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Formulation And Evaluation Of Herbal Lipsticks

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AIM & OBJECTIVES

Aim: The aim of the present study was to formulate and evaluate the herbal lipstick using natural ingredients.

Objectives:

- To procure all the necessary herbal ingredients including natural color's for lipstick preparation according to the formula.
- To formulate different herbal lipstick formulations by changing the base oils.
- To evaluate the prepared lipstick formulations for various parameters to check its efficiency.
- To compare the prepared lipstick with commercially available herbal lipstick.

INTRODUCTION

Definition:

Cosmetics are meant to be any substance intended to be sprayed, poured, rubbed or sprinkled on, or introduced into, or applied to the human body or its any part for cleansing, beautifying, promoting attractiveness or

altering the appearance on the face or body. It also includes any article or substance intended for use as a component of cosmetics.¹

The term Cosmeceuticals was first developed by Raymond Read, member of U.S Society of Cosmetics Chemist in 1961. The word cosmetic was derived from the Greek word "kosmtikos" which means having the power, to arrange and having skill in decoration.^{2,3}

Purpose of Cosmetics:

We use cosmetics to cleanse, perfume, protect and change the appearance of our body or to alter its odour. Cosmetics are constituted mixtures of chemical compounds derived from either natural sources, or synthetically created ones. Cosmetics have various purposes. Those designed for personal care and skin care can be used to cleanse or protect the body or skin⁴. Cosmetics designed to enhance or alter one's appearance (makeup) can be used to conceal blemishes, enhance one's natural features (such as the eyebrows and eyelashes), add colour to a person's face, or change the appearance of the face entirely to resemble a different person, creature or object. Cosmetics can also be designed to add fragrance to the body.

Types of Cosmetics:

Though there are a large number of differing cosmetics used for a variety of purposes, all cosmetics are typically intended to be applied externally. These products can be applied to the face (on the skin, lips, eyebrows and eyes), to the body (on the skin, in particular the hands and nails), and to the hair. These products may be intended for use as skincare, personal care or to alter the appearance, with the subset of cosmetics known as makeup primarily referring to products containing colour pigments intended for the purpose of altering the wearer's appearance; some manufacturers will distinguish only between "decorative" cosmetics intended to alter the appearance and "care" cosmetics designed for skincare and personal care.

Most cosmetics are also distinguished by the area of the body intended for application, with cosmetics designed to be used on the face and eye area usually applied with a brush, a makeup sponge, or the fingertips. Cosmetics can be also described by the physical composition of the product. Cosmetics can be liquid or cream emulsions, powders (pressed or loose), dispersions, or anhydrous creams or sticks.⁴

Anatomy of lips:

The anatomy of lips includes upper and lower lips referred to as the Labium superiusoris and Labium inferiusoris, respectively. The junction where the lips meet the surrounding skin of the mouth area is the vermilion border, and the typically reddish area within the borders is called the vermilion zone. The vermilion border of the upper lip is known as the Cupid's bow. The vertical groove extending from the procheilon to the nasal septum is called the philtrum. The skin of the lip, with three to five cellular layers, is very thin compared

to typical face skin, which has up to 16 layers. With light skin colour, the lip skin contains fewer melanocytes (cells which produce melanin pigment, which give skin its colour). Because of this, the blood vessels appear through the skin of the lips, which leads to their notable red colouring. With darker skin colour this effect is less prominent, as in this case the skin of the lips contains more melanin and thus is visually darker¹. The skin of the lip forms the border between the exterior skin of the face, and the interior mucous membrane of the inside of the mouth. The lower lip is formed from the mandibular prominence, a branch of the first pharyngeal arch. It is raised by labisuperioris and is connected to the lower lip by the thin lining of the lip itself, which can be seen by opening your mouth wide in front of a mirror. Thinning of the vermillion of the upper lip and flattening of the philtrum are two of the facial characteristics of fatal alcohol syndrome, a lifelong disability caused by the consumption of alcohol during pregnancy.^{5,6}

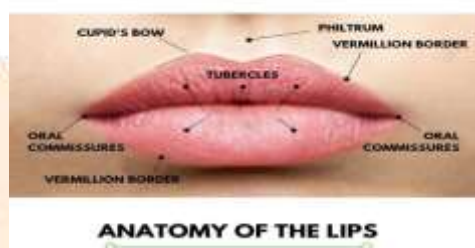


Fig: 1.1 Anatomy of lips

Lip care cosmetics:

Lip products, including lipstick, lip gloss, lip liner and lip balms, commonly add colour and texture to the lips, as well as serving to moisturise the lips and define their external edges.⁴ Products adding colour and texture to the lips, such as lipsticks and lip glosses, often come in a wide range of colours, as well as a number of different finishes, such as matte finishes and satin or glossy finishes. Other styles of lip colouration products such as lip stains temporarily saturate the lips with a dye, and typically do not alter the texture of the lips. Both lip colour products and lip liners may be waterproof, and may be applied directly to the lips, with a brush, or with the fingers. Lip balms, though designed to moisturise and protect the lips (such as through the addition of UV protection) may also tint the lips.⁴

Lipsticks:

- Lipsticks are used to impart an attractive colour and glossy moisture appearance to the lips.
- Lippy is a common British word for lipstick.
- Lipstick is a cosmetic product containing pigments, oils, waxes and emollients that offer colour, texture and protection to the lips.
- All through the name originally applied to the baton(stick) of material, within a tubular container, usually around 10mm in diameter and 50mm in length the term has now generally transposed to the material itself, regardless of method of application.⁷

A good lipstick should have persuading characteristics and be acceptable to consumer, such as having a suitable texture and antioxidant properties. Bases, oils, emollients and colorants 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. Colorants or pigments are the components that play an 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.

