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Combination of Moringa Leaves Mask (Moringa Oleifera L.) and Butterfly Pea Flower Mask (Clitorea Ternatea L.) Plus Honey for Face Skin Moisture

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Abstract

Background: Facial skin care is needed to maintain and preserve moisture and elasticity of the facial skin. The use of organic masks can be used to treat and provide nutrition to the facial skin to overcome facial skin problems. **Objective:** The purpose of this study was to measure effectiveness of the combination of moringa leaves mask (Moringa oleifera L.) and honey with butterfly pea flower mask (Clitorea ternatea L.) on facial skin moisture. **Methods:** The research is an analytical experimental study, 30 women aged 40-50 years old were given a combination of moringa leaves mask and honey on the right side of the face and butterfly pea flower mask and honey on the left side of the face, then before using the mask and after using the mask, the moisture value of the facial skin was measured with a skin moisture analyzer. The treatment in this study was given twice a week for three weeks, from April to May 2025 at the Wijaya Surabaya doctor's practice and clinic, using statistical analysis of the Pearson Correlation test with a p value of 0.000 (α <0.005). **Result:** The combination of moringa leaves and honey experienced an increase in moisture value of 70% moist skin and 30% normal skin, and the combination of butterfly pea flower mask and honey experienced an increase of 60% moist skin and 40% to normal skin. **Conclusion:** The combination of moringa leaves mask and honey with butterfly pea flower mask and honey only has a difference of 10%, meaning that the use of both combinations of these masks is equally useful in increasing moisture in facial skin.

Keywords: Butterfly Pea flowers, Moringa leaves, Skin moisture

Original Research Article

INTRODUCTION

Today, the use of cosmetics and skin care has become popular among women all over the world, and the consumers assume their effect of the cosmetics as equal as pharmaceuticals and turn out to the terminology "*cosmoceuticals*" (S. Y. Kang et al., 2022). Skin is part of physical immunity, and the first layer of the human body. The function of skin is barrier against exposure of chemical and physical treats (Liao et al., 2022).

Healthy skin can be achieved by various methods including protect the hydration and vitamin supplementation (Dattola et al., 2020). Moisture skin, especially facial skin, gives many health conditions. Proper maintain of facial skin and applying cosmetics that suit the facial skin are needed to preserve moisture and elasticity on the facial skin (Oktaviani et al., 2018). Decreased facial skin

moisture when the facial skin is touched will feel dry and there is a part of the skin texture that feels rougher, pores experience skin disorders will become red, scaly, itchy to cracked on the skin, plus hormonal factors, genetic factors, aging factors, and changes in weather will have an effect on decreasing moisture on the skin (Fujiko, 2022; Hafiza et al., 2022; Maarif et al., 2019).

Moisturizer have the main function to suppress the moisture loss and sustain the skin barrier, therefore preventing loss of water which results in dry skin (S. Kang et al., 2022). In dry skin condition, the stratum corneum unable preserve the sufficient water concentration gradient, this happens in xerosis, that represent the dryness of the skin (Amin et al., 2023). There are various methods to maintain skin moisture and avoid dryness on facial skin. Application of facial sheet mask is used widely in market, but the higher incidence of irritancy and allergy contact dermatitis have been reported because of misuses of facial sheet mask, including contain of phenoxyethanol and methylparaben in sheet mask (Zhou et al., 2022).

Using a mask with organic ingredients can be used as an attempt to overcome irritation and provide nutrition to facial skin then make facial skin healthier (Fujiko, 2022). The content of natural ingredients used is formulated as an ingredient in organic masks that are useful for reducing wrinkles on the face, containing zinc and vitamins C, E, A, which are found in honey, butterfly pea flowers, moringa leaves, tomatoes, red dragon fruit, jicama aloe vera, and green beans. These ingredients are useful for the formation of collagen and is useful for smoothing and brightening facial skin (Ceria et al., 2021; Krisnawati, 2014)

Moringa or *Moringa oleifera* is a magical plant that is rich in benefits ranging from bark, leaves, seeds and fruits all have properties for medicine, food and cosmetic (Alam & Henny, 2021, Wahyuningsih. S.E. et.al, 2021). Moringa leaves contain vitamin C, β-carotene, protein, iron, calcium and contain phenolic compounds that are rich in high antioxidants(Viona et al., 2023). The content of various types of amino acids is found in Moringa leaves such as *glutamic acid, aspartic acid, leucine, alanine, lysine, histidine, tryptophan, phenylalanine, methionine, cysteine*(Salsabila et al., 2023). Moringa leaves are widely used as raw materials in cosmetics, the presence of high *ascorbic acid, carotenoids, flavonoids*. (Japaries et al., 2023). Dried Moringa leaves can be used as an organic mask for facial skin beauty care(Viona et al., 2023, Astutik, 2020)

