

A Research on Formulation and Evaluation of Herbal Lip Balm.

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ABSTRACT:

Cosmetics are unbelievably in demand since historical time. These days people prefers naturally derived cosmetic products. Cosmetic plays a important role in today's life style. Along all cosmetic products, Natural lip balm preparations are most widely used to increase the beauty of lips and add glamour touch and shine to the beauty. Herbal formulation is a sign of safety, satisfaction and surety as less or no harm to the users and so herbal Lipbalm can be made without the colors being compromised on.

Lip balms provides a natural way to promote healthy and moisturized lips. Coloring lips is the ancient practice to increase the beauty of lips and to give shine to the face. Current cosmetic lip products are based on use of toxic chemical ingredients with various adverse effect. That's why it leads to study natural ingredients used to production of natural lip balm. This lip balm is formulated according to the scientific procedure and evaluated as per standard requirements. This article reviews on the natural ingredients used for natural lip balm along with their advantages and disadvantages.

Keywords: Beetroot, Natural, lip balm, cosmetic, lip dryness, lip moistures.

I. INTRODUCTION:

Because of the presence of dangerous engineered excipients in beauty care products, there has been an extraordinary public concern with respect to the utilization of natural sources.^[1] Lips have no oil organs; accordingly, it is truly critical to give that additional dampness and insurance over the course of the day.^[2] Regular lip salve frequently contains petrolatum, manufactured waxes, alumina, paraben, hydrogenated oils and fake scents and tones which are harmful. Frequently the lip analgesic is eaten by the client, in this manner it becomes significant issue for wellbeing regulator.^[3] Cosmeceuticals are the fixings that have restorative properties that benefits effective activity and furthermore give insurance against degenerative skin condition.^[4] The current

work was completed by utilizing these fixings that make less side impacts.^[5]

Products used to safeguard lips as opposed to improve them are well known as lip emollients. They structure a disciple, dampness safe film of slick substances. For the most part with practically no dye.^[6]

A classic and well-liked vegetable in many regions of the world, including Bangladesh, is beetroot. It is the part of the beet plant called the taproot. The primary crop used for commercial purposes in Europe is beetroot, which is also a crucial part of the DASH (dietary methods to control hypertension) and Eastern and Central European diets. In addition to being eaten raw, beetroots are processed to make concentrates, juices, and frozen goods. They are also utilized as a natural food coloring source; the food coloring that is taken from red beetroot is referred to as "red beetroot." In addition to being used as safe, natural food coloring, betalains are becoming more and more well-known for potential health advantages for people, particularly for their antioxidant and anti-inflammatory properties.^[29]

Beeswax is a characteristic compound discharged by female honey bees that is much of the time utilized in beauty care products, especially lip medicine. This substance is very saturating, can assist with safeguarding the lips from the unsafe beams of the sun, and has a wonderful smell. Beeswax go about as a characteristic emulsifier.^[7] Vitamin E is a cell reinforcement and a whiz conditioner. Vitamin E assists with keeping up with the delicate, young surface of the lips by lessening the indications of maturing.^[8] Almond oil enters profound into the skin tissue and its unsaturated fats help to saturate the lips. Beetroot is rich in antioxidants that make the lips soft, supple and improve the elasticity of the skin.

Anatomy of lips:

The upper lip lies between the nose and the opening of the oral cavity. Along the side the lips are isolated from the cheeks by the nasolabial grooves that stretch out from the nose and pass around 1 cm parallel to the points of the mouth.

These notches or overlap are simpler to see while grinning. The upper lip has an infranasal discouragement, the philtrum (Greek for adoration fascinate), that stretches out from the outside nasal septum, isolating the nostrils, to the vermilion boundary - the sharp division between the shaded edge of the lip and encompassing skin. The labiomenal groove, which separates the lower lip from the jaw structure, is located between the mouth and the lower lip^[9].

The lips act as organs of prehension, pull and discourse. It is made out of the skin, shallow belt, orbicularis muscle and the muscles embedded around it (areolar tissue and mucous layer). The edges of the lips are covered with dry, red mucous layer, consistent with the skin and containing various vascular papillae and contact corpuscles.

