



EVALUATION OF VITAMIN C ENRICHED LIP BALM FROM ACTINIDIA DELICIOSA

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ABSTRACT

It is commonly known that there is a greater need for cosmetics. Since most beauty products contain chemicals and thus have an impact on the skin, people have already begun to turn their attention away from chemical products and toward natural ones. Any inadequate product applied to it can produce results in a matter of minutes and cause swelling, irritation, discoloration and dermatitis challenges. We have established natural lip balm incorporating Vitamin C enriched *Actinidia deliciosa* (kiwifruit).

Keyword: Beeswax, Coconut oil, Vitamin E oil, *Actinidia deliciosa*

INTRODUCTION

The usage of herbal products and the adoption of a more natural lifestyle are becoming more and more popular these days throughout the entire world [1]. Medicines made from herbs have been around for a while. It is still used as a significant component in a few consumer goods today, notably cosmetics [2]. Due to the ozone layer's inability to block ultraviolet (UV)

rays, it can be argued that its depletion is a major contributor to the spread of all diseases globally. The most delicate derma on the lips is quite difficult to take care of [3, 4]. Here, the fruits that would have little to no discomfort on the lips and would give pale lips an attractive appearance are used [4]. Lip colouring is an age-old technique for enhancing lip beauty and adding a

glamorous touch to face makeup. For this, the selection of colour hues, textures and lustres has altered and gotten greater. This is evident from the fact that to meet consumer demand lip balm, lip jelly and lipstick are sold in a vast array of hues [5]. Wax and food essence may be the greatest solutions available for sturdy structure and fragrance, respectively [6, 7]. Swelling, Sun damage, inflammation, discoloration, sores and deficiency of vitamin C are several lip disorders [8-9]. To overcome all these disorders lip balms, lip jelly and lipsticks are remedial supplements. Lip balm helps to protect the natural health and beauty of lips, protection from UV radiation, used unisex, offers protection for chapped, dry or infected lips. Natural lip products improve the skin's condition and facial appearance [10-11]. Lip balms are substances that are applied to the lips to stop dryness and offer protection from harmful environmental elements. There are a lot of lip balms with chemical ingredients on the market right now from brands like The Body Shop, Nivea, Himalaya, Blistex etc. Lip balm shouldn't be compared to lip gloss because the former is a product made for both men and women to use [12]. In order to create lip balms, the concentration of the primary ingredients such as butters, oils and waxes as well as various excipients must be balanced [12]. Looking towards great

importance of natural lip balm for curing the lip disorders authors decided to develop vitamin C enriched lip balm.

We have used kiwi fruit (*Actinidia deliciosa*) in our research which has a brown peel and a green exterior. Kiwi fruit consumption every day raises the body's nutritional level and promotes wellness [13]. The flavour and vitamin C levels of kiwi fruit are widely known. It is a climacteric fruit that is highly ethylene-sensitive. In terms of botany kiwi fruit is a berry with numerous little, soft, black seeds distributed among its multiple locules. The outer pericarp, the inner pericarp bearing seeds, and the columella are the three divisions of its meat (core). Each component is unique from the others in terms of texture and composition. The inner and outer pericarps are heavier than the columella. The genus *Actinidia* and family *Actinidiaceae* are the home of the kiwi fruit. *Actinidia* is a genus with 76 species and around 125 recognised taxa worldwide [14]. Kiwifruit are well known for being excellent sources of vitamin C as 100 gm Kiwifruit contains 92.7 mg Vitamin C. Ascorbic acid is another name for vitamin C, is a water-soluble substance that is essential for maintaining healthy skin [15]. Vitamin C is a powerful antioxidant, reduces redness and may help wound healing [16].

Table 1: Composition of lip balm

INGREDIENT	USES
Beeswax	Gives something a glossy, hard finish
Petroleum jelly	Moisturizer
Vitamin E	Antioxidant, keep things stable
Coconut oil	Emulsifier
Rose water	Gives glowing skin
Kiwi fruit – Vitamin C source	Hydrating & brightening skin.

Synthesis of natural lip balm: Kiwi lip balm 1 was prepared by melting 12 gm of petroleum jelly with 0.4 gm of beeswax and 4 mL of the kiwi juice was added. 1mL of coconut oil was added for moisturizing purpose. 1mL of rose water was added for glowing skin. 1 capsule of Vitamin E was added which contain antibacterial properties. The mixture was moulded at room temperature.

Kiwi lip balm 2 was prepared by melting 12gm of petroleum jelly with 0.4 gm of

beeswax by adding 4ml of the kiwi juice. The mixture was moulded at room temperature. Both prepared lip balm was evaluated by different parameters such as melting point, solubility, pH, weight stability, organoleptic characteristics & vitamin C content by estimation.

(a) Determination of Melting point: When the material was malted, both the product addition and temperature monitoring were done in a glass capillary.

Table 2: Melting point of Natural Lip balm

Sr.no	Product name	Melting point
1.	Kiwi lip balm 1	61
2.	Kiwi lip balm 2	54

(b) Determination of solubility: To determine the solubility, the developed herbal lipsticks were

dissolved in a variety of solvents, including ethanol, petroleum ether, chloroform, benzene and phenol.

