SANITAS: JURNAL TEKNOLOGI DAN SENI KESEHATAN
ISSN : 1978-8843 (*PRINT*) / 2615-8647 (*ONLINE*) **Vol. 15 No. 1: 21 - 37**

PREPARATION AND EVALUATION OF LIP BALM CONTAINING APRICOT SEED OIL AS MOISTURIZER

In Rahmi Fatria Fajar[1*], Dewi Rahma Fitri [1], Fitra Napitupulu[1]

[1]Jurusan Farmasi, Institut Sains dan Teknologi Alkamal, Jl. Kedoya Raya No.2 Kedoya Selatan, Kec. Kebon Jeruk. Kota Jakarta Barat, 11520

*E-mail: in.rahmi.fatria.fajar@ista.ac.id

Submitted: 10th May 2023; Accepted: 13th July 2024

http://doi.org/10.36525/sanitas.2024.422

ABSTRACT

Lip balm is a preparation used or applied on the lips to protect the lips from adverse environmental effects and prevent dry lips. Apricot seed oil is one of the oils that contain essential fatty acids, namely linoleic acid and oleic acid, thus it can be used as an excellent skin moisturizer. Objective this study aims to make a lip balm preparation formula containing apricot seed oil as a lip moisturizer. The research method used was an experimental design which included testing the quality of the oil, making lip balm preparations with optimization of apricot oil concentration, evaluated the quality, safety, and efficacy. The results active ingredients of apricot oil contained linoleic acid, oleic acid, palmitic acid, α-linolenic acid, and stearic acid. All preparations met the quality requirements as a homogeneous lip balm preparation with a melting point of 58oC - 60oC, pH 5.80 - 6.06. Safe to use and non-irritating. Optimization concentrations of 2.5%, 5%, 7.5%, and 10% have the effectiveness of moisturizing lips with an average percentage of increase in lip moisture after 4 weeks of use, namely 18.6%, 28.8%, 45.4%, and 65.6%. Conclusion apricot seed oil can be formulated as lip balm preparations that met quality requirements and have been tested to be safe for use. Lip balm preparations containing 10% apricot seed oil have been able to increase moisture on the lips.

Keywords: *Lip balm, Apricot seed oil, lip moisture*

INTRODUCTION

Cosmetic products are well known and their use is starting to be in demand for beauty and health. It is undeniable that cosmetic products are needed by humans regardless of gender. Cosmetics are often used every day repeatedly on all parts of the body.(1) One of the cosmetic preparations that may be frequently used is lip balm, this product is very popular, especially for women. Because healthy, soft and moist lips are all women's dreams.

Lip balm or lip balm is a preparation that is used or rubbed on the lips to protect the lips from adverse environmental effects and prevent dry lips. In general, lip balms contain carnauba wax or beeswax, solid fats such as petrolatum and lanolin, oils containing fatty acids, and other ingredients. Lip balm is formulated with basic ingredients that are similar to the basic ingredients of lipstick, but the lip balm looks transparent and does not cause the color on the lips.(2) Lip balm does not only provide an occlusive layer but it can act as a moisturizer to maintain moisture on the lips.(3) In general, lip balms can contain vitamins and moisturizers that can protect and protect the lips, and often contain active substances intended to protect the lips from the sun and extreme weather.(4)

The content of essential fatty acids in apricot seed oil includes linoleic acid and oleic acid besides that there are vitamins C, E, and A, so it can be used as an excellent skin moisturizer. The high content of linoleic acid can help maintain moisture balance and tighten the skin.(5) Apricot seed oil is also known to have an α-tocopherol concentration (630 μg/g), so it can be used as an emollient/moisturizer for cosmetic preparations.(6) This study aims to determine the effectiveness of apricot kernel oil in lip balm with the parameter of increasing the moisture content of the lips.

RESEARCH METHOD

Tools

The tools used include glassware (pyrex), object glass, analytical balance (Sartorius), moisture monitor (SK IV), water bath, pH meter (Hanna), oven (WRC binder), and a container for lip balm.

Materials

The ingredients used include lanolin (Sigma-Aladrich®), nipagin (PT. Sumber Berlian Kimia), glycerin (P&G Chemicals), cera alba (Making Cometic), alba vaseline (Brataco®), apricot seed oil (Darjeeling), and BHT (Sigma-Aladrich®), cacao oleum (Darjeeling).

