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FORMULATION AND EVALUATION OF ORGANIC LIP BALM

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ABSTRACT

The lip care products for everyday basis contain harmful heavy metals and preservatives. Other than leaching through the pores on your lips, these heavy metals and other chemicals can also be accidentally ingested. Lead affects heart and brain, Cadmium and Chromium can cause cancer, Preservative could cause breast cancer. Lip balms are formulations applied onto the lips to prevent drying and protect against adverse environmental factors. Organic lip balms nourishes the lips and help to get hydrated and protect lips affected by chapping and dryness. They help to protect the natural health and beauty of the lips. Lip balms are not gender specific products and both men and women can use them. In the present study many organic products like Ghee and Honey, can help to keep lips hydrated and healthy. Prepared lip balm was evaluated for organoleptic characteristics, melting point, spreadability, pH measurement and stability studies. After performing stability studies at room temperature (25.0 ± 3.0 °C), refrigeration (4 ± 2.0 °C) and oven temperature (40.0 ± 2.0 °C) for 30 days. It was concluded that prepared lip balm shows uniform nature, perfect application, without any deformation at room temperature (25.0 ± 3.0 °C) and at refrigeration (4 ± 2.0 °C). Mean melting point was 69 °C. Mean pH was 7.2, which is near to the neutral pH. Storage in the oven (40.0 ± 2.0 °C) is not recommended because of loss of product functionality observed during the normal Stability. Organic lip balm can be a better option for treatment of various lip issues.

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INTRODUCTION

Due to increasing public concern, on the presence of hazardous synthetic excipients in cosmetics, new techniques are gained to produce products using organic sources. Chapped, dry or cracked lips are very common beauty dilemma, particularly in harsh weather. Lips have no oil glands, so they really need that extra moisture and protection throughout the day^[1]. Many people deal with dried-out lips during the winter, but the problem can continue in sunny seasons, too. Conventional lip balms often contain petrolatum, synthetic waxes, alumina, parabens, hydrogenated oils and artificial fragrances and colours which are toxic. Lip balms are often eaten away by the user and hence it is imperative that health regulators have a microscopic look at the ingredients that go in to the lip balm. The dyes that contribute to the color of the lip balm are dangerous to humans on consumption. Lips contain little melanin, which provides some protection from the sun. Although many organic products like Ghee, Honey, vitamin E can help keep lips hydrated and healthy when used as part of a larger regimen^[2, 3].

Organic word is the symbol of safety in contrast to synthetic one which has adverse effects on human health. Cosmeceuticals are cosmetic products with biologically active ingredients purporting to medical or drug like benefits. These ingredients have medicinal properties that manifests beneficial topical actions and provides protection against degenerative skin condition. The present work was carried out by us to formulate organic lipstick having less side effects. Products that are used to protect lips rather than decorate them are known as lip balms. They form an adherent, flexible, moisture resistant film of oily substances. Usually they do not contain dye^[2, 3].

Honey helps to lighten up the dark lips. Honey is rich with bleaching action that generally removes the darkness of the lip skin. It is also high in antioxidants that help repair daily UV damage. Ghee contains essential fatty acids that help condition and nourish dry and chapped lips. The application of pure ghee on chapped lips will help to cure the problem of cracked lips as well as discoloured lips with quick effects. Beeswax is a natural compound secreted by female bees that is often used in cosmetics, particularly lip balm. This substance is very moisturizing, can help protect the lips from the harmful rays of the sun, and has a pleasant smell. Beeswax act as a natural emulsifiers. Castor oil penetrates deep into the skin tissue and its fatty acids help to moisturize the lips. The anti-inflammatory properties of castor oil reduce redness and pain associated with chapped and sunburnt lips. Vitamin E is an antioxidant and a natural conditioner. Vitamin E helps to maintain the soft, youthful texture of your lips by reducing the signs of aging. Stability studies are useful as a screening tool for all potential manifestations of instability of a formulation, even if they never occur under conditions of product use. Furthermore, possible changes in the product can be identified before it is released for use by consumers^[4-6].

MATERIALS AD METHOD

All ingredients were purchased from trusted supplier. Ghee were purchased from Govind milk and milk products, Satara, All other are purchased from Yarrow chemicals, Mumbai.