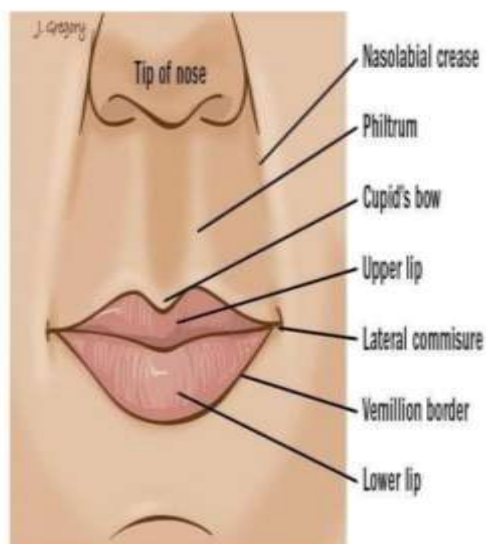


Fig1: Anatomy of lip

The lips act as organs of prehension, pull and discourse. It is made out of the skin, shallow belt, orbicularis muscle and the muscles embedded around it (areolar tissue and mucous layer). The edges of the lips are covered with dry, red mucous layer, consistent with the skin and containing various vascular papillae and contact corpuscles.

The mucous film inside is reflected from the upper and lower lip upon the gums, furthermore, in the middle line structures two folds of superioris and inferioris. The areolar tissue or sub-mucous layer contains the coronary vessels which totally circle the buccal hole close to the free edge of the lips. The coronary vessels are the

predominant and sub-par coronary courses which emerge from the facial. The prevalent coronary is bigger than the mediocre, and anastomoses with its individual of the contrary side and emits a little supply route to the septum arteriaseptinasi. Pressure of this supply route will here and there control nasal drain. The predominant labial or coronary vein starts as a plexus In the orbicularis muscle of the upper lip, passes with the coronary course and depletes into the facial vein somewhat underneath the alae of the nose of the veins which channel the lower lip the sub-par coronary exhausts into the facial somewhat beneath the unrivalled labial; however, the central branch from the lower lip drops, when in doubt, to the submental vein, thus to the facial or frequently to the foremost throat. The nerves providing the lower lip are gotten from the psychological which rises up out of the bone through the psychological foramen and sends enormous twigs to the mucous layer, the integument and the sash of the lip and jawline. A portion of the lymphatic vessels of the lips pass to an organ simply over the body of the hyoid bone, while others pass to the sub maxillary organs. The labial organs are in the submucous layer of the lips around the opening of the mouth. They emit a mucous liquid. Mucous maintenance growths create when the pipes of these organs become occluded.^[10]

Lip related disorders

Dry lips: The lips become parched and lose moisture when they get dry lips. Environmental variables such as low temperatures, dry air, or excessive lip-licking can be the cause of this. Dry lips might have a peeling, splitting, or tight feeling.



fig 2: Dry lips

Chapped Lips: Chapped lips can hurt, feel awkward, and occasionally even bleed. Chapped lips represent a more extreme form of dryness.

Weather conditions, wind, sun, and extended dryness can all contribute to chapped lips.

Cold sores: Little, painful blisters that form on or near the lips and are filled with fluid are known as fever blisters and cold sores. They are extremely contagious and are brought on by the herpes simplex virus.

Inflammation and chelities: The illness angular cheilitis is characterized by inflammation and mouth corner cracking. Infections with bacteria or yeast, a deficiency of nutrition, or extended exposure to moisture can all cause it. Lip infections can be caused by fungus, viruses, or bacteria. Swelling, redness, pain, and the appearance of pus-filled blisters or sores are signs of inflammation.

Allergies: Some people may become allergic to certain components found in food, makeup, or lip care products. Swelling, itching, redness, and even blisters on the lips are some of the signs of allergies.

Lip discoloration: it can be caused by a number of factors, such as smoking, sun exposure, certain drugs, underlying medical disorders, or pharmaceuticals. In this situation, lips could seem darker.