Many colors and types of lipstick exist. Some lipsticks are also lip balms, to add both color and hydration. However, current lip care products not only emphasize aesthetic value but also preferably have added medicinal value to the lip of consumers. This led to the emergence in the market of medicated lipsticks with active medicinal ingredients. The medicated lipsticks may provide protection against infections of bacteria due to the presence of an active medicinal ingredient in the formulation. This function adds on to the existing role of lipsticks, which provide moisture and emollient action to prevent cracking and chapping of the lips. Recently, the use of herbs in the production of cosmeceuticals products for personal care has been on the rise. Herbal cosmetics, also known as natural cosmetics, are the modern trend which encircles health and beauty care on some occasions, regular usage of synthetic products that contain ingredient such as lead, petrolatum, and phthalates may be harmful to consumers. These products may cause lip irritations and dry, chapped lips and can lead to health problem such as allergies, asthma, and cancer. The habits of licking lips or eating and drinking while wearing lipstick can worsen the problems. Due to chronic exposure and their neurotoxic nature, harmful chemicals such as lead in lipsticks should not be ignored.

History of Lipstick:

Men began using colors for adornment in approximately 3000 BC in order to attract the animals they wanted to hunt. Generally, the concept and construct of “cosmeceuticals” was first articulated by Raymond Reed (1961), the founder of the US Society of Cosmetic Chemists. It originated from the Greek term “kosmtikos”, which means “decorating talent”. Later, in 1984, Albert Klingman used the word “cosmeceuticals” referring to the compounds that have both cosmetic and medicinal properties. Many herbs and floras have been used in the manufacture of cosmetics for the purposes of beauty and protection from external influences. The natural chemicals in cosmetics do not harm the human body; instead, they provide it with nutrients and minerals. Lipsticks, in particular, have been used by humans for over 500 years. Lipstick was first discovered as a rough fragment of brick in ancient Mesopotamia. Coloring lips is an ancient tradition that dates to the prehistoric period. Lipstick was first introduced in France in 1869 as a cosmetic product made

from animal fat and beeswax. The availability of lipstick in the form of cylindrical metal tubes was introduced in 1915. Presently lipsticks have become an essential product for many consumers. There is an extensive choice of color shades and textures. This can be observed from the fact that lipstick is being marketed in hundreds of shades of colors to satisfy the increasing demand.^{8,9}

Characteristics of Lipsticks

- Should cover lips adequately
- Long last effect
- Make lips soft
- Must adhere firmly to lips without being brittle & tacky
- Good degree of quality
- Completely free from grittiness
- Non - drying on storage
- Non- irritating and non-toxic to skin of lips
- Desirable degree of plasticity
- Should have high retention of colours intensity without any change in shades
- Pleasant odour & flavour
- shiny and smooth appearance Free from sweating
- container should operate easily
- Impart uniform colour to the area of application
- should not melt or harden within reasonable variation of climatic temperature¹⁰

Herbal cosmetics: Herbal cosmetics allow every individual to feel beautiful & healthy about themselves. Beauty is the desire of every individual to give pleasure to the sense. Beauty is not always related to women rather men are beauty conscious as well. The concept of beauty and cosmetics is as ancient as mankind and civilization. Herbal cosmetics are referred to as beauty products which are formulated by using various herbal ingredients to provide defined cosmetic benefits. Natural beauty is blessing and cosmetics help in presenting and increasing the beauty and personality aspects of human beings. Saundaryaprasadak is the preparation, which represents cosmetic base correlates with known Ayurveda.

In the traditional era, people were used to various lepa, Alepa, Pralepa, Udavartan, Prakshalan, etc for saundryaprasadan karma. Nature has offered us various herbs. A herb is a plant or plant extract, including leaves, bark, berries, roots, gums, seeds, stems, flowers & fruits which work as nourishing and healing elements. Herbal cosmetics have gained much popularity among the population. Herbal cosmetic products claimed to have efficacy and intrinsic acceptability due to routine use in daily life and avoid the adverse effects which are commonly seen in synthetic products which are made of chemicals and other toxic ingredients.

The science of Ayurveda had utilized many herbs and floras to make cosmetics for beautification and protection from external effects like exposure towards microbes, chemical agents and environmental contaminants.

The natural content in botanicals does not cause any side effects on the human body; instead, enrich the body with nutrients and other useful minerals. Indian herbs and their significance are popular worldwide. An herbal cosmetic has a growing demand in the world market and is an invaluable gift of nature. Herbal formulations always have attracted considerable attention because of their good activity and having no side effects. Herbs and spices have been used in maintaining and enhancing human beauty.

There is a huge variety of the herbal cosmetics that are produced and used for daily purposes like herbal oil, shampoos & conditioners for hair, herbal soaps for skin; herbal face wash and many more. The best thing about herbal cosmetics is that it is purely made by the herbs and shrubs. The natural content in the herbs does not have any reactions on the human body; rather enhances the body with supplements and other helpful minerals.

Advantages of Herbal Cosmetics over Synthetic:

Herbal cosmetics are the latest, safe and effective trend in the field of beauty and fashion. These Herbal Cosmetics are gaining popularity as nowadays, most people prefer natural products over chemicals for their personal care to enhance their beauty as these products supply the body with nutrients and enhance health and provide satisfaction as these are free from synthetic chemicals.

