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THE EFFECT OF OLIVE OIL CONCENTRATION IN LIP BALM ON THE PHYSICAL PPROPERTIES AND THE PRODUCT ACCEPTANCE RATE

Pengaruh Konsentrasi Minyak Zaitun Terhadap Sifat Fisik Lip Balm dan Tingkat Penerimaan Produk

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ABSTRAK

Latar Belakang: Minyak zaitun mengandung asam lemak tak jenuh tunggal (MUFA) yang berpotensi sebagai antioksidan. Minyak zaitun dimanfaatkan sebagai pelembab dan pelembut dan melindungi kulit dari efek buruk sinar UV. Tujuan penelitian ini untuk menganalisis pengaruh konsentrasi minyak zaitun terhadap sifat fisik lip balm dan tingkat penerimaan produk.
Metode: Penelitian eksperimental menggunakan minyak zaitun 0; 5; 10 dan 15 % sebagai bahan pelembab dan produk diuji sifat fisik: organoleptis, homogenitas, pH, dan titik lebur, dan tingkat penerimaan responden.
Hasil Penelitian: F_0 menunjukkan produk tidak stabil selama penyimpanan dan tingkat penerimaan terendah, F_1 (10%) menunjukkan sifat fisik stabil, namun homogenitas, dan titik lebur tidak stabil, dan penerimaan peringkat tiga, F_2 (10%) menunjukkan sifat fisik stabil dan penerimaan peringkat pertama dan F_3 (15%) menujukkan sifat fisik stabil dengan penerimaan peringkat kedua.
Kesimpulan: Konsentrasi minyak zaitun mempengaruhi sifat fisik (tekstur, warna, pH, dan titik leleh) pelembab bibir, dan tingkat penerimaan responden. F_2 merupakan formula dengan sifat fisik stabil dan tingkat penerimaan tertinggi.

Kata Kunci: minyak zaitun, pelembab bibir, sifat fisik, tingkat penerimaan

ABSTRACT

Background: Olive oil contains monounsaturated fatty acids (MUFA) which have potential as antioxidants. Olive oil is used as a moisturizer and softener and protects the skin from the harmful effects of UV rays. The purpose of the study was to analyze the effect of olive oil concentration on the physical properties of lip balm and the level of acceptance of respondents.
Methods: Experimental research using olive oil 0; 5; 10 and 15 % as moisturizer and dosage forms were tested for physical properties: organoleptic, homogeneity, pH, and melting point, and the level of acceptance of respondents.
Results: F_0 indicates the product is unstable during storage and the lowest acceptance rate; F_1 (10%) showed stable, but homogeneity, and melting point are unstable, and the third rank acceptance; F_2 (10%) showed stable and the first acceptance rank and F_3 (15%) shows stable physical properties and the second rank acceptance.
Conclusion: Olive oil concentration affects the physical properties (smell, color, texture,pH, and melting point) of lip balm and the level of acceptance. F_2 is a formula that has stable physical properties and the highest acceptance rate.

Keywords: olive oil, lip balm, physical properties, acceptance rate

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INTRODUCTION

The red lips can indeed make a woman's appearance look fresher and more attractive. This of course also adds confidence for women. The beauty of the lips can indeed be seen from the shape and color, so many women are willing to spend money to beautify their lips so that they always look red and more beautiful. Naturally beautiful lips may be very coveted by women. Facial beauty can be emitted from the lips' beauty, health, and perfection (Mardliyah, 2020). However, lip care that is not optimal can cause dryness and peeling which causes the lips to be unattractive and cause discomfort and soreness due to the injuries. Therefore, special attention is needed to maintain oral hygiene and health and to use lip balm to prevent dry lips (Anaesthasia & Mahanani, 2014)

Olive oil has the largest content of oleic acid, around 80%, which has potential as an emollient. (Nurany & Amal, 2018) Oleic acid is a MUFA that can act as an antioxidant in preparations so that it has high stability during storage. (Umri & Rachmawati, 2019) The content of vitamin E is useful for overcoming skin damage, protecting lips from free radicals, and maintaining water bonds in the skin to maintain moisture. (Mursyid, 2017) It also contains secondary metabolites such as sterols, carotenoids, triterpenic alcohols, and phenolic compounds. Hydrophilic phenol is the most common antioxidant found in olive oil (Nuzantry and Widayati, 2015).

Quality pharmaceutical preparations need to consider the stability of the material during distribution, storage, and use. Product instability such as physical changes in color, odor, and texture/consistency causes damage that can reduce drug efficacy and even become toxic (Ariani & Wulandari, 2021).

METHOD

This study uses experimental research methods. This research was conducted by making lip preparations, which were then examined for the physical quality of the organoleptic test preparations, homogeneity, melting point, pH preparations, physical preparations, and preference test (hedonic test). The research was conducted at the Pharmacy Laboratory, Faculty of Health, Ngudi Waluyo University. The subject of this study was a lip balm formula with various concentrations of olive oil in concentrations of 0%, 5%, 10%, and 15%. Olive oil was purchased at a supermarket with the brand “B” in a 500 mL bottle at a price of Rp. 100,00.

Table 1. Lip Balm Formulas

Composition	Concentrations (%)			
	F_0	F_1	F_2	F_3
Olive oil	-	5	10	15
Cera flava	7	7	7	7
BHT	0,05	0,05	0,05	0,05
Nipagin	0,2	0,2	0,2	0,2
Lanolin	5	5	5	5
Glycerine	5	5	5	5
Oleum cacao	ad 100	ad 100	ad 100	ad 100

RESULT AND DISCUSSION

Organoleptic or sensory test is a test that uses the human senses as the main tool to observe the presence or absence of changes in smell, color, homogeneity, pH, and melting point, as well as panelists' preference for lip balm for 28 days. storage (Fitriani *et al.*, 2016). According to

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Djajadisastra (2004), stability is the ability of a drug or cosmetic product to survive within the specified specifications during storage and use to ensure product quality. A cosmetic preparation is said to be stable if the day has the same characteristics as when it was made during the storage period. Physical instability is characterized by blanching of color, changes in odor and consistency, crystal growth, gas formation, or other physical changes.

Table 2. The Effect of Olive Oil Concentration and Storage Time on Odor

Formula	Storage time (day)				
	0	7	14	21	28
F_0	chocolate	chocolate	chocolate	chocolate	chocolate
F_1	chocolate	chocolate	chocolate	chocolate	chocolate
F_2	chocolate	chocolate	chocolate	chocolate	chocolate
F_3	chocolate	chocolate	chocolate	chocolate	chocolate

F_0 : blank, F_1 : olive oil 5%; F_2 : olive oil 10%; F_3 : olive oil 15%

Storage for 28 days showed no change in odor in all formulas with a characteristic brown odor coming from Oleum cacao. Cacao oleum is an ingredient that has been determined to qualify as a basic ingredient for pharmaceutical preparations because it can melt at body temperature and is stable (Mulyani, 2016). The research of Nazhifah (2018) and Haryantio (2020) used the basic ingredient of cacao oleum lip balm which has a strong and distinctive aroma of cacao oleum (chocolate), and the research of Atikah et al (2016) used cocoa oleum as the basic ingredient for lipstick preparