



Feasibility of Gel Mask Peel Off Basil Leaves for Acne-Prone Facial Skin

Insy Mardiyah Tamami

Fakultas Pariwisata dan Perhotelan
Universitas Negeri Padang, Indonesia

Vivi Efrianova

Fakultas Pariwisata dan Perhotelan
Universitas Negeri Padang, Indonesia

Email:

viviefrianova@fpp.unp.ac.id

Submitted: 2022-08-28

Published: 2022-10-30

Accepted: 2022-10-29

Abstract

Basil leaf peel off gel mask as one of the basic ingredients of traditional cosmetics for acne-prone facial skin care. This study aims a) to determine the content of flavonoids, tannins and vitamin C contained in the basil leaf peel off gel mask b) find out the feasibility of the basil peel off gel mask in terms of texture, aroma, adhesion (organoleptic test) and panelist preferences (hedonic test). This research uses quantitative methods of pre-experiment method type. The place and time of the study was conducted at the FMIPA Laboratory and the Cosmetology and Beauty Laboratory of FPP UNP in January 2022. The object of study is basil leaves. The data sources used were 7 panelists, namely 1 beauty doctor, 1 chemical analyst, lecturer and 3 Cosmetology and Beauty students who had passed the cosmethodology course. The results of the analysis were obtained in kemngi leaves per 100gr of flavonoid content as much as 0.00104%, tannins as much as 0.0089% and vitamin C as much as 0.158%. Judging from the results of organoleptic tests on the texture aspect, the ratio of 10g: 2.5g got the highest score, namely 57.1% in the condensed category, in the aroma aspect the ratio of 15g: 2.5g got the highest score of 71.4% in the flavored category, at the closeness of the ratio of 10g: 2.5g got the highest score of 57.10% in the adhesive category and the panelists' favorability in the ratio of 10g: 2.5g got the highest score of 57.10% in the like category. The results of this study can be used as preliminary data for the next researchers in examining this problem regarding the basil leaf peel off gel mask to be further refined.

Keywords: *Peel off gel mask, Basil leaves, Gelatin*

Introduction

Acne is one of the skin problems that occurs in everyone, be it men or women. Acne if left unchecked will increase in number and pain arises caused by inflammation in the skin layer due to pores on the face covered with oil and dust. The inflammation has several bacteria, namely: *Propionibacterium acnes*, *Staphylococcus epidermis* and *Staphylococcus aureus* (Wasitaatmadja, 2010). To maintain the skin, one of them is by doing facial skin care. Acne facial skin care can be done by using a mask. According to Rostamailis (2005: 150-154) Masks are cosmetic ingredients that are used at the end of facial or skin care of the body, after complete cleansing. According to Muliyan (2013: 174-175) argues that gelatin masks (gel peel off) are translucent to the skin (transparent). The base ingredients are jelly-based from gum, latex, and are usually packaged in tube form.

According to Syarifah, et al (2015) how to use a gel peel off mask directly flattened on the face after the mask dries the gel peel off mask can peel off without having to rinse with water. Peel off gel face mask is a gel-shaped face mask that is practical to use because after the preparation dries it can be removed directly from the skin of the face. The benefits of peel off gel according to Grace et al (2015) peel off gel masks can improve skin problems such as wrinkles, acne, and cover enlarged pores. The kemangi plant is basically a plant that can be consumed as a dish. Basil leaves are used as reducing bad breath in the mouth. Basil leaves have a shape and aroma similar to the smell of mint leaves. Basil leaf plants according to Kumalasari and Andiarna (2020) basil leaves (*Ocimum basilicum* L) have the characteristics of woody stemmed shrub type with a height of 30-150 cm, stems in the shape of a quadrangle, grooved stem surface and have feathers, branched and green, have white flowers and have a distinctive aroma.

Research conducted by (Witkowska, et al, 2013) states that the concentration of kemangi leaf ethanol extract of 20-40 mg / ml can inhibit the growth of *Staphylococcus aureus* bacteria by 50% with strong inhibitory power. In research (Rohmani and Dian, 2018) states that the results orientation shows variations in PVA concentration (8%, 10%, 12%) affecting the consistency, adhesion, spreadivity, and mongering time of the peel-off mask, where the higher the PVA concentration, the longer the adhesion, the more dispersal power and mongering time decrease.