Butterfly pea or *Clitoria ternatea* flowers or also known as blue flowers, *Telang flowers, lareng, seyamagulele, have antioxidant, antidepressant, antihistamine, antibacterial, anti-inflammatory,* and *tonic content* (Hadiani, 2022). The presence of phenolic compounds as antioxidants in butterfly pea flowers gives the effect of making the skin smoother and healthier, especially in topical form (Marpaung, 2020). The *antioxidant* content in butterfly pea flowers such as *anthocyanins, flavonoids* function to repair body cells such as skin cells, nerve cells and inhibit free radicals (Ananda et al., 2024). The presence of *flavonoids* which are phenolic compounds and chromophore group compounds make butterfly pea flowers have properties as sunscreen protectors, so that they can absorb ultraviolet B and A rays on the skin more optimally if processed into topical preparations, as ingredients for making facial masks (Handito et al., 2022). Honey is a natural ingredient produced by honey bees in the form of a thick liquid taken from flower nectar and has properties that can moisturize and smooth facial skin (Laila R., 2020; Kusumiyati et al., 2022)

Honey is rich in natural ingredients containing *flavonoids*, Vitamin C, K, B1. B 2, B 6, *alpha hydrolytic acid and amino acids* (Jati, 2016; Sri Cahnia et al., 2022). Application of honey as a basic ingredient for an organic and natural mask, can be useful as additional nutrition to smoothing the facial skin for example the problems with pores of the skin. The content of Vitamin C and *antioxidants* in honey is useful for skin firmness and beautifying facial skin(Fauziah et al., 2023; Madikizella et.al., 2022; Umah et.al, 2017; Soekanto, et al., 2024)

This study aims to measure effectiveness of the combination of Moringa leaves mask (*Moringa oleifera L*.) and honey with butterfly pea flower mask (*Clitorea ternatea L.)* on facial skin moisture. The new breakthrough methods with combination of Moringa leaves mask and honey on the right side of the face and butterfly pea flower mask and honey on the left side on the same sample. Application of 2 organic ingredients and honey simultaneously in mask compression for 30 minutes then facial skin moisture measurements are taken before and after application, with a *skin moisture analyzer*.

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MATERIALS AND METHODS

This Study was approved by Komisi Etik Penelitian Kesehatan, Faculty of Medicine, Universitas Wijaya Kusuma Surabaya number 71 /SLE/FK/2025. This study is a non-parametric analytical experimental study, using the *Pearson Correlation* test (α= 0.05)**,** by collecting data before and after the mask use treatment, research data was collected was then processed using statistical software and IBM SPSS 29 (Adiputra et al., 2021; Darwis et al., 2022; Fadli, 2021).

Methods: The study was conducted in April - May 2025 at the doctor's practice and the Wijaya Clinic in Surabaya. The sampling selection procedure was carried out on 30 correspondents. The research procedure included measuring the skin moisture of the left and right sides of each subject's face before applying the mask (pre-test). The moringa leaf mask was applied to the right side of the face and the Butterfly Pea flower mask to the left side of the subject's face and was applied for 30 minutes. After applying the mask, the face was cleansed, and the skin moisture was measured again on the left and right sides (post-test). The same subject or correspondent underwent the mask administration procedure six times within 3 weeks (applying a mask twice a week).

