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Research

Formulation And Evaluation of Lip Balm Prepared Using Various Herbal Entities

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Abstract- Cosmeceuticals are the products of cosmetic that are biologically active ingredients that impersonates to medical or drug like benefits. The design, quality, formulation of lip balm made from natural ingredients was studied. In this study, lip balm has been made by using various ingredients like Amla, Ginger, Honey, almond oil, aloe vera, vitamin E and rose powder. Homogenous mixing method was used to produce the lip balm. The formulation of lip balm was tested by applying it on a glass slide. Various parameters such as chemical stability, pH melting point, and spreadability were carried out for the evaluation of lip balm. The pH was found to be 6.4 and the melting point was 63-65 °C. After performing stability studies at room temperature (25.0 ± 3.0°C), refrigerated condition (4.0 ± 2.0°C) and oven temperature (40.0± 2.0°C), it proved that prepared lip balm was uniform in nature, was perfectly applied, without any deformation at room temperature and refrigeration. Lip balm prepared from above ingredients could be a better option for treatment of various lip issues. As we have used natural ingredients to prepare the lip balm so it is more beneficial then marketed lip balms.

Keywords- Lip balm, Amla, Ginger, Honey, Natural ingredients.

1. Introduction-

Due to the presence of hazardous synthetic excipients in cosmetics, there has been a great public concern regarding the use of organic sources.[1] Lips do not have any oil glands; thus, it is really important to provide that extra moisture and protection throughout the day. [2] Conventional lip balm often contains petrolatum, synthetic waxes, alumina, paraben, hydrogenated oils and artificial fragrances and colours which are toxic. Often the lip balm is eaten by the user, thus it becomes major issue for health regulator.[3]

Cosmeceuticals are the ingredients that have medicinal properties that benefits topical action and also provide protection against degenerative skin condition. [4] The present work was carried out by using these ingredients that have less side effects. [5]Products used to protect lips rather than to decorate them are well known as lip balms. They form an adherent, moisture resistant film of oily substances. Usually without any dye.[6]

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 emulsifier.[7]Instead of petroleum wax we used bees wax as it does not clog the pores. Vitamin E is an antioxidant and a natural conditioner. Vitamin E helps to maintain the soft, youthful texture of the lips by reducing the signs of aging. [8] Almond oil which penetrates deep into the skin tissue and its fatty acids help to moisturize the lips. The anti-inflammatory properties of almond oil reduce redness and pain associated with chapped and sunburnt lips.[9] Aloe vera has anti-inflammatory properties that fight irritation. It infuses the lips with antioxidants that fight wrinkles and other forms of skin damage.[10] Amla is rich in anti-oxidizing and helps to brighten up the lips also ginger when mixed with honey can act by promoting blood circulation to the area making lips appear fuller. [11]

UV filter lip balm can be used all year long, but it is especially beneficial in the summer or when visiting an area with more solar activity. Moisturizing lip balm is used in the cold since it absorbs too quickly. For dry lips, this kind of lip balm is beneficial. We can use moisturising lip balm all year long. Lip balm helps to protect natural health and beauty of lips. Lip balm helps to protects lips affected by Cole sores, chapping and dryness. It also work perfectly as overnight lip repair. Lip balm made of low quality ingredients can harm lips seriously. Low quality lip balm dry the lips instead moisturizing it. Lip balm addiction is another disadvantage usually seen in it.