Method of obtaining samples

This study used a sample of pure apricot seed oil in a 500 ml bottle with the brand Darjeeling which has a certificate of analysis.

Evaluation of apricot seed oil samples

Organoleptic examination

The organoleptic examination carried out on samples of apricot seed oil included observing the shape, color and, smell of the sample.(7)

Determination of BJ apricot seed oil

Determination of BJ (specific gravity) of apricot seed oil is carried out using a pycnometer, by weighing the pycnometer with a certain volume in a clean and empty state. Then the pycnometer was filled with distilled water and weighed again at 25°C. Then empty the pycnometer and fill it with apricot kernel oil at 25°C, then weigh it. This experiment was carried out three times in a row.(8) Then the average value is calculated.

$$BJ = \frac{(\text{Pycnometer+sample weight})-(\text{Empty pycnometer weight})}{(\text{Pycnometer+Aqua weight})-(\text{Empty pycnometer weight})}$$

Analysis of fatty acid content in apricot seed oil

Analysis of fatty acid content in apricot seed oil samples using a Gas Chromatography instrument. The steps taken were weighing the sample equivalent to 50 mg of fat into a 20 ml screw vial. then added MTBE (Methyl Tertiary Buthyl Ether). Then add the transesterification solution and turn on the stopwatch (time counted after the addition of transesterification) and close the vortex vial for 10 seconds. Open the vial and add hexane and then centrifuge. After that, the organic phase was taken into a 2 ml vial, and injected into the GC FID system (Gas Chromatography Flame Ionization Detector)

(PerkinElmer).(9) The chromatogram of the apricot seed oil sample will appear on the monitor. The chromatogram peaks resulting from the sample analysis are fatty acid peaks with C4-C24 chains with a comparison of the retention times between sample standards.(9)

Lip balm preparation formula

The preparation is made using cacao oleum as the base of the lip balm. Nipagin is used as an antimicrobial in the preparation. To maintain the consistency of the lip balm, cera alba wax is used so that the melting point of the preparation can be controlled.(10) Vaseline in the formulation functions as an emollient. Emollients in lip balm preparations aim to moisturize the lips by maintaining hydration, preventing dryness and skin damage due to sunlight, and preventing water evaporation from the skin by forming a protective layer so that it helps the skin moisture.(11) Four formulas were made, namely F0 as a blank, F1, F2, F3, and F4 which was an optimization of apricot seed oil. The composition of the lip balm formulation can be seen in Table 1.

Table 1 Lip Balm Preparation Formulas

Material	Concentration (%)					Function
	F0	F1	F2	F3	F4	
Aprikot oil	0	2,5	5	7,5	10	Active ingredients
Gliserin	5	5	5	5	5	Humectan
Cera alba	10	10	10	10	10	Besswax
Lanolin	6	6	6	6	6	Emolient
Nipagin	0.2	0.2	0.2	0.2	0.2	Preservatif
Vaselin alba	5	5	5	5	5	Emolient
BHT	0,05	0,05	0,05	0,05	0,05	Antioxidants
Oleum cacao	ad 100	ad 100	ad 100	ad 100	ad 100	Base Lip balm

Information:
F0 : Formula without apricot kernel oil
F1 : Formula containing 2.5% apricot seed oil
F2 : Formula containing 5% apricot seed oil
F3 : Formula containing 7.5% apricot seed oil
F4 : Formula containing 10% apricot seed oil

Preparation Procedure

All tools are prepared and all materials to be used are weighed first. Cacao oleum, cera alba, alba Vaseline, and lanolin melt over a water bath. After all the ingredients have

completely melted, stir with a stir bar until homogeneous (mass I). BHT and nipagin were dissolved with apricot seed oil and aqua dest respectively into mass 2 and mass 3. Mass 1 was added to mass 2, stirred, added to mass 3, stirred, added glycerin,and stirred until homogeneous. After all the ingredients are thoroughly mixed, put the preparation into a suitable container then wait and leave it at room.(12)

Inspection of Preparation Quality

Organoleptic examination of preparations

The organoleptic examination is carried out by observing the shape, color, and smell of lip balm preparations.(6)

