



IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals

ISSN 2349-7203




Human Journals

Research Article


September 2022 Vol.:25, Issue:2

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Formulation and Evaluation of Herbal Lipstick from Beetroot and Carrot Juice



IJPPR
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals



ISSN 2349-7203

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Submitted: 21 August 2022
Accepted: 27 August 2022
Published: 30 September 2022

Keywords: Herbal lipsticks, Beet Root, Carrot juice, Natural ingredients

ABSTRACT

The safety and reliability of natural products have generated the need to produce herbal-based products. The utilization of natural beauty care products has become progressively famous among present-day in women. Herbal lipstick is a cosmetic product containing pigments, waxes, oils, fragrances, preservatives, antioxidants and colours. Herbal lip beautifying products are made-up of natural plant extracts that rejuvenate and revitalize lipskin with new freshness. The objective of the present study involved the formulation and evaluation of herbal lipsticks using color matter from natural sources such as carrot and beetroot. Different natural ingredients such as beeswax, castor oil, white beeswax, vitamin E, coconut oil, rose oil, olive oil, and beetroot (*Beta vulgaris*) were used to formulate herbal lipstick. Prepared herbal lipstick was evaluated for different evaluation tests such as color, texture, pH, melting point, breaking point, surface anomalies, aging, and perfume stability. Results have shown that different evaluation parameters of prepared herbal lipstick resembled standard values and with the marketed formulation. It can be concluded that the use of natural colorants in lipstick formulations has fewer or no side effects.



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INTRODUCTION

Cosmetics word is derived from the Greek word “**Kosmtikos**” which means the power, organization and skill in beautifying.ⁱ The word cosmetics is defined as ‘substances of diverse origin, scientifically compounded and used to cleanse, alleviate skin troubles, cover up imperfections, beautify, and is used in this paper in a wider sense to include oral hygiene as well.’ⁱⁱ Cosmetics have become an integral part of every woman’s life. Herbal cosmetics are products which are formulated using various permissible cosmetic ingredients in which one or more herbal ingredients are used to provide distinct cosmetic benefits. They are also called as herbal cosmetics.ⁱⁱⁱ Common cosmetics include Shampoo, Lipstick, Cream, and Mascara, Eye shadow, and Foundation and skin cleanser.^{iv}

Herbal lipsticks are used to impart an attractive color, texture and protects to lips. Lipstick is a cosmetic product containing waxes, oils, pigments and dyes, alcohol and fragrance, preservatives and antioxidants, colors, and surfactants. These lipstick preparations do not damage to our lips and no side effect. They involve a colors change as well as shine and smooth out of wrinkles and folds on lips. It is a most famous cosmetics items and available in different styles, design and packaging of lipstick. Lipstick having many advantages it should be protects lips from dryness and cracking. It brightens your smile and provides hydration to our lips. It should be free from grittiness and should be non-drying required plasticity. In herbal lipstick many natural nutrients available safe for lips. It is free from chemicals like paraben, sulphate, phthalate and others its unsafe to consume that's why we are doing herbal lipstick like bees wax, beetroot juice, castor oil, olive oil, vitamin E.^v Lipstick is a cosmetics product which is most widely used cosmetics. Many colors and types of lipstick exist. Some lipsticks are also lip balms, to add color and hydration.¹

Coloring lips is an ancient practice that dates to the prehistoric period. In present days use of cosmetic products has increased, and choice of shades, textures have been changed and become more extensive. This can be observed from the fact that lipstick is being marketed in hundreds of shades of colors to satisfy the increasing demand. In recent time’s lipsticks have been under the scanners of many health watchers. Lipsticks are often eaten away by the user, and hence are imperative that health regulators have a microscopic look at the ingredients that go into the lipstick. The dyes that contribute to the color of the lipstick are dangerous to human on consumption. In a mild form, the coal tars that are the basic ingredients from which synthetic dyes are formed can cause allergy, nausea, dermatitis, and drying of the lips. In a

more severe form, they can be carcinogenic and even fatal. Due to various adverse effects of available synthetic preparation, the present work was conceived by us to formulate and evaluate herbal lipstick using beetroot and carrot juice having no side effects, which will extensively use by the women of our communities with great surety and satisfaction.^{vi}

IDEAL CHARACTERISTICS OF HERBAL LIPSTICKS:

1. It is smooth and easy to apply.
2. It is non-irritant and non-toxic.
3. It's have required plasticity, different odour, color, texture and packaging etc.
4. It is stable in shelf-life time and it is free from bloom and sweating during storage of lipstick.
5. It should be free from contamination.
6. It should be free from gritty particles.
7. It should be long lasting.
8. It should not melt or harden within a reasonable variation of climatic temperature.^{1,5}

