

FORMULASI MASKER GEL PEEL-OFF EKSTRAK ETANOL 96% AMPAS TEH HIJAU (*Camellia sinensis* Linn.)

[FORMULATION OF A PEEL-OFF GEL MASK USING A 96% ETHANOL EXTRACT FROM GREEN TEA DREGS (*Camellia sinensis* Linn.)]

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ABSTRACT

Green tea (Camellia sinensis Linn.) is widely consumed in Indonesia, but the dregs which are waste have not been utilized optimally. A previous study revealed that a 96% ethanol extract from green tea dregs produces antibacterial activity against Staphylococcus aureus and Escherichia coli. Therefore, the purpose of this study was to increase the utilization of green tea dregs in cosmetic products in the form of a peel-off gel mask with an active ingredient of 96% ethanol extract from green tea dregs. The green tea dregs extract was made by the maceration method with 96% ethanol as the solvent. The peel-off gel mask was made in three formulas with different variations in the gel base, namely PVA 10% and HPMC 2%; PVA 8% and HPMC 3%; PVA 5% and HPMC 4%. The peel-off gel mask was produced, then it was evaluated by an organoleptic test, pH test, homogeneity test, spreadability test, and dry time test. The peel-off gel was stored for 10 days at two different temperatures, namely room temperature, and refrigerator temperature. The evaluation result was obtained that all three formulations of the peel-off gel mask met the criteria for good gel. However, after 10 days of storage at both storage temperatures, there was a change in the color of the three formulas. The Formula 3 (PVA 5% and HPMC 4%) stored at refrigerator temperature also showed an increment in dry time result. These results indicate the instability of the peel-off gel mask during storage. The peel-off gel mask formula from green tea dregs meets the requirements of gel preparations.

Keywords: *Camellia sinensis*; green tea dregs; hydroxy propyl methyl cellulose; peel-off gel mask; polyvinyl alcohol

ABSTRAK

Teh hijau (*Camellia sinensis* Linn.) banyak dikonsumsi di Indonesia, namun ampas yang merupakan limbahnya belum dimanfaatkan secara optimal. Pada penelitian sebelumnya ekstrak etanol 96% ampas teh hijau memiliki aktivitas antibakteri pada *Staphylococcus aureus* and *Escherichia coli*. Oleh karena itu, tujuan dari penelitian ini adalah untuk meningkatkan pemanfaatan ampas teh hijau menjadi produk kosmetika berupa masker gel *peel-off* dengan bahan aktif ekstrak etanol 96% ampas teh hijau. Ekstrak ampas teh hijau dibuat dengan metode maserasi dengan pelarut etanol 96%. Masker gel *peel-off* dibuat dalam tiga formula dengan variasi basis gel yang berbeda, yaitu PVA 10% dan HPMC 2%; PVA 8% dan HPMC 3%; PVA 5% dan HPMC 4%. Masker gel *peel off* yang dihasilkan kemudian dievaluasi dengan uji organoleptik, uji pH, uji homogenitas, uji daya sebar, dan uji waktu kering. Gel *peel off* disimpan selama 10 hari pada dua suhu yang berbeda yaitu suhu ruang dan suhu lemari es. Hasil evaluasi diperoleh bahwa ketiga formulasi masker gel *peel-off* memenuhi kriteria sediaan gel yang baik. Namun setelah 10 hari penyimpanan pada kedua suhu penyimpanan, terjadi perubahan warna pada ketiga formula. Formula 3 (PVA 5% dan HPMC 4%) yang disimpan

pada suhu lemari es juga menunjukkan peningkatan hasil waktu kering. Hasil ini menunjukkan ketidakstabilan sediaan selama penyimpanan.