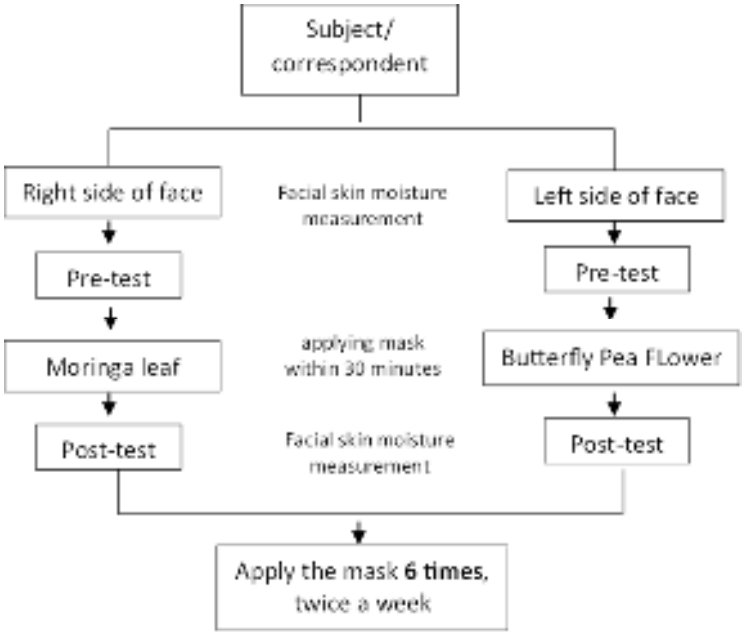

Figure 1. Procedure of study

Subjects: A total 30 correspondents with Inclusion criteria were female, aged 40-50 years who are willing to participate in this research process until completion, never having had facial treatments, healthy and having no history of allergies to Moringa leaves, butterfly pea flowers, and honey, Javanese ethnics and residing in Surabaya showed homogenous environmental conditions including air humidity (Soekanto,et al., 2024). Before administering the Moringa leaf and butterfly pea flower mask, an allergy test was conducted on all correspondents by carrying out anamnesis procedures then followed by skin prick test procedure. Skin prick test was conducted by pricking Moringa leaf powder and butterfly pea flowers on the skin of the left forearm, the results were waiting for 10-15 minutes. Allergy response showed red and inflamed in the prick area. (Pandapotan & Rengganis, 2017).

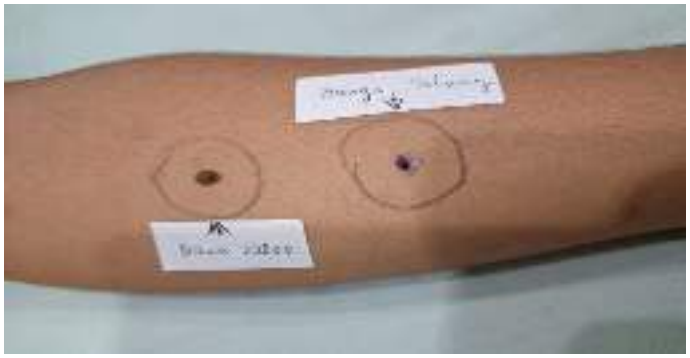

Figure 2. Skin Prick Test Moringa leaf powder and butterfly pea flower powder

Material: Moringa leaf powder, butterfly pea flower powder, honey and rose water the Skin Moisture Analyzer tool is used to calculate the skin moisture value, a skin moisture tester manufactured by Mingle Industrial Park on Minzhi Road.

Masks: Moringa leaf powder (1 tablespoon = 8 grams) and butterfly pea flower (1 tablespoon = 8 grams), each mixed with honey (1 tablespoon = 15 milliliters) with a ratio of 1: 1, then dissolved with rose water (10 milliliters) until the consistency becomes a paste and ready to be used as a mask. The ingredients used in this study consisted of Moringa leaf powder produced by PT Solusi Pangan Kita Tangerang and distributed by DARI BUMI, butterfly pea flower powder produced by Omah Tepung Organik, and clover honey produced by HDI, rose water using production of PT Victoria Care Indonesia Semarang. In the same subject, on the right side of face was given a combination of moringa leaves(8 grams) with rose water (10 ml) and honey masks (15 ml); and left side of face was given a combination of butterfly pea flowers (8 grams) with rose water (10 ml) and honey masks (15 ml) for 30 minutes (Astutik, 2020,Fidiastuti, 2019, Soekanto et al., 2024, Yanuarto, 2024). The percentage of facial skin moisture was taken before and after application of the mask with Skin Moisture Analyzer tool. Documentation was carried out by taking initial photos and photos each time after finishing using the mask for 30 minutes. Statistical analysis using IBM SPSS 27 with Pearson Correlation and paired T test.