Literature Review

As already revealed in the background of this article that acne is a condition when the pores of the skin are blocked, giving rise to inflamed and chronic pus sacs in the pilosebaceous follicles characterized by the presence of blackheads, papules, pustules, and nodules and occurs due to impaired production of excess oil glands (Meita, 2011: 23; Wasitaatmadja, 2010; Rostamailis, 2005: 108-111). Facial care according to Kusantati (2008:191) is a facial treatment that becomes a natural provision if every increase in age brings consequences for decreasing body quality. The skin of the face that when young is smooth and firm, the older it gets, the more it shows signs of aging such as wrinkles, wrinkles, fine lines and dark spots. The aging process on the skin occurs because the skin can no longer produce much collagen and elastin, whose function is to tighten and supple the skin.

Masks are cosmetic ingredients that are used at the end of facial or skin care of the body, after complete cleansing (Rostamailis, 2005: 150-154). Masks are made from natural ingredients, for example extracts from fruits or vegetables, egg yolks, egg whites,

milk, honey, olive oil, and so on. The ingredients are usually processed into powder or just sliced and then directly attached to the face.

Essential oil of basil plants contains osinema, farsena, sineol, felandrena, sedrena, bergamorena, amorphthrna, burnesena, cardena, copaena, pinena, terpinena, santelena, sitral and kariofilena (Massimo et al., 2004). Other compounds contained in essential oils such as compounds found in essential oils are compounds such as anetol, apigenin, caffeine acid, eskuletin, esculin, estragol, faenesol, histidine, magnesium, rutin, tannins, β -cytosol (Telci et al., 2006). The fundamental difference between this research issue and the previous study is that the researchers previously discussed the study of powder-shaped masks, but in this study issue, they discussed gel peel off masks.

Method

The type of research used is a quantitative approach using the experiment method. Data collection techniques are in the form of observation, documentation, and using questionnaires as research instruments. The research was conducted at the FMIPA UNP profitoratorium and the department of cosmetology and beauty Data analysis techniques use labor tests, organoleptic tests and hedonic tests. The sample from this study was 2 lecturers of cosmetology and beauty, 1 person from pharmacy, 1 beauty doctor and 3 female students majoring in cosmetology and beauty.

Result and Discussion

Description of Research Results

1. Laboratory Test Results

Basil leaf samples were tested in the laboratory with the aim of determining the content of flavonoids, tannins, and Vitamin C in basil leaves. The results obtained from laboratory tests are as follows:

Table 1. Content of Flavonoids, Tannins, And Vitamin C Basil Leaves

No	Parameters	Analysis Results	Method
1.	Flavonoid	0,00104% (in 100 gr sample)	Spektrofometer Uv Vis
2.	Vitamin C	0,158% (in 100 gr sample)	Titiasi Iodometri
3.	Tannin	0,0089% (in 100 gr sample)	Spektrofometer Uv-Vis

Based on the table above, it can be seen the content of flavonoids, tannins and Vitamin C. Flavonoid compounds contained in basil leaves per 100 gr sample are 0.00104%, tannin compounds per 100 gr of basil leaves are 0.0089% and Vitamin C contained in basil leaves in 100 gr samples, which is 0.158%.

2. Organoleptic Test Results

The process of making a gel peel off mask of basil leaves is carried out by 3 rations, namely (5gr: 2,5gr), (10gr: 2,5gr), (15gr: 2,5gr), by means of: 1) for a ratio (5gr: 2,5gr), adding 5g of basil leaf powder and 2,5 g of gelatin mixed with aquadest 7ml then stirring, 2) for a ratio (10gr: 2,5gr), adding 10g of basil leaf powder and 2,5 g of gelatin mixed with aquadest 7ml then stirred, 3) for a ratio (15gr: 2,5gr), adding 15 g of basil leaf powder and 2,5 g of gelatin mixed with

aquadest 7 ml then stirred.

Table.2 Texture Organoleptic Test

Score	Category	5 g : 2,5 g		10 g : 2,5 g		15 g : 2,5 g	
		<i>Fr</i>	%	<i>fr</i>	%	<i>fr</i>	%
1	Not Viscous	3	42,85%	0	0%	1	14,28%
2	Less Viscous	2	28,57%	2	28,57%	4	57,1%
3	Viscous	2	28,57%	4	57,1%	2	28,57%
4	Highly Viscous	0	0%	1	14,28%	0	0%

Based on the table above, it can be concluded that the basil peel off gel mask is based on an organoleptic texture test at a ratio (5g: 2.5g) 42.85% of panelists chose a non-viscous score 28.57% of panelists chose a less viscous score and 28.57% of panelists chose a condensed score. In comparison (10g:2.5g) 28.57% of panelists chose less condensed scores and 57.1% of panelists chose condensed scores and 14.28% of panelists chose very thick scores. In the comparison (15g:2.5) 14.28% of panelists chose a non-condensed score and 57.1% of panelists chose a less condensed score and 28.57% of panelists chose a condensed score viscous.