- The ingredient in the natural lipstick is all natural and is safe to use.
- They also contain natural nutrient that keep lips healthy.
- They have fewer or no aspect impacts.
- They are non-toxic, highly lipophilic, anti-oxidants, anti-microbial, anti-inflammatory, and are used in leucoderma of lips.
- Extensive range of colours to choose.
- 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.
- Different combination and shades can be obtained from these colors.
- By adding organic and inorganic acids and bases color may be changed to different shades.

Following are the advantages of using natural cosmetics which make them a better and safe choice

1. Natural Products:

As the name suggests that herbal cosmetics are natural. They are free from all the harmful synthetic chemicals which are proven to be toxic for the skin of a person. Different parts of the plant and plant extracts are used in herbal products. They also consist of natural nutrients like Vitamins and minerals that keep skin healthy, glowing and lustrous. There exist a large variety of herbal extract.

2. Safe and Effective to use:

In comparison with other beauty products flooded in the market, natural cosmetics are safest to use and effective as well. They are hypo-allergenic and prepared by Ayurvedic Experts to be safe to use. Since they are made of natural ingredients, people don't have to worry about getting any issue related to the skin like skin rashes or experience skin itchiness. Not known by many people that BHA (Butylated Hydroxy-anisole) and BHT (Butylated Hydroxytoluene) are synthetic antioxidants and are used as preservatives in moisturizers and many other beauty products ranges. BHA and BHT can induce allergic reactions in the skin. Herbal cosmetics contain natural antioxidants.

3. Suitable for all skin types:

Natural cosmetics are suitable for all skin types. An individual with the skin of any types can use them and never have to worry about degrading skin condition.

4. Not tested on animals:

Most of the cosmetic products are initially tested on animals to ensure that they are safe and effective to use for human. However, natural cosmetics need not be tested on animals. These natural formulations are tested by Ayurvedic experts in laboratories using state of the art equipment with no animals involved.

5. No side effects:

The synthetic beauty products cannot only cause irritation in the skin but can cause many chronic skin problems as well. They might block your pores and make your skin excessively dry or oily. With natural cosmetics, one need not worry about these because the natural ingredients used in forming herbal products as these are free from parabens that are the most widely used preservative and assure no side effects.

6. Wide Selection:

Herbal cosmetics offer a variety of beauty products, whether it's skin products or hair herbal products. Furthermore, one will find locally made natural cosmetics or those made by famous designers worldwide.

7. Budget-Friendly:

Natural cosmetics are not that expensive. In fact, they are easily available at low cost. So you need not to be in fear of splurging.

The word herbal is a symbol of safety in contrast to the synthetic one which has adverse effects on human health. Possibly, herbal user desire to assume control over health care needs. Perhaps the large in personal healthcare system is unpatable to many and they turn to herbal medicine due to increased side effects

of available synthetic preparations (Kaul et al., 2010; Dwivedi et al., 2008). Herbal cosmetics have growing demand in the world market and are an invaluable gift of nature. There are a wide range of herbal cosmetic products to satisfy your beauty regime, adding herbal in cosmetic is very safe for skin.^{11,12,13}

Colouring lips in an ancient practice date back to prehistoric period. In present days the use of product has increased and choice of shades of colours textures, lustrous, have been changed and become wider. This can observed from the facts that lipstick is marketed in hundreds of shades of colors to satisfy the demand for the women. Due to various adverse effects of available synthetic preparation the present work was conceived by us to formulate an herbal lipstick having minimal or no side effects which will extensively use by the women of our communities with great surety and satisfaction.^{16,17}

Natural Coloring agents:

Colorants or coloring agents are mainly used to impart a distinctive appearance to the cosmetic products. Color is used in cosmetics since early times. Basically, a desire to buy a cosmetic product is mainly controlled by three senses namely sight, touch and smell. As such as, color is an important ingredient of cosmetic formulation.

The color is imparted to the lips in two ways:

- 1) By staining the skin with a solution of dyestuff which can penetrate the outer layer of the lip's skin.
- 2) By covering the lips with a colored layer which serves to hide any skin roughness and give a smooth appearance.^{2,14,15}

The first requirement is met by soluble dyes and the second one is met by insoluble dyes and pigments which make the film more or less opaque. Modern lip balms contain both to achieve the combined effect. The colors should be from the list of certified dyes under the drugs and cosmetics act. The naturally occurring colors are obtained from different plant and fruit sources. The Colorant derived from natural source should be nontoxic with no physiological activity. It should be a definite chemical compound because then only its coloring power will be reliable, its assay will be practicable and easier. Its tinctorial (coloring) power should be high enough so that only small quantities would be sufficient for use. Colorants should be unaffected by light, tropical temperatures, hydrolysis and micro-organisms and therefore they must be stable on storage. Colorants should not be affected by oxidizing or reducing agents and pH changes and also should not interfere with the tests and assays. Water soluble colorants are equally desirable with oil-soluble and spirit-soluble colors. The most important characteristic of colorant is compatibility with other ingredients and medicament. It should be free from objectionable taste and odour and must be readily available and inexpensive. The examples of natural colorants are obtained from beet root, saffron, turmeric etc. Saffron is dried stigma of flowers of the plant *Crocus Sativus* Linne. It is a perennial plant and is grown in Kashmir in India. It is also cultivated in Spain, France, Greece and Iran. The principle coloring agent in saffron is crocin. Crocin is yellow powder, a glycoside

in nature and easily soluble in water. Colorants should be unaffected by light, tropical temperatures, hydrolysis and micro organisms and therefore they must be stable on storage.⁴

Types:

1. Synthetic lipsticks
2. Herbal lipsticks
 - **Synthetic lipsticks:** These are made from products that are formulated in a laboratory.



