

Efficiency of Organic Lip Balm Containing Strawberry, Honey and Peppermint

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Abstract: Among all cosmetic products, lip balm formulations are most widely used to enhance the beauty of lips and add glamour touch to the makeup. This work involves the development of a lip balm formulated with organic materials and the execution of tests including evaluation of organoleptic characteristics which is individual experience via the senses and satisfaction of consumer. The three products were produced with three basic ingredients and one additional ingredient like strawberry, honey and peppermint and these three products will be tested on the water seal test, high temperature test and the consumer satisfaction. The result shows that from these three products, strawberry lip balm is the most preferred lip balm but it will take the shortest time to melt. In general, the amount of each ingredient was stabilized in order to achieve a resistance to temperature variations, and pleasant flavor.

Keywords: Organic Lip Balm, Organoleptic Characteristics, Absorption Test, Temperature Testing

1. Introduction

Nowadays, cosmetics play a very significant role in today's life style. Moreover, current trend is going green in almost all industries including cosmetics to adopt towards a more natural way of life. Organic products have natural properties that can benefit both the consumer and the environment. In contrast, colouring lips is an ancient practice to enhance the natural features of the lips and also for glamour touch [1]. The lips are made of thin layers of skin and are very sensitive and lighter compared to other parts of our face. Thus, constantly applying harmful and strong chemicals on the lips may cause some serious damage. This is why organic lip products are considered healthier, safe and beneficial compared to those products made with chemicals.

In this modern era, the usage of organic lip balm has been increased in personal care system. Whereas, according to Chattopadhyay, colouring lips is the ancient practice to enhance the beauty of lip. For this the choice for shades of colour, textures, scent have been changed and become wider over

the years [2]. This can be observed from the lip jelly, lip balm, lipstick marketed in the world to satisfy the demand.

Moreover, cosmetic companies employ teams of specialized scientists to develop and test each and every new line of make-up, perfume, lotion, soap and etc. Lip balms are formulation applied to the lips to prevent dryness and protect against various environmental factors [3]. To formulate lip balms, it is necessary to balance the concentration of the main ingredients including butters, oils and waxes, so that the final product will be efficient and applicable. In contrary, this work involves the development of a lip balm formulated with organic raw materials and the execution of stability tests which are Water Seal Testing and Temperature Testing. Evaluation of organoleptic characteristics such as colour, odour and appearance and functionality evaluation like spread ability test [4].

The technique used to manipulate raw materials that comprise conventional lipsticks without adding the dye but with natural colouring is of extreme importance to final result. Consumers overwhelmingly prefer sweet tasting foods over sour, fatty, bitter or spicy foods, ranking only slightly behind salty foods. This is due to instinct as well as learned preferences. Female consumers prefer the size and trendiness of lip balm and stick packaging [5]. The current study proposed to produce the lip balms with same three ingredients as a base with one additional ingredients such as strawberry, honey and peppermint and to identify which of the product are the best for the consumers.

2. Materials and Methods

In order to produce the lip balm, the ingredients and quantity used in the formulation were identified. The organic lip balm was produced by a process of technique.

2.1 Materials

The materials used in the study to produce organic lip balm are with the three ingredients for the base for all products with one additional ingredient. The basic of lip balm formulations were cocoa butter, sweet almond oil and beeswax. Meanwhile the extract from strawberry, honey and peppermint were used as additional ingredients.

Table 1 shows the summarization of composition of lip balm [6]. In this project, three recipes of lip balm were formulated using several organic material and few tests were conducted.

Table 1: Composition of flavoured lip balm formulation

Flavoured	Cocoa Butter (% w/w)	Sweet Almond Oil (% w/w)	Beeswax (% w/w)	Extract Flavour (% w/w)
Strawberry	15	40	15	30
Honey	15	40	15	30
Peppermint	20	40	15	25

2.2 Lip Balm Preparation

Strawberry flavoured were noted as Recipe A, peppermint flavoured for Recipe B and honey flavoured for Recipe C. In a clean and dry beaker, the ingredients of Recipe A were weighed. The beaker was heated using double boiler method. The mixture was stirred occasionally with a glass rod to obtained a homogeneous mixture. After the mixture was completely melted, the mixture were poured into a jar and was let to cool in room temperature until it solidified. The steps were repeated with the ingredients for Recipe B and C as stated in **Table 1**.

2.3 Testing Methods

2.3.1 Water Seal

A total of three strips of construction paper were prepared which, each strip were labelled as A, B and C. A layer of the lip balm samples was applied onto construction paper followed by the addition of three drops of water on the applied area (**Figure 1**) and the experiments were performed in triplicates. After 5 minutes, the observation was recorded whether the applied area was affected by the water droplets. The applied area that were unaffected by the water droplets indicates that it has the ability to create a water seal barriers which are able to retain moisture.