Table 3: solubility of Natural Lip balm

Sr.no	Product name	Ethanol	Phenol	Chloroform	Ether
1.	Kiwi lip balm 1	Soluble	Insoluble	Insoluble	Insoluble
2.	Kiwi lip balm 2	Soluble	Insoluble	Insoluble	Insoluble

(c) Determination of pH: Using a pH metre, the pH of natural lip balm formulations was assessed. The pH of the

sample was measured after 1 g of sample was dissolved in 100 ml of water.

Table 4: pH of Natural Lip balm

Sr.no	Product name	pH
1.	Kiwi lip balm 1	6.9 - 7.1
2.	Kiwi lip balm 2	6.8 - 7.0

(d) Stability study: A four-month stability study of natural lip balm was conducted at room temperature (25-40 °C) (Table 5).

(e) Organoleptic characteristics: The colour, odour, taste and look of the lip balm were examined (Table 6).

Table 5: Stability studies of Natural Lip balm (Weight after month in gm)

Name of Product	1 st Month	2 nd Month	3 rd Month	4 th Month
Nt. Wt. of Kiwi Lip balm 1	11 gm	11 gm	10.9 gm	10.9 gm
Nt. Wt. of Kiwi Lip balm 2	10.8 gm	10.8 gm	10.7 gm	10.7 gm

Table 6: Organoleptic properties of Natural Lip balm

Sr.no.	Product name	Color	Order	Test	Appearance
1.	Kiwi Lip balm 1	Greenish	Pleasant	Sweet	Soft, Sticky
2.	Kiwi Lip balm 2	Greenish	Pleasant	Sweet	Soft, Sticky

Ascorbic acid content: 5ml working standard solution was pipetted out into a 100ml conical flask and was titrated against the dye by adding 10ml of 4% oxalic acid (V1 ml). The development of pink colour, which lasts for a short while, marks the end. Consumption of the colour is equivalent to ascorbic acid intake. The sample was

$$\frac{0.5mg}{v1ml} \times \frac{v2ml}{5ml} \times \frac{100ml}{wt.of\ the\ sample} \times 1000$$

Using above equation Vitamin C content (ascorbic acid) evaluated for both formulated lip balm. Kiwi lip balm 1 contains 56 mg Vitamin C & Kiwi lip balm 2 contains 63 mg Vitamin C per 100 gm respectively.

Antibacterial screening for Kiwi Lip balm 1 & 2:

The antibacterial activity of the organisms was assessed using cultures of the organisms that were 24 hours old. 15 to 20 ml of nutrient agar media and 90 cm sterile Petri dishes were used to make the nutrient agar medium plates. After the plates had solidified for five to ten minutes, they were

Assembled to a specified volume (100ml) and centrifuged after extracting the sample (0.5–5g, depending on the sample) with 4% oxalic acid. 5ml of mixture was pipette out and added into 10 ml of 4% oxalic acid. The mixture was titrated against the 6-dichlorophenol indophenol dye (V2 ml).

Amount of Ascorbic acid mg/100ml sample.

infected with 0.1 percent inoculums. Agar discs with a diameter of 5 mm were made using No. 1 Whatman filter paper or newspaper and sterilised using an autoclave for the agar disc diffusion procedure. After that, various concentrations of sample were inserted into the discs. The plates were then incubated for a further 24 hours at 37°C. After standing for 30 minutes, the plates were incubated for 24 hours at 37°C. Antibacterial activity was quantified by measuring the inhibitory zone's mm-diameter. Antimicrobial activity was evaluated by measuring the zone of inhibition against the test organisms [17, 18].

Table 7: Antimicrobial and zone of inhibition of Lip Balm

Sample	Zone of inhibition (in mm)			
	Gram ^{+ve}		Gram ^{-ve}	
	<i>Bacillus subtilis</i>	<i>Staphylococcus aureus</i>	<i>Escherichia coli</i>	<i>Enterobacter</i>
Lip balm 1	8	12	10	12
Lip balm 2	8	13	11	13
Ampicillin	8	9	8	9

RESULT AND DISCUSSION

Sr. no.	Evaluating parameters	Kiwi lip balm 1	Kiwi lip balm 2
1.	Melting point	61	54
2.	Solubility	Ethanol	Ethanol
3.	pH	6.9 - 7.1	6.8 - 7.0
4.	Color	Greenish	Greenish
5.	Odor	Pleasant	Pleasant
6.	Appearance	Soft, Sticky	Soft, Sticky
7.	Taste	Sweet	Sweet
8.	Vitamin C content	56 mg/100 gm	63 mg/100 gm
9.	Skin irritation	No	No

CONCLUSION

The cosmetics sector is thriving as a result of the high demand for beauty-enhancing products. The potential for the commercialization of natural lip balms is enormous. Additionally, the study looked at natural components, formulation techniques, evaluation and application of natural lip balm. Formulated lip balms are having skin friendly pH, good stability & enriched in Vitamin C content which is excellent for radiating skin. Looking towards these features formulated lip balms are great commercial scope in future.

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