Preparation homogeneity test

This test is carried out using a glass object. On the Object glass apply the lip balm preparation then make observations. The preparation should not be visible or contain coarse grains and must show a homogeneous arrangement.(6)

Preparation melting point test

This test was carried out by heating at an initial temperature of 50oC, inserting the hardened lip balm preparation for 15 minutes, and observing the physical changes. Every 15 minutes the oven temperature is increased by 1℃ while observing at what temperature the lip balm melts or melts.(13) (14)

Test the pH of the preparation

Testing is carried out with a pH meter. The test equipment is calibrated before use with an acidic pH buffer solution (pH 4.0) and a pH 7.0 buffer solution until the pH meter displays a constant pH value, then the electrode is rinsed using aqua dest and dried with a tissue and the tool is ready for use. Furthermore, the sample was prepared at a concentration of 1% by dissolving 1 gram of the preparation with 100 ml of distilled water, heating it, then waiting for the solution temperature to normalize. Furthermore, in the solution, dip the electrode, and let it stand until the tool displays a constant pH value. The constant value displayed on the device screen is the pH of the preparation.(3)

Preparation stability test

The physical stability of the preparation was carried out at temperatures of 4, 25, and 40 ± 2℃ for 12 weeks by observing whether there were changes in the shape, color, smell, and pH of the preparation.(15) (16) Test the stability of the pH of the preparation using a pH meter, measurements were made at the beginning of the preparation when it was finished (T0) and 12 weeks after storage (T12).

Preparation irritation test

The method used in the irritation test of the preparations was the open patch method on the inner forearm of 15 volunteers. Irritation testing with the open patch method was carried out for 2 consecutive days 3 times a day. The method is to apply it to the area of attachment (2.5 x 2.5 cm) and leave it open to observe the irritation reaction that occurs.(17)(18)

The observed irritation reactions were erythema, papules, vesicles, or edema. According to the Directorate General of Food and Drug Administration, the signs for recording a patch test reaction are no reaction (-), erythema (+), erythema and papules (++), erythema, papules and vesicles (+++), edema and vesicles (++ ++).(15)

Test the effectiveness of the preparation in moisturizing the lips

Testing the effectiveness of the preparation in moisturizing the lips using a digital moisture monitor (SK IV) with 15 volunteers. The test was carried out on the lip area of the volunteers who were grouped into 5 groups consisting of 3 volunteers, group I used formula 0, group II used a formula with apricot seed oil concentration of 2.5%, group III used a formula with apricot seed oil concentration of 5% , Group IV used a formula with apricot kernel oil concentration of 7.5%, and group V used a formula with apricot kernel oil concentration of 10%.(15)

This examination was carried out by looking at the moisture value of the volunteer's lips. This value will be compared before and after using the preparation, by measuring the moisture of the volunteer's lips using a digital moisture monitor (SK IV) at the beginning before use and after using the lip balm preparation. Lip moisture measurements were carried out for one month with observations every week, using lip balm routinely 2 times a day every morning and evening.(12)

Data analysis

Data from the results of the effectiveness test of the preparation in moisturizing the lips were analyzed using the Statistical Product and Service Solution 25 (SPSS) program. The initial step taken was to analyze the data to determine its normality using the Shapiro-Wilk Test method. Furthermore, if the data is normally distributed, the data will be analyzed using the One Way ANOVA method to determine whether there is an average difference between each group. Tuckey HSD Post Hoc Test was used to see the significant difference between each treatment group.(18)

RESULTS AND DISCUSSION

Organoleptic Examination Results Apricot Seed Oil

Based on previous research, it was stated that apricot seed oil is an oily liquid that is light yellow to brownish yellow, clear, and luminous, with a characteristic odor that is almost odorless.(19)

The results of the organoleptic examination of the apricot seed oil samples found that the apricot seed oil samples were a slightly viscous liquid-like oil in general, clear brownish yellow, and had a weak aromatic characteristic odor. This organoleptic examination was carried out to describe the description of the sample used.

Result of Determination of BJ Apricot Seed Oil

The results of the experiments that have been carried out show that the BJ (specific gravity) of the apricot seed oil sample is 0.919. Shows that the apricot seed oil samples used in this study met the quality requirements of apricot seed oil with a specific gravity in the range of 0.876–0.932.(19) Density is one of the important things in a material characteristic, where these characteristics can be used in determining the identity and purity of a material, especially a substance that has properties such as wax and materials that are in liquid form.(8).