Fig: 1.2 Golden rose

Velvet matte lipstick



Fig: 1.3 Sace lady nude

Lipstick matte



Fig: 1.4 Lotus makeup

Ecostay lipstick

Ex: Elle 18 , lancome L Absolu Rouge , Sugar, Plum matterrific , Lakme lipcolour , Belora paris.

- **Herbal lipsticks,** The name itself suggests that they are natural and free from all the harmful synthetic chemicals which otherwise may prove to be toxic to the lips. Instead of traditional synthetic products different plant parts and plant extracts are used in these products.



Fig: 1.5 Hemp organics



Fig: 1.6 Fifth organics



Fig: 1.7 Biotique natural

Ex: Biotique natural makeup , Hemp organics , Fifth skin botanical lipstick , Lotus herbals etc.,

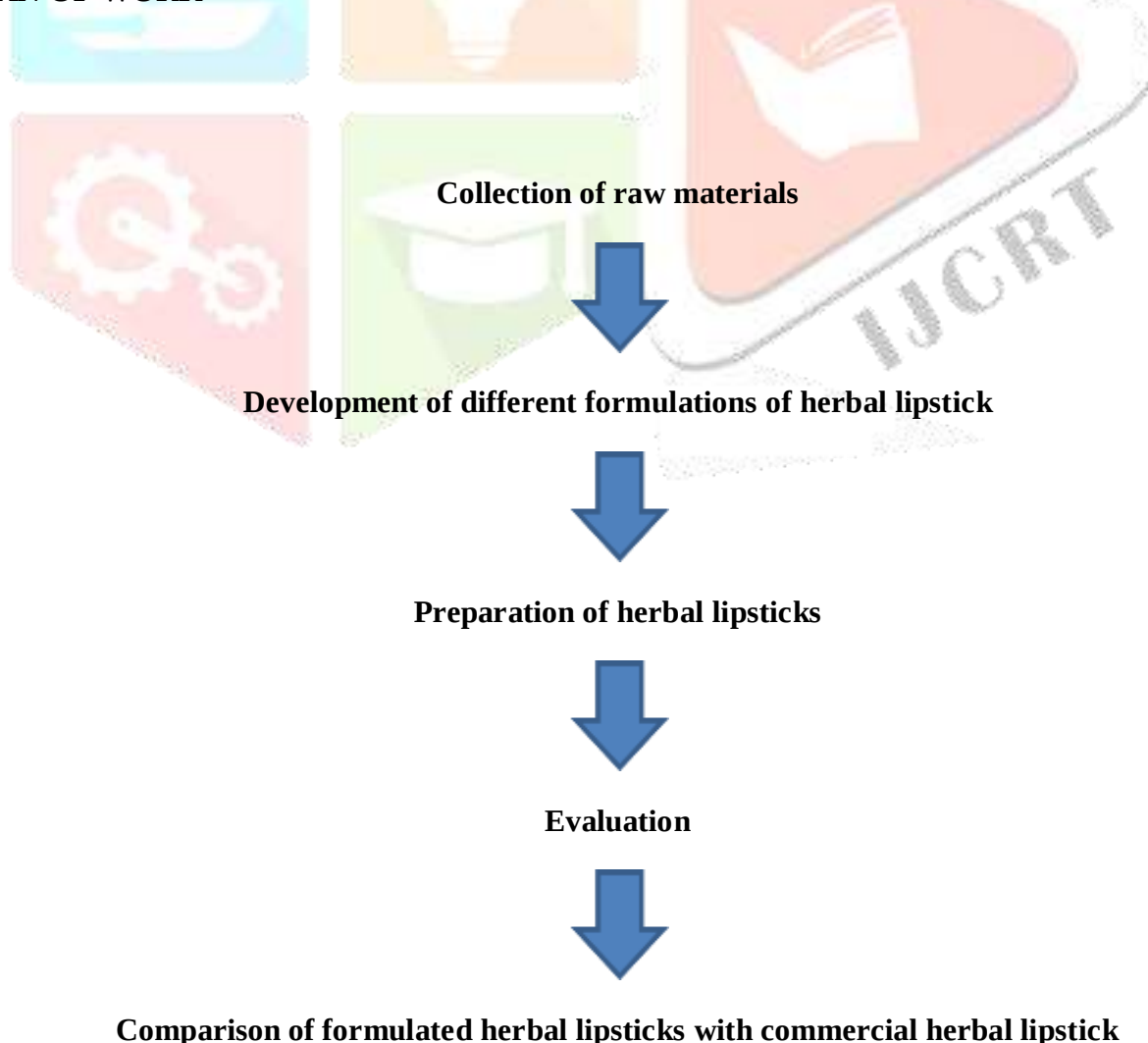
Disadvantages of synthetic lipsticks:

- **Lip colour becomes darker:** Lipstick is one of the brightest colours in make-up. Although the colour is good, there are a lot of pigments, dyes and chemical additives in lipstick, and the skin of the lips is

relatively fragile. There will be no obvious reaction in short-term use. But if you use lipstick for a long time, it will cause the lip colour to darken.