a. Aroma Organoleptic Test Results

Table 3. Aroma Organoleptic Test

Score	Category	5 g : 2,5 g		10 g : 2,5 g		15 g : 2,5 g	
		<i>Fr</i>	%	<i>fr</i>	%	<i>fr</i>	%
1	Unappearing	2	28,57%	0	0%	0	0%
2	Less strongly scented	4	57,1%	5	71,42%	2	28,57%
3	Scented	0	0%	2	28,57%	5	71,42%
4	Very Flavorful	0	0%	0	0%	0	0%
Total <i>fr</i>		7	100%	7	100%	7	100%
Conclusion		Less strongly scented		Less strongly scented		Scented	

Based on the table above, it can be concluded that the basil peel off gel mask was based on an organoleptic aroma test at a ratio (5g: 2.5g) 28.57% of panelists chose an unappalized score and 57.1% of panelists chose a score with a scent less strong basil leaves. In comparison (10g:2.5g) 71.42% of panelists chose a less strongly scented score and 28.57% of panelists chose a basil leaf-scented score. In comparison (15g:2.5) 28.57% of panelists chose a less strongly scented score and 71.42% of panelists chose a basil leaf scented score.

b. Results of the Adhesion Organoleptic Test Results

Table 4. Adhesion Organoleptic Test

Score	Category	5 g : 2,5 g		10 g : 2,5 g		15 g : 2,5 g	
		<i>Fr</i>	%	<i>fr</i>	%	<i>fr</i>	%
1	Not Sticky	0	0%	0	0%	0	0%
2	Less Sticky	5	71,42%	1	14,28%	4	57,1%
3	Sticky	2	28,57%	4	57,1%	3	42,85%
4	Very Sticky	0	0%	2	28,57%	0	0%
Total <i>fr</i>		7	100%	7	100%	7	100%
Conclusion		Less Sticky		Sticky		Less Sticky	

Based on the table above, it can be concluded that the basil peel off gel mask is based on an organoleptic texture test in the ratio (5g: 2.5g) 71.42% of panelists chose a score less close and 28.57% of panelists chose a sticky score. In the comparison (10g:2.5g) 14.28% of panelists chose a score less close and 57.1% of panelists chose a sticky score and 28.57% of panelists chose a very sticky score. In the comparison (15g:2.5) 57.1% of panelists chose a score less close and 42.85% of panelists chose a sticky score.

3. Hedonic Test Results

Table 5. Hedonic Test Results

Score	Category	5 g : 2,5 g		10 g : 2,5 g		15 g : 2,5 g	
		<i>Fr</i>	%	<i>fr</i>	%	<i>fr</i>	%
1	Dislike	1	14,28%	0	0%	0	0%
2	Less Likes	5	71,42%	0	0%	5	71,42%
3	Like	1	14,28%	5	57,1%	2	28,57%
4	Really Like	0	0%	2	28,57%	0	0%
Total <i>fr</i>		7	100%	7	100%	7	100%
Conclusion		Less Likes		Like		Less Likes	

Based on the table above, it can be concluded that the basil peel off gel mask is based on an organoleptic texture test at a ratio (5g: 2.5g) 14.28% of panelists chose a dislike score and 71.42% of panelists chose a score of dislike and 14.28% of panelists chose a score of dislike. In comparison (10g:2.5g) 57.1% of panelists chose the like score and 28.57% of panelists chose the score of very likes. In comparison (15g:2.5) 71.42% of panelists chose a score of dislike and 28.57% of panelists chose a score of likes.

The first theme is to elaborate on the process of making a gel mask peel off basil leaves, the results of laboratory tests, namely testing the content of flavonoids, tannins and Vitamin C containing gel peel off masks of basil leaves and the results of organoleptic tests of gel peel off masks of basil leaves, namely texture, aroma, adhesion and panelist favorite hedonic test.

Discussions

1. Making a Gel Mask Peel Off Basil Leaves

The manufacture of a gel mask peel off basil leaves in this study began with the preparation of tools and materials to be used. Then wash the basil leaves thoroughly with running water, separate the stems from the basil leaves, after which the basil leaves are microwave-dried for 6 hours with a temperature of 60° so that the basil leaves turn brownish in color and dry out. Then the dried basil leaves are mashed using a blender until they are powdered and separate the coarse and fine basil leaf powder with a 200 mesh sieve.