Results of Analysis of the Fatty Acid Content of Apricot Seed Oil

The results of the analysis showed that there were 12 types of fatty acids contained in the apricot seed oil sample. The results of the analysis of the highest fatty acid content in the apricot seed oil sample were linoleic acid, a type of omega 6 fatty acid (45.3649% and 45.3764%), and omega 9 fatty acid (34.7333% and 34.7206%), where it is known that fatty acids it is good for all skin types including aging skin, dry skin or irritated skin (Sharma et al. 2010), the high content of linoleic acid (omega-6), can help maintain the skin's water balance and tighten the skin (Sari 2019). The fatty acid components can be seen in the table below.

Table 2 Data on Results of Analysis of Fatty Acid Content in Apricot Seed Oil Samples.

Asam Lemak	**Kadar (%)**	
	Simplo	***Duplo***
C 14:0 (asam miristat)	0.0644	0.0664
C 16:0 (asam palmitat)	9.3494	9.3789
C 16:1 (asam palmitoleat)	0.0872	0.0829
C 17:0 (asam heptadekanoat)	0.0774	0.0746
C 18:0 (asam stearat)	3.7284	3.7277
C 18:1 (c-asam oleat)	34.7333	34.7206
C 18:2 (c-asam linoleat)	45.3649	45.3764
C 18:3 (γ-asam linolenat)	0.6502	0.6199
C 18:3 (α-asam linolenat)	4.8887	4.8847
C 20:0 (asam arachidat)	0.3313	0.3245
C 20:1 (asam eikosenoat)	0.201	0.2104
C 22:0 (asam behenat)	0.4902	0.4987

Based on previous research, it was stated that the fatty acid in apricot seed oil was oleic acid which contributed 70.83%, followed by linoleic acid (21.96%), palmitic (4.92%), and stearic acid (1, 21%).(20) The highest fatty acid components of apricot seed oil are linoleic acid and oleic acid, where these fatty acids are included in unsaturated fatty acids.(21) Unsaturated fatty acids in vegetable oils have significant benefits on the appearance and function of the skin. Vegetable fats can strengthen skin protection, prevent water loss in the skin, normalize the sebaceous glands, reduce the harmful effects of UV radiation on the skin, and can prevent photoaging of the skin.(22).

Lip balm Organoleptic Examination Results

A lip balm containing apricot kernel oil which is made in the form of a semi-solid stick in the color of lemon chiffon and has a characteristic of cocoa butter (oleum cacao). The lip balm formula can be seen in Figure 1.

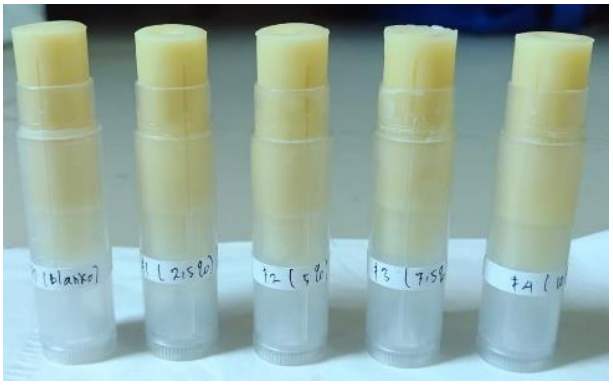

Figure 1 Capricot Seed oil Lip Balm

Lip balm homogeneity test results

The results of the lip balm homogeneity test have a homogeneous composition and texture, this condition can be concluded because no grains or coarse particles are found when the lip balm is applied to the surface of glass objects.(18) This homogeneity test is carried out to ensure that all the ingredients in the preparation of lip balm are mixed properly and evenly. Homogeneous preparations produce good quality because the basic ingredients, additives, and active substances are mixed evenly.(23) Homogeneity also affects the effectiveness of the resulting therapy, because this involves the concentration of the active substance which is expected to be the same for each use or application.