Anatomy of lips-

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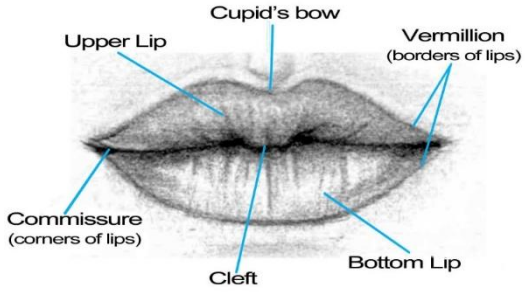
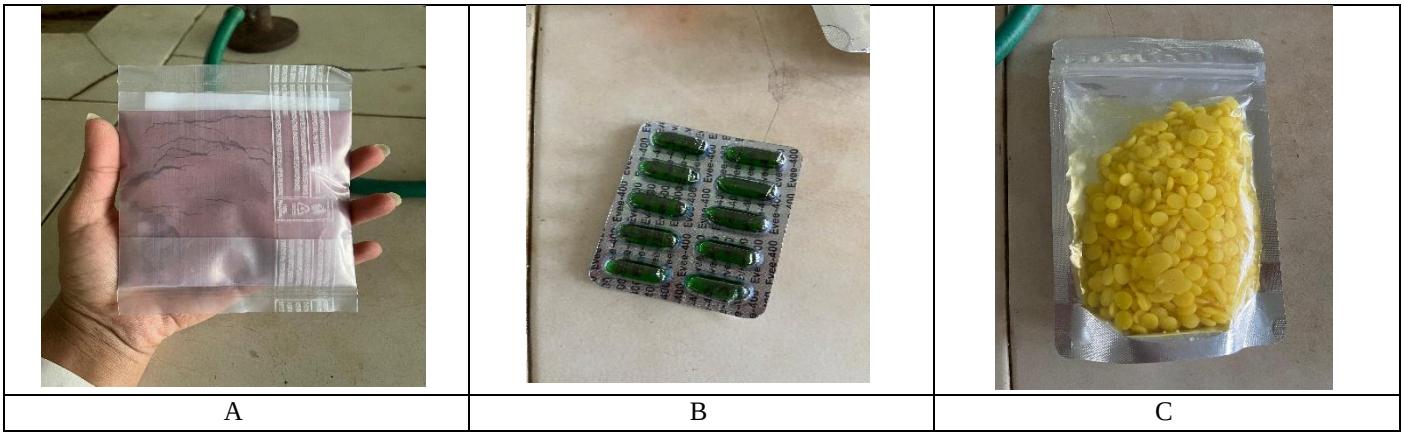


2. Material and Methods-

Beeswax was purchased from Young Chemist Pvt Ltd., Almond oil(Bajaj Almond drops®), Aloe Vera Gel from Patanjali Ayurveda Ltd., Amla Juice from Phyllanthus Emblica tree, Ginger juice from Zingibero Ficinale roots, Honey, Glycerine IP from Paras Chemical industries, Rose Powder from Dhanvantari Herbals, Cap. Vitamin E (Evee-400)



A	B	C

Figure 2: (A) Rose Powder; (B) Cap. Evee 400; (C) Bees Wax Pure White

2.1 Preparation of the ingredients:

2.1.1. Amla extract- Washed amla fruit were peeled and chopped. The chopped amla were blended well and further filtered through a clean muslin cloth. The extracted amla juice was used. [12]

2.1.2. Ginger extract- Washed ginger were peeled and chopped. The chopped ginger were blended well and further filtered through a clean muslin cloth. The extracted ginger juice was used. [13]

2.1.3. Rose water- Two grams of Rose powder from Dhanvantari Herbals was taken and diluted with 100ml of distilled water to make 2% solution of rose water. [14]

2.2 Method of preparation of lip balm:

All the above materials were weighed accurately on a digital balance nearest accuracy to 0.1 gm. Preparation method opted for the preparation of herbal lip balm was of heating solid raw ingredients at consistent temperature with indirect flame bees wax was crude and grinded into small uniform size and was melted in 50 ml beaker in indirect flame with an highest temperature of 90°C and all other ingredients like vitamin e amla juice ginger juice honey rose essence almond oil were mixed vigorously and add to the mixture and mixture was stirred continuously till homogenous mixture was obtained and was poured into balm moulds just before pouring glycerine was applied over the mould with cotton and the moulds were kept in ice bath aside for about an hour in cool and dry place indirect to sunlight till it solidifies and was used after 48 hours after keeping at room temperature for stability and analytical testing.[5,15]

