



Preparation and Evaluation of Herbal Lip Balm

JayeshGotmare¹, MohiniSuryawansh²

, Onkar Sawant³, Pooja Wankhede⁴

Department of Pharmacognosy

Navsahyadri Institute of Pharmacy, Naigaon, Pune, 412213.

Abstract: The main aim of the present work is to formulate and evaluate the natural lip balm. Rising global demand for natural products whose production is harmless to the environment has stimulated the development of natural cosmetics and, within this category, organics (95% organic raw materials). The image of environmentally friendly production is one of the strongest attractions of organic products. Now a days naturally obtain cosmetics are widely used than synthetic cosmetics. Among all cosmetic product lip balm formulations are most widely used to enhance beauty of lips. The present formulation of lip balm is prepared by using the various herbal ingredients like beet root extract used for coloring purpose, almond oil used for rejuvenate the dead cells and excipients like coco powder as a flavoring agent, vitamin E capsule used as an antioxidant, petroleum jelly used as a base. Lip balms offer a natural way to maintain and promote healthy lips. Current cosmetic lip products are based on use of enormous chemical ingredients with various side effect hence in this work, an attempt has made to study natural ingredients use to formulate natural lip balm. The formulated lip balm is evaluated by physical examination and also microbial study can be performed.

1. INTRODUCTION

1.1 COSMETICS:-

According to D & C act 1940 & rule 1945, cosmetics means any particle intended to be sprayed, rubbed, introduced, apply to the human body, Or it cleansing, beautification, promoting attractiveness or altering to the human body. Cosmetic include skin cream, lotion, powder, makeup, nail polish, eye & facial makeup etc.1



Fig.1. The power of beetroot creating effective herbal lip balms

1.2 HISTORY:-

Lip balm was first marketed in the 1880s by Charles Browne Fleet, [unreliable source] though its origin may be traced to earwax. More than 40yrs prior to commercial introduction of lip balm by Fleet, Lydia Maria child recommended earwax as treatment for cracked lips in her highly-popular book. The American Frugal Housewife child observed that, "Those who are troubled with cracked lips have found this (earwax) remedy successful when others have failed.

1.3 Methodology of lip -

The lips are two fleshy folds surrounding the oral orifice. Anatomically, the philtrum and its pillars are a part of the upper lip. The surface of the lip is comprised of four zones: hairy skin, vermilion border, vermilion and oral mucosa. The normal shape of the lips varies with age, and is influenced by ethnicity. The center of each lip contains a thick fibrous strand, consisting of parallel bundles of skeletal muscle fibers and their attachment to skin, mucosa or other muscle fibers. The free external surface of each lip is covered by a thin keratinized epidermis, and is continuous with the mucosa at the vermilion (red) zone of lip.

The dermis is well vascularized and contains numerous hair follicle (many of them large in the male), sebaceous gland and sweat glands. Subcutaneous adipose tissue is scanty. The lip serve as organs of pretension, suction and speech. It is composed of the skin, superficial fascia, orbicularis muscle and the muscles inserted around it areolar tissue & mucus membrane.

The margins of lips are covered with dry, red mucus membrane, continuous with the skin and containing numerous vascular papillae and touch corpuscles. The mucus membrane internally is reflected from the upper and lower lip upon the gums, and in the median line forms two folds of superior and inferior. Between the skin and mucosa, the vermilion zone is covered with a specialized keratinized stratified squamous epithelium, which is a thin near the skin, increases in the thickness abruptly when true mucosa is reached. The epithelium is covered with transparent, dead squamous and its deep surface is highly convoluted, interdigitating with abundant long dermal papillae. The latter carry in each capillary plexus that imparts a dusky red color. These surfaces are hairless, their dermis lack sebaceous, sweat or mucous glands, and they are moistened with saliva by the tip of the tongue.

The size and curvature of the exposed red-lip surface is subject to considerable individual, gender and ethnic variation. The attainment of adult dimension is faster in the upper than in the lower lip; the cutaneous upper lip height normally reaches its adult size at the age of 3

+is and labium inferiors or is.

- 1) Food Intake
- 2) Facial Expression
- 3) Articulation
- 4) Tactile Organ
- 5) Erogeous Zone

1.4 Different between lip and regular skin structure -

The lips are more attractive than the regular skin. Generally, the top philtrum layer of the lip contains about 3 to 4 layers and very few melanin cells. Because of this, the blood vessels more clearly appear through the skin of the lips, giving a lovely pinkish color. The lip skin has no hair follicle and no sweat glands. Therefore it does not have the sweat and body oil in protecting lip from outside environment.