Lip balm Melting Point Test Results

The tool used in the observations made was an oven, where it was found that the lip balm preparations had a melting point range ranging from 58-60℃ where the F0 formula had the highest melting point which was 60℃ followed by F1 and F2 had a melting point of 59℃, F3 and F4 has a melting point of 58℃. With a melting point that is in this range, it indicates that the resulting lip balm has melting point requirements that are under the quality

requirements for lip balm preparations, has an average value 57,33 – 58,33 ℃.(6) (14) The lip balm preparations made in this study had different melting points, this was due to the different concentrations of apricot seed oil contained in the preparations. The higher the apricot kernel oil content in the lip balm, the lower the melting point will be. The melting point test results can be seen in table 3.

Table 3 melting point test results

Sample	melting point			Average ± SD	
	Replication 1	Replication 2	Replication 3		
F0	60	60	61	60,33333333	± 0,57735
F1	59	59	60	59,33333333	± 0,57736
F2	59	58	58	58,33333333	± 0,57737
F3	58	59	58	58,33333333	± 0,57738
F4	58	57	57	57,33333333	± 0,57739

The use of this melting point test is to determine the balance between the solid phase and the liquid phase of a substance. According to Fernandes et al., the melting point of lip balm preparations in general, the temperature of a good lip balm is close to the temperature of the lips. However, to maintain its shape during storage and use, the temperature of lip balm is made higher.(24)

Lip balm pH test results

In the measur(15)ements carried out on each lip balm preparation, it was found that the pH of the preparation was in the range of 5.80 – 6.06 where the formulas F0, F1, F2, F3, and F4 had a pH of 6.06, 5.99, 5.97, 5.81, and 5.80. With a pH range of 5.80 - 6.06 lip balm preparations meet the requirements of a good pH, which is in the physiological pH range of the skin which ranges from 4.5 - 6.5.(18) The more alkaline or acidic a material touches the skin, the more difficult it will be for the skin to neutralize it, so the skin will be sensitive, prone to infection, dry, and cracked. That is why, the pH of cosmetics should be kept at the physiological pH of the "acid layer" of the skin, namely in the range of 4.5 - 6.5. Cosmetics with this pH range can be referred to as "pH-balanced" cosmetics.(17)(18) The results of the pH test can be seen in table 4.

Table 4 pH test results

Sample	pH			Average ± SD	
	Replication 1	Replication 2	Replication 3		
F0	6,06	6,02	5,97	6,016666667	± 0,045092
F1	5,99	5,98	5,96	5,976666667	± 0,015275
F2	5,97	6,01	5,95	5,976666667	± 0,030551
F3	5,81	5,95	5,75	5,836666667	± 0,102632
F4	5,8	5,83	5,94	5,856666667	± 0,073711

pH measurement is used to see the acidity level of a preparation, whether the pH condition of the preparation is the same as the pH condition of the. (25) The pH range for lip balm preparations that meet specifications is 4.5-6.5, if it is too acidic it will irritate the skin of the lips and if it is too alkaline it will cause dry lip skin.(25)

Lip balm Stability Test Results at Room Temperature

Based on the results of organoleptic stability testing of the preparations for 12 weeks of storage including shape, color, and smell it can be seen that all preparations have a consistent shape (fixed), no change in shape or texture, and does not emit oil (sweating) and on All lip balm preparations were also not found to change the color or smell of the lip balm preparations, where the observations showed the same results every week until the 12th week of storage. From the results of examining the physical stability of the preparations, it can be concluded that the use and addition of 0.05% BHT and 0.2% Nipagin can maintain the shape, color, and smell of the preparations well.(15)

pH stability is one of the important parameters that determines whether or not a preparation is stable during storage.(26) Testing the pH of the preparation aims to determine the safety of the preparation when used so that it does not irritate the skin. The results of pH stability testing can be seen in table 5.

In measuring the pH of the preparation, it was found that at the 12th week after storage (T12) the average pH value of the preparation decreased with a range of values of 5,75 – 5,91 and the average initial pH value (T0) ranges between 5,83 – 6,01 . Changes in pH can occur due to humidity, temperature, air, and incorrect storage of preparations. In the pH value range of 5.67-5.96, lip balm preparations meet pH requirements, which range

from 4.5 - 6.5, including the physiological pH of the skin.(18) Cosmetics with this pH range can be referred to as "pH-balanced" cosmetics.(17)