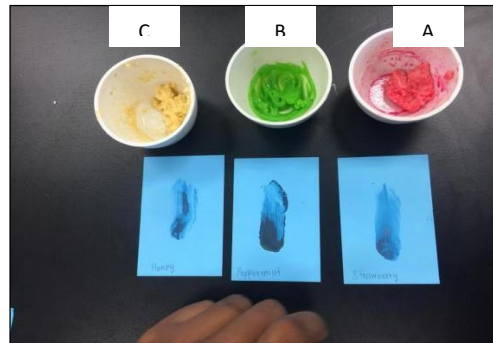


Figure 1: Sample of water seal test result

2.3.2 Testing Performance at High Temperatures

A 3 gram of the lip balm was placed in ceramic jars labelled as A, B and C. The oven was pre-heated to 120°C (**Figure 2**) and the time taken for the lip balm sample to melt was recorded.

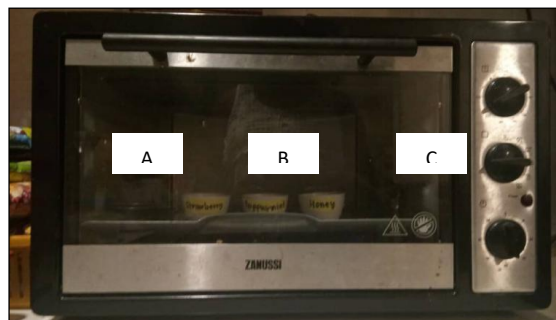


Figure 2: Samples were placed in oven with temperature 120°C

2.3.3 Consumer Preference

In determining the consumer preference, the samples were distributed to volunteers which consist of 15 female UTHM campus Pagoh students together with a survey form which were collected after 3 days of application to determine the satisfaction of the consumer and the data obtained were analysed statistically. This helps to collect qualitative data such as preferences, texture, smell, taste and appearance of the lip balm. The volunteers need to rate the product from scale 1 to 5 (5 being the best)

in the survey form. It was important to study the texture, taste and overall performance of the product and calculate quantitative data.

3. Results and Discussion

In this section, the result of water seal testing, high temperature testing and survey for the satisfaction consumer will be discussed.

3.1 Water Seal

The result for the water seal test is recorded in **Table 2**. In recipe A, the water droplets placed on the area covered by lip balm was not absorbed into the construction paper. This indicates that the lip balm was able to create a water seal barrier that can retain, restore and protect moisture on the lips. All three trials were successful thus yielding a result that concludes strawberry lip balm is efficient in creating water seal. The results were the same for the honey lip balm. However, the results for the peppermint lip balm were slightly different. In the second trial one of the droplets was absorbed into the construction paper (**Figure 3**).

Table 2: The water seal availability

Trials	The Ability of the Lip Balm to Create Water Seal		
	Recipe A	Recipe B	Recipe C
Trial 1	Yes	Yes	Yes
Trial 2	Yes	No	Yes
Trial 3	Yes	Yes	Yes

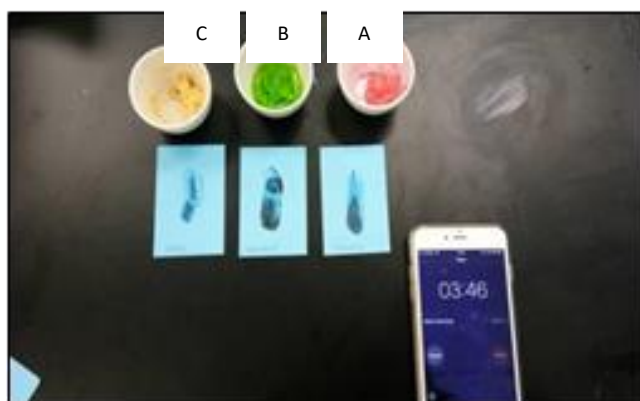


Figure 3: Result of the water seal test

3.2 Testing Performance at High Temperature

Each sample was labelled as A, B and C were placed in an oven that was preheated to 120°C. The time taken for each sample to melt was recorded in **Table 3**. The strawberry lip balm only took about an average of 4.36 minutes to melt which is the lowest time recorded amongst the three samples. Peppermint lip balm took relatively about 6.38 minutes in average to completely melt. This shows that the peppermint lip balm has a medium melting range in a high heat environment. Finally, the honey lip balm took a long time which was about 20.37 minutes to melt. Honey lip balm has the highest heat capacity which can be directly related to the consistency of the honey itself. Due to its thickness and stickiness, honey took a very long time to melt yielding a longer duration of the entire lip balm to melt.