LIP DISORDERS:-

- 1) Swelling
- 2) Chapped lips
- 3) Sun damage
- 4) Oral cancer
- 5) Inflammation
- 6) Discoloration

2. LIP BALM -

Lip balm or lip salve is a wax-like substance applied topically to the lips of the mouth to moisturize and relieve chapped or dry lips, angular cheilitis, stomatitis, or cold sores.² Cosmetics plays a significant role in today's lifestyle. Moreover, current trend is going green in almost all industries. The preferable choices are natural food and herbal medicines. Natural products have been used for folk medicine purposes throughout the world for thousands of years. Many of them have pharmacological properties such as antimicrobial, anti-inflammatory and cytostatic effects.⁵ Lip balm formulation applied onto the lips to prevent drying and protect against adverse environmental factors. Lip balm should not be considered equivalent to lip gloss, with the former being a product intended for use by both men and women. The main ingredients of lipstick are fatty acids, such as waxes, oils and jars of butter, which provide consistency and work as emollients in the preparation. Among these castor oil, beeswax, carnuba wax, candelilla wax, paraffin, and cocoa butter are often used. Lipstick also contains additives such as antioxidants, conservatives and fragrance as well as dyes and pigments.

2.1 ADVANTAGE OF ORGANIC LIP BALM :-

Many organic lip balm provides deep conditioning and significant health benefits.

Organic lip balms are easily available in the market.

Organic lip balms having more stability than natural lip balm.

2.2 DISADVANTAGE OF ORGANIC LIP BALM:-

Inflammation of hair follicle

Rashes

Acne

Contact dermatitis

Burn

2.3 ADVANTAGES OF NATURAL LIP BALM:-

They are not gender specific products and both men and women can use them.

It refreshed, renewed and also addresses lip-related symptoms Lip balm helps to protect the natural health and beauty of the lips.

Resulting from colds, clog and allergies.

2.4 DISADVANTAGES OF NATURAL LIP BALM:-

Lip balm made up of low quality ingredients can harm the lips seriously.

Lip balm addiction is another disadvantage usually seen with the use of them.

The naturally derived colours and flavours are more difficult to obtain and also have issues related to stability.

3. FORMULATION:-

3.1 Base:-

Waxes form an important group of ingredients for the manufacture of personal care products and decorative cosmetics. Waxes are used in different industries and products. PREPRATION AND EVALUATION OF HERBAL LIP BALM Predominately used in candles, but also find important application in food, cosmetics and pharmaceutical industries as thickeners/emulsifiers.

Chemically waxes are complex mixtures of hydrocarbons and fatty acids combined with esters. Waxes are harder, less greasy and more brittle than fats. They are very resistant to moisture, oxidization and bacteria. There are four categories of waxes such as:-

- Animal waxes: - beeswax, lanolin, spermaceti etc.
- Plant waxes: - carnauba, candelilla, jojoba etc.
- Mineral waxes:-ozokerite, paraffin (petroleum jelly), microcrystalline etc.
- Synthetic waxes: - polyethylene, carbowax, acrawax, stearic etc.

The most widely used waxes for cosmetics products are beeswax, carnauba wax and candelilla wax. Waxes are esters of fatty acid and alcohol. The most used wax is beeswax which is good emollient and thickener. Two other natural waxes often used in cosmetics are carnauba and candelilla wax. Both are harder and have a higher melting point making them more stable and suitable for dry products.

Table 1. Base

Natural base	Synthetic base
Beeswax	Cocoa butter
White bees wax	Jojoba wax
Yellow bees wax	Candelilla wax
Petroleum	-
Carnauba wax	-
Olive wax	-

3.2 OILS:-

Oils and fats are differing in their physically forms; generally the latter are solid at room temperature. Both fats and oils are chemically glycerol esters composed of glycerol and fatty acids and are also called as triglycerides. Fatty acids can be saturated or unsaturated, thereby determining the stability and property of the oil. Oils with a high degree of saturated fatty acids (lauric, myristic, palmitic and stearic acids) include coconut oil, cottonseed oil and palm oil. Oils with a high degree of unsaturated

fatty acids (oleic, arachidonic, linoleum acid) are canola oil, Olive oil, almond oil, safflower oil, castor oil and avocado oil. Saturated oils are more stable and do not become rancid as quickly as unsaturated oils. Castor oil is used in many lip balm because of its good qualities, though now days some other oils or solvents are being used. A refined grade castor oil is of good colour and is odourless and tasteless. Castor oil is a very good plasticizing agent. An antioxidant is to be added to the castor oil against rancidification though it is not as prone to rancidification as other vegetable oils like olive oil or almond oil. Jojoba oil is known for its skin-

softening properties which can prevent lips from dehydrating. Almond oil is pale yellow oil with slight characteristic odour. It consists of glycerides chiefly of oleic acid with smaller amounts of other acids namely, linoleic, myristic and palmitic. It has emollient.

