

Formulation and Evaluation of Poly Herbal Lipstick by using Natural Coloring Agents

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Abstract: Lipsticks are the beauty products that contain waxes, oils, pigments and emollients that help providing color, texture and protection to the lips. Herbal lipstick is a type of lipstick made with natural coloring agents like plants or plant based products (it includes leaves, barks, fruits and pulp of the fruits etc.) rather than synthetic chemicals and these herbal lipsticks have a variety of properties including antioxidant, antibacterial and anti-inflammatory effects. The plan of the present study to formulate the poly herbal lipstick with the natural coloring agents like Annatto powder, Beet root powder, Carrot powder, Pomegranate powder and evaluate the formulated poly herbal lipstick. The evaluated poly herbal lipstick is shows pH of 6.7, Melting point of 62°C, soluble in methanol, force of application is easy, perfume stability also good and no irritation. From the current study concluded that the use of natural coloring agents in lipstick formulation has no side effects

Keywords: Bees Wax, Annatto powder, Beetroot powder, Carrot powder, Pomegranate powder, Natural coloring agents.

I. INTRODUCTION

The word cosmetics are defined as the compounds of mixture of chemical compounds derived from natural sources or synthetically used to enhance the appearance of the human body it includes powders, creams, lipsticks, deodorants, lotions, perfumes, soaps, nail paints, hair colors and many more. These products are very demand in developed and developing countries¹, with the advanced science and technology the use of natural products including plants and plant based products is increased. Lipsticks are the beauty products that contain waxes, oils, pigments and emollients that help providing color, texture and protection to the lips. However, there is increasing of use of plants or plant based products in drugs and cosmetic products in ancient period. Herbal lipstick is a type of lipstick made with natural coloring agents like plants or plant based products (it includes leaves, barks, fruits and pulp of the fruits etc.) rather than synthetic chemicals and these herbal lipsticks have a variety of properties including antioxidant, antibacterial and anti-inflammatory effects. The present work was conceived by us to formulate an herbal lipstick having no side effects, which will widely used by the woman's with great surety and satisfaction^{3, 4} and also formulated herbal lipsticks provide the color, texture and protection to the lips and also can act as lip balm, adding hydration^{5, 6, 7, 8}. The adverse effects are observed with synthetic products that consist of synthetic ingredients and no adverse effects by using natural plant or plant based products in the poly herbal preparations. The literature survey for formulation of poly herbal lipstick in ayurveda, Charaka Samitha stated using of numerous medicinal plants or plant based products with less or no side effects. The *Bixa orellana*⁹ plant (commonly Annatto plant) has bixin (oil soluble) and norbixin (water-soluble) and coloring Agent, emollient and source of anti-oxidant. *Beta vulgaris* (beet root) is a plant from Chenopodiaceae family that is concluded in *Amaranthaceae* family, red purple color of beets due to the variety of betanin pigments and is



commonly used industrially as a red feed coloring agent in lipstick^{10, 11}. Carrot powder and pomegranate powders are used as coloring agents, bees wax, coconut oil and castor oils are used as moisturizer¹².