FORMULATION OF LIP BALM^[2, 7]

Weigh all the excipients. Add ghee, beeswax, castor oil and sunflower oil in beaker and melt it in water bath at 55-60°C. Add honey and vitamin E into beaker and mix vigorously so that honey will not clump. Add vanillin flavour. Pour the content into the lipstick moulds. Before pouring the mixture in lipstick moulds; on the mould applying glycerine with the help of cotton. Put the filled moulds into ice bath for 10 min. Composition of lip balm is given in Table 1

Table 1: Composition of lip balm.

INGREDIENTS	QUANTITY	USES
Beeswax	5%	Impart Glossiness and hardness
Ghee	2 %	Moisturizer
Castor oil	15%	Emulsifier
Honey	5%	Lighten up the darker lips
Vanillin	0.08%	Flavouring agent
Vitamin E	5%	Antioxidant, maintain the stability

EVALUATION OF LIP BALM^[2,3,7]

Melting point

The melting point apparatus (VEEGO mode-VMP-D, India) used to determine melting point of lip balm. To determine the melting point, sample of lip balm was taken in a glass capillary whose one end was sealed by flame. The 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.

Organoleptic properties

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

Test of spreadability

The test of spreadability consisted of applying the product (at room temperature) repeatedly onto a glass slide to visually observe the uniformity in the formation of the protective layer and whether the stick fragmented, deformed or broke during application. For this test, the following criteria were established by the analyst:

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

I - Intermediate: uniform; leaves few fragments; appropriate application; little deformation of the lip balm.

B - Bad: not uniform; leaves many fragments; difficult or inappropriate application, intense deformation of the lip balm.

Measurement of pH

The pH of lip balm was determined in order to investigate the possibility of any side effect. As an acidic or alkaline pH may cause irritation of lips, it was determined to keep the pH of tablet as close to neutral as possible. The pH study was carried out by dissolving 1 gm of sample into 100 ml water. The pH measurement was done using pH meter.

Stability studies

Prepared lip balm was placed for accelerated stability studies at room temperature (25.0 ± 3.0 °C), refrigeration (4 ± 2.0 °C) and oven temperature (40.0 ± 2.0 °C) for 30 days. After 30 days, it was characterized for organoleptic properties, melting point, spreadability, and pH.

RESULT AND DISCUSSION ^[2, 3, 7]

Organoleptic characteristics

Prepared lip balm has shown cream colour with pleasant odour. All results are presented in Table 2 and Figure 1.

Table 2: Organoleptic characteristics of lip balm.

PARAMETERS	OBSERVATIONS
Colour	Cream
Appearance	Excellent, Smooth
Odour	Pleasant



Figure 1-Prepared organic lip balm.

Melting point

Melting point of lip balm was found to be in the range of range of 68°C-69 °C, which matches with appropriate melting point of between 65 and 75 °C.

Test of spreadability

Prepared lip balm, initially has shown, G - Good: uniform, no fragmentation; perfect application, without any deformation at room temperature as given in Figure 2.



Figure 2- Spreadability of lip balm at room temperature.

Measurement of pH

pH of lip balm was near to neutral pH i.e. 7.2 this would not cause any irritation to lips.

Stability studies

Stability of drug can be defined as the time from date of manufacture and the packaging of the formulation, until its chemical or biological activity is not less than a predetermined level of labeled potency and its physical characteristics have not changed appreciably. The purpose of stability testing is to provide evidence on how the quality of a drug substance or drug product varies with time under the influence of variety of environmental factors such as temperature, humidity and light, enabling recommended storage conditions and shelf-lives. Stability studies were carried out for 1 month/ 30 days at room temperature (25.0 ± 3.0 °C), refrigeration (4 ± 2.0 °C) and oven temperature (40.0 ± 2.0 °C). All results are presented in Table 3.

Table 3: Stability studies of lip balm at different temperature.

Parameters	Temperature conditions		
	25.0 ± 3.0 °C	4 ± 2.0 °C	40.0 ± 2.0 °C
Colour	Cream	Cream	Cream
Odour	Pleasant	Pleasant	Pleasant
Melting point	69°C	69°C	68°C
Spreadability	G	G	I
pH	7.2	7.2	7.1

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

I - Intermediate: uniform; leaves few fragments; appropriate application; little deformation of the lip balm.