Material

1.Beetroot



Fig 3:Beetroot

Nomenclature:

- Kingdom:Plantae
- Clade:Tracheophytes
- Genus:Beta
- Species:B. vulgaris

Synonyms: Chukandar, Sugar beets, Mangel, Spinach beet .

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

Family: Amaranthaceae

Beetroot on lips assists in getting with freeing of hazier lips making your lips more splendid and lighter. Likewise, the pink shade of beetroot adds a hint of pink to your lips. Beetroot gives incredible sustenance to your lips. It recuperates dry and dried out lips oand goes about as the best normal cream for your lips. Beetroot makes your lips succulent and stout. The juice of beetroot adds a moment shine to your lips and it shows up more hydrated, fed, and juicier. The red colour of beetroot is due to presence of Pigment betalains .Betalains contains two compounds i.eBetacyanins [Red] and Betaxanthin [yellow] which provides colour.

2. Honey bees wax



Fig 4:Honey bees wax

Synonyms: Cera alba

Organic source: Beeswax is naturally occurring wax produced in the bee's hives by honeybee. Mellifera Glands under the abdomen of the bee's secrete this wax and it is used to build the honey comb.

Family: Apidae.

Beeswax is very saturating, can help shield the lips from the unsafe beams of the sun, and has a lovely smell. Beeswax goes about as a characteristic emulsifier [12]. Research has likewise found that beeswax incorporates a little amount of regular enemy of bacterial specialists. This is especially valuable for individuals who have unnecessarily dry and broken lips. These against bacterial specialists can assist with

forestalling the excruciating irritation that accompanies contamination^[13]

3. Castor Oil

One of the benefits of castor oil for lips is that it might go about as a characteristic boundary that keeps water from getting away from your lips, thus keeping your skin from chipping or drying.



Fig 5:Castor oil

In addition to being good for your skin and lips, castor oil is also used for the following purposes:

Laxative: When taken orally, castor oil is a strong laxative (according to the study conducted in 2012);

Anti-inflammatory: The ricinoleic acid in castor oil can reduce inflammation and pain associated with it, according to a 2015 study

Antibacterial: A 2016 study in rats showed that castor oil has strong antibacterial activity;

Antifungal: Castor oil has antifungal properties, according to a 2013 study that focused on bacteria (*Enterococcus faecalis*) and fungi (*Candida albicans*) in the oral cavity. In summary, castor oil is considered safe for the skin and lips of users. This is a common ingredient in skin care products. Despite the fact that it is possible to have an unfavorably susceptible response to castor oil application, this is exceptionally rare.

The ricinoleic corrosive in castor oil holds dampness in the skin by forestalling water misfortune through the external layer of the skin. However, when starting any new skin care regimen, including using castor oil for lips, it's best to discuss it with a dermatologist to make sure it's safe.^[27]

4. Vitamin E



Fig 6:Vitamin E

Synonym : Eprolin, RRR-alpha-tocopherol, Vitamin-E,

Biological source : Vitamin E is obtained from various foods and oils.

Family: Tocopherols.[26]

Vitamin E is a cell reinforcement and a characteristic conditioner. Vitamin E assists with keeping up with the delicate, more youthful surface of the lips by bringing down the indications of maturing [14]. Effective vitamin E oil might be utilized to lighten dried, dry lips. Since vitamin E advances cell turnover and recovery, its use of it on dry lips carries new cells to the surface quicker. The thick and sleek consistency of vitamin E oil can likewise prevent comparative disturbance.^[15]

Vitamin E is a strong cancer prevention agent that can assist with safeguarding your lips from ecological and free extreme harm by reestablishing and renewing skin cells and reinforcing the skin's regular defensive obstruction.

5. Sesame Oil:

It's wealthy in cancer prevention agents: Studies have demonstrated that once done topically, Sesame Oil might decrease cell harm by repressing specific mixtures known to create DNA-harming free extremists.



Fig 7: Sesame oil

It can speed the mending of sun related burns, breaks, injuries, and wounds Sesame Oil's compelling cell reinforcement and hostile to-provocative properties help to accelerate recuperation time and have moreover been demonstrated to animate collagen creation at the site of the injury.