RESULTS

The documentation results can be seen as follows:

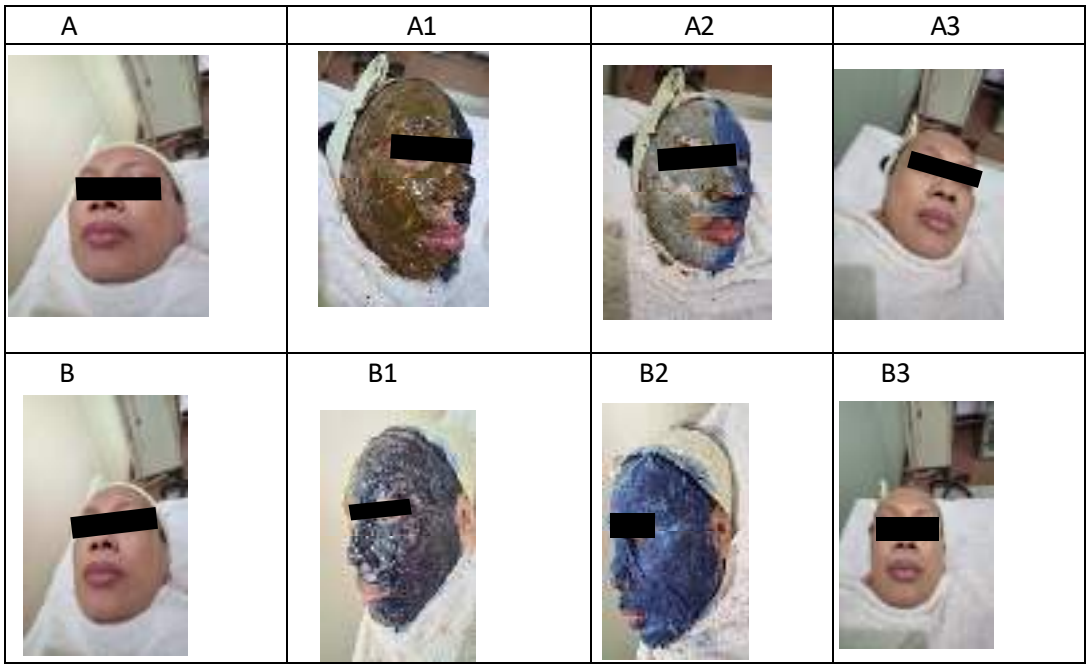

Figure 3. (A - A3) Moringa leaves and honey mask on the right face, (B - B 3) Butterfly pea flower and honey mask on the left face

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In Figure 3. Showed before the treatment and initial moisture test was carried out **(A, B)**. After applying the Moringa leaves and honey mask on the right face (**A1)** and Butterly pea flower on the left (**B1)**. immediately after application of each Moringa dan honey mask and Butterfly pea flower mask plus honey, a mask compression was given (**A2, B2).** Figure **A3, B3:** after applying mask within 30 minutes and clearance of the skin.

Applying both Moringa leaf and Butterfly pea flower and honey mask in the skin followed by application of mask compression above these herb mask. Mask compression is a tablet-shaped mask that aims to compress and absorb liquid. It works by placing the mask tablet into a container, pouring liquid toner, and waiting for the mask to expand. Once expanded, the mask is ready to be applied to the face. A mask compression is added to cover the entire face except for the open parts in the two eyes, mouth and nostrils. The mask area map can be seen in image 2 below:

Figure 4. (A) green: Moringa leaves and honey mask, (B) blue: butterfly pea flower and honey mask

Figure 4, (A) showed the green color is the natural color of the combination of Moringa leaves mask and honey which is applied evenly on the right face starting from the right mandible to the right maxilla then to the right frontal side; in the purplish blue section (B) is the color of the combination of Butterfly pea flower mask and honey and is applied evenly on the left face starting from the left mandible continuing up to the left maxilla and to the left frontal side.

Figure 5. Measuring humidity using the Skin Moisture Analyzer tool

In Figure 5, the Skin Moisture Analyzer tool is used to calculate skin moisture value, a skin moisture tester manufactured by Mingle Industrial Park on Minzhi Road, was used in this study to calculate skin moisture levels. To use this device, place the tip directly on the skin to be tested for moisture, and the moisture level will be displayed within one minute. It has three scales with details of dry skin (scale 0 - 35%), normal skin (scale 36 - 45%), moist skin (scale 46 - 100%). How to use it can be directly attached to the skin part whose moisture will be assessed, and the results will appear in 4-5 seconds (Soekanto, et al., 2024).