Kata kunci: ampas teh hijau; *camellia sinensis*; hidrokisipropil metil selulosa; masker gel peel-off; polivinil alkohol

INTRODUCTION

Indonesia is a country that is famous for its rich natural resources, about 30,000 types of plants, and of which there are 7,500 types of medicinal plants. One of the plants that have medicinal properties is the green tea plant. The green tea plant is one of the medicinal plants that have the potential as an anti-acne (Himawan, 2008). The part that can be used as an anti-acne plant is green tea leaves. Green tea leaves function as anti-bacterial because they contain secondary metabolites such as polyphenols (flavonoids, tannins, and catechins) and alkaloids. One of the active substances in green tea leaves is catechin from the flavonoid group which has anti-bacterial activity (Kushiyama *et al.*, 2009). The 96% ethanol extract of green tea pulp contains phytochemical compounds such as alkaloids, flavonoids, phenols, tannins, catechins, steroids, saponins, and quinones (Trisina *et al.*, 2021). The 96% ethanol extract of green tea pulp contains polyphenolic compounds (Bayan & Purwanti, 2019).

Several studies have been conducted to investigate the antibacterial activity of a 96 % ethanol extract of green

tea pulp, which has antibacterial activity against *Staphylococcus aureus* and *Escherichia coli* (Trisina *et al.*, 2021), *Propionibacterium acnes*, and *Staphylococcus aureus* (Trisina *et al.*, 2021). (Savira & Suharsono, 2013; Widyaningrum *et al.*, 2017; Herwin *et al.*, 2018). Previous research has established a cream formulation from 96 % ethanol extract of green tea pulp in a multiple emulsion formula that has good physical qualities and antibacterial activity and may be utilized as a reference for formulation (Widyaningrum, 2017; Karmilah, 2021). Green tea leaf extract cream contains antioxidant properties as well (Fauzia & Djajadisastra, 2014).

In Indonesia, green tea dregs are included in the organic waste which is produced in large quantities and its utilization is not optimal (Saqifah *et al.*, 2010). Based on previous research, which revealed new information regarding the antibacterial activity of the 96% ethanol extract of green tea dregs, therefore the researchers wanted to utilize green tea leaf dregs extract by making cosmetic in the form of face masks whose research had never been done until now.

Face masks can be in the form of gels, powders, and paste. Face masks are designed to carry active ingredients that are useful for skin health. The formulation in the form of a gel was chosen because the gel has good dispersion and adhesion and a long contact time with the skin. In addition, it can give a cold sensation to the skin because the water content in the gel is sufficiently high (Lachman *et al.*, 1994). Peel-off masks are easy to apply to the face because this peel-off gel mask will form a transparent film layer, and after drying it can be easily peeled off like an elastic membrane (Rahmawanty *et al.*, 2015).

The gel base used is a combination of Polyvinyl Alcohol (PVA) and Hydroxy Propyl Methyl Cellulose (HPMC) bases (Birck, 2014). The choice of a combination of PVA and HPMC gels aims to reduce the formation of a film that tends to be stiff from PVA, the use of HPMC intends to produce a more elastic base gel. Based on the above background, researchers are interested in developing a peel-off gel mask formulation from 98% ethanol extract of green tea dregs using a combination of PVA and HPMC excipients.

MATERIAL AND METHODS

Materials

Analytical balance (Ohaus), glass beaker (Duran), Micropipette (Gilson),

Measuring Cylinder (Iwaki), stirring rod, porcelain cup, mortar and pestle, horn spoon, metal spatula, rotary evaporator (Heidolph), oven (Mettler), pH meter (Metrohm), water bath (Mettler), and refrigerator (Sharp).

Commercially available Green Tea, 96% Ethanol (SmartLab), Polyvinyl Alcohol (Chang Chun Petrochemical), Hydroxy Propyl Methyl Cellulose (Kingcel), Propylene Glycol (Brataco), Glycerin (Brataco), Methyl Paraben (Brataco), and Aquadest (SmartLab).

Sample

The green tea used is a commercial green tea packaging product that is then weighed and brewed using tea brewing parameters SNI 01-3945-2016 regarding green tea. The green tea dregs obtained were dried in an oven at 60°C.