- **Easy to lead poisoning:** Although lipstick can help improve the complexion, lipstick is a product used on the lips. It is easy to eat into the mouth when eating. The heavy metal elements such as lead in the lipstick will also be brought into the body, and these substances are difficult to be discharged. Outside the body, the liver cannot metabolize these toxic substances in time, which will lead to lead poisoning.
- **Cause the lip skin to become sensitive:** Although the lipstick looks like a small one, it contains a lot of ingredients, and there are some irritating ingredients. It contains some fuel waste, lanolin and other ingredients. These complex ingredients are gathered together and applied to the sensitive lip skin, which can easily lead to cheilitis. If you choose inferior lipstick, the skin on your lips will become sensitive and fragile.
- **Dry mouth and skin:** Applying lipstick can make a person's complexion look better and complete the entire makeup. However, in order to achieve better results, some girls who love beauty will choose some matte lipsticks. The texture of these lipsticks will be relatively dry and they will be applied frequently. It will also take away the moisture from the lips, causing the lips to dry and peel.

PLAN OF WORK



MATERIALS & METHODS

1. BEES WAX:

Synonym: Ghedda wax

Biological source: It is obtained from honey comb of honey bee *Apis mellifera* Linn and other species of *Apis*. They belong to the family **Apidae**.

Structure:

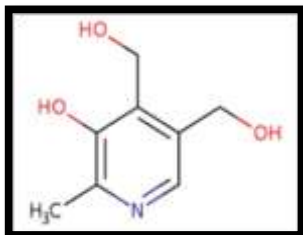


Fig: 3.1 Chemical structure



Fig: 3.2 Apis mellifera

Uses: It offers a moisturizer that protects your lips from becoming dry and developing cracks.

2. CASTOR OIL:

Synonym: Ricinus oil

Biological sources: It is obtained from the seeds of castor bean *Ricinus communis*, of the spurge and belongs to the family **Euphorbiaceae**.

Structure

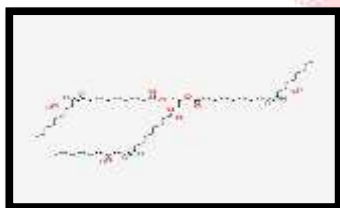


Fig: 3.3 Chemical structure



Fig: 3.4 Ricinus communis

Uses: It removes discoloration and gives your lips a fresh look.

3. VANILLA ESSENCE:

Synonym: Vanillin

Biological source: It is a spice derived from orchids of the genus vanilla, primarily obtained from pods of the Mexican species *Vanilla planifolia* belongs to the family **orchidaceae**.

Structure:

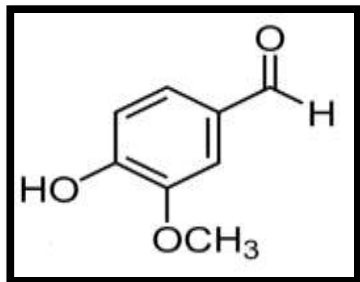


Fig: 3.5 Chemical structure



Fig: 3.6 Vanilla planifolia

Uses: It is used for its fragrance and anti-ageing benefits.

4. PINEAPPLE ESSENCE :

Synonym: Bromelia comosa essence

Biological source: The pineapple *Ananas comosus* is a tropical plant with an edible fruit, it is the most economically significant plant belongs to family **Bromeliaceae**.

Fig: 3.7 Ananas comosus



Uses: It moisturizes your lips deeply making them soft and moist.

5. Lanolin:

Synonym: wool yolk, wool wax, or wool grease.

Biological source : Lanolin is the fat-like purified secretion of the sebaceous glands which is deposited into the wool fibres of sheep, *Ovis aries* Linn., belonging to family **Bovidae**.

Structure:

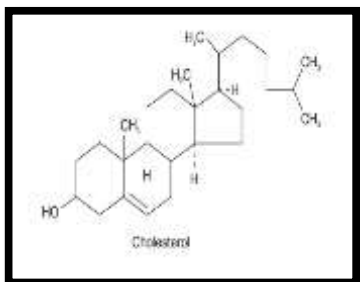


Fig: 3.8 Chemical structure



Fig: 3.9 Lanolin

Uses: It strengthens the lipstick into a stick shape and helps the mixture adhere to the skin.

6. COCONUT OIL:

Synonym: Copra oil, coconut butter

Biological sources: It is the oil expressed from the dried solid part of endosperm Coconut, *cocos nucifera* and belongs to the family **Palmae**.

Structure:

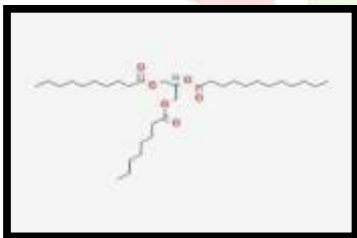


Fig: 3.10 Chemical structure



Fig: 3.11 Cocos nucifera

Uses: It hydrates the lips and reduces pigmentation and chapping.

7. OLIVE OIL:

Synonym: Fossil oil, calamus oil

Biological source: It is a liquid fat obtained from olivac, the fruit of *olea europaea* belongs to the family oleaceae.

Structure:

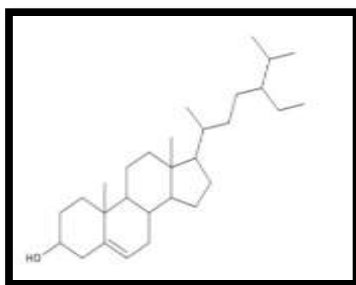


Fig: 3.12 Chemical structure



Fig: 3.13 Olea europaea

Uses: It helps to get rid of dead skin cells from your lips and promote lip health.

8. VITAMIN E:

Synonym: Tocopherol

Biological source: It is mainly found in nuts, seeds, avacado, vegetable oil and wheat germs.