Table 5 pH stability test results

Sample	pH			Average ± SD	
	Replication 1	Replication 2	Replication 3		
			T0		
F0	6,06	6,02	5,97	6,016666667	± 0,045092
F1	5,99	5,98	5,96	5,976666667	± 0,015275
F2	5,97	6,01	5,95	5,976666667	± 0,030551
F3	5,81	5,95	5,75	5,836666667	± 0,102632
F4	5,8	5,83	5,94	5,856666667	± 0,073711
			T12		
F0	5,96	5,84	5,93	5,91	± 0,06245
F1	5,9	5,75	5,73	5,793333333	± 0,092916
F2	5,83	5,92	5,83	5,86	± 0,051962
F3	5,76	5,81	5,72	5,763333333	± 0,045092
F4	5,67	5,73	5,86	5,753333333	± 0,097125

Lip balm irritation test results

From the results of the irritation test, it was found that the lip balm preparations formulated in this study did not cause an irritating reaction in 15 volunteers. This proves that formulated lip balm preparations can be used safely.

Lip balm effectiveness test results in moisturizing lips

The results of calculating the average percent increase in lip moisture with the use of lip balm preparations for 4 weeks showed that the highest increase in lip moisture was in the F4 lip balm preparation with 10% apricot seed oil content, where an average percent increase in lip moisture was obtained by 65. 5%. Then followed by F3 with an average percent increase in lip moisture of 45.5%, F2 with an average percent increase in lip moisture of 28.8%, F1 with an average percent increase in lip moisture of 18.6%, and F0 preparation. with the lowest average percent increase in lip moisture, namely 9.7%. The results of the effectiveness test can be seen in Table 3.

Table 3 Data on the Results of the Effectiveness Test of the Preparations in Moisturizing the Lips

Formulation	Volunteer	Moisture content (%)					Increase in lip moisture (%)
		T_0	Duration of Use (weeks)				
			1	2	3	4	
	I	29,9	30,4	30,9	31,1	32,2	7,6%
F0	II	28,6	29,0	29,7	31,4	32,0	11,8%
	III	31,3	31,9	32,6	33,2	34,4	9,9%
Mean		29,9	30,4	31,0	31,9	32,8	9,7%
	I	28,8	29,6	31,4	33,0	34,3	19,0 %
F1	II	30,9	31,5	32,6	34,0	35,7	15,5 %
	III	29,1	30,6	32,7	33,8	35,3	21,3 %
Mean		29,6	30,5	32,2	33,6	35,1	18,6 %
	I	29,0	31,6	33,6	35,8	38,8	33,7 %
F2	II	29,7	30,4	32,7	34,0	37,1	24,5 %
	III	28,7	30,7	33,5	34,8	36,7	27,8 %
Mean		29,1	30,9	33,2	34,8	37,5	28,8 %
	I	27,5	29,4	32,0	36,8	39,7	44,3 %
F3	II	27,2	28,4	30,3	35,6	40,7	49,6 %
	III	28,0	29,3	33,1	36,4	39,9	42,5 %
Mean		27,5	29,0	31,8	36,2	40,1	45,4 %
	I	27,6	29,0	35,7	39,2	44,6	61,5 %
F4	II	26,3	28,9	34,1	39,6	45,0	71,1 %
	III	26,7	28,2	32,1	38,5	43,9	64,4 %
Mean		**26,8**	**28,7**	**30,6**	**39,1**	**44,5**	**65,6 %**

Information :
Dehydrated 0-29; Normal 30-50; Hydration 51-100.(27)
T0 : The moisture level of the volunteer's lips before using the lip balm preparation
F0 : Lip balm formula without apricot seed oil
F1 : Lip balm formula containing 2.5% apricot seed oil
F2 : Lip balm formula containing 5% apricot seed oil
F3 : Lip balm formula containing 7.5% apricot seed oil
F4 : Lip balm formula containing 10% apricot kernel oil

From the results of testing the effectiveness of the preparation in moisturizing the lips which was carried out on 15 volunteers, it showed that each lip balm formulation, namely F0, F1, F2, F3, and F4, was able to increase lip moisture with use for 4 weeks, but each formula had a level of effectiveness in moisturizing. different. The results of the test for the effectiveness of the preparation in moisturizing the lips showed that the higher the

concentration of apricot seed oil, the better the effectiveness. This is evidenced by the average percent increase in lip moisture for each formula which has a difference where F1 has an average percent increase of 18.6%, F2 is 28.8%, F3 is 45.5% and F4 is 65.5% with the use of preparations for 4 weeks in the morning and evening.

