



FORMULATION AND EVALUATION OF LIP BALM USING HERBAL ENTITIES

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Abstract : Cosmetics are the substance used to alter the appearance or fragrances of the human body. Nowadays the demands for herbal cosmetics in the world market are growing day by day. There is a wide range of herbal cosmetic products to satisfy the need of women. In contrast to synthetic ones, herbal cosmetics are safe for human health. Herbal Cosmetics are defined as the beauty products which possess desirable physiological activity such as enhancing, soothing appearance, healing, conditioning properties because of herbal ingredients. Recently, demands for natural products increases especially in the cosmetics industries. Lip balm is one of the most commonly used cosmetic products. Its main function is to moisturize the lips, relieve chapped lips, and protect them from dryness. 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 for formulation of natural lip balm. In present study we prepared three lip balm formulations using natural ingredients and out of three formulation F3 formulation has shown good features as lip balm.

IndexTerms - Lip balm, cosmetics, herbal lip balm, vitamin E, beetroot

I INTRODUCTION

Cosmetics are defined as any article intended to be sprayed, poured, rubbed, or sprinkled on or introduced into or applied to the human body^[1]. Herbal medicines are becoming increasingly popular due to their skin-friendliness and lack of side effects. The reason to use herbal cosmetics is to replace synthetic products, which are harsh in nature. Herbal products do not contain any of the other potentially harmful ingredients found in synthetic products, such as petrochemicals, artificial fragrances, flavours, and colours^[2]. Herbal cosmetics are also referred to as natural cosmetics. Because of their lack of side effects, herbal medicines are becoming increasingly popular. Ayurvedic cosmetics not only beautified the skin but also acted as a barrier against external influences on the body. Many commonly used traditional medicines are derived from medicinal plants, minerals, and organic matter^[3]. Herbal lip balms are formulations that can be applied to the lips to prevent drying and protect them from harmful environmental factors. Lip balm is manufactured by a number of well-known companies, including TNW- the Natural Wash Herbal Beetroot Lip Balm, The Body Shop, Nivea, Mentholatum which may contain chemicals agents. To formulate herbal lip balms, the concentration of the main ingredients, including the base, oils, colouring agents, and flavouring agents, must be balanced. Herbal lip balms provide a natural way to keep and promote healthy lips^[4].

Natural lip balm formulation includes natural ingredients such as beeswax. The beeswax could retain the moisture required to heal the dried chapped scaly lips while also maintaining its quality^[5]. The natural colourant, including *Beta vulgaris*, also known as beetroot. Beetroot is a perishable vegetable with mineral content, such as iron and calcium. Carotenoid from beetroot has anti-inflammatory, anti-microbial, anti-fungal, and nutritive properties, whereas anthocyanins have antioxidant, anti-inflammatory, and cardioprotective properties^[6].

Almond oil has a nutritional profile that includes vitamins (vitamin E, niacin, riboflavin), minerals (potassium, phosphorus, magnesium, calcium, iron, zinc, manganese, selenium, and copper, among others), macronutrients (proteins, carbohydrates, fibres), and fatty acids^[7]. *Aloe vera* is a medicinal plant that has antimicrobial activity against a variety of microbes. The phytochemicals found in *Aloe vera* include anthrones, and anthraquinone and glycosides^[8]. Glycerol is a chemical alcohol that is used as a solvent or co-solvent. It has many advantages, including biocompatibility, biodegradability, stability, hygroscopicity, nontoxicity, and, most importantly, water solubility. It has bacteriostatic and fungistatic properties, making useful as a preservative^[9]. Rose water provides intense hydration to the lips. It is suitable for all skin types and aids in skin pH balance. It is referred to as a medicinal herb due to the presence of medicinal properties^[10].

II NEED OF THE STUDY

Conventional lip balm often contains petroleum, synthetic waxes, alumina, paraben, hydrogenated oils and artificial fragrance and colours. Currently lip product made from enormous chemical ingredients have been grown in the market even though it will bring

adverse side effects to the users. People now a days demanding on the naturally derived ingredients as they believed that the natural ingredients could not contribute to side effects on their lips. In cosmetic products, the presence of toxic chemicals poses challenges to market growth. Nowadays, consumers have a high concern in choosing cosmetic products. Recently, demands for natural products increase especially in the cosmetics industries. Lip balm is one of the widely used cosmetic products whose purpose is to give a colour to the lip as well as prevent lip dryness and acts as lip treatment^[4]. Herbal lip balm available in the market are comes with high cost. Hence we planned to prepare herbal lip balm which could be affordable at low cost.

III RESEARCH METHODOLOGY

Materials used in formulation such as Vitamin-E, Aloe-vera gel, Almond oil, Glycerol and Rose water and Bees wax were procured from local market from Chandgad Taluka, Maharashtra.



Beetroot Juice



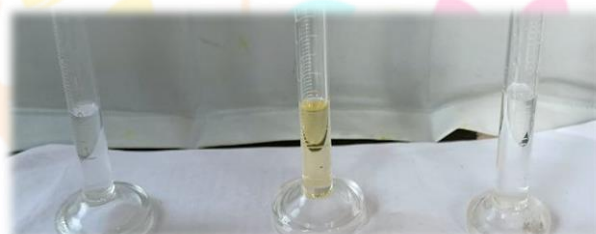
Vitamin E



Aloe vera gel



Beeswax



Rose water

Almond oil

Glycerol

Aloe vera: Scientific Name: *Aloe barbadensis* miller; Family: Asphodelaceae (Liliaceae). Aloe vera is used for antibacterial and antifungal activity against different strains of bacteria and pathogenic fungal strains. Aloe vera have therapeutic activities including anti-bacterial, anti-viral, anti-cancer activity, as well as immunoregulative and hepatoprotective properties.