Extraction

Extraction was carried out using 96% ethanol by maceration method (1:4). Dried green tea dregs were macerated into 800 ml of 96% ethanol for 24 h and stirred occasionally, then filtered and collected in a glass bottle. Maceration was carried out for 3 days with 96% ethanol solvent which was always replaced every 1x24 h. Then the liquid extract obtained was evaporated in a rotary evaporator at a temperature of 45°C until it became a thick extract. The thick extract obtained is made into dry extract, in

an oven at a minimum temperature of 60°C until dry or can be powdered. The dry extract obtained can be used in the formulation of a peel off gel mask.

Peel-Off Gel Mask Formulation

The concentration of the extract used in the formulation was determined based on the results of a preliminary study on the antibacterial activity of 98% green tea pulp ethanol extract on *Staphylococcus aureus*, which was 1-4 g (Trisina *et al.*, 2021). The Peel-Off Gel formula can be seen in Table 1.

Peel Off Gel Mask

PVA was developed using the thermal aquadest, methylparaben was dissolved into propylene glycol and glycerin, stirred until homogeneous, and put into a container containing PVA that had been expanded, then stirred until forming a clear gel base. In another container, HPMC was developed using distilled water at 90°C, stirred, then allowed to stand until it swelled. The swelled

HPMC was mixed with the PVA mixture. The dry extract of green tea dregs was dissolved in hot aquadest and filtered. The filtrate was then mixed with the gel base until homogenous. The formulation was made in three variations of the concentration of the gel base: F1 (PVA 10%, HPMC 2%), F2 (PVA 8%, HPMC 3%), and F3 (PVA 5%, HPMC 4%).

Evaluation of Physical Properties and Stability of Gel Peel-Off Mask

Physical properties testing was undertaken after the peel-off gel mask was ready and carried out at room temperature and storage refrigerator temperature for ten days and tested on days 5 and 10.

a. Visual Appearance Inspection

Physical appearance of the peel-off gel mask formulation was checked visually for color, odor, and appearance (Septiani *et al.*, 2011).

b. pH Test

Measurement was carried out using universal pH paper (Tranggono, 2007).

Table 1. Peel-off gel mask formula

Material	Function	Range (%)	Formula 1 Concentration (%)	Formula 2 Concentration (%)	Formula 3 Concentration (%)
Green Tea Dregs Extract	Active substance	-	2,5	2,5	2,5
PVA	Gel base	1-10	10	8	5
HPMC	Gel base	2-4	2	3	4
Propylene glycol	Humectant	1-15	2	2	2
Glycerin	Humectant	≤ 30	8	8	8
Methylparaben	Preservative	0,02-0,3	0,1	0,1	0,1
Aquadest	Solvent	-	Ad 100	Ad 100	Ad 100
Total :			100	100	100

c. Homogeneity Test

The homogeneity test was performed using two transparent glasses, in which the peel-off gel mask was applied in between, and then the homogeneity of the preparation is observed (Kementrian Kesehatan Republik Indonesia, 2020).

d. Dry Time Test

As much as 1 gram of each formula is applied to the back of the hand, waited until dry, and formed the even-thin layer. The time for the peel-off gel mask to dry and establish a film is recorded (Pertiwi, 2012).

e. Spreadability Test

The test is carried out by placing a 1 g sample between two transparent glasses. Loads of 50 grams and 100 g are placed on top of the peel-off gel mask periodically, allowed to stand for one minute, and the diameter of the gel that spreads is recorded (Izzati, 2014).

RESULTS AND DISCUSSION

Green tea dregs herb extraction

The extraction process was carried out using the maceration method for 3x24 hours using 96% ethanol as solvent. The maceration method is used to avoid the decomposition of chemical substances contained in green tea dregs *Simplicia* caused by the effect of temperature. The dry weight of green tea dregs *Simplicia* is 1.470

grams, and the resulting dry extract is 16,08 grams. The yield of 96% ethanol extract of green tea dregs was 8.04% (Table 2).