Structure:

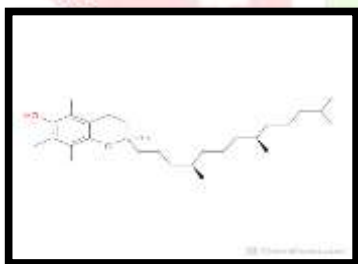


Fig: 3.14 Chemical structure



Fig: 3.15 Vitamin-E

Uses: It is used as an antioxidant that can help with UV protection, as well as enhance the integrity of the formula.

9. LEMON:

Synonym: citrus limon

Biological source: lemon is a species of small evergreen trees in the flowering plant belongs to the family Rutaceae.

Structure:

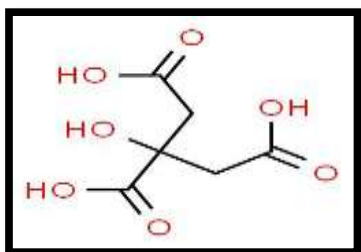


Fig: 3.16Chemical structure



Fig: 3.17 Lemon

Uses: The citric acid in lemon juice helps to lighten the dark shade of lips, in turn, making your lips look pink.¹⁸

METHODOLOGY:

The materials like Beeswax, Paraffin wax, Lanolin, Castor oil, Coconut oil, Olive oil, Vitamin-E capsule, Citric acid (lemon), Vanilla essence were purchased from the local market (Visakhapatnam). Rose red and Lilac pink were used as natural coloring pigments in current formulation.

Table 3.1 Instruments used:

Name	Model
Weighing balance	Essae DS 852J
pH meter	Elico
Magnetic stirrer with hot plate	KEMI
Melting points apparatus	Rolex

Table : 3.2Chemicals used:

Name	Specification
Bees wax	SK organics
Lanolin	Qualigens fine chemicals
Castor oil	Swastik
Coconut oil	Parachute
Olive oil	Figaro (Spanish brand)
Vitamin-E capsules	Evlitesoftgels
Essential oil	Grasee International
Vanilla essence	Natural flavours India pvtlimited
Pineapple essence	Bakers Product

Table : 3.3 List of ingredients used in the formulation of herbal lipstick

S.No	Ingredients	F1(g)	F2(g)	F3(g)	F4(g)	F5(g)	F6(g)
1	Bees wax	3.2	3.2	3.2	3.6	3.6	3.6
3	Lanolin	1.8	1.8	1.8	1.8	1.8	1.8
4	Olive oil	6ml	-	-	6ml	-	-
5	Castor oil	-	6ml	-	-	6ml	-
6	Coconut oil	-	-	6ml	-	-	6ml
7	Rose red	2ml	2ml	2ml	-	-	-
	Lilac pink	-	-	-	2ml	2ml	2ml
7	Vitamin-E	3-drops	3 drops	3 drops	3 drops	3 drops	3 drops
8	Lemon juice	2 drops	2 drops	2 drops	2 drops	2 drops	2drops
9	Vanilla essence	-	-	-	4-5 drops	4-5 drops	4-5 drops
10	Pineapple essence	4-5 drops	4-5 drops	4-5 drops	-	-	-



Fig: 3.18 Ingredients used in the formulation of Herbal Lipsticks

Formulation of Herbal lipstick:

- The herbal lipsticks were formulated as per general method of lipstick formulation.
- In this formulation bee's wax, lanolin were melted in porcelain dish on water bath with decreasing order of their melting point.
- Similarly castor oil, olive oil and coconut oil were melted in another separate porcelain dishes on water bath.
- Both phases were heated at same temperature at 70°C.
- Then oil phase was mixed with wax.
- Now coloring agent, vanilla essence, vitamin-E, lemon juice were added at 35°C.
- Then mixture was poured into lipstick mould in excess amount and mould was kept on ice bath for solidification.
- After solidification surplus amount was scrapped with blade. Lipsticks were removed from mould and flamed.
- The prepared lipsticks were fitted in lipstick containers and used for further evaluation.

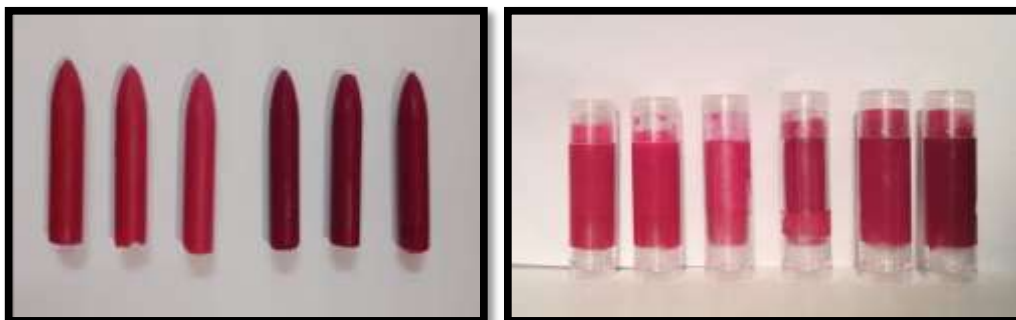


Fig: 3.19 Different formulations of Herbal Lipstick (F1 –F6)

Evaluation tests of herbal lipstick:

1. Color & texture
2. pH
3. Melting point
4. Breaking point
5. Softening point
6. Surface anomalies
7. Aging stability
8. Perfume stability
9. Skin irritation
10. Solubility

1. Color & texture: Formulated lipsticks were observed for color, glossiness and smooth texture.

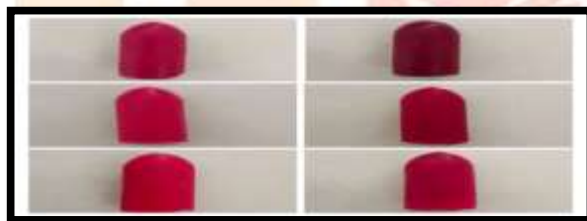


Fig: 3.20 Color & texture

2. pH: The pH of the herbal lipsticks was determined using pH meter.