II. EXCIPIENT PROFILE

Table No.1: List of materials used in formulation

S. No.	Name of the Ingredient	Biological source	Chemical Constituents	Category	Images
1	Bees Wax	It is primarily produced by young worker honeybees of the genus <i>Apis</i> .	- Carbon (73.3%), - Hydrogen (13.2%) - Oxygen (7.5%).	Moisturizer	
2	Coconut Oil	It is derived from the dried meat (copra) of the coconut fruit, which comes from the coconut palm tree (<i>Cocos nucifera</i>)	- Lauric acid C-12:0 (49%), - Myristic acid C-14:0 (8%).	Moisturizer	
3	Castor Oil	Castor oil is sourced from the seeds of the <i>Ricinus communis</i> plant, which belongs to the <i>Euphorbiaceae</i> family.	It is mainly composed of fatty acids and neutral lipids.	Moisturizer, Laxative	
4	Olive Oil	It is a liquid fat obtained from olives.	- Triacylglycerols and - Free fatty acids.	It is used as superior hydration.	
5	Annatto Powder	It consist the seeds of <i>Bixaorellana</i> plant (Commonly lipstick plant).	- Bixin (Oil soluble) - Norbixin (Water-soluble).	Coloring Agent, Emollient and source of anti-oxidant	
6	Beetroot Powder	It is the roots of the beetroot plant, scientifically known as <i>Beta vulgaris</i> .	- Betalains, - Flavonoids, - Polyphenols, - Saponins	Coloring Agent, Emollient.	
7	Carrot Powder	It consists of fresh root of <i>Carota sativa</i> .	α and β-carotene, - Lycopene, - Vitamin A, vitamin K, and vitamin B6.	Antioxidant	
8	Pomegranate Powder	It is manufactured by the extraction of juice from pomegranate seeds.	- Ellagic acid and - Various Polyphenols	Antioxidant, flavor and sweeter	
9	Vitamin E	The main biological sources are plant-based oils, nuts, seeds, and green leafy vegetables.	α, β, γ, and δ-tocopherols and - Fourtocotrienols.	Preservative and softener.	

10	Rose Oil	It is obtained from the petals of different Rosa species.	• Citronellol, • Geraniol, • Nerol, • Linalool.	Fragrance and natural aroma	
11	Lemon Juice	It is derived from the ripe fruit of the lemon tree, scientifically known as <i>Citrus limon</i> .	• Citric acid and • Carboxylic acid	Bleaching agent	

III. MATERIAL AND METHODS

Materials:

Selection of plants/plant materials:

The selection of plants/plant materials used in the formulation of poly herbal lipstick is based on the literature review.

Material collection:

The Annatto seeds were collected from the Council of Scientific and Industrial Research- Central Institute of Medicinal and Aromatic Plants (CSIR-CIMAP), which is located in Boduppal, Hyderabad, and Telangana and remaining fruits were collected from local market of Choutuppal, Yadadri and Telangana.

Extraction methods:

- **Annatto Powder Preparation:** Freshly collected dried fruits of annatto plant collect the seeds into a motor pastel and smash the seeds and get the powder collect into container.
- **Beetroot Powder Preparation:** Freshly collected beetroots are washed, peeled and cut into small pieces and spread it over a butter paper or cloth, cover with a fine mesh and allow it to dry for a day. If they are not dried properly kept it in an oven and after cooling grind it into a fine powder by using grinder and sieve it with defined pore sized sieve.
- **Carrot powder Preparation:** Take freshly collected carrots and remove their upper layer by the help of peeler. The peeled carrots are dried for a day then the dried carrots pieces was poured into a grinder to grind into fine powder.
- **Pomegranate powder Preparation:** First of all take the washed pomegranates cut into pieces and peeled it. Then the pomegranate seeds are separated and dried it then grind the dried seeds of pomegranate and collect the powder.

Table 2: Formulation of Lipstick

S. No.	Ingredients	Weights
1	Bees Wax	7 grams
2	Coconut oil	2 ml
3	Olive oil	4 ml
4	Castor oil	2 ml
5	Annatto powder	2 grams
6	Beetroot powder	2 grams
7	Carrot powder	2 grams
8	Pomegranate powder	2 grams
9	Rose oil	q. s
10	Vitamin E capsule	1 ml
11	Lemon Juice	0.5 ml