6. Rose Oil



Fig 8: Rose oil

Saturate Your Lip Keeping your lips hydrated involving rosehip oil will help with keeping them full and lessening the appearance of kinks. Rosehip oil is significant for keeping up with lips smooth and youthful. Flexible lips: With a swipe of rosehip oil, meager, dry lips arise as stout and saturated, giving you a definitive celebrity frown! A few lip gleams guarantee to full your lips, in any case, saturating them consistently is an mind boggling strategy to keep up with your lips looking youthful and graceful.

7. Honey



Fig 9: Honey

Honey is a characteristic humectant, and in view of this that it draws in and holds dampness, keeping your lips hydrated over the course of the day. Honey additionally has mitigating properties to assist with alleviating dried lips. Honey's antibacterial properties additionally help to forestall contamination assuming that the lips become broken. It has been reported that honey can facilitate removing necrotic tissues, increase the granulation and epithelialization speed, and reduce scars.

Extraction Of Beetroot Powder:

The development of beetroot powder began with the raw material of fresh beetroots from a local market. Late rbought of beetroot were washed with tape water to eliminate dust and tacky particles. The peeler was used to peel the beetroot, and the grater was used to cut it into slices. The sliced materials were allowed to completely dry in the sun (dehydrate) for two days at 37 degrees Celsius. After that, the dehydrated beetroot pieces are ground into a fine powder and stored for longer periods of time.

Pre Evaluation Test For Beetroot Powder :

Confirmation test for detection of presence of betacyanin^[29]

1. Test With Conc.HCl:

Add 2 ml of concentrated HCl with 3 ml of beetroot juice in a test tube, it shows the disappearance of pink colour of beetroot, indicates the presence of betacyanin in given beetroot juice.

2. Test with NaOH:

In a test tube add 2 ml of NaOH into 5 ml of beetroot juice it shows the solution turns into

dull yellow colour. The formation of dull yellow colour of solution indicates the presence of betacyanin in a given solution.

Properties of ingredients:

Ingredients	Role of ingredient
Bees wax	Impart hardness and glossiness
Castor oil	Humactant
Vitamin E	Maintain Stability of formulation and act as antioxidant
Sesame oil	Protect skin damage
Rose oil	Flavouring agent
Honey	Anti-inflammatory and Anti-bacterial activity
Beetroot extract	Anti-septic and natural moisturizer

Formula:

Ingredients_	F1	F2	F3
Beeswax	<u>2gm</u>	<u>3gm</u>	2.5gm
Castor oil	<u>1.5ml</u>	<u>2ml</u>	1.5ml
Vitamin_E	<u>2gm</u>	<u>2.5gm</u>	2.5gm
Sesame_oil	<u>3ml</u>	<u>1.5ml</u>	2ml
Rose oil	<u>Q.S.</u>	<u>Q.S.</u>	Q.S.
Honey	<u>Q.S.</u>	<u>Q.S.</u>	Q.S.
Beetroot powder_	<u>2gm</u>	<u>1.5gm</u>	1gm

Methodology:

Formulation procedure of lip balm:^[16]

1. Weigh accurately all the required ingredients.
2. In a clean evaporating dish, take Bees wax first and melt it in a water bath (not exceeding the temperature range of 50- 64°C).

3. Then add the beetroot powder, Sesame oil and castor oil respectively and stir vigorously and label it as A.
4. Then in another evaporating porcelain dish, take Honey and Vitamin E (pour the capsule content into Honey) and mix thoroughly and label it as B.

5. Pour the contents of porcelain Dish B into Dish A by observing the uniform temperatures of both the dishes and adding it drop by drop with vigorous stirring.