Gel Peel-Off 96% Ethanol Extract Green Tea Dregs Formulation

The peel-off gel mask of 96% ethanol extract from green tea was made in three formulas with a different comparison of PVA and HPMC concentrations. The excipients used in the formula include PVA, HPMC, glycerin, propylene glycol, methylparaben, and 96% ethanol. PVA is used as a gelling agent to form a film that can dry and peel off. The process of film formation is due to the hydration of the solvent components and the fused polymer chains so that when the gel dries it will form a film layer (Siepmann *et al.*, 2007).

Table 2. Spreadability evaluation results for peel-off gel mask

Sample	Spreadability	Spreadability
	Median 50 gram (cm)	Median 100 gram (cm)
F1	4,9 ±0,00	5,9 ±0,00
F2	4,8 ±0,00	5,3 ±0,00
F3	4,4±0,00	5,0 ±0,00

Note: Sample testing was carried out in triplicate and obtained SD

HPMC as the viscosity enhancer (Rowe *et al.*, 2009), propylene glycol, and glycerin as humectants that can moisturize the skin because they have the power to bind water. The use of two humectants is based on the specific function of each humectant. Propylene glycol will maintain the physical properties and stability of the

peel-off gel mask during storage because of its ability to preserve the water content in the peel-off gel (Allen, 2012), while glycerin from the air can bind water and at moderate temperatures and high humidity can moisturize the skin (Murphy, 1978). Methylparaben is used to prevent microbial contamination in gel (Rowe *et al.*, 2009). Ethanol 96% as a solvent for the active substance of green tea dregs extract serves to accelerate the drying of peel-off gel on the skin.

Evaluation Results of Gel Peel-Off 96% Ethanol Extract Green Tea Dregs

a. Visual Appearance Inspection

Organoleptically, the peel-off gel mask of 96% ethanol extract of green tea dregs in Formula 1, Formula 2, and Formula 3 in the initial test were light brown colored resulting from the extract of green tea dregs. All formulas are odorless and have a decent peel-off gel texture.

b. Homogeneity Test

Homogeneity in Formula 1, Formula 2, and Formula 3 look homogeneous with no coarse particles found in the peel-off gel mask.

c. pH Test

The pH test results of the peel-off gel mask extract of 96% ethanol extract of green tea against Formula 1, Formula 2, and Formula 3 resulted in a pH of 6. From the data generated, the pH values of the three

peel-off gel formulations of 96% ethanol extract of green tea dregs were still in the normal skin pH requirements of 4.5-6.5. It is better if the gel has a normal skin pH range because it can cause dry skin if the gel is too alkaline and cause skin irritation if it is too acidic (Djajadisastra, 2004).

d. Dry Time Test

The dry time test aims to determine how long it takes the film layer on the peel-off gel to dry on the skin surface. Calculation of dry time starts from the peel-off gel mask starting when it is applied to the facial skin until it is completely dry on the skin surface (Pertiwi, 2012).

The results of the dry time test for the peel-off gel mask of 96% ethanol extract of green tea against Formula 1, Formula 2, and Formula 3, namely in Formula 1 dry time is 22 minutes, in Formula 2 the dry time is 15 minutes, and Formula 3 the dry time is 18 minutes.

The dry time of the gel is affected by the water content in the peel-off gel mask and the thickness that is applied, the more water content and the thicker it is lubricated, the longer the gel time to dry on the skin surface (Vieira *et al.*, 2009). The dry time of the three peel-off gel mask formulas 96% ethanol extract of green tea dregs the requirements for a decent dry time for peel-off gel, which was around 15-30 minutes (Slavtcheff, 2000).

e. Spreadability Test

The spreadability test was carried out to see the ability of the peel-off gel to spread over the skin surface (Voight, 1994). The spreadability test was carried out using a load of 50 grams and 100 grams. The gel is placed on a transparent glass and covered with another transparent glass than in the amount of 50 grams, and 100 grams has placed on the surface of the glass, for one minute, let stand and measure the diameter of the distribution of the gel (Izzati, 2014).