It was observed that prepared lip balm shows, **G** - Good: uniform, no fragmentation; perfect application, without any deformation at room temperature (25.0 ± 3.0 °C) and refrigeration (4 ± 2.0 °C) and shows, **I** - Intermediate: uniform; leaves few fragments; appropriate application; little deformation at oven temperature (40.0 ± 2.0 °C). All results are presented in Figure 3 and Figure 4.



Figure 3- Organoleptic characteristics of Lip balm A) at 25.0 ± 3.0 °C, B) 4 ± 2.0 °C, C) 40 ± 2.0 °C.

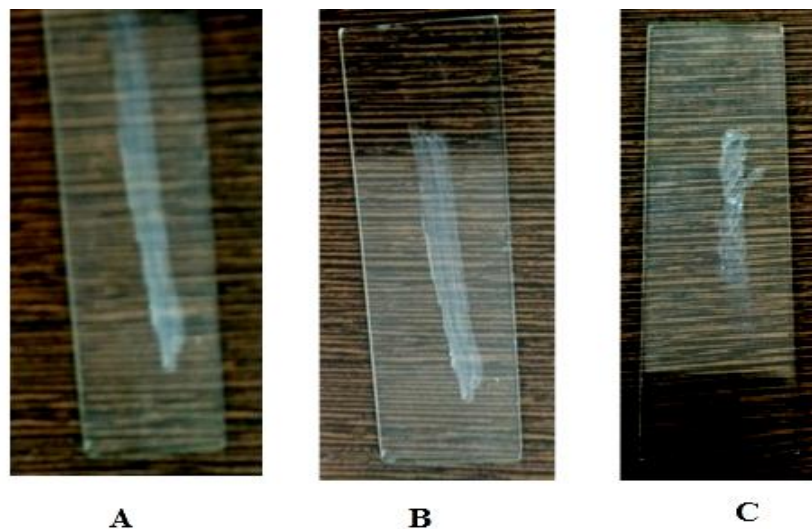


Figure 4- Spreadability of Lip balm A) at 25.0 ± 3.0 °C, B) 4 ± 2.0 °C, C) 40.0 ± 2.0 °C.

DISCUSSION

Consumers concerned with the environment are willing to spend more on "environmentally friendly" products, favouring the growth of the market for organic cosmetics. Following this trend, cosmetic manufacturers have invested in research and development of this product category. However, the development of organic cosmetics have major technical challenges in that, besides requiring experience and skill of the formulator, there is a restriction on the use of raw materials, since 95% of the formulation must be of organic origin.

Prepared lip balm formulations were evaluated for organoleptic characteristics, melting point, spreadability, pH and stability studies. It shows melting point in the range of 68°C - 69°C , which matches with the ideal melting point. Test of spreadability was found to be **G** - Good: uniform, does not leave fragments, perfect application, without any deformation of the lip balm initially at room temperature. pH of lip balm was near to neutral pH i.e. 7.2 this would not cause irritation to lips.

Although the compatibility of all components in the formulation represents an important factor affecting the stability of a lipstick or lip balm, it is also essential to study the spreadability parameter which, in turn, is influenced by melting point. After performing stability studies at room temperature (25.0 ± 3.0 °C), refrigeration (4 ± 2.0 °C) and oven temperature (40.0 ± 2.0 °C) for 30 days it was observed that lip balm shows Good: uniform spreadability, perfect application, without deformation properties, observed at room temperature (25.0 ± 3.0 °C) and refrigeration (4 ± 2.0 °C), But Intermediate: uniform spreadability; leaves few fragments; appropriate application; little deformation of the lip balm was observed at oven temperature (40.0 ± 2.0 °C).

CONCLUSION

The formulation stored at room temperature and refrigerator showed similar behavior during the stability test. The organoleptic characteristics were stable and spreadability was evaluated as "Good." Storage under these conditions was considered adequate, particularly because the functionality of the product was maintained. Prepared lip balm shows good spreadability at normal temperature. During the stability test, the developed formulation of organic lip balm exhibited an appropriate melting point (mean of 69°C). According to results of the spreadability tests, storage in the oven (40.0 ± 2.0 °C) was not recommended because of loss of product functionality observed during the normal stability test. It was concluded that Organic lip balm can be a better option for treatment of various lip issues.

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CONFLICT OF INTEREST

There are no conflicts of interest.

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