Table 1. Results of facial skin moisture test using a combination of Moringa leaves and honey masks with Butterfly pea flower and honey masks (before and after)

Correspondent		Average of Facial Skin Moisture (%)			
Number	age	Moringa leaves		Butterfly pea flower	
		Before	After	Before	After
1	42	38	52	37	51
2	40	32	48	33	49
3	41	34	51	36	54
4	44	30	50	30	48
5	42	27	40	29	43
6	41	24	49	21	43
7	45	31	51	32	49
8	42	28	49	28	49
9	44	23	50	21	47
10	43	26	48	25	46
11	45	30	48	31	51
12	41	24	51	23	48
13	44	24	49	24	51
14	42	21	45	21	44
15	45	27	51	28	48
16	45	26	47	25	51
17	46	22	43	23	41
18	43	25	41	22	43
19	40	22	41	23	42
20	43	24	51	24	48
21	47	25	45	25	48
22	42	23	49	25	46
23	44	20	41	20	43
24	45	24	50	23	47
25	42	29	51	28	52
26	46	28	48	29	46
27	42	20	43	20	43
28	43	25	41	25	41
29	44	30	51	30	49
30	45	27	43	27	45

Measurement of skin moisture classified in range 0-35% is dry skin, 36-40% categorized in normal skin and skon moisture > 46% is moist skin. Of the 30 correspondents before applying moringa leaves mask, 97 % have dry skin and 1 person has normal skin. After Moringa leaves mask applied to face, number of correspondents with normal skin moisture increased by 30% and 70% have the high moisture of skin (moist skin). Twenty-eight women of 30 have dry skin before treatment. Applying Butterfly pea flower mask after 30 minutes showed 40% correspondents have normal skin, and 60% experienced better skin moisture.

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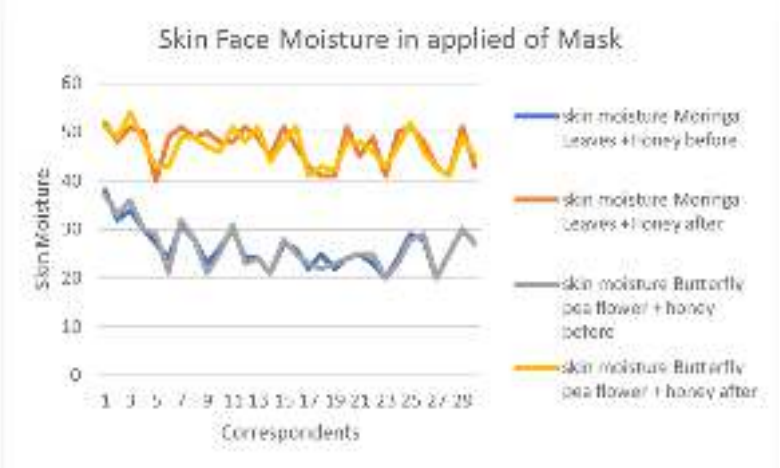

Figure 4. Change of Skin Moisture Before and After Applied of Mask

Table 2. Relationship between skin moisture and the applying of a combination of Moringa leaves and honey masks with the Pearson Correlation test

Correlations

		Moringa leaves and honey mask	Butterfly pea flower and honey mask
Face skin moisture	Pearson Correlation	0.934**	0.934**
	Sig. (2-tailed)	0.000	0.000
	N	60	60

**Correlation is significant at the 0.01 level (2-tailed).

Table 2. showed there is a correlation between the combination of oringa leaves and Butterfly pea flowers mask plus honey respectively on skin moisture with *p value*= 0.000 (α <0.005), and both masks have very strong correlation with skin moisture with a Pearson Correlation test of 0.934. Figure 2. Showed that after administration of Moringa or utterfly pea mask, the skin moisture of face increasing that before the application of the masks.

Table 3. Differences between before and after giving a combination of moringa leaves and honey masks on skin moisture

	Administation of Mask	N	*P Value (paired-T Test)* Moringa leaves + honey mask	Butterfly pea flower + honey mask
Face skin moisture	before	30	<0.000	<0.000
	after	30		

Table 3 shows the results showing a difference between before and after giving a combination of oringa leaves and Butterfly pea flowers mask plus honey on skin moisture with a p value of 0.000 using the paired-T test.

Table 4. Correlation of applying moringa leaves and butterfly pea flowers mask plus honey on skin moisture

	After Administration of Mask	N	P Value (paired-T Test) Sig (2-tailed)
Face skin moisture	Moringa Leaves	30	0.430
	Butterfly Pea Flower	30	

In Table 4. The results of Paired T-Test analysis obtained that there is no difference of skin moisture after administration of moringa flower mask plus honey and butterfly pea leaves mask and honey with a p value 0.430 (α> 0.005). This means that administration of moringa leaves and butterfly pea flower as mask did not show significant difference in skin moisture at the same subject.