The results of testing the spreadability of the peel-off gel of 96% ethanol extract of green tea waste against Formula 1, Formula 2, and Formula 3 can be seen in Table 2. From the data obtained, the highest dispersion was obtained by Formula 1 at a load of 100 grams, which was 5.9 cm. The test results for peel-off gel in the three formulas still meet the requirements for good dispersion for topical, that is about 5-7 cm (Garg *et al.*, 2002).

Evaluation Results of Stability of the Peel-Off Gel Mask 96% Ethanol Extract Green Tea Dregs

Evaluation of the stability of the peel-off gel mask of 96% ethanol extract of green tea dregs involves organoleptic tests, homogeneity, pH, spreadability, and dry time. Examination of the physical stability of the three diversity of the formula was

checked at room temperature and refrigerator temperature, and stability testing was carried out for the tenth day. Tests were carried out on the fifth and tenth days.

The results of the stability evaluation of the peel-off gel mask can be seen in Table 3 with variants of PVA 10% and HPMC 2%, PVA 8% and HPMC 3%, and PVA 5% and HPMC 4% having the following characteristics:

a. Visual Appearance Inspection

Organoleptically, the peel-off gel mask of 96% ethanol extract of green tea dregs changed after being stored at room temperature and cold temperature in the refrigerator for the tenth day.

Table 3. Evaluation of pH stability of peel-off gel mask formulated using a 96% ethanol extract from green tea dregs after storage for ten days

Formulation	Testing	pH	
		Room Temperature	Refrigerator Temperature
Formula 1	Day-0	6 ±0,00	6 ±0,00
	Day-5	5 ±0,00	6 ±0,00
	Day-10	5 ±0,00	6 ±0,00
Formula 2	Day-0	6 ±0,00	6 ±0,00
	Day-5	5 ±0,00	6 ±0,00
	Day-10	5 ±0,00	6 ±0,00
Formula 3	Day-0	6 ±0,00	6 ±0,00
	Day-5	5 ±0,00	6 ±0,00
	Day-10	5 ±0,00	6 ±0,00

Note: Sample testing was carried out in triplicate and obtained SD

On the fifth day of storage at room temperature, the three formulas were reversible and odorless. The three formulas changed the color brown to become more concentrated. The texture consistency of the three formulations is different, in the

direction of Formula 1 the resulting gel texture is more aqueous, in Formula 2 gel texture does not change either aqueous or solid, and in Formula 3 the resulting gel texture is denser. On the fifth day of storage in the refrigerator, the three formulas were reversible and odorless. The three formulas coloring is reversible. The consistency of the gel texture in the three formulas has changed, Formula 1 the resulting gel texture is denser, in Formula 2 the gel texture does not change either aqueous or solid, and in Formula 3 the resulting gel is denser.

On the tenth day of storage at room temperature, the three formulas changed the color brown to become more concentrated and odorless. While stored at refrigerator temperature, coloring is reversible and odorless. The gel texture of the three formulations at room temperature and refrigerator temperature was not much different from the fifth day of testing. Changes in gel texture during storage can occur due to chemical reactions of the peel-off gel mask. The peel-off gel that shows good stability at room temperature and refrigerator temperature storage is Formula 2. The consistency of the resulting gel texture either did not change to be thinner or denser at room temperature and refrigerator temperature.

b. Homogeneity Test

The homogeneity test of the three peel-off gel mask formulations showed that all formulations remained homogenous during ten days of storage both at room and refrigerator temperature.

