

*The Study on the Development and Processing Transfer of Lip Balm Products from Virgin Coconut Oil: A Case Study*

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The Asian Conference on Sustainability, Energy & the Environment 2016  
Official Conference Proceedings

**Abstract**

The purpose of this research was aimed to study the development and processing transfer of lip balm products from virgin coconut oil by herbal producing group of the Sibedsok sub-district, Banpho district, Chachoengsao province, Thailand. Their physical properties and stability test at various storage conditions were performed. The results showed that all of the formulations (6 formulas) were stable under tested conditions. The formula that contained only virgin coconut oil was selected by 6 volunteers of 20 volunteers, which were considered from the physical properties: texture, color and smelling. The selected formula was then evaluated from satisfaction of 30 volunteers, and compared with lip balm containing mineral oil. It was found that most of volunteers were more satisfied in the physical property of lip balm containing virgin coconut oil. Results of the sensation test showed that the lip balm containing virgin coconut oil was also found to be softer, more moisturizing and smoothing to the lip. Moreover, it was easier to apply and spread on lip with positively long-lasting effect. All volunteers felt that their lip were soft and moisturized without any irritation after they applied continuously.

Keywords: Virgin Coconut Oil, Lip Balm, Herbal Cosmetics

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## **Introduction**

Nowadays, consumers in Thailand and foreign countries have turned their attention to the cosmetic products that are composed of natural extracts into their formulations. Since the extracts from natural resources are less harmful and safer than substances of chemical synthesis, so it supposes that cosmetic industries in Thailand will be able to expand the opportunities of development of natural extract ingredient cosmetics as well as it can contribute to promote and support agriculturists in the country. At the moment, there has project to be encouraging village communities to improve local product quality as it is called "One Tambon One Product" which this projects designed by Thailand government aiming to generate income and occupation to people and also continually keep local wisdom.

Skin on lip called as Stratum corneum is different from another skin area with its rapider evaporating moisture than face skin with twice times to gain the easy dried and chapped lip. Lip balm is the cosmetics product with the main components as waxes , butters and oils from natural extracts or synthesized ones with the objective to increase the moistures to the lip as well as avoiding the peeling skin on lip.

Coconut is accounted as the important economic plants of Thailand Similarly, it utilizes as a raw material to produce virgin coconut oil. Currently, virgin coconut oil has plentifully attracted to transform into cosmetic products due to the gentleness for hypoallergenic properties. Additionally, it contained a number of beneficial natural extracts, especially vitamin E that exists in form of "Tocotrienol" which is more powerful antioxidant 40-50 times compared with another form of vitamin E "Tocopherol" found in general sources. This would be the option for consumers to choose natural extract products instead of raw materials from other counties. Besides, this can increase the new products to communities and cosmetic industrial market.

Thus, the researcher has the concept idea to bring the coconut oil for applying as the main component in lip balm formulation , study the stability of coconut oil lip balm formulation in terms of making comparison to lip balm containing with mineral oil and test the satisfaction from the volunteers as the guideline for studying to develop the product in order to gain the most benefit further.

## **Materials and Methods**

This study was conducted in the Faculty of Science and Technology, Rajabhat Rajanagarindra University, Chachoengsao, Thailand.

### **Materials :**

**Virgin Coconut oil :** This was obtained by extraction from coconut fruits sourced locally.

### **Methods :**

#### **Development of Lip Balm Containing Virgin Coconut Oil**

To determine quantity of virgin coconut oil for replacing mineral oil on lip balm basic formula as shown in the table no.1, while it implemented observing the appearance, spread ability, investigating pH, melting point and stability by heating and cooling thaw cycle (switching among 4°C 48hrs. and 45°C 48hrs.) for 5 times. Then, picking

the best formula and most satisfactory one from 20 volunteers which took texture, spread ability during application, moisture, colour and scent into consideration.

**Table 1.** Preparation of lip balm containing virgin coconut oil with its prescribed quantity

Ingredients	Percentage (%)						Funtion in formulation
	L1	L2	L3	L4	L5	L6	
Petroleum jelly	40	40	40	40	40	40	Increases viscometer
Shear butter	2	2	2	2	2	2	Hydrating, reduces melting point
Bees wax	3	3	3	3	3	3	Increases viscometer and melting point
Canubar wax	1.5	1.5	1.5	1.5	1.5	1.5	Increases viscometer and melting point
Paraffin wax	3	3	3	3	3	3	Increases viscometer and melting point
Benzoic acid	0.5	0.5	0.5	0.5	0.5	0.5	Preservative
Coconut oil	0	10	20	30	40	50	Emoilient, reduces viscometer
Mineral oil	50	40	30	20	10	0	Emoilient, reduces viscometer

### Consumer Satisfactory Test on Virgin Coconut Oil Lip Balm

Mineral oil lip balm and virgin coconut oil lip balm were compared to do experimentally on satisfaction of 20 volunteers relating to consumers' satisfaction before and after using the product, moisture, spread ability, texture, colour and scent. Mineral oil lip balm formula no.6 which was the basic one would be represented as A and lip balm with 50% of virgin coconut oil as B.

### Result and discussion

#### Results of Virgin Coconut Oil Lip Balm

Referring to virgin coconut oil replaced mineral oil into lip balm basic formula tested on physical stability by heating and cooling thaw cycle, it found out that total lip balm formulas no. 1-6 were submitted to normal stability, light yellow-white colour, melting point during 48-51C and pH 5.5-7. However, the formula no. 6 mostly gained satisfaction from 20 volunteers, hence virgin coconut oil lip balm formula no.6 would be chosen to examine bearing comparison with mineral oil lip balm basic formula.

**Table 2.** Evaluation of Prepared lip balm containing virgin coconut oil

Parameters	L1	L2	L3	L4	L5	L6
Colour	Light yellow					
Odour	Coconut oil					
Spreadability	G	G	G	G	G	G
MP	70.1	70.7	70.5	71.1	70.8	71.1
pH	5.3	5.7	5.8	6	5.5	5.4
Stability	pass	pass	pass	pass	pass	pass

Spreadability: G-Good; I-Intermediate; B-Bad

**Results of Virgin Coconut Oil Lip Balm Based on Consumers' Satisfaction** 20 volunteers as a sample group aged 20 and over from Chachoengsao province, 20 volunteers were classified into age between 20-40 as 80% and age between 41-60 as 20% respectively; the youngest person in the group was 20, while the oldest one was

45. The condition of volunteers group possessed dry lips 65% and normal lips 35% which volunteers mainly agreed with physical product results towards coconut oil lip balm that was smooth texture, pleasure scent, great spread ability of application as well as moistening lips with it was slightly feeling sticky.

### **Conclusion**

Lip Balm has contained of virgin coconut oil only without the mixing of mineral oil with good product properties and stable conditions. According to the result from 20 volunteers, it was found that most volunteers have satisfied with the overall of physical products with clear texture. Moreover, when the customer wears the Lip Balm it sticks with the skin excellently, spreads on the lip nicely and makes it moisture. Therefore, this product is one of alternative for the customers to select for applying the natural extracts product made from local materials. Furthermore, the manufacturing of virgin coconut oil cosmetics with various patterns can be applied further in business too.

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