3. Melting point: It is an important parameter of lipstick formulation; as it is an indication of the limit of safe storage. It was determined by capillary tube method. 50mg sample of lipstick was melted and filled into glass capillary tube opened at both ends. Capillary tube was cooled with ice and fastened with thermometer. The temperature at which lipstick was completely melted is recorded as melting point.

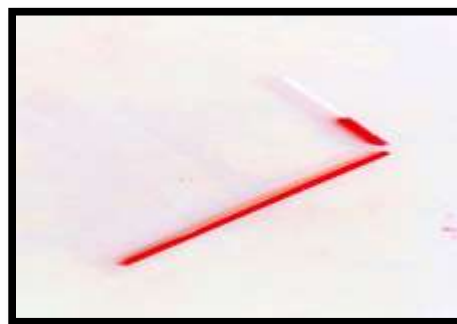


Fig: 3.21 Capillary tube filled with melted lipstick



Fig: 3.22 Melting point apparatus

4. Breaking point: This test was carried out to find out the value of maximum load that lipstick can withstand before it breaks. This test gives strength of the lipstick. It was determined by holding the lipstick horizontally in a socket inch away from the edge of support. The weight was increased gradually by a specific value of 10gm at specific interval of 30 seconds. The weight at which the lipstick breaks was considered as the breaking point.^{19,20,21,22,23}



Fig:3.23 Formulated lipsticks with increasing load

- 5. Softening point:** Lipstick should be able to withstand range of conditions to which it will be subjected in the consumer's handbag. It should be resistant to varying temperature conditions and be just as easy to apply in hot and as in cold weather. Softening point of lipstick was determined by Ring and Ball method.
- **Ring and Ball method:** A ring or support orifice was taken and prepared herbal lipstick was inserted into it. Extra mass above and below the orifice was removed using a sharp blade leaving a tablet of lipstick fitted into the ring. This was placed in refrigerator (6°C) for about 10 min. Ring was tied onto a stand. A beaker containing 500 ml water at room temperature is placed on a hot plate with magnetic stirrer. A steel ball was delicately placed on the lipstick tablet. The bar with support was then inserted

into the beaker till it submerged into it. Heating and slow agitation was then begun. Temperature was monitored using a thermometer. The temperature at which the lipstick mass and steel balls were loosed and falls to the bottom of the beaker was noted as softening point of lipstick.

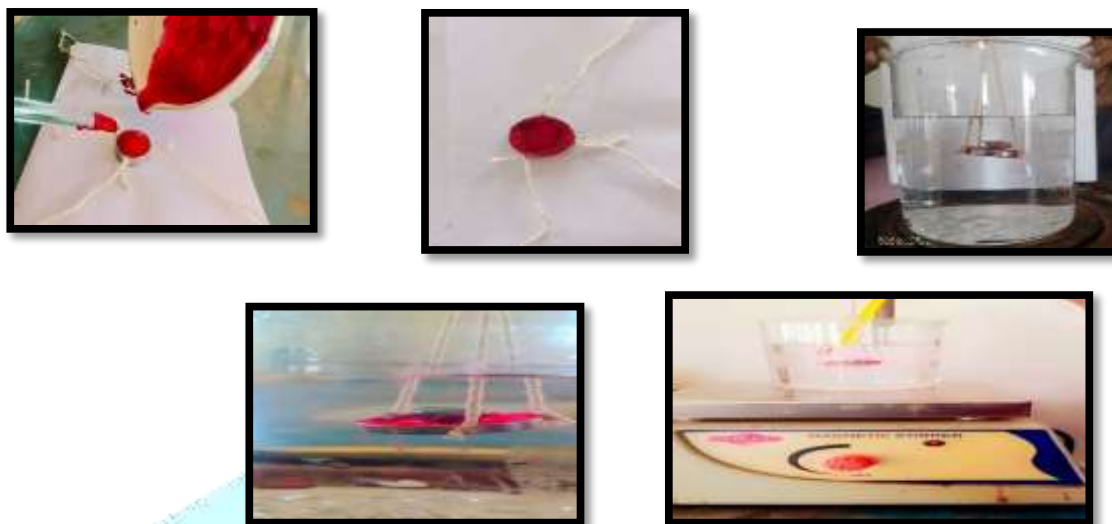


Fig:3.24 Ring and Ball method

6. **Surface anomalies:** This was studied by the surface defects, such as formation of crystals on surface, contamination by moulds, fungi, formation of wrinkles, exudation of liquid substances and of solid fatty substances, etc.
7. **Aging stability:** Prepared herbal lipsticks were stored at refrigerator temperature (4°C), room temperature (20-25°C) and high temperature (30-40°C) for 1h. Various parameters such as bleeding, streaking, catering and blooming were observed.
8. **Perfume stability:** The prepared herbal lipsticks were tested after 30 days, to record fragrance.^{24,25,26,27}
9. **Skin irritation:** The prepared lipstick was spread over the skin for 10 min. and observed for irritation, redness and swelling.²⁸



Fig: 3.25 Skin irritation test

a) At time $t=0$ min

b) After 10 min

10. **Solubility test:** The formulated herbal lipstick was dissolved in various solvents to observe the solubility.¹¹

The prepared herbal lipsticks were compared with commercial herbal lipstick from LOTUS make –up company.

