texture, melting point and hardness of the lipstick are the dominant characteristics that are modified by varying the ratio of the components that are used in the formulation [2]. Colorants or pigments are the components that play an important role in the lipstick formulation as it determines the aesthetic value of the lipstick. Colorants can be from synthetic and natural sources. Synthetic colours are manufactured chemically. The synthetic dyes that contribute the colour to the lipstick are dangerous to humans on consumption and may cause adverse effects such as allergy, dermatitis, skin discoloration, drying of lips etc. In some cases they can be carcinogenic and even fatal. This limitation thus leads the use of natural colorants in production of lipstick. Natural colours are extracted from natural sources such as plants, insects, algae [3].

IDEAL CHARACTERISTICS OF A GOOD LIPSTICK

✓ Smooth and easy to apply.
✓ Non-irritant and non-toxic.
✓ Should have attractive colour and shine.
✓ Free from grittiness and should be non-drying.
✓ It should have required plasticity.
✓ It should have pleasant taste, odour and flavour.
✓ Don’t lose its smooth and shiny appearance during storage.
✓ Stable during its shelf life- means free from bloom or sweating during storage.
✓ It should not melt or harden within reasonable variation of climatic temperature. [4]

ANATOMY OF LIPS

Lips are soft, movable body part at the mouth of humans and helps for the intake of food and speech. "Labium superius oris" and "Labium inferius oris", are the upper and lower lips respectively. The meeting point where the lips join the surrounding skin of the mouth area is
the vermilion border and reddish area within the borders is called the vermilion zone. Cupid’s bow is the vermilion border of the upper lip. The fleshy protuberance located in the centre of the upper lip is a tubercle [5].

![Anatomy of lips](image)

**Fig.1: Anatomy of lips**

**FORMULATION OF LIPSTICK**

Lipstick is composed of waxes, oils, pigments, and emollients which are adjusted to desired melting point and viscosity. Various agents in lipstick formulations are:

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>%(W/W)</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Solid Waxes (bees wax, carnauba wax, candelilla wax)</td>
<td>10</td>
<td>Provides hardness and creaminess</td>
</tr>
<tr>
<td>II. Softening Agents (wool fat, lanolin, lecithin, cocoa butter)</td>
<td>15</td>
<td>Lubricates lipstick after application</td>
</tr>
<tr>
<td><strong>Oil</strong> (castor oil, liquid paraffin)</td>
<td>65</td>
<td>Dispensing the pigment and give high gloss to the lipstick</td>
</tr>
<tr>
<td><strong>Colouring agents/pigments/staining dyes</strong></td>
<td>Adequate</td>
<td>Give colour</td>
</tr>
<tr>
<td><strong>Perfumes</strong></td>
<td>Adequate</td>
<td>Give aroma</td>
</tr>
<tr>
<td><strong>Miscellaneous agents</strong> (preservatives, antioxidants, flavours)</td>
<td>Adequate</td>
<td>Stabilise the formulation</td>
</tr>
</tbody>
</table>

**ADVANTAGES OF NATURAL LIPSTICK**

- The ingredients in the natural lipstick are all natural and are safe to use.
- They also contain natural nutrients that keep lips healthy.
- They have fewer or no aspect impacts.
- They are non-toxic, highly lipophilic, antioxidant, anti-microbial, anti-inflammatory and are used in leucoderma of lips.
- Extensive range of colours to choose from.
- Colorant has different original shades of colours from purplish red, ruby red, beetroot purple, dark violet, pastel red, pale red, purplish red, rose red, deep magenta, dark purple, orange, deep violet.
Different combinations and shades can be obtained from these colours.

By adding organic and inorganic acids and bases, colour may be changed to different shades [6].

NATURAL COLOURING AGENTS

Natural colouring agents are extracted from natural sources such as animals, plants, insects, algae etc. Mainly natural colorants are extracted from different plant sources such as fruits, roots, seeds, leaves etc.

Table 2: Common Colour and Plant Sources [7]

<table>
<thead>
<tr>
<th>COLOUR</th>
<th>CHROMOPHORE</th>
<th>PLANT SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purple blue</td>
<td>Anthocyanin</td>
<td>Grapes, blueberry, plum, purple cabbage, black berry</td>
</tr>
<tr>
<td>Green</td>
<td>Chlorophyll</td>
<td>Avocado, cucumber, spinach, broccoli, lettuce, kiwi</td>
</tr>
<tr>
<td>White-tan</td>
<td>Anthoxanthins</td>
<td>Cauliflower, potato, ginger, onions, banana</td>
</tr>
<tr>
<td>Yellow orange</td>
<td>Carotenoids</td>
<td>Papaya, pine apple, pumpkin, carrot, orange</td>
</tr>
<tr>
<td>Red</td>
<td>Lycopene</td>
<td>Beet root, tomato, strawberry, watermelon, pomegranate</td>
</tr>
</tbody>
</table>

EXTRACTION OF NATURAL COLOURING AGENTS

EXTRACTION OF BIXIN FROM BIXA ORELLANA (Annamto)

The reddish orange colour dye of the annatto is comes from the outer covering of the seeds of the plant and is composed of the carotenoid pigments bixin, nor-bixin, and their esters. Dry seeds of Bixa orellana and powder it. Then extract 100gm of sample with ethanol (60-80°C) for 18 hrs. (ratio 1:2). After completion of extraction, filter the extract while hot through Whatman filter paper (No.10) to remove impurities if present. Concentrate the extract volume to 1/10 by vacuum distillation; then transfer the extract to 100 ml beaker and evaporate the remaining solvent on a water bath. Keep dark reddish extract in desiccators to remove the excessive moisture. Then pack dried extract in air tight glass container [8].