Results of Data Analysis

Data from the results of the effectiveness test of the preparation in increasing lip moisture were analyzed using the SPSS statistical program. The normality test found that the data had a normal distribution, with a sig value > 0.05. Then the One Way Anova method obtained a sig value <0.05 that there was a significant difference in the moisture level of the panelists' lips at the start before using the lip balm and after using the lip balm preparation for 4 weeks. Furthermore, to find out the effect of significant differences in each type of formula concentration in increasing lip moisture, was continued with the Post Hoc Tuckey HSD test and it was found that there were significant and significant differences in lip enhancement on F0 with F1, F2, F3, and F4. This is evidenced by the sig value <0.05.

CONCLUSION

Apricot seed oil lip balm meets the requirements including homogeneity tests, melting point, pH, stability and irritation tests. The resulting melting point is around 58 – 60 °C, the PH of lip balm has an average value of 5.75 – 5.96. The lip balm produced is safe and does not irritate the lips. The content of oleic acid and linoleic acid in apricot seed oil can increase lip moisture, which can be seen from the effectiveness test results which can increase moisture by 65.5% with a concentration of 10% apricot seed oil.

REFERENCES

1. Wijaya IR, Safitri C. Uji Aktivitas Formulasi Lip Balm dari Ekstrak Bekatul Padi (Oryza sativa) Sebagai Tabir Surya. Pros SNPBS (Seminar Nas Pendidik Biol dan Saintek). 2020;5:276–83.

2. Pertiwi RD, Pangestu M. Formulasi dan Evaluasi sediaan Balsam Bibir Menggunakan ekstrak Bunga Kembang Sepatu (Hibiscus rose sinensis L.) sebagai Pewarna Alami Formulation and Evaluation of Lip Balm Using the Hibiscus Flower.

Arch Pharm. 2020;2 Nomor 2:92–101.

3. Abadi H, Hanum SF, Buulolo IA. Formulasi dan Uji Efektivitas Ekstrak Etanol Kulit Buah Manggis (Garcinia mangostana L.) sebagai Pelembab Bibir. J Dunia Farm. 2020;4(2):76–81.

4. Nazliniwaty, Laila L, Wahyuni M. Pemanfaatan Ekstrak Kulit Buah Delima (Punica granatum L.) dalam Formulasi Sediaan Lip Balm. Jamu Indones. 2019;4(3):Halaman 88.

5. Sari NP. Formulasi dan uji efek krim pelembab minyak biji aprikot (Apricot kernel oil) untuk mengatasi xerosis pada tumit kaki. Skripsi. Medan: Fakultas Farmasi. Universitas Sumatera Utara; 2019.

6. Lestari U, Yusnelti, Asra R. Formulasi lipstik pelembab bibir berbahan dasar Minyak Tengkawang (Shorea sumatrana) dengan perwarna alami Resin Jernang (Daemonorops didympophylla). Chempublish J. 2021;6(1):12–21.

7. Asni N, Yanti L. Identifikasi Dan Analisis Mutu Minyak Kelapa Di Tingkat Petani Provinsi Jambi. Pros Konf Nas Kelapa VIII. 2012;(Tabel 1):79–86.

8. Ambarita AP. Penentuan bobot jenis, indeks bias dan kelarutan dalam etanol pada minyak daun cengkeh (Syzygium aromaticum) berdasarkan spesifikasi persyaratan mutu SNI06-2387-2006. Medan: USU Press; 2017.

9. Khatulistiani TS, Patantis G, Dewi AS. Identifikasi Molekuler, Analisis Profil Asam Amino dan Asam Lemak dari Beberapa Teripang Asal Perairan Indonesia. 2021;163–74.

10. Raymond C Rowe PJS and MaEQ. Handbook of Pharmaceutical Excipients. Handb Pharm Excipients. 2015;E.28:257–62.

11. Felix Ryan DEan Vuai, Rise Desnita DeSA. Pengaruh Konsentrasi Vaselin Album Terhadap Sifat Fisik Sediaan Lip Gloss Minyak Almod (Prunus dulcis). J Mhs Farm Fak Kedokt UNTAN. 2019;4(1):63–5.