Sr. no.	Ingredients	Quantity	Uses
1.	Bees Wax	12%	Impart Glossiness and hardness
2.	Amla juice	4%	Anti-oxidizing agent
3.	Almond Oil	5%	Moisturizing agent
4.	Aloe-vera	4%	Antioxidant, anti-inflammatory
5.	Vitamin-E	1.5%	Antioxidant, maintain the stability
6.	Rose water	2%	Flavouring agent
7.	Glycerine	2 to 10%	Glossy effect
8.	Honey	2%	Sweetening agent
9.	Ginger juice	4%	Blood circulation stimulator

Table 01: Composition of Lip balm

Figure 3: Prepared lip balm from natural ingredients.

2.3 Characteristic of lip balm

1) Resistance to temperature variation
2) Pleasant flavour
3) Smoothness during application
4) Innocuousness
5) easy intentional removal

2.4 Application of Natural Lip Balm

Natural Lip balms are the product that applied onto the lips to avoid dryness and protect against adverse environmental factors.

Numerous lip balms of chemical origin are currently available in the market.

Natural Lip balm is a product. It is intended for use by both men and women.

To produce lip balms, it is necessary to balance the concentration of the main ingredients including butters, oils and waxes and other excipients.

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. [3]

2.5 Advantages of Natural Lip Balm

Lip balms help to protect the natural health and beauty of the lips.

Sun block lip balms are proved to prevent ultraviolet rays from hurting the lips.

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

Lip balm products help to protect lips affected by cold sores, chapping and dryness.

It refreshed, renewed and also addresses lip-related symptoms resulting from cold, flu and allergies.

The use of natural lip cosmetic to treat the appearance of the face and condition of the skin.

Natural Lip balms are products applied onto the lips to avoid dryness and protect against adverse environmental factors. Numerous lip balms of chemical origin are currently available in the market from companies like the body shop, Nivea, Himalaya, Blistex, Babylip etc.

Natural Lip balm being a product intended for use by both men and women.

To produce lip balms, it is necessary to balance the concentration of the main ingredients including butters, oils and waxes and other excipients.

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.

2.6 Evaluation of Lip balm-

1. Melting Point-For melting point, the 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.[16]
2. Organoleptic Properties-The lip balm was studied for the basic organoleptic characters such as colour, odour, taste and appearance.[17]
3. Test Of Spreadability -The product was applied (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.[18]

Figure 4: Spreadability of lip balm at room temperature

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.

4. pH Measurement- The pH study was carried out by dissolving 1 gm of sample into 100 ml water. The pH measurement was done using pH meter.[19]
5. Stability Studies -Prepared lip balm was placed for accelerated stability studies at room temperature (25.0 ± 3.0 ºC), refrigeration (4± 2.0 ºC) and oven temperature (40.0 ± 2.0 ºC) for 30 days. After 30 days, it was again characterized for organoleptic properties, melting point, spreadability, and pH[20,21]
6. Colour-
   Lip balm colour analysis was evaluated. The three readings that contribute to the brightness, redness of the sample being examined.
7. Odour -
   The pleasant odour is present due to the presence of Rose oil.
8. Greasiness (Appearance) -
   The oil test was reviewed to determine the amount of oil in a formulated lip balm. In this study 1 gram of lip balm was placed on filter paper and the sample was left at room temperature for 24 hours.

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9. Texture -

The formula lip balm sample is placed on slide. Texture analysis of Lip balm has been recorded by organoleptic evaluation.