3.3 COLOURING AGENT:-

Colorants or coloring agents are mainly used to impart a distinctive appearance to cosmetic products. Colorants should not be affected by oxidizing or reducing agents and pH changes and should not interfere with the tests and assays. Water-soluble colorants are equally desirable with oil-soluble and spirit-soluble colorants. The most important characteristic of colorant is compatibility with other ingredients and medicament. It should be free from objectionable taste and odor and must be readily available and inexpensive. Examples of natural colorants are obtained from beetroot, saffron, turmeric, etc. Saffron is a dried stigma of flowers of the plant *Crocus sativus*. It is a perennial plant and is grown in Kashmir in India. It is also cultivated in Spain, France, Greece and Iran. The principal coloring agent in saffron is crocin. Crocin is yellow powder, a glycoside in nature, and easily soluble in water. The colour is imparted to the skin in two ways:-

- By staining the skin with a solution of dyestuff which can penetrate the outer layer of the skin.
- By covering the lips with a coloured layer which serves to hide any skin roughness and give a smooth appearance.

3.4 FLAVOURING AGENT:-

Flavours or flavouring agent are usually required to mask the four basic taste sensations. Flavors refers to a mixed sensation of taste, touch, smell, sight and sound, all of which involve a combination of physiochemical and physiochemical actions that influence the perception of substances. Flavours used in lip balm should not contain any ingredient which may be irritating or toxic. These should have good taste and should be able to mask fatty odour of the base. Flavouring agents are an essential component to mask the odour of the fatty or wax base as well as to impart an attractive flavor. They are normally used in the concentration of 2-4% of total formulation. Flavours should be stable and compatible with the other constituents of the lip balm. Perfumes of the fruit flavor type have been advocated as well. Also Edible can be used. The commonly used flavours are apricot, strawberry, raspberry, cherry, honey, etc. Honey has the capacity to serve as a natural food preservative.

3.5 LIST OF FLAVOUR:-

Table 2. Flavour

Taste	Maskingflavour
Salt	Butterscotch, maple
Bitter	Wild cherry, walnut, chocolate- mint, licorice
Sweet	Fruit, berry, vanilla
Acid	Citrus

4. REVIEW OF LITERATURE:-

- MayuriKadu et al 2014:- was reported cosmetics have been incredibly in demand since historical times. These days focus shifted more towards naturally derived cosmetic products. Among all cosmetic products, lip balm formulations are most widely used to enhance the beauty of lips and add a glamour touch to the makeup. Lip balms offer a natural way to maintain and promote healthy lips.
- Alessandra Ribeiro Fernandes Andreet et al, 2013:-was reported rising global demand for natural products whose production is harmless to the environment had stimulated the development of natural cosmetics. Lip balm is a cosmetic product similar to lipstick whose purpose is to prevent lip dryness and protect against adverse environmental factors.
- Harsh Chawalaet et al, 2016:- was reported *Beta vulgaris* (Chenopodiaceae) is generally known as the beetroot or garden beet. It is native to the Mediterranean region. Beetroot is most commonly dark red, however, it also comes in hues ranging from white to yellow to a “candy cane” red and white variety known as Chioggia. It is used in the Indian traditional system of medicine, specifically for the treatment of fertility, cancer, and hypertension.
- Hari Jagannadha Rao et al, 2012:-was reported almond trees a source of beauty, inspiration, food, and medicine. They are native to the region which extends from India to Persia; the almond tree has spread to the east and west of its native region thousands of years before Christ. Almonds are good sources of antioxidant nutrients.
- Gokcebey Mithat-Mehmet:-was reported that almond is rich in terms of vitamin E, copper, phosphorous, magnesium, manganese, potassium, fiber, riboflavin, monounsaturated fatty acid, and

protein. Because of its special composites of antioxidants such as isorhamnetin, quercetin, kaempferol, quercetin, catechin, epicatechin, naringenin, and cyanidin.

- 6) Hua Guan et al, 2016:-was reported cocoa powder is rich in flavonoids, which have many beneficial effects on human health, including antioxidative and anti-inflammatory effects. The aim of our study is to investigate whether the intake of cocoa powder has any influence on hyperlipidemia and atherosclerosis and examine the underlying molecular mechanisms.

5. Plan of Work



Fig.2. Plan of Work

6. MATERIAL AND EQUIPEMENT:-

Equipment's:-

1. Heating mental
2. Physical balance
3. Mechanical stirrer
4. Glass wares
5. Aluminum coil
6. Butter paper
7. China dish
8. Filter paper
9. Spatulla

Table 3. Material Information

Sr. No.	Name and equipment	Company
1	Heating mental	Dolphin company
2	Physical balance	Dolphin company, Mumbai, code: 1094
3	China dish	Rajesh chemicals
4	Mechanical stirrer	Remi motors limited vasai-401208 India
5	Beaker	Dolphin borosilicate glass
6	Filter paper	Whattman paper

7. EXPERIMENTAL WORK AND METHODOLOGY

7.1 METHODS:-

7.1.1. Extraction of beetroot:-

Extraction of pigment was achieved by homogenization of an equal ratio of fruit pulp and solvents (1/1w/v). Typically 100g of the peeled fruit, of watery consistency, was shaken and macerated with 100ml solvents (EtOH, aqueous ethanol 50:50) for 15 minutes under ice cooling conditions. The aqueous mixture was centrifuged at 18000/rpm and 4 C for 20 min followed by fast filtration on nylon mesh. After concentration process, The ethanol was completely removed and samples were kept in a dark vessel.



