

# Coconut Milk as an Alternative of Cosmetic Material for Thinning Hyperpigmentation on the Face Skin

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## ABSTRACT

Coconut milk is a milk-white liquid and comes from grated coconut meat which is moistened and then squeezed and filtered. Coconut milk can be used to soften the skin, and can eliminate black spots on the face, because it is rich in natural fatty acids and contains antiseptics. Hyperpigmentation is a skin condition that is characterized by dark skin patches caused by an increasing amount of melanin (a skin dye) which is the body substance responsible for the appearance of skin color (pigment). The objectives of this study are: 1) to provide alternative cosmetics to thin out hyperpigmentation on facial skin, 2) determine the negative reaction caused by coconut milk in the process of thinning hyperpigmentation of face skin. This type of research is experimental research. The assessment criteria used consist of a skin color chart to measure hyperpigmentation thinning, whether irritations arise, changes in face skin conditions and other complaints during treatment. The results of an experiment involving 5 people as research samples with 12 times the use of coconut milk obtained results showed that all subjects experienced depletion but each thinning subject varied according to the hyperpigmentation color chart. Coconut milk is proven to be used as an alternative cosmetic ingredient to thin out hyperpigmentation on face skin.

**Keywords:** *Coconut Milk, Hyperpigmentation*

## 1. INTRODUCTION

Beauty is synonymous with women. Beauty can come from within (inner beauty), which is to have good morals and personality as well as being smart. While beauty from the outside is having a beautiful and pleasing face. A woman can be said to have a beautiful face not only from heredity, but must also be supported by healthy, clean and well-maintained skin. If there is a woman who has a beautiful face but is not supported by healthy skin, then her beauty will not be seen and there may be a crisis of confidence in her life.

Healthy skin is skin that is slightly moisturized, soft and smooth, flexible (supple), has a slight acid reaction and is free from all kinds of skin diseases and disorders [1]. The part of the skin that requires extra attention and care is the face skin. This is because the face is the center of attention of the whole body. If the face skin has only a few problems (for example; blackheads, acne, hyperpigmentation or other skin problems), then all means will be done to eliminate the problem.

Face skin problems that are often experienced by most women are acne and pigmentation. There are various factors that can cause acne, including: hormone levels (usually occurs in women), which is 2-7 days before menstruation, during pregnancy and when starting or stopping birth control pills.

Acne can also arise due to heredity, emotional stress, friction or scrubbing that is too hard, pressure on a helmet, backpack and shirt collars that are too tight. Environmental irritants such as pollution and high humidity can also trigger acne breakouts. In addition, acne can arise due to using make up that is too thick and oily, massaging or pulling out acne scars and the influence of certain drugs including androgens, lithium and barbiturates.

Many factors can cause acne, but there are also many ways to overcome or cure it. There are various kinds of drugs or cosmetics that are sold in the market to treat acne. Ranging from expensive to cheap, modern to those using traditional ingredients.

Skin that has pigmentation problems it is very difficult to heal and get rid of. Pigmented skin is a skin condition that has undergone changes resulting in uneven skin color in the form of patches or spots that are not the same as the original skin color. The skin spots occur because of the disruption of the melanocyte cells in forming a skin color substance called melanin or pigment. Melanocyte cell disorders can be in the form of failure or failure to produce melanin or pigment, resulting in white spots known as hypopigmentation. Meanwhile, the disruption of melanocyte cells which overproduce melanin or pigment but not evenly so that brown, blue, red, or black spots occur is called hyperpigmentation. There are numerous causes of diffuse hyperpigmentation. The most common include metabolic causes and medications [2].

Hyperpigmentation is very difficult to cure or get rid of. This is due to a lack of knowledge about hyperpigmentation from the sufferer itself, how to prevent and how to overcome it. Another thing is also due to the limited amount of cosmetics that are sold in the market to eliminate hyperpigmentation, and even though there are still very high prices. Therefore, researchers are interested in examining alternative cosmetic materials that are cheap, easy to obtain and safe.

Coconut (*Cocos nucifera* L.) has been describe as the most important and extensively grown palm tree worldwide [3]. Coconut is known for its many benefits. You name it, the logs can be used for house building materials, the leaves can be used to make ketupat, then the leaf bones are used for a broom stick. The fruit is delicious made of coconut ice or nata de coco. If squeezed, it can produce coconut milk which makes dishes delicious.

Basically, coconut milk is an oil - in - water emulsion, stabilized by some proteins existing in the aqueous phase. [4]. The main component of coconut milk is coconut oil, it account for 38% by weight. Coconut oil is naturally saturated, about 92% consists of saturated fatty acids., mainly are medium chain fatty acids (MCFA). About 50 % offatty acid in coconut oil is lauric (CI), for this reason, it is called the "lauric oil" [5].