4. Result-

Sr. No.	Evaluation Parameter	Observed Value
1.	Melting Point	63°C
2.	Organoleptic properties	
2.1.	Colour	Faint pink
2.2.	Odour	Pleasant
2.3.	Appearance	Excellent, smooth
3.	Test of spread ability	Good
4.	pH measurement	6.5
5.	Skin irritation	None
6.	Breaking point	None

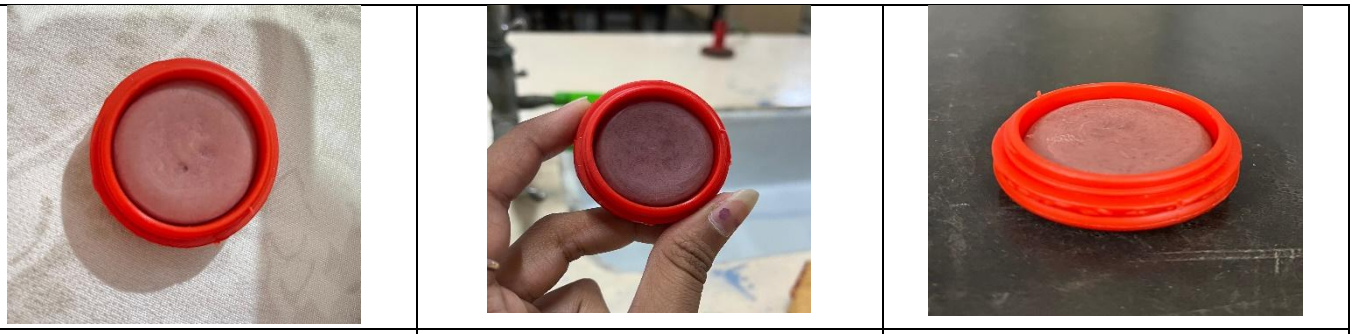
Table 3: Evaluation of lip balm

Test of spreadability- It was observed that the lip balm at room temperature (25.0 ± 3.0°C) and refrigerator (4.0 ± 2.0°C) showed; Good: uniform, no fragmentation; perfect application, without deformation of the lip balm, but Intermediate: uniform; leaves few fragments; appropriate application; little deformation of the lip balm at oven temperature (40.0± 2.0°C).

5. Stability studies-

Parameters	Temperature Conditions		
	25.0± 3.0°C	4.0± 2.0°C	40.0± 2.0°C
Colour	Faint pink	Faint pink	Faint pink
Odour	Pleasant	Pleasant	Pleasant
Melting Point	63°C	65°C	62°C
Spreadability	Good	Good	Intermediate
pH	6.4	6.5	6.4

Table 4: Stability studies of lip balm at different temperature



A **B** **C**

Figure 5: Stability study of lip balm [A] Day 1, [B] after 15 days, [C] after 30

A **B** **C**

Figure 6: Spreadability of Lip Balm [A] at 25.0±3.0°C, [B] at 4.0± 2.0°C, [C] at 40.0± 2.0°C 4.

6. Discussion-

As, conventional lip balm often contain petrolatum, synthetic waxes, alumina, parabens, hydrogenated oils, artificial fragrances and colours which are toxic, the main motive behind the formulation was to incorporate as many natural ingredients to retain the natural properties of lip balm. The use of rose powder provided natural colour which are moreover less toxic compared to synthetic colours.

Evaluation of prepared lip balm was done for melting point, pH measurement, test for spreadability and stability studies. The melting point was found to be 63-65°C and the pH was found to be 6.4. Test of spreadability was found to be G-Good: uniform, no fragmentation; perfect application, without any deformation of the lip balm.

After performing the Stability studies for the lip balm at different temperatures, it was observed that the lip balm at room temperature (25.0 ± 3.0°C) and refrigerator (4.0 ± 2.0°C) showed; Good: uniform, no fragmentation; perfect application, without deformation of the lip balm, but Intermediate: uniform; leaves few fragments; appropriate

application; little deformation of the lip balm at oven temperature (40.0± 2.0°C).

7. **Conclusion-** It was concluded that lip balm made from natural ingredients is safe to use and this combination proved to be better option in formulation of a lip balm. By alteration of the excipients or further combinations of the excipients can result in a new formulation with a different and enhanced quality. From the current studies it was predicted that the formulation will remain stable.[22]
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9. **Conflict of interest-** We, authors declare that we have no known competing financial interest or personal relationships that could have appeared to influence the work reported in this paper.

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