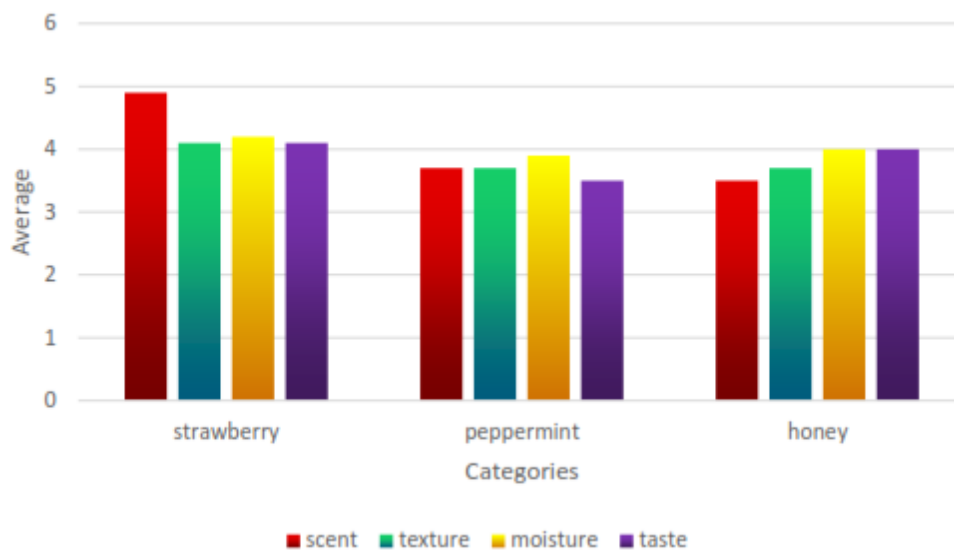
Table 3: Time taken for sample trials to melt in high temperature

Trials	Melting Time (Minutes)		
	Recipe A	Recipe B	Recipe C
Trial 1	4.36	6.08	20.58
Trial 2	4.34	6.06	21.05
Trial 3	4.38	7.00	20.57
Average	4.36	6.38	20.73

3.3 Survey on Efficiency of Lip Balm

The survey was conducted on 15 volunteers to test the performance of the lip balm into 4 main categories which were scent, texture, moisture and taste. Each volunteer was required to apply the lip balms over a period of 3 days and were required to fill out the survey forms given. The data collected and presented in bar chart (**Figure 4**).

As per result in **Figure 4**, it can be concluded that most of the volunteers preferred strawberry lip balm over the peppermint and honey lip balm. It can be deduced that the scent of the lip balm is the main contributor to this result. Based on the average of all 4 categories strawberry lip balm is the most preferred lip balm amongst the volunteers being chosen by 9 volunteers, followed by honey which was chosen by 5 volunteers and finally the peppermint lip balm which was chosen by only 2 volunteers.

**Figure 4: Result of survey on efficiency of organic lip balm****Table 4: The average preference of volunteers**

Lip Balms	Average Preference of Volunteers			
	Scent	Texture	Moisture	Taste
Strawberry	4.9	4.1	4.2	4.1
Peppermint	3.7	3.7	3.9	3.5
Honey	3.5	3.7	4.0	4.0

Table 4 shows the average number of people that voted for each category for each lip balm. In the category of scent as shown on the table, volunteers preferred strawberry lip balm's scent any more than peppermint and honey lip balm with the highest average of 4.9. Strawberry lip balm has the most liking compared to the others whereas peppermint lip balm has an average of no more than 4 in all four categories. Honey lip balm has picked a moderate preference amongst the volunteers with a decent average.

4. Conclusion

This study was conducted to investigate the effect of different ingredients on several characteristics of lip balm. Experiments which were water seal test, high temperature test and consumer satisfaction survey were conducted to determine the best lip balm out of the three lip balms created. The result demonstrates that strawberry lip balm has been proven the most effective lip balm based on the lab testing and survey conducted. It is proven to be a natural lip balm that is fresh and beautiful. All the lip balms created has all-natural ingredients such as beeswax, cocoa butter and almond oil which are healthy and gentle on the lips. The lip balms also contain organic fragrance and colouring which makes colour and odour pleasant. These lip balms are specially formulated with organic ingredients which moisturizes, relieves, nourishes and repairs chapped lips. It can be used daily to brighten the lips and to promote the lip's suppleness and elasticity. Thus, it can be concluded that strawberry is a very efficient ingredient to create a good quality lip balm.

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