**Figure 1** Santan

It turns out that not only as a food delicacy, coconut milk can also be used for cosmetics. Coconut milk can be used as an external medicine, namely to clean dirt and oil

that sticks to the skin. Coconut milk can also be used to soften and smooth the skin, and can get rid of black spots on the face, because coconut milk is rich in natural fatty acids that contain antiseptics. The many medicinal applications of coconut include its use as an antiseptic, astringent, bactericidal, diuretic agent, etc [6] So it is not surprising that many cosmetic products on the market use coconut milk as one of the ingredients.

Considering the many benefits of coconut milk for skin beauty, this research will try out coconut milk as an alternative cosmetic ingredient to thin the hyperpigmentation layer on face face, which is cheap and easy to obtain. And also because coconut milk comes from natural ingredients, so its use is safe for face skin.

The objectives of this study were: 1) to provide alternative cosmetic ingredients to reduce hyperpigmentation on face skin, 2) to determine the negative reactions caused by coconut milk in the process of thinning facial skin hyperpigmentation. The benefit of research is to develop the potential of natural resources as an alternative treatment, in this case coconut milk, which can dilute the hyperpigmentation of faceskin, add to the knowledge of makeup students, lecturers and the general public, reduce the risk of negative effects of chemicals in cosmetics modern.

**2. METHOD**

This type of research is experimental research. The experiment was carried out by starting with conducting laboratory tests to determine the content of coconut milk which affects the hyperpigmentation thinning process of face skin, then an experiment was carried out on facial skin which has a melasma type hyperpigmentation problem.

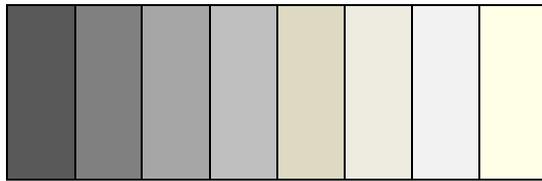


**Figure 2** Melasma Hyperpigmentation

The research subjects here were women aged 25-40 years who had hyperpigmentation problems on their face skin, in this case the melasma type. The samples taken were 5 people because they were considered sufficiently representative of 5 types of human skin, namely normal skin, dry skin, oily skin, combination skin (oily T areas only) and sensitive skin.

The way to use coconut milk to thin hyperpigmentation on face skin is to apply it directly to the problematic face using a cotton ball and let it stand for 1 hour. After that, lift the coconut milk again with a

cotton ball that was previously wet with warm water. This experiment was carried out for 12 treatments or for a month. The discoloration of hyperpigmentation on face skin was measured using a color chart.



**Figure 3** Color chart

To determine the progression of thinning hyperpigmentation on facial skin, test results data on facial skin conditions once a week or three treatments were analyzed in the form of exposure. Then the data from the trials as a whole or 12 treatments were analyzed again in the form of exposure to find out whether coconut milk proved positive to dilute hyperpigmentation on facial skin.

Assessment of the results of trials on research subjects was carried out using research instruments with the following assessment criteria: skin color chart (to measure the thinning of hyperpigmentation, whether irritation occurs, changes in facial skin conditions, other complaints during treatment.

### **3. RESULTS AND DISCUSSION**

#### **3.1. Early Week (before treatment)**

The initial condition before treatment, the color of the hyperpigmentation of each subject was different. And the condition of facial skin is normal, meaning there are no complaints. Subjects 1, 3, and 5 have hyperpigmented color which occupies color chart number 7, while subjects 2 and 4 have hyperpigmentation occupies color chart number 8.

#### **3.2. First Week (after treatment)**

After 3 treatments or a week after treatment, none of the subjects experienced a significant hyperpigmentation color change, meaning that they still occupy the color chart like the initial week. Likewise with irritation, none of the subjects experienced irritation. For changes in skin conditions after 3 treatments, all subjects felt their skin getting smoother. For other complaints during treatment, subjects 1, 2, and 5 felt itching on their skin. But when the treatment is finished, the skin condition returns to normal meaning it doesn't itch anymore.

#### **3.3. Second Week**

After 6 times treatment or two weeks after treatment, subjects 1 and 3 did not experience a change in color hyperpigmentation. Whereas subjects 2 and 4 experienced a color change in hyperpigmentation, namely occupying color chart number 7. Likewise with

subject 5, experiencing a color change in hyperpigmentation, namely occupying color chart number 6. For irritation, none of the subjects experienced irritation. Changes in facial skin condition after 6 treatments, all subjects felt their skin getting smoother and supple. For other complaints during treatment, subjects 1, 3 and 4 felt itching on their facial skin. While subjects 2 and 5 besides feeling itchy skin on their faces, they also felt red.