BENEFITS OF HERBAL LIPSTICKS:

1. Safe to use.
2. Natural in nature.
3. Affordable and non-expensive.
4. Variety of products.
5. No side effects.
6. Not tested on animals.
7. Free from hazardous chemicals.^{vii}

ADVANTAGES OF HERBAL 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.^{viii}

INTRODUCTION TO HERBAL INGREDIENTS: -

(1) BEES WAX: -

Synonym: Paraffin-wax, Cranauba

Biological source: It is a product made from the honeycomb of the honeybee and other bees.

Family: Apidae

Chemical constituents: The main chemical constituents are carbon (73.3%), hydrogen (13.2%) and oxygen (7.5%).

Uses:- It offers a moisturizer that protects your lips from becoming dry and developing cracks. It is also used in lip-balm, lip-gloss, etc.

(2) CASTOR OIL:

Synonym: Linseed oil, Ricinus oil

Biological source: - It is non-volatile fatty oil obtained from the seeds of the castor bean, *Ricinus communis*.

Family: - Spurges

Chemical constituents: It is mainly composed of fatty acids and neutral lipids.

Uses: - It is used as a laxative. It is used as a moisturizer. It may promote the healing of cracked lips. It promotes hydration.

(3) OLIVE OIL:

Synonym: - Vegetable oil

Biological source: It is a liquid fat obtained from olives (the fruit of *Olea europaea*), a traditional tree crop of the Mediterranean basin, produced by pressing whole olives and extracting the oil.

Family: Oleaceae

Chemical constituents: It is composed mainly of triacylglycerols and contains small quantities of free fatty acids, glycerol, phosphatides, pigments, and sterols.

Uses: - It is used as superior hydration. Its relief from cracked and chapped lips. It gives natural SPF protection. It helps to keep your lips hydrated. It used to remove dead skin from lips and rejuvenate your skin. It nourishes the lips.

(4) COCONUT OIL:

Synonym: - Copra oil, Coconut palm oil, *Cocos nucifera* oil

Biological source: - It is the oil expressed from the dried solid part of the endosperm of coconut, *cocos nucifera*.

Family: Palmae

Chemical constituents: It is composed of the fatty acids, caprylic acid C-8:0 (8%), capric acid C-10:0 (7%), lauric acid C-12:0 (49%), myristic acid C-14:0 (8%), palmitic acid C-16:0 (8%), stearic acid C-18:0 (2%), oleic acid C-18:1 (6%) and 2% of C-18:2 linoleic acid.

Uses: - It protects skin from UV Rays. It relieves irritation. It is used as a moisturizer.

(5) BEETROOT:



Beetroot powder

Synonym: Beta vulgaris rubra, Chukandar

Biological source: It consists of fresh root of Beta vulgaris.

Family: Amaranthaceae

Chemical constituents: It consist of multiple biologically active phytochemicals including betalains, flavonoids, polyphenols, saponins and inorganic nitrate, it is a rich source of diverse minerals such as potassium, sodium, phosphorous, calcium, magnesium, copper, iron, zinc.

Uses: - It is used as colouring agent. It is used as a binder. It gives glossy appearance to lips. It also provides emollient action on lips. It also prevents cracking of lips.

(6) VITAMIN E:

Synonym: - Tocopherol

Biological source: - It is a group of compounds found in a wide variety of foods.

Chemical constituents: - It refers to a group of eight different compounds: α -, β -, γ -, and δ -tocopherols and the corresponding four tocotrienols.

Uses: - It is used as a preservative and treating fine lines and wrinkles. It makes lips softer.

(7) ROSE OIL:

Synonym: - Rose otto, Attar of rose

Biological source: It is obtained from the petals of different Rosa species especially Rosa centifolia and Rosa damascena mill.

Family: Rosaceae

Chemical constituents: The most common chemical compounds present in rose oil are: citronellol, geraniol, nerol, linalool, phenyl ethyl alcohol, farnesol, stearoptene, limonene and eugenol, etc.

Uses: It is used as fragrance. It is used to create a more natural aroma. It is used to give a pleasant scent.