6. At last, add Rose oil to the Formulation lastly empty the fluid lip medicine into a clean wide-mouth holder.

7. Keep the lip balm for cooling at room temperature

Evaluation of lip balm:

- **Organoleptic properties:**

organoleptic characters such as colour, odour, taste and appearance of lip balm was studied.^[17]



Fig 10: Herbal lip balm

- **Measurement of PH:**

To check for any negative effects, the lip balm's pH was measured. It was decided to keep the formulation's pH as close to neutral as possible because an acidic or alkaline pH may irritate lips. 1gm of the material was dissolved in 100ml of water to study the pH value. A pH metre was used to measure the pH.^[18]

- **Stability studies:**

For testing and to speed up research, prepared lip balm was examined for 30 days at various temperatures, including room temperature (25°C), refrigeration (5°C), and over temperature (40°C), and its spreadability, PH, and organoleptic characteristics were assessed

- **Test of spreadability:**

The test of spreadability is carried out by applying the product at room temperature repeatedly on the glass slide to visually observe the uniformity in the formation of the protective layer and it is observed that whether the stick fragmented, broke or deformed during the

application. For this test following criteria were established by analyst:

G - Good: uniform, perfect application, no fragmentation, without deformation of lip balm.

I - Intermediate: uniform, leaves few fragmentation, appropriate application, few deformation of lip balm.

B- Not uniform, leaves many fragments, inappropriate application, intence deformation of the lip balm

Result: Prepared lip balm was tested for its ability of spreading which initially has shown G - uniform, no fragmentation perfect application, without any breakage.

- **Skin Irritation Test:**

It is carried out by applying small amount of formulated product on the dorsal surface of left-hand skin for 10 minutes of 20 participated voluntary candidates. Then any kind of inflammation, rash, erythema, edema on skin examine.^[19]

- **Melting point:**

Capillary containing drug was dipped in liquid paraffin inside the melting point apparatus which was equipped with magnetic stirring facility. Melting was determined visually and melting point was reported.^[20]

Advantages of Lip Balm:

1. Lip salves help to safeguard the normal wellbeing and excellence of the lips.
2. Sun block lip balms are proved to prevent ultraviolet rays from hurting the lips.
3. They are not orientation explicit items and all kinds of people can utilize them.
4. Lip analgesic items help to safeguard lips impacted by mouth blisters, drying and dryness.
5. It refreshed, renewed and also addresses lip-related symptoms resulting from colds, flu and allergies.
6. The use of natural lip cosmetic to treat the appearance of the face and condition of the skin.^[21,22]

Results:

parameter	F1	F2	F3
Colour	Faint red	Red	Red
Odour	Pleasant	Oily	Pleasant
Appearance	Partly roughs	Oily smooth	Smooth
Ph	6.0	6.4	6.2
Stability	Faint red colour	Oily and red colour	Smooth and red colour
Spreadibility	I: intermediate	G-uniform	G-uniform
Skin irritation	No	No	No
Melting point	52	56	60

II. RESULT AND DISCUSSION:

Lips have veritably thin skin and veritably susceptible to drying out, eventually dicing of lips takes place. Ointments suffer from stickiness; hence lip attar is the stylish volition to apply on lips. Lip attar retains the humidity and prevents dicing. Synthetic colorings, flavours and other constituents may harm lips as these may result drying of lips, antipathetic response and darkening. Current exploration aims to produce a lip balm that contains as numerous herbal constituents as possible. To make lips seductive and increase the aesthetics of a ornamental medication, the choice of colorings is extremely important. In this medication, beetroot color was used as a colouring agent. Beetroot is a readily available source of red and unheroic colour. These colors are called betalains. They correspond of beta xanthins, which are responsible for the unheroic colour, and betacyanins, which are responsible for the red color. The main element of betacyans is betanin, which makes up 75 to 95 and gives beets their red colour. Conserving the colors is important for the visual appearance of the medication. The present study also focuses on the red colouring of the expression; thus, beetroot is chosen as the main source of colour. In addition, betanin also has an antioxidant eventuality of and has been shown to reduce lipid peroxidation.^[25]

III. CONCLUSION:

Due to increasing demands of beauty enhancing products cosmetics industry is growing. The present work carried out for the formulation and evaluation of herbal lipbalms was aimed to formulate a lip balm using herbal ingredients with an idea to minimize the side effects which occur by using available chemical based synthetic lip balms. It can be concluded that lip balm formulation was successfully prepared by using these natural additives. In this study, formulated lipbalm with betacyanin pigment enriched with natural oil;

moreover, it can reduce the oxidative stress of lip, thereby preventing dry lips and slowing the aging of lips. Therefore, it can be used as Cosmeceutical.

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