DISCUSSION

Skin moisture indicated good skin hydration. Skin moisture divided into three dry skin (% moisture skin 0 - 35%), normal skin (36 - 45%), moist skin (46 - 100%). At the beginning before the application of Moringa leaf mask, it was found that 29 people had dry skin and 1 person had normal skin. The sixth treatment giving the results nine people having normal skin and 21 people having moist skin. Before the application of the butterfly pea flower mask, 28 people had dry skin and 2 people had normal skin and the post test showed an increase in number of respondents with normal skin (12 respondents) and 18 people had moist skin (Kevin et al., 2018, Annas T, 2019, Uliasari et al., 2022). It has been proven that applying a mask of both Moringa leaves and Butterfly pea flowers have the ability to moisture the facial skin.

Combination of Moringa leaves and honey masks on the face results in quite drastic change in appearance, there was an increase in the moisture of facial skin, the face becomes brighter. Moringa leaves consist of Vit B1 and C as antioxidants, it will improve blood circulation as a result cells in the skin are sufficiently oxygenated and nourished. Likewise, giving a combination of Butterfly pea flower and honey masks could increase skin moisturizing. The content of anthocyanins and polyphenols in butterfly pea flowers as antioxidants can be useful for tightening, brightening the skin which causes the skin to look younger. Natural antioxidants found in Butterfly pea flowers overcome premature aging. Butterfly pea flower mask has smooth texture which perfectly covers the surface of the facial skin's pores which results in increasing blood circulation. It helps skin become smoother and reduces aging. Facial skin with high moisture shows high water content which affects the smoothness and moisture of the facial skin (Ananda et al., 2024, Izzulhaq .et.al. 2022, Pangondian et al., 2023).

The relationship between the application of masks made from Moringa leaves and Butterfly pea flowers on facial skin moisture shows that there was a relationship between application of masks and skin moisture with a very strong relationship. The statistic results of the Pearson Correlation test 0.934 with a p value of 0.000 (α <0.005). Skin moisture after applying the mask is known to increase in moisture although in six times measurement. The combination of Moringa leaves or Butterfly pea flower plus honey masks both are effective for increasing facial skin moisture and have the efficacy as facial care (Sausan, 2020, Masluhiya AF, 2019, Sinulingga et al., 2018).

Likewise, the effectiveness of using a mask will be seen from the difference before and after using the mask. Using paired- T test analysis (p value < 0.000) approved after using masks both Moringa leaves, and Butterfly pea flower have differences in skin moisture compared to before applying the mask, specifically an increase in the percentage of skin moisture. Combination of Butterfly pea flower and honey masks is beneficial in increasing moisture in the left face. There is a change in the circulation of water levels in the skin in the stratum corneum, where the endogenous and exogenous fluid circulation system undergoes a diffusion process that affects skin moisture and keratin cell bonds in the stratum corneum which are sufficient to bind water, providing changes in moisture in the facial skin. Maintaining facial skin moisture prevent wrinkles on the face, and increase circulation and oxygenation of skin tissue which results in shrinking skin pores, lifting dead skin cells and making the skin healthier (Yuniarsih et al., 2021, Astuti, 2022, Luciana O, 2023).

Effectiveness of Moringa leaf or Butterfly pea flower mask to facial skin, could be tested with paired T-test on the same subjects. Combination of both Moringa leaves masks and Butterfly pea flower masks plus honey of skin moisture with a p-value of 0.430 (>0.05). This result expressed that the percentage of skin moisture after applying the Moringa leaves masks and Butterfly pea flower mask did not show differences in increasing skin moisture. The use of both combinations of masks has been proven safe because none of the participants showed an allergic reaction, and the apearance of the skin change is very visible especially on faces that have dry skin problems. Organic masks can be applied

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regularly and regularly to maintain facial skin moisture. This study has limitations because it did not measure the levels of antioxidants which should be able to complement the results. It will be proven that the increase in facial skin moisture due to the administration of Moringa and Butterfly pea mask, is due to its high oxidant content. Moringa and Butterfly pea masks are included in organic masks. Organic masks can be applied routinely and regularly to maintain facial skin moisture, especially on faces with dry skin problems.

CONCLUSION

Combination of organic mask both in moringa leaves and butterfly pea flower plus honey showed the strong relationship of skin moisture, it was proven that the application of the mask increased the skin moisture sharply. The results of using a combination both of moringa leaves and butterfly pea flower plus honey masks have the same effectiveness of skin moisture. The use of both combinations of these masks has been proven to increase facial skin moisture and is safe to be given as facial skin therapy on the face with dry skin criteria. Facial skin moisture levels increased by 70% with the use of moringa leaf masks, while those using butterfly pea flowers increased by 60%.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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