Beetroot: Scientific Name: *Beta Vulgaris*. Family: Amaranthaceae. Beetroot is recognized as health promoting food due to presence of essential components such as vitamins, minerals, phenolics, carotenoids, nitrate, ascorbic acids and betalains that promote health.

Almond oil: Almond oil may promote heart health, stabilize blood sugar levels, prevent free radical damage and help to maintain a healthy weight. The oil makes an excellent moisturizer for both the skin and hair.

Beeswax: Beeswax has antibacterial properties and when applied to the skin improves its elasticity and makes it look fresh and smooth.

Glycerine: Glycerine improves softness and appearance of skin. Glycerine also boosts strength of hair by facilitating moisture content into hair root.

Rose water: The rose oil shows antiseptic, antispasmodic, antiviral, anti-bacterial, antifungal, diuretic and sedative effect.

Preparation of herbal lip balm:

All the materials were weighed accurately on a digital balance as per the three formulations F1, F2 and F3 in a required quantity to formulate lip balm. In a 50 ml beaker all the solid raw ingredients like beeswax, aloe vera gel, and beetroot extract were mixed together at 60°C uniformly for 10 minutes by double boiling method. Further added almond oil, vitamin E and Glycerin in to the mixture and mixed well to avoid clumps. After reducing temperature to 40°C; rose water was added and poured the mixture into 10gm of round bottom lip balm container. The lip balm container was labelled and stored at room temperature which was further used for stability testing.

Table No. 1: Formulation of lip balm

S. No	Ingredients	Quantity		
		F1	F2	F3
1	Beeswax	3.0 gm	3.0 gm	2.5 gm
2	Beetroot extract	3.5 gm	3.5 gm	3.0 gm
3	Almond oil	1.4 ml	1.4 ml	1.4 ml
4	Aloe vera gel	1.2 gm	1.2 gm	2.0 gm
5	Vitamin E	0.3 ml	0.4 ml	0.6 ml
6	Rose water	0.3 ml	0.3 ml	0.3 ml
7	Glycerin	0.2 ml	0.2 ml	0.2 ml

IV. RESULTS AND DISCUSSION

Melting point: The capillary containing lip balm was dipped in liquid paraffin inside the melting point apparatus which was equipped with magnetic stirring facility. Melting point was determined visually and reported.

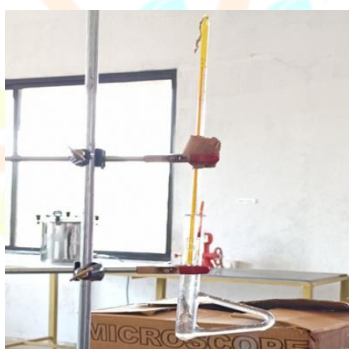


Fig. No 1: Determination of Melting point of lip balm

Colour: The lip balm was studied for the basic organoleptic characters such as colour, odour, taste and appearance.



Fig. No 2: Colour Test

Test of spreadability: The test of spreadability consisted of applying the product (at room temperature of 22.0 ± 3.0 °C) repeatedly onto a glass slide to observe the uniformity in the formation.

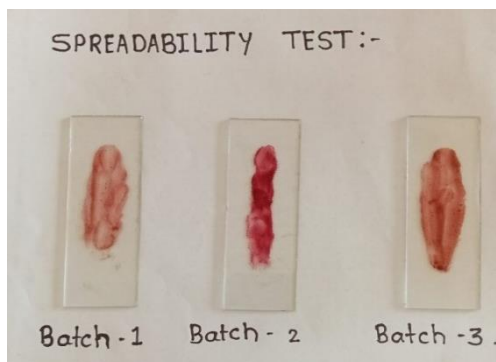


Fig. No 3: Spreadability Test

Solubility test: The solubility of formulated herbal lip balm was estimated by dissolving in various organic solvents like ethanol, chloroform & water.

Force of Application: To measurement the force to be applied for application lip balm. A piece of coarse brown paper kept on a shadow graph balance and lip balm was applied at 45° angle to cover a 1 sq. Inch area until fully covered. The pressure leading is an indication of force of application.

Table No. 2: Evaluation Parameters of Lip Balm Formulation

Sr. No	Evaluation Parameter		F1	F2	F3
1	Colour		Brick pink	Cherry pink	Pale pink
2	Solubility	a) Ethanol	Soluble	Soluble	Soluble
		b) Chloroform	Insoluble	Insoluble	Insoluble
		c) Water	Insoluble	Insoluble	Insoluble
3	Spread ability		Intermediate	Good	Good
4	Melting Point		57°C	62°C	56°C
5	pH		6.2	5.8	6.5
6	Odour		Characteristic	Characteristic	Characteristic
7	Appearance		Intermediate	Good	Smooth
8	Perfume Stability Test		Stable	Stable	Stable
9	Force of Application		Poor	Good	Easy

The use of beetroot provided natural colour which is non-toxic compared to synthetic colours. Evaluation of prepared lip balm was done by following melting point, pH measurement, test for spreadability and stability studies.

Conclusion: The prepared lip balm formulation F3 showed ideal properties like shin, spreadability and smoothness during evaluation and it is assumed to be safe for longer periods. The lip balm has prepared using natural sources and we reviewed the current status of natural lip balm products; it is cost frinedly compared to other marketd costly lip balms.

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