

## A REVIEW ON HERBAL LIPSTICK FROM DIFFERENT NATURAL COLOURING PIGMENT

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<p><b>*For Correspondence:</b> Department of Pharmaceutics, P.S.G.V.P.Mandal's, College of Pharmacy, Shahada- 425409, Dist. -Nandurbar, Maharashtra, India.</p>	<p><b>ABSTRACT</b> 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 color, texture, and protection to the lips. Many varieties of lipstick are available and that are exclusively worn by women. The ingredient in the natural lipstick is all natural and is safe to use. They also contain natural nutrient that keep lips healthy. Continuous use of synthetic colors in the lipstick may cause serious adverse effects like skin irritation, skin discoloration, cancer etc. The adverse effect can be reduced by using natural color extracts from different natural sources. This review mainly focus on formulation, extraction of natural color-ants, evaluation of lipstick and defects in lipstick.</p> <p><b>KEY WORDS:</b> Herbal lipstick, Natural colorants, Bixa Orenella , Beta Vulgaris, Daucus Car-rota, Hylocereus Polirhizus.</p>
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### INTRODUCTION

Cosmetic are substances used to enhance the appearance of the human body. Cosmetic means any article intended to be sprayed poured rubbed or sprinkled on, or introduced into or any parts for cleansing, beautifying, promoting attractiveness or altering the appearances. Cosmetic also include skin care skin, lotions, powders, perfumes, fingernails and toy nail polish, eye, color contact lenses hair colors, hair spray and gels, deodorants, baby products oils, bubble bath, bath salts, butters and many other types of product are in a great demand in both developing and developed countries.<sup>[1]</sup> Cosmetics are the substance use to alter of appearance or fragrance of human body. Nowadays the demand of herbal cosmetic in the world market are growing and are inevitable gifts of nature. There are a wide range of herbal cosmetic products to satisfy the need of women. In contrast to synthetic one the herbal cosmetic are safe on human health.<sup>[2]</sup> Lipstick are most widely used cosmetic added in the make up to enhance the beauty of lips. In present days the used of product has increase and a lot of changes occur in choice of shades of color, textures, luster of the lipstick. A good lipstick should have persuading characteristics and be acceptable to consumer, such as having a suitable texture and antioxidant properties. Bases, oils, emollient and colorant are among the variety of components that contribute to properties of fine lipstick. Texture, melting point and hardness of lipstick are the dominant characteristics that are modified by varying the ratio of component that are used in the formulation.<sup>[3]</sup> Colorant or pigment are the component that play and important role in the

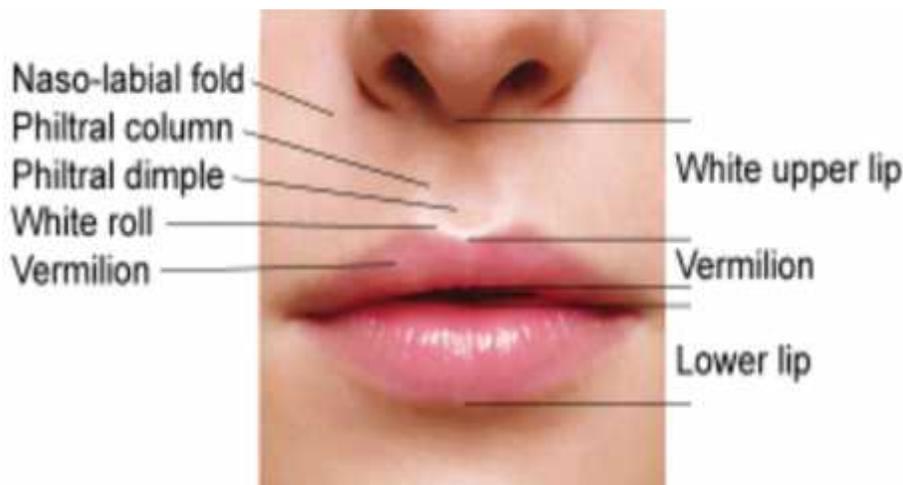
lipstick formulation as it determines the aesthetic value of lipstick. Colorant can be from synthetic and natural sources. Synthetic colors are manufactured chemically. The synthetic dyes that contribute the color to the lipstick are dangerous to human on consumption and may cause adverse effect such 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 colors are extracted from natural sources such as plants, insects, and algae.<sup>[4]</sup>