From 300g of basil leaves produce 30 g of basil leaf powder, then basil powder is mixed into the gelatin that has been developed with hot aquadest in a ratio of three temperatures of 500C, 550C and 600C. After that, the peel off gel mask is cooled for 5-30 minutes and can be applied to the skin. In this study, there were three comparisons. The first comparison is 5g: 2.5g, namely 5g basil

leaf powder with 2.5g gelatin, the second ratio is 10g: 2.5g, which is 10 g of basil leaf powder with 2.5g of gelatin, and the third ratio is 15g: 2.5g, namely 15g of basil leaf powder and 2.5g of gelatin.

2. Feasibility of Gel Mask Peel Off Kemngi Leaves From Laboratory Tests of Flavonoid, Tannin, and Vitamin C Content

After going through laboratory tests at the UNP Chemistry Laboratory, the results of the content needed for acne-prone facial skin were obtained, namely the flavonoid content of 0.00104%. Flavonoids have several benefits, namely as anti-inflammatory, analgesic, and antioxidant (Minerva & Hefni, 2022) According to Susetya (2012) flavonoids are the largest group of phenol compounds, which function to inhibit the growth of viruses and bacteria that can reduce acne. Meanwhile, in this study, laboratory results obtained vitamin C as much as 0.158%.

According to Kembuan (2012) Vitamin C functions as an antioxidant to work to capture free radicals present in the skin. Antioxidant molecules function as a source of labile hydrogen that will bind to free radicals. The three main functions of vitamin C on the skin are as a powerful antioxidant that protects the skin against the negative influences of external factors such as (pollution, sun, climate, air conditioning, cigarette smoke, etc.), stimulates the formation and increase of skin collagen production which will maintain suppleness, flexibility, and smoothness of the skin, and brighten the skin. Vitamin C contributes to maintaining the balance of collagen and elastin in the dermis layer. (Minerva & Hefni, 2022) (Elfita & Minerva, 2019)

The content of tannin compounds in laboratory test results is 0.0089%. According to Oktavia and Wungkana (2018) the tannin content is a group of polyphenols and can act as a natural antioxidant so that it is safe to use in the long term and low in side effects. Tannins play a role in inhibiting the activity of protease enzymes, inhibiting enzymes in protein transporting bacterial cell sheaths, and digestion or inactivation of the displaced material function of genetic material. Tannins also play a role in damaging the metabolizing of bacteria.

3. Feasibility of Gel Mask Peel Off Basil Leaves Based on Organoleptic Test Results and Hendonic Test At a Ratio of 5g:2.5g, 10g:2.5g, 15g:2.5g

Berdasarkan hasil uji organoleptik yang meliputi tekstur, aroma dan daya lekat sebagai berikut:

a. Creation of Texture Organoleptic Test

Of the 7 panelists consisting of 1 lecturer from the Department of Cosmetology and Beauty, 1 lecturer with a Pharmacy degree, 1 Clinical Doctor from Vyrma Beauty Clinic, 1 Chemical Labor Analyst FMIPA UNP and 2 students of the class of 2017 Beauty Cosmetology who have participated in cosmetology courses. Judging from the texture in the comparison of each of them, it was concluded that the ratio of 10g:2.5g was preferred by the panelists compared to the ratio of 5g:2.5g and 15g:2.5g with the highest average, which was a score of 2 in the condensed category. This is due to the exact composition of the three composition ratios of 10g:2.5g which has a chewy texture and is more homogeneous when mixed with hot gelatin. Masks that

are considered good in terms of texture are masks that have a very chewy texture so that they form a peel off gel that can be worn and feels light when used. Texture is one of the properties of ingredients or products that can be felt through the touch of the skin. As for the texture properties that can be seen using the eyes such as chewy, using touch to texture directly from the surface of the material. Based on the results of observations at the time of data collection, it can be seen that the texture of the mask that many panelists liked was the mask (10g: 2.5g) because it had the right composition of basil leaf powder and gelatin.

b. Aroma Organoleptic Test

Of the 7 panelists consisting of 1 lecturer from the Department of Cosmetology and Beauty, 1 lecturer with a Pharmacy degree, 1 Clinical Doctor from Vyrma Beauty Clinic, 1 Chemical Labor Analyst FMIPA UNP and 3 students of the class of 2017 Beauty Cosmetology who have attended cosmetology courses. The quality of the basil leaf peel off gel mask judging from the aroma in each comparison concluded that the ratio of 15g:2.5g was preferred by the panelists compared to the ratio of 5g:2.5g and 10g:2.5g with the highest average of 5 in the very flavored category. This shows that the aroma at the 15g:2.5g bandage is characteristic of basil leaves. The aroma smelled on the mask is the characteristic aroma of basil leaves.