IV. WORKING PROCEDURE

1. Wash and dry the lipstick molds with water. After lubricating it with liquid paraffin, flip it over.
2. Measure and store the beeswax in a beaker placed in a water bath maintained at 70°C until complete melting is achieved (Waxy Phase).
3. Combine the olive, castor, and coconut oils in a separate beaker and position it over a water bath maintained at 70°C. Add the oils according to their melting points (Oily Phase).
4. Next, gradually add the powdered Annatto, beetroot, carrot, and pomegranate to the oily phase beaker and thoroughly mix to create a homogenous mixture.
5. Add rose oil, lemon juice, and a vitamin E capsule after cooling the beaker containing the oily phase.
6. After thoroughly mixing the oily and waxy phases, pour the liquid into the lipstick mold's cavities until it overflows, then set the mold on ice for 30 minutes.
7. After solidification, trim or shred any excess using a knife or blade, then open the mold to remove the lipstick.
8. Stuff each lipstick into its own container.

V. EVALUATION PARAMETERS

1. **Melting point:** - Melting point: The determination of melting point is crucial as it indicates the limit for safe storage. The melting point of the formulated lipstick was determined using the capillary tube method. The capillary was filled and placed in the capillary apparatus, where it was observed that the product melted gradually. After some time, the substance had totally melted. The melting point ratio was noted in each formulation after the aforementioned process was carried out three times.
2. **Solubility test:** To determine the formulation's solubility, poly herbal lipstick was dissolved in a range of solvents.
3. **pH:** - A pH meter was used to measure the herbal lipstick's pH.
4. **Color:** - The process of evaluating lipstick color entails analyzing the color's coverage, intensity, longevity, and lip-sticking properties.
5. **Breaking point:** The purpose was to ascertain the lipstick's strength. The lipstick was positioned horizontally in a socket one inch from the support's edge. The weight at which it broke was regarded as the breaking point, and it was progressively increased by a predetermined amount (10 gm) at predetermined intervals of 30 seconds.
6. **Force of application:** This test determines how much force will be applied. A piece of coarse brown paper kept on a shadowgraph balance and lipstick was applied at 45° angle to cover a 1 sq. Inch area until fully covered. The pressure reading is an indication of force of application.
7. **Surface anomalies:** This was investigated for surface flaws such the absence of crystal formation and mold, fungal, and other contaminants.
8. **Aging stability:** For one hour, the product was kept at 40°C after that numerous factors were noted, including bleeding, surface crystallization, and application ease.
9. **Skin irritation test:** The product is applied to the skin and left there for ten minutes.
10. **Perfume stability:** In order to record aroma, the herbal lipstick composition was tested after 30 days.

VI. RESULTS AND DISCUSSION

Table No.3: Outcomes of the Evaluation Criteria

S.No.	Parameters	Results
1.	Melting point	62 °C
2.	Solubility test	Soluble in methanol
3.	pH Value	6.7
4.	Color	Wine red
5.	Breaking point	50grams
6.	Force of application	Easy
7.	Surface anomalies	No defect



8.	Aging stability	Smooth
9.	Skin irritation	No
10.	Perfume stability	++

RESULTS

The poly herbal lipstick was formulated and evaluated; it was found that the pH of the formulation was 6.7; the melting point of the formulation was about 62°C, the color of the formulation was wine red in color; the formulated poly herbal lipstick is soluble in methanol; the force of application of the formulation was easy; the perfume stability of the formulation also very good and no irritation occurs after application of poly herbal lipstick, by the above results it was concluded that the formulated poly herbal lipstick has better option to the use because of the no side effects when compare with the synthetic formulation.

DISCUSSION

Lipstick with the natural ingredients is safer than the synthetic means the chemical-based lipstick. Lipstick prepared with the natural ingredients has ability to protect the lip. The present work formulation and evaluation of poly herbal lipsticks were carried out to formulate a poly herbal lipstick using natural coloring agents which has minimum side effects compared synthetic ones. The aim of the present study to prepare the poly herbal lipstick from the natural coloring agents from the Annatto powder, Beet root powder, Carrot powder, Pomegranate powder and evaluate the prepared herbal lipstick it better option as compared to the synthetic color which have precarious side effects. The formulated poly herbal lipstick showed promising results.

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