**Ideal Characteristics of Good Lipstick:**

- 1) It should be non - irritant.
- 2) It should have required plasticity.
- 3) It should non-toxic.
- 4) It should be stable both physically and chemically.
- 5) It should not dry on storage.
- 6) It should be free from greatly particle.
- 7) It should maintain lip color for longer period after its application.
- 8) It should give shiny and smooth appearance free from sweating.
- 9) It should have pleasant taste, odor and flavor.
- 10) It should not melt or harden within reasonable variation of climatic temperature.<sup>[5]</sup>

**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 ores” and “ Labium inferiors ores”, are the upper and lower lips respectively. The meeting point where the lips joint the surrounding skin of smooth area is the vermilion border and reddish area within the border is called the vermilion zone. Cupid’s bow is the vermilion border of upper lips. The fleshy protuberance located in the center of the upper lip is a tubercle.<sup>[6]</sup>



**Fig 1: Anatomy of lips**

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

**Table 1: Components of lipstick and function**

INGREDIENTS	%(W/W)	FUNCTION
<b>Base:</b> I. Solid waxes (bees wax, carnauba wax, candelilla wax) II. Softening agent (wool fat, lanolin, lecithin, cocoa butter)	10 15	Provides hardness and creaminess Lubricates lipstick after application
Oil (castor oil, liquid paraffin)	65	Dispensing the pigment and give high gloss to the lipstick

Coloring agent/pigment/staining dyes	Adequate	Give color
Perfumes	Adequate	Give aroma
Miscellaneous agents (Preservatives , antioxidants, flavors)	Adequate	Stabilize the formulation

#### Advantages of Natural Lipstick:-

- 1) The ingredient in the natural lipstick is all natural and is safe to use.
- 2) They also contain natural nutrient that keep lips healthy.
- 3) They have fewer or on aspect impacts.
- 4) They are non-toxic, highly lipophilic, anti-oxidants, anti-microbial, anti- inflammatory, and are used in leucoderma of lips.
- 5) Extensive range of color to choose form.
- 6) Colorants has different originals shades of color from purplish red, ruby red, beetroot purple, dark violet, pastel red, pale red, purplish red, rose red, deep magenta, dark purple, orange , deep violet.
- 7) Different combination and shades can be obtained from these colors.
- 8) By adding organic and inorganic acids and bases color may be changed to different shades<sup>[7]</sup>

**Natural Coloring Agents:** - Natural coloring 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 and leaves etc.

**Table 2:-Common Color and Plant sources<sup>[8]</sup>**

COLORS	CHROMOPHORE	PLANT SOURCES
Purple-blue	Anthocyanin	Grapes, blueberry, plum, purple cabbage, black berry
Green	Chlorophyll	Avocado, cucumber, spinach, broccoli, lettuce, kiwi
White-tan	Anthoxanthins	Cauliflower, potato, ginger, onions, banana
Yellow -Oranges	Carotenoids	Papaya, pineapple, pumpkin, carrot, orange
Red	Lycopene	Beet root, tomato, strawberry, watermelon, pomegranate

#### EXTRACTION OF NATURAL COLORING AGENTS

##### Extraction of Bixin Form *Bixa Orenella* (Annatto)

The reddish orange color dye of the annatto is comes from the outer covering of the seeds of the plants and is composed of the carotenoids pigment bixin, nor-bixin and their esters. Dry seeds of *Bixa orenella* and powder it. Then extract 100gm of sample with ethanol (60-80\*c) for 18 hours.(ratio 1:2). After completion of extraction, filter the extract while hot through what Mann filter paper (NO.10) to remove impurities if present. Concentrate the extract volume to 1/10 by vacuum distillation; then transfer the extract to 100ml beaker and evaporate the remaining solvent on water bath. Keep dark reddish extract in desiccators to remove the excessive moisture. Then pack dried extract in air tight glass container.<sup>[9]</sup>

##### Extraction of Betanin from *Beta Vulgaris* (Beetroot)

Beetroot is that the main supply of natural red dye , called "beetroot red". Beta nine is that main part of the red colorants extracted from common beet. The roots are most typically deep red-purple in color, 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 (1/1w/v). Take 100g of the peeled fruit, of watery consistency, and macerated it with 100ml. solvents (EtOH, aqueous ethanol 50:50) for 15 minutes under ice bath. Centrifuge the 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.<sup>[10]</sup>