c. pH Test

Results of pH testing of the peel-off gel mask with 96% ethanol extract of green tea dregs for the tenth day at room temperature and refrigerator temperature are as follows in Table 3. One of the necessary things in determining the stability of the peel-off gel mask is pH value. The pH value obtained from testing for ten days at room temperature was unstable because the pH value tend to increase during storage. The three formulas stored at refrigerator temperature showed a relatively stable pH without any change in the pH value. The results of the pH stability test of the three peel-off gel formulations at room temperature on the fifth and tenth day of storage experienced temperature changes. However, the pH test results of the three peel-off gel formulations, both at room temperature and refrigerator temperature, still meet the normal skin pH requirements of 4.5-6.5. Gel should have a normal pH range of the skin because the skin will become dry if it is too alkaline and become irritated if it is too acidic (Djajadisastra, 2004).

d. Dry Time Test

The results of the dry time test for the peel-off gel mask preparation of 96% ethanol extract of green tea dregs at room and refrigerator temperature for 10 days can be seen in Table 4.

Table 4. Stability test results of dry time of peel-off gel mask formulated using a 96% ethanol extract from green tea dregs after storage for ten days

Formulation	Testing	Dry Time Median (minutes)	
		Room Temperature	Refrigerator Temperature
		Day-0	22 ±6,36
Formula 1	Day-5	16 ±1,41	13 ±0,00
	Day-10	17 ±2,12	22 ±2,83
	Day-0	15 ±0,00	15 ±0,00
Formula 2	Day-5	23 ±7,78	20 ±0,00
	Day-10	25 ±7,07	22 ±4,95
	Day-0	18 ±3,54	18 ±3,54
Formula 3	Day-5	29 ±1,41	33 ±3,54
	Day-10	29 ±2,12	36 ±6,36

Note: Sample testing was carried out in triplicate and obtained SD

The results of the dry time test of Formula 1 and Formula 2 of gel peel-off preparations stored for ten days at room temperature and refrigerator temperature still meet the requirements for a decent dry time of gel peel-off preparations, which is in the range of 15-30 minutes. The results of the dry time test on the Formula 3 peel-off gel mask at room temperature storage met the requirements for a decent dry peel-off gel preparation, which is in the range of 15-30 minutes. Testing at refrigerator temperature for Formula 3 for peel-off gel preparations did not meet the requirements for a decent dry time for peel-off gel preparations because the resulting dry time

exceeded the dry time requirements for good peel-off gel preparations (Slavtcheff, 2000).

The dry time of the gel preparation is influenced by the water content in the preparation and the thickness that is applied, the higher the water content and the thicker the application, the longer the gel preparation time to dry on the skin surface (Vieira *et al.*, 2009).

e. Spreadability Test

The results of testing the spreadability of the mask preparation at room temperature and storage at refrigerator temperature for ten days are presented in Table 5, Table 6, Figure 1, and Figure 2.

The results of the dispersion data obtained show that Formula 1 on storage day-0 and day-10 meets the requirements for decent dispersion, which is about 5-7 cm (Garg *et al.*, 2002). On the fifth day of storage, the spreadability of the gel preparation did not meet the requirements of a good gel preparation.

Formula 2 on the fifth day and tenth day of storage at room temperature and refrigerator temperature fulfill the requirements for good dispersibility of the peel-off gel preparation. Decent dispersion requirements for topical preparations are about 5-7 cm (Garg *et al.*, 2002).

Table 5. Spreadability of peel-fff gel mask in room temperature

Spreadability (cm) in Room Temperature			
Formula	Testing	50 gram	100 gram
I	Day-0	4,87 ±0,05	5,87 ±0,05
	Day-5	4,50 ±0,08	4,87 ±0,05
	Day-10	5,27 ±0,05	5,60 ±0,08
II	Day-0	4,73 ±0,05	5,23 ±0,05
	Day-5	5,30 ±0,14	5,47 ±0,05
	Day-10	5,60 ±0,08	6,60 ±0,08
III	Day-0	4,43 ±0,05	5,00 ±0,00
	Day-5	4,10 ±0,08	4,67 ±0,05
	Day-10	4,67 ±0,05	5,10 ±0,08

Note: Sample testing was carried out in triplicate and obtained SD

The results of the dispersion test in Formula 3 showed that the tenth-day test at room temperature with a load of 100 grams met the requirements for good dispersibility of the peel-off gel preparation, which was in the range of 5-7 cm (Garg *et al.*, 2002).