12. Ratih H, Titta H, Ratna CP. Formulasi lip balm minyak bunga kenanga (Cananga Oil) sebagai emolien. Pros Simp. 2014;

13. Linda. Formulasi sediaan lipstik menggunakan ekstrak angkak (Monascus purpureus) sebagai pewarna. Skripsi. Medan: Fakultas Farmasi. Universitas Sumatera Utara; 2012.

14. Latirah, Tanzil L, Hartanti D, Nugroho Pd. Formulation Of Semi Solid Lip Dying From Extract Areca Seeds (Areca catechu L .) WITH SEVERAL CONCENTRATIONS Jurusan Analisis Farmasi dan Makanan Poltekkes Kemenkes Jakarta II Jl Raya Ragunan No . 29 C , Pasar Minggu , Jakarta Selatan , 12540 FORMULASI P. 2022;13(1):13–20.

15. Haryantio S. Formulasi dan Evaluasi Sediaan Lip balm berbentuk stick dengan minyak almond (Almond oil) sebagai pelembab bibir. Medan: USU Press; 2020. 4–16 p.

16. Emini E, Erwin E, Widiyastuti R, Yusmaniar Y, Gigi JK, Kesehatan P, et al. Physical Evaluation of Manalagi Apple (Malus Domestica) Peel Extract Mouthwash Evaluasi Fisik Obat Kumur Ekstrak Kulit Apel Manalagi (Malus Domestica). 2022;13(2):245–55.

17. Retno IS. 2014. Retno I S, Tranggono Dr SpKK, Fatma Latifah Dra Apt. Buku Pegangan Dasar Kosmetologi Edisi II. S Sagung Seto. Jakarta; 2014. Buku Pegangan Dasar Kosmetologi S Sagung Seto Jakarta; 2014;Edisi II.

18. Nazhifah H. Formulasi dan Evaluasi Sediaan Lip Balm Dari Minyak Biji Anggur (Grapeseed Oil) Sebagai Pelembab Bibir. 2018;

19. Alpaslan M, Hayta M. Apricot kernel: Physical and chemical properties. J Am Oil Chem Soc. 2006;83:469–471.

20. Turan S, Topcu A, Karabulut I, Vural H, Hayaloglu AA. Fatty Acid, Triacylglycerol, Phytosterol, and Tocopherol Variations in Kernel Oil of Malatya Apricots from Turkey. J Agric Food Chem. 2007 Dec;55(26):10787–94.

21. Hrichi S, Rigano F, Chaabane-Banaoues R, El Majdoub YO, Mangraviti D, Di Marco D, et al. Identification of fatty acid, lipid and polyphenol compounds from prunus armeniaca L. Kernel extracts. Foods. 2020;9(7):1–15.

22. Stryjecka M, Kiełtyka-Dadasiewicz A, Michalak M, Rachoń L, Głowacka A. Chemical composition and antioxidant properties of oils from the seeds of five apricot (Prunus armeniaca L.) cultivars. J Oleo Sci. 2019;68(8):729–38.

23. Dominica D, Handayani D. Formulasi dan Evaluasi Sediaan Lotion dari Ekstrak Daun Lengkeng (Dimocarpus Longan) sebagai Antioksidan. J Farm Dan Ilmu Kefarmasian Indones. 2019;6(1):1.

24. Fernandes AR, Dario MF, Pindo CAS de O, Kaneko TM, Baby AR, Velasco MVR. Stability evaluation of organic Lip Balm. Brazilian J Pharm Sci. 2013;49(2):293–9.

25. Ambari Y, Hapsari FND, Ningsih AW, Nurrosyidah IH, Sinaga B. Studi Formulasi Sediaan Lip Balm Ekstrak Kayu Secang (Caesalpinia sappan L.) dengan Variasi Beeswax. J Islam Pharm. 2020;5(2):36–45.
26. Sugiharta S, Ningsih W. Evaluasi Stabilitas Sifat Fisika Kimia Sediaan Krim Ketoconazole dengan Metode Stabilitas Penyimpanan Jangka Panjang. Maj Farmasetika. 2021;6(Suppl 1):162.
27. Aramo. Skin and Hair Diagnosis System. seongnam, Korea: Aram Huvis; 2012.