##### 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 color 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.<sup>[11]</sup>

#### **Extraction of Betalains from *Hylocereus Polirhizus* (Dragon Fruit)**

Natural colorant present in the dragon fruit is bet Alanis. 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.<sup>[12]</sup>

#### **Extraction of Lycopene from *Lycopersicon Esculentum* (Tomato)**

Lycopene is the major coloring 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-lycopene (1-22%). Crush the tomatoes into the crude tomato juice and separate juice into pulp and serum. Take warm the paste and add 30ml 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.<sup>[13]</sup>

#### **Extraction of Anthocyanins from *Ipomoes Batatas* (Potato)**

A Certain Proportion Of Citric Acid And Ethanol Mixture Was Used To Extract The Purple Sweet Potato Pigment from purple sweet potato wine vinasse powder by oscillation extraction for 90 min at 60\*c. The supernatant was recovered by centrifugation (5000rpm, 5 min). The extraction was repeated for 2 times and the supernatant was merged as crude extract of purple sweet potato pigment.

#### **Extraction of Phenolic Compound from *Citrus Sinensis* (Orange)**

Extraction experiment was carried out with a quadruple soxhlet apparatus and a refrigerator water circulator re-cooler connected to the extractor to provide condensation of the solvent and also to obtain the phenolic pigment. Ethanol was used as solvent. The process lasted about 6 hours. To obtain orange colored extract in powder form, Heidolph brand Hei-VAP Precision model rotary evaporator was used and the semi-fluidized sample left to dry in the dark.

#### **Extraction of Lycopene from *Citrullus Lanatus* (Watermelon)**

Watermelon pigment is usually extracted with organic solvents such as chloroform, hexane, acetone, benzene, petroleum ether and carbon disulfide. The efficient mechanical grinding of the material can be used to facilitate extraction. Exposure of extracted lycopene to light should be avoided and only gold, yellow or red light should be used reported that heating at 60 and 80\*c favored the isomerization of lycopene. Heating treatment at 120\*c and longtime heating treatment at 100\*c improved the extraction of lycopene from pure matrix. Exposure to light caused no significant change to total and all Trans lycopene, although significant loss of cis-isomer lycopene was observed.

#### **METHOD OF PREPRATION**

- 1) First, melt and mix the raw ingredient for the separately according to their melting point.
- 2) Heat the solvents, oils, waxes in separate stainless steel or ceramic containers.
- 3) Then mix solvents and liquid with the color pigments.
- 4) Then our into tubing molds, cool, and separate the lipstick from the molds and fit it in the lipstick from the mold and fit it in the lipstick case.<sup>[14]</sup>

#### **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 10mm high and allow the tubes to stand for the appropriate time and at the prescribed temperature in capillary tube is taken as the melting point. Repeat the operation 3 times using other 4 capillary tubes and calculate the result.

**Breaking point:** - Value (10gm) at specific interval of 30 second and weight at which breaks Breaking point test is to determine the strength of lipstick. Place lipstick horizontally in a socket inch away from the edge of support. Increased the weight by a specific is considered as the breaking point.<sup>[15]</sup>

**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\*c 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 molds, fungi etc.

**Aging stability:** -Store the product in 40\*c for 1 hour and observing the various parameters such as application characteristics, crystallization of wax on surface and oil bleeds<sup>[16]</sup>

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

**PH parameters:** - Determine the PH of the lipstick by using PH meter.

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

**Perfume stability:** -Perfume stability can also be assessed by storing lipstick in oven at 40\*c and by making periodic comparison of perfume with fresh lipstick<sup>[17]</sup>

**Thixotropy character:-**

It is the indication of thixotropic quality and was done by using penetrometer. A standard needle of specific diameter was allowed to penetrate for 5 seconds under a 50gm load at 25\*c. The depth of penetration was a measurement of the thixotropic structure of lipstick.

## DEFECTS IN LIPSTICK

### Formulation Related Problem

**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 separation of colored to the liquids from the waxy base.

**Streaking:** - A thin line or band of a different color or substances appears on the finished product.

### Molding 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 molding 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 molding 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<sup>[18]</sup>

## CONCLUSION

This review concludes that the use of natural colorants in lipstick formulation having no or minimum side effect. Thus, we can move towards the use of natural colorants to prepare lipstick. Hence the use of natural color is step to-wards healthy cosmetics and which can be widely utilized by the women with great pleasure.

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