MATERIALS AND METHODS

MATERIALS USED:

Table No. 1: List of materials

SR.NO.	COMMON NAME	ROLE
1.	Beeswax	<ul style="list-style-type: none"> • Lubricating agent • Waterproofing agent • Thickening agent
2.	Castor oil	<ul style="list-style-type: none"> • Humectants • moisturizer
3.	Olive oil	<ul style="list-style-type: none"> • Emollient • Occlusive agent
4.	Coconut oil	<ul style="list-style-type: none"> • Hydrating agent • Moisturizing agent • Rejuvenate
5.	Beet root	<ul style="list-style-type: none"> • Colouring agent • For Nourishment
6.	Vitamin E	<ul style="list-style-type: none"> • Preservative • Hydrating agent
7.	Rose oil	<ul style="list-style-type: none"> • Fragrance • Perfuming agent

EXTRACTION METHOD:

Beetroot Extraction: Beetroot was purchased from local market of Bardoli. Beetroot was washed, Peeled and cut into uniform-sized fine slices. Spread it over a butter paper, cover with a fine mesh and allow it to shade dry for a day. If there is any moisture left dry in it in an oven. Take the dried beetroot and grind it into a fine powder. Pass the powdered material through a fine sieve. Check for any grainy particles. Sieve it again if required. Weight the amount of powder and pack it.²

Carrot Juice Extraction: Fresh carrots were purchased from local market of Bardoli. carrots are taken and their upper layer is removed by the help of peeler. The peeled carrot is grated

evenly then the mixture was poured into a fine muslin cloth and was squeezed to separate the juice from the seeds. The juice was collected from the beaker and stored for the further use.²

METHOD OF PREPARATION:

Formulation 1: The herbal lipstick was formulated as per general method of lipstick formulation. In this formulation, bees wax is melted in a beaker at 70°C on a water bath. Similarly, castor oil, coconut oil and olive oil were taken in another beaker and melted at 70°C on a water bath in decreasing order of their melting point. The coloured pigment (beetroot) was added to the oil phase until a homogenous mixture was obtained. Then it was added to the wax phase at the same temperature. The mixture was cooled to 40°C and vitamin E and rose oil was added. The molten mixture was poured into lipstick moulds. Upon solidification, it was separated from the moulds and fitted in lipstick case.²

Table:2, Formulation -1 ingredients

SR.NO.	INGREDIENTS	QUANTITY
1.	Beeswax	10g
2.	Castor oil	5ml
3.	Olive oil	2ml
4.	Coconut oil	5ml
5.	Beet root	3g
6.	Vitamin E	Q. S
7.	Rose oil	Q. S

Formulation 2: The herbal lipstick was formulated as per general method of lipstick formulation. In this formulation bees wax was melted in a beaker at 70°C on a water bath. Similarly, coconut oil, almond oil was melted at 70°C on a water bath in decreasing order of their melting point. The colored pigment (carrot juice) was added to the oil phase until a homogenous mixture was obtained. Then it was cooled to 40°C and 1-2 drops of Rose oil was added. The molten mixture was poured into lipstick moulds. Upon solidification, it was separated from the moulds and fitted in the lipstick case.²

Table:3, Formulation -1 ingredients

SR.NO.	INGREDIENTS	QUANTITY
1.	Bees wax	6gm
2.	Coconut oil	11gm
3.	Almond oil	3gm
4.	Carrot juice	0.9gm
5.	Rose oil	Q. S

EVALUATION PARAMETERS OF HERBAL LIPSTICKS:

Melting point: - Determination of melting point is important as it is an indication of the limit of safe storage. The melting point of formulated lipstick was determined by capillary tube method, the capillary was filled and kept in the capillary apparatus and firstly observed the product was slowly-slowly melted. After sometimes observation product was completely melted. The above procedure was done in 3 times and the melting point ratio was observed in all formulations.

Solubility test: - The formulation herbal lipstick was dissolved in various solvents to observe the solubility.

pH: - The pH of formulated herbal lipstick was determined using pH meter.

Colour: - Lip colors are products that apply color, texture, and/or shine to the lips using a brush or other applicator. Lip colors contain ingredients that apply color to the lips in a precise and controlled manner. Lip colors can also have multifunctional benefits, such as moisturizing, or may even include sunscreen for SPF protection. Lip color product safety is established by the selection of ingredients that are safe and suitable for this intended use and purpose.

Breaking point: - Breaking point was done to determine the strength of lipstick. The lipstick was held horizontally in a socket inch away from the edge of support. The weight was gradually increased by a specific value (10 gm) at specific interval of 30 second and weight at which breaks was considered as the breaking point.

Force of application: - It is test for comparative measurement of the force to be applied for application. 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.

Surface anomalies: - This was studied for the surface defects, such as no formation of crystals on surfaces, no contamination by moulds, fungi etc.