EXTRACTION OF BETANIN FROM BETA VULGARIS (Beetroot)

Beetroot is that the main supply of natural red dye, called “beetroot red”. Betanine is that the main part of the red colorant extracted from common beet. The roots are most typically deep red-purple in colour, however are available a large kind of alternative shades, as well as golden yellow and red-and-white stripy. Extraction of pigment is by homogenization of equal ratio of fruit pulp and solvents (1/1 w/v). Take 100 g of the peeled fruit, of watery consistency, and macerate it with 100 mL solvents (EtOH, aqueous ethanol 50:50) for 15 minutes under ice bath. Centrifuge the

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aqueous mixture at 18,000 rpm, 4°C for 20 min, and filter immediately through nylon mesh. By using rotary evaporator concentrate the extract in vacuum at 35°C, to 3–4 ml. completely remove the alcohol through concentration process and keep the samples in a dark vessel [9].

EXTRACTION OF LYCOPENE FROM DAUCUS CARROTA (Carrot)

Carrot is a fruit or vegetable containing a large amount of carotenoid compound and that can be used as natural dye. Lycopene is the main part of the colour that extracted from the carrot. Dry the fresh carrots at 40°C in an oven. Coarsely powder the sample using a mixer grinder. Mix 50g of this air dried sample with 450ml of 95% ethanol. Then incubate it for 24hr and filter it. Evaporate the solvent under vacuum and keep extract at 4°C [10].

EXTRACTION OF BETALAINS FROM HYLOCERUS POLIRHZUS (Dragon Fruit)

Natural colorant present in the dragon fruit is betalains. Betalains, a group of natural pigments, include the betacyanins (red-violet) and the betaxanthins (yellow). The extraction technique for dragon fruit is solvent extraction by using n-hexane and ethanol. Grind 20g of sample using a blender and soak this in the n-hexane and ethanol for an overnight. Completely remove the solvents by rotary evaporator. Repeat this for three times until the extraction is over [11].

EXTRACTION OF LYCOPENE FROM LYCOPERSICON ESCULENTUM (Tomato)

Lycopene is the major colouring principle present in the tomato. Lycopene in tomatoes and tomato products consists of trans-lycopene (35-96% of the total lycopene content) and low levels of cis-lycopenes (1-22%). Crush the tomatoes into crude tomato juice and separate juice into pulp and serum. Take 100gm of sample in a beaker. Then warm the paste and add 30 ml of warm benzene (40°C) to it. Stir well and decant the benzene layer. Again add 30 ml warm benzene, stir and decant the benzene. Repeat this for 5 times. Then distil off benzene and we got residue of and recrystallize residue by ether [12].

METHOD OF PREPARATION

- First, melt and mix the raw ingredients for the separately according to their melting point.
- Heat the solvents, oils, waxes in separate stainless steel or ceramic containers.
- Then mix solvent and liquid with the colour pigments.
- Mix the pigment mass with the hot wax.
- Then pour this into tubing moulds, cool, and separate the lipstick from the mould and fit it in the lipstick case [13].
EVALUATION OF LIPSTICK

Melting Point
Take both ends open glass capillary tubes. Introduce into each of 5 capillary tubes a sufficient amount of the lipstick, about 10 mm high and allow the tubes to stand for the appropriate time and at the prescribed temperature in capillary tube apparatus. The temperature at which the substance begins to melt in the capillary tube is taken as the melting point. Repeat the operation 3 times using other 4 capillary tubes and calculate the result.

Breaking Point
Breaking point test is to determine the strength of lipstick. Place lipstick horizontally in a socket inch away from the edge of support. Increase the weight by a specific value (10gm) at specific interval of 30 second and weight at which breaks is considered as the breaking point [14].

Force of Application
It is test for determine the force to be applied for application. Keep a piece of coarse brown paper on a shadow graph balance and apply lipstick at 45° angle to cover a 1 sq. Inch area until fully covered. The pressure leading is an indication of force of application.

Surface anomalies
This test is for determining the surface defects, such as no formation crystals on surfaces, no contamination by moulds, fungi etc.

Aging stability
Store the products in 40°C for 1 hour and observing various parameters such as application characteristics, crystallisation of wax on surface and oil bleeds [15].

Solubility test
Dissolve the lipstick in different solvents and observe the solubility in each solvent.

pH parameter
Determine the pH of the lipstick by using pH meter.

Skin irritation test
Apply the lipstick on the skin for 10 min and observe.

Perfume stability
Perfume stability can also be assessed by storing lipsticks in oven at 40°C and by making periodic comparison of perfume with fresh lipstick [16].
DEFECTS IN LIPSTICKS

FORMULATION RELATED PROBLEMS

Sweating
It is the most common problem of lipstick formulation due to high oil content or inferior oil binding. It may rise in any climate or temperature range

Bleeding
This refers to the separation of coloured liquids from the waxy base.

Streaking
A thin line or band of a different colour or a substance appears on the finished product.

MOULDING RELATED PROBLEMS

Laddering
Lipstick does not look smooth or homogenous after congealing and setting but instead has a multi-layered appearance.

Deformation
This is a moulding problem where the shape of the lipstick looks deformed. It is noticeable and appears on both sides of the lipstick.

Cratering
this appears in split moulding and it shows up flaming when stick develops dimples

Mushy Failure
This is a problem in which the central core of the lipstick lacks structure and breaks [17].

CONCLUSION

This review concludes that the use of natural colorants in lipstick formulations having no or minimum side effects. Thus we can move towards the use of natural colorants to prepare lipstick. Hence the use of natural colour is step towards healthy cosmetics and which can be widely utilised by the women with great pleasure.

REFERENCE


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