The spreadability test for ten days showed that the peel-off gel preparation with a load of 100 grams still met the requirements for good dispersibility of the peel-off gel preparation.

Table 6. Spreadability of peel-off gel mask in refrigerator temperature

Spreadability (cm) in Refrigerator Temperature			
Formula	Testing	50 gram	100 gram
I	Day-0	4,87 ±0,05	5,90 ±0,00
	Day-5	4,23 ±0,05	4,77 ±0,05
	Day-10	4,57 ±0,05	5,20 ±0,00
II	Day-0	4,80 ±0,00	5,30 ±0,00
	Day-5	4,87 ±0,05	5,53 ±0,09
	Day-10	4,87 ±0,05	5,40 ±0,00
III	Day-0	4,40 ±0,00	5,00 ±0,00
	Day-5	4,13 ±0,05	4,40 ±0,00
	Day-10	4,20 ±0,08	4,60 ±0,00

Note: Sample testing was carried out in triplicate and obtained SD

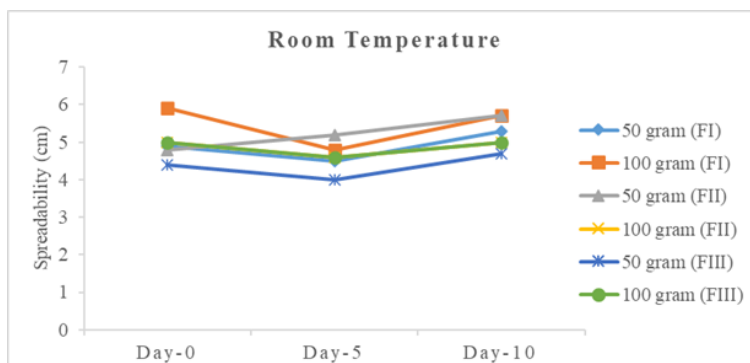


Figure 1. Spreadability of peel-off gel mask in room temperature

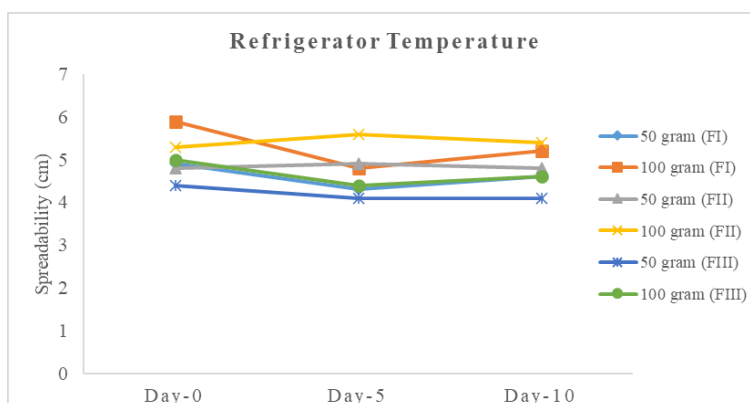


Figure 2. Spreadability of peel-off gel mask in refrigerator temperature

CONCLUSION

The 96% ethanol extract of green tea dregs was formulated into a peel-off gel mask preparation with a combination of PVA and HPMC gel bases. From the extraction results obtained extract yield of 8.04%. The three formulations of peel-off gel mask preparations produced preparations that met the test requirements for good gel preparations. However, after ten days of storage at room temperature and refrigerator temperature, darker color was noticed from the three formulas. Formula 3 (PVA 5% and HPMC 4%) also showed the increment in drying time at the refrigerator temperature. This study showed that the storage conditions may cause a significant impact on the stability of the gel formulation as shown by the color changes. Therefore, the formulation needs to be further optimized in regard to storage stability, with the addition of an antioxidant, and optimization of the protective primary packaging.

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CONFLICT OF INTEREST

No conflict of interest.

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