Results and Discussion

The herbal lipsticks were formulated by adding the required quantities of natural ingredients as shown in the formulation table and subjected to various evaluation tests like color & texture, pH, melting point, breaking point, softening point, surface anomalies, aging stability, perfume stability, skin irritation and Solubility.

The results of the Evaluation are presented in the following table.

Table 4.1 Results of Evaluation of formulations F1 to F6 and Marketed herbal lipstick

S. No.	Parameter	F1	F2	F3	F4	F5	F6	Marketed
1	Colour	Pink	Pink	Pink	Red	Red	Red	Red
2	Texture	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth
3	pH	6.2	6.2	6.3	6.4	6.2	6.4	6.4
4	Melting Point	60-62°C	58-60°C	60-62°C	60-64°C	56-58°C	60-64°C	60-66°C
5	Breaking Point	100g	100g	100g	100g	100g	100g	80g
6	Softening Point	62°C	60°C	58°C	62°C	60°C	58°C	60°C
7	Surface Anomalies	No defect	No defect	No defect	No defect	No defect	No defect	No defect
8	Aging Stability	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth
9	Perfume Stability	+++	+++	+++	+++	+++	+++	+++
10	Skin Irritation	No	No	No	No	No	No	No
11	Solubility	Chloroform	Chloroform	Chloroform	Chloroform	Chloroform	Chloroform	Chloroform

Discussion:

The present work formulation and evaluation of herbal lipsticks was aimed to formulate a lipstick using herbal ingredients with a hope to minimize the side effects produced by the available synthetic ones. The prepared formulations were evaluated for various parameters like pH, color, texture, breaking point, surface anomalies, perfume stability, aging stability, melting point, skin irritation, solubility and softening point.

It was found that the herbal lipstick formulations, formulation F1 containing olive oil as the base oil was best among the six formulations in terms of color and smoothness. All the formulations containing olive oil, coconut oil and castor oil proved to be better in terms of breaking point, surface anomalies, perfume stability, aging stability, melting point, pH, color, texture, skin irritation, solubility and softening point.

However the lipsticks were hard to apply in comparison to marketed herbal lipstick. None of the formulations produced any skin irritation. No surface anomalies were found in any formulation. Aging stability was smooth for all the six formulations. Perfume stability was best in F4, F5 & F6 formulations containing vanilla essence among all six formulations. Solubility of the prepared herbal lipsticks was checked in different solvents like methanol, ethanol, chloroform and petroleum ether. All the six formulations were found to be soluble in chloroform. Hence, from present investigation it was concluded that the formulated herbal lipsticks has better option to women with minimal side effects though a detailed clinical trials may be done to access the formulation for better efficacy.



Fig: 3.26 The prepared herbal lipstick compared with commercial herbal lipstick

SUMMARY AND CONCLUSION

The main aim of the study was to formulate and evaluate Herbal lipsticks using herbal ingredients with a hope to minimize the side effects produced by the available synthetic ones.

The Herbal lipsticks contain ingredients such as Bees wax, Lanolin, Olive oil, Castor oil, Coconut oil, Rose red & Lilac pink as natural dyes, Vitamin-E, Lemon juice, Vanilla and Pineapple essence have many beneficial effects on lips.

The herbal lipsticks were formulated as per general method of lipstick formulation. In this formulation bee's wax, lanolin are melted in porcelain dish on water bath with decreasing order of their melting point. Similarly castor oil, olive oil and coconut oil were melted in another separate porcelain dishes on water bath. Both phases were heated at same temperature at 70°C. Then oil phase was mixed with wax. Now coloring agent, vanilla essence, vitamin-E, lemon juice were added at 35°C. Then mixture was poured into lipstick mould in excess amount and mould was kept on ice bath for solidification. After solidification surplus amount was scrapped with blade. Lipsticks were removed from mould and flamed. The prepared lipsticks were fitted in lipstick containers and evaluated.

The prepared formulations were evaluated for various parameters like pH, color, texture, breaking point, surface anomalies, perfume stability, aging stability, melting point, skin irritation, solubility and softening point.

It was found that the herbal lipstick formulations, formulation F1 containing olive oil as the base oil was best among the six formulations in terms of color and smoothness. All the formulations containing olive oil, coconut oil and castor oil proved to be better in terms of breaking point, surface anomalies, perfume stability, aging stability, melting point, pH, texture, skin irritation, solubility and softening point.

Conclusion:

In last few decades there has been tremendous boost in use of cosmetics by women. However the hazards caused by the chemicals used in synthetic lipsticks has come into limelight very recently. The present work formulation and evaluation of herbal lipsticks was aimed to formulate a lipstick using herbal ingredients with a hope to minimize the side effects as produced by the available synthetic ones. Study concluded that herbal lipstick can be successfully formulated using different natural ingredients such as Bees wax, Castor oil, Coconut oil, Olive oil, Vanilla and Pineapple essence, Vitamin E and lemon juice. These are better options compared to synthetic coloring agents which may cause different and hazardous side effects.

Hence, from the present study it can be concluded that the formulated herbal lipstick was better with minimum side effects or no side effects. From evaluation studies, formulation of lipstick using this natural colorant was more satisfactory than marketed formulation.

Natural remedies are accepted nowadays with open hands as they are safer with fewer side effects than the chemical based products. Herbal formulations are required in large amounts to fulfill the needs of the growing world market. It is an effective attempt to formulate the herbal lipstick containing different natural nutrients.

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