The aroma is strongly influenced due to the drying process. According to Aulia (2017) argues that the aroma is caused by essential oils attached to basil leaves that give special characteristics to the product. Aroma is one of the determinants of the most important product quality assessment, the better the product aroma, the more interested the product. Based on the results of observations at the time of data collection, it can be seen that the aroma of the mask that was liked by many panelists was a mask (15g: 2.5g) because the aroma produced was scented with the characteristic fragrance of basil leaves.

c. Adhesion Organoleptic Test

Of the 7 panelists consisting of 1 lecturer from the Department of Cosmetology and Beauty, 1 lecturer with a Pharmacy degree, 1 Clinical Doctor from Vyrma Beauty Clinic, 1 Chemical Labor Analyst FMIPA UNP and 3 students of the class of 2017 Beauty Cosmetology who have attended cosmetology courses. The quality of the basil peel off gel mask judging from the adhesion to each comparison concluded that the ratio of 10g:2.5g was preferred by the panelists compared to the ratio of 5g:2.5g and 15g:2.5g with the highest average, namely the score of 4 categories of stickiness. Because it can adhere well to the skin and is easy to remove when it dries for 10 minutes after applying the mask.

The adhesion that panelists really liked on the comparison of masks (10g:2,5g) because it has good adhesion to the skin and feels tight. According to the U.S. Department of Agriculture (2019) argues that about 98-99% of the content in gelatin is protein or amino acids, such as glycine and the rest is water and a small amount of vitamins and minerals. The function of amino acids is the constituents of proteins, including enzymes, the basic framework of a number of compounds

important in metabolism (especially vitamins, hormones and nucleic acids). Binders of metal ions are important that are necessary in enzymatic reactions (cofactors). Adhesion is the ability of a substance to stick to a surface. Then gelatin contains amino acids that are binding agents (adhesion).

4. Hedonic Test (Panelist's Favorability)

According to Tarwendah, et al. (2017) argue that the hedonic test is a test in analysis that is used to determine the magnitude of the difference in quality between several similar products by providing an assessment or score on certain properties of a product and to determine the level of favorability of a product. Of the 7 panelists consisting of 1 lecturer from the Department of Cosmetology and Beauty, 1 lecturer with a Pharmacy degree, 1 Clinical Doctor from Vyrma Beauty Clinic, 1 Chemical Labor Analyst FMIPA UNP and 3 students of the class of 2017 Beauty Cosmetology who have attended cosmetology courses. The quality of the basil leaf peel off gel mask judging from the panelists' favorability in each comparison concluded that the ratio of 10g:2.5g was preferable to the panelists compared to the ratio of 5g:2.5g and 15g:2.5g with the highest average, which was a score of 5 categories of likes.

From the results of observations that have been made, it shows that the level of liking of panelists on the basil leaf peel off gel mask is influenced by texture, aroma, and adhesion. Thus the researchers concluded that the basil leaf peel off gel mask is very feasible to use as a mask for acne-prone skin.

Conclusion

One of the masks that can be made using natural ingredients is the basil leaf peel off gel mask. The benefits of basil leaves are that they can treat acne and dry acne and gelatin which are used as ingredients for mixing gel peel off masks to increase adhesion. With the content test in the laboratory, flavonoid results were 0.00104%, vitamin C was 0.158%, and tannins were 0.0089%. In the gel mask peel off basil leaves which are useful for the treatment of acne-prone facial skin, protect the skin from free radical attacks, flavonoids function as antioxidants and antibacterials that can inhibit bleeding on the skin and tannins act as natural antioxidants and are able to damage bacterial metabolism. The feasibility of the basil leaf peel off gel mask is seen from the results of organoleptic tests with the texture aspect having the highest yield with a ratio of 10g: 2.5g with a value of 57.10% in the Viscous category, while the aroma aspect has the highest yield with a ratio of 15g: 2.5g with a value of c in the typical aroma category of basil leaves and the aspect of adhesion has the highest yield with a ratio of 10g: 2.5g with a value of 57.10% in the adhesive category. As for the hedonic test or panelist's favorability, the highest value is in the ratio of 10g: 2.5g with a value of 57.10% in the like category.

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