Fig.3. Extraction of beetroot

7.1.2. Formulation:-

Formula of lip balm

Table.4. Quantity of ingredients

Sr.No.	Ingredients	Quantity given	Uses
1	Petroleum jelly	15.09gm	Base
2	Cocoa powder	Q.S.	Flavoring agent
3	Almond oil	1ml	Antioxidant
4	Vitamin E capsule	100mg	Preservative
5	Beet root extract	4ml	Colouring agent

7.3 Formulation of lip balm:-

1. First beet roots are collected from the market and washed with the water then peeled out.
2. Beet roots are cut into small pieces with the help of a cutter and weighed it.
3. Take the same amount of alcohol as the root mix them well and transfer them into a beaker.
4. After that put a beaker on a magnetic stirrer for half an hour and filter out the content.
5. Then small amount of that liquid is taken in a china dish and put on a heating mental for drying purposes at temp 5-100c and collected the extract.
6. Take Petroleum jelly in a china dish.
7. Put on a heating mental, then add almond oil.
8. Then add vitamin E capsule.
9. Then sufficient quantity of cocoa powder.
10. Add prepared beet root extract
11. Mix well all ingredients and stir well them and cool it.
12. Finally herbal lip balm formulation is obtained.



Fig.4. Fomulation of lip balm

7.4 EVALUATION TEST:-

1. Colour&Odour:-Physical parameters like colour and odor was carried out by physical examination.
2. Spreadibility:-It was carried out by applying the product on the skin.
3. Skin sensitivity: - It was carried out by applying the product on the skin for 10 minutes.
4. Consistency:-It was checked by applying on the skin.
5. PH Test: - PH test was carried out by using PH paper.
6. Solubility:-The formulated lip balm was dissolved in the following solvents &observe the solubility:-
 1. Dichloromethane
 2. Choloroform
 3. Benzene



Fig. 5. Ph test

8. RESULT AND DISCUSSION

8.1 Result:-

Herbal natural lip balm was formulated, evaluated and declared the results.

Evaluation Test: - Physical parameter

Table.5. Result

Colour	Brownish red
Odor	Sweet Choco like
Spreadability	Easily spread
Irritancy	No irritancy
Consistency	Good
PH	Neutral i.e.7

8.2 DISSCUSSION:-

From the subjective evaluation of lip balm the results obtained are as follows:-

1. The formulated herbal lip balm was brownish red in colour.
2. The formulated herbal lip balm had sweet Choco like odour.
3. The formulated herbal lip balm was easily spread and having good consistency.
4. PH of herbal lip balm was 7 (neutral).
5. Irritation cannot be caused after apply on the skin.



Fig.6. Spreadability

9. CONCLUSION

Due to tremendous demands of beauty enhancing products cosmetics industry is flourishing. The research concluded that the natural remedies are more safe and minimum side effect than synthetic formulation. The above formulated herbal lip balm was used to protect the lips and makes them glossy. The herbal lip balm was used to protect the chapped lips and also protect from sun damage.

10. SUMMARY:-

The beet root is medicinal plant. It shows many properties like colouring agent, lower blood pressure, improves exercise stamina, prevent cancer, good source of potassium and to maintain the healthy weight. The aim of present study was formulation and evaluation of herbal lip balm by using beet root, cocoa powder, almond oil, vitamin E capsule, petroleum jelly. Also the formulation was evaluated for consistency, irritancy, spreadability, colour, odour, PH. The prepared formulation have good consistency, no irritancy, good spreadability and neutral PH. To formulate the herbal lip balm, begin by collecting and washing beet roots. Peel and cut them into small pieces, then weigh the pieces. Mix the beet root pieces with an equal amount of alcohol and transfer the mixture to a beaker. Place the beaker on a magnetic stirrer for half an hour, then filter the contents. Take a small amount of the liquid, place it in a china dish, and dry it on a heating mantle at 50-100°C to obtain the beet root extract. Next, take petroleum jelly in a china dish and heat it. Add almond oil, a vitamin E capsule, a sufficient quantity of cocoa powder, and the prepared beet root extract. Mix and stir the ingredients well, then allow them to cool. The final product is a herbal lip balm formulation.

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