#### **3.4. Third Week**

After 9 treatments, subject 1 did not experience a significant change in color hyperpigmentation. Subjects 2, 3 and 5 experienced a hyperpigmented color change, namely occupying color chart number 5, while subject 4 occupying color chart no.6. After the third week of this treatment, none of the subjects also experienced irritation. The skin changes experienced are the skin becoming smoother and more supple. For other complaints during treatment, subjects 1 and 3 felt itching on their facial skin, while subjects 2, 4, and 5 felt itchiness, they also felt red.

#### **3.5. The Fourth Week**

After 12 treatments, finally subject 1 experienced a hyperpigmented color change occupying color chart No. 6. Subjects 2 and 3 occupied color chart No. 4, subject 4 occupied color chart No. 5 and subject 5 occupied color chart No. 3. no one was irritated. Skin changes after treatment are the skin getting smoother and more supple. Another complaint during use, for subjects 1 and 3 felt itching skin. While subjects 2, 4 and 5 felt itchy and red on their skin, but after discontinuation of use the skin returned to normal.

After 12 treatments of using coconut milk in 5 subjects who had hyperpigmented facial skin problems, it was found that all subjects experienced thinning hyperpigmentation on their facial skin, but each subject's thinning varied, this was influenced by the skin condition of each subject. According to the hyperpigmented color chart, the lower the number on the hyperpigmented color chart, the lighter the hyperpigmented color. And then, the higher the number on the hyperpigmented color chart, the darker the hyperpigmented color. The discoloration of hyperpigmentation before and after using coconut milk can be seen from the table below:

Sample	Week 0	Week 1	Week 2	Week 3	Week 4
1	7	7	7	7	6
2	8	8	7	5	4
3	7	7	7	5	4
4	8	8	7	6	5
5	7	7	6	5	3

**Table 1.** Hyperpigmentation Thinning from Week 0 to Week 4

Subjek	Before Using Coconut Milk	After Using Coconut Milk
1	7	6
2	8	4
3	7	4
4	8	5
5	7	3

**Table 2.** Hyperpigmentation Thinning Result before and after Using Coconut Milk base on Colour Chart

The results of the thinning process of hyperpigmentation on facial skin using coconut milk can be seen from the color chart above, where each subject experiences a thinning process but the level of thinning differs according to the skin condition of each subject.

The results of the assessment based on research instruments, none of the subjects experienced irritation, this means that coconut milk is safe for the skin. For instrument results; changes in conditions that occur in facial skin, all subjects stated that there were changes in the facial skin, where the facial skin became smoother and more supple. This is because coconut milk contains a lot of vegetable fat which can moisturize the skin so that the skin becomes smooth and supple. For complaints during use, all subjects felt itchy and red skin. This skin condition is only temporary during the use of coconut milk, and will return to normal after the coconut milk is cleaned from facial skin.

**4. CONCLUSION**

Coconut milk was proven to be able to attenuate hyperpigmentation with a significant difference in results between before treatment and after treatment for one month (12 treatments). It can only be seen that in the treatment results in the first week there has been no change, and in the treatment results in the second week there are small changes (not significant), the changes seen in the third week and the fourth week are very

visible. The positive findings of this study are that coconut milk can smooth facial skin and make face skin supple.

During the treatment, it must be ensured that the face skin is clean from cosmetic impurities and dust to minimize the appearance of other skin problems such as acne.

**ACKNOWLEDGMENTS**

Thanks to all correspondents who have filled out the questionnaire properly and honestly from his experience in maintaining family health conditions amid the covid-19 pandemic.

**REFERENCES**

- [1] Wahjudi, Windiyati, 2014, "Perawatan Kecantikan dan Kulit," Penerbit : PT Pacific International Kecantikan
- [2] J Clin Aesthet Dermatol, Hyperpigmentation Therapy : A Review, *The Journal of Clinical and Aesthetic Dermatology*, 2014 Aug;7(8): 13-17
- [3] Apala Chaubey, Mahak Sharma, Barkha Bhatnagar. "Effect of Coconut Water on Measures of Hydration and Physical Performance in Athletes". *International Journal of Health Sciences and Research*. Vol. 7; Issue; 7; July 2017.
- [4] Umesh Patil, Scottawat Benjakul. "Coconut Milk and Coconut Oil : Their Manufacture Associated with Functionality" *Journal of Food Science* 83(1) July 2018.
- [5] Suyitno. T, " Health Benefit of Coconut Milk". *Indonesian food and Nutrition*.
- [6] Huetter, I. Hair care with depth effects by low molecular proteins. *SOEFW Journal*, 2003; 129 (1/2): .