Aging stability: - The product was stored in 40°C for 1 hr. Various parameters such as bleeding, crystallization of on surface and ease of application were observed.

Skin irritation test: - It is carried out by applying the product on the skin for 10 min.

Perfume stability: - The formulation herbal lipstick was tested after 30 days, to record fragrance.^{ix}

RESULTS AND DISCUSSION:

Formulation and evaluation of herbal lipsticks was carried out to formulate a lipstick using herbal ingredients with an act of courage to minimize the side effects as produced by the available synthetic ones. The prepared formulation-1 Many natural ingredients were used for formulating herbal lipsticks that contain colouring agent which was extracted from the beetroot and Carrot juice. From the result obtained in the present investigation showed that the herbal formulation is a better option with minimal side effects, though detailed clinical trials may be required to access the formulation for better efficacy. None of the formulations has produced any skin irritation. Surface anomalies were not found in any formulation. Aging stability was smooth for both formulations. The table-4 shows the outcomes of the evaluation tests. From the above result it has been concluded that Formulation 1 is better as compared to Formulation 2.



Figure 1: Beetroot Lipsticks

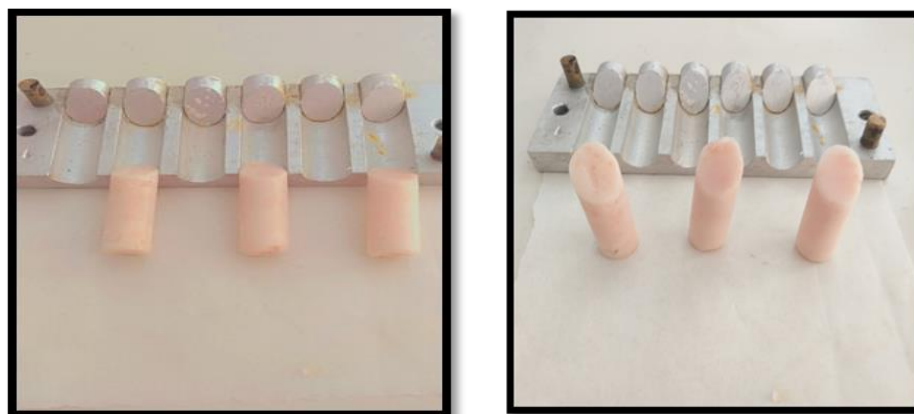


Figure 2: Carrot juice Lipsticks

Table-4: Results of evaluation parameters

R.NO.	EVALUATION PARAMETERS	F-1 (Beetroot)	F-2 (Carrot juice)
1.	Melting point	62±1°C	60±7°C
2.	Solubility test	Soluble in methanol	Soluble in methanol
3.	pH parameter	6.7±0.2	6.2±0.5
4.	Colour	Wine red	Light orange
5.	Breaking point	50g	20g
6.	Force of application	Easy	Easy
7.	Surface anomalies	No defect	Little defect
8.	Aging stability	Smooth	Smooth
9.	Skin irritation test	No	No
10.	Perfume stability	++	+

CONCLUSION:

Over last few decades, there has been a tremendous boost in the use of cosmetics by women. The present work formulation and evaluation of herbal lipsticks was carried out to formulate a lipstick using herbal ingredients with a hope to minimize the side effects as produced by the available synthetic ones. Studies concluded that herbal lipstick can be successfully formulated using different natural ingredients, such as Bees wax, Castor oil, coconut oil, olive oil, beetroot powder, and Vitamin E and Rose oil. Beetroot extract and carrot juice are used as a coloring agent. These are better options compared to synthetic coloring agents

which may cause different and hazardous side effects. An herbal lipstick is used to rejuvenate the lip muscles, maintain the elasticity of the skin, remove adhered dirt particles and improve blood circulation. The benefits of herbal-based cosmetics are their nontoxic nature. It nourishes the lips. It helps in the elimination of wrinkles, cracking, dryness and folds on lips. Lipstick exfoliates little and provides a soothing, calming and cooling effect on the lips. They restore the natural shine of the lips in the optimum period. Frequent uses of natural lips improve lip texture and attractive color. Pollution and harsh climates badly affect the lips and these effects can be countered by the regular usage of herbal lipstick. Consumers can take safe and effective advantage of herbal lipsticks after thorough clinical trials. So, it has been concluded from the above result table of evaluation parameters that F-1 is better as compared to F-2. Thus, I have finalized the formulation F-1 prepared from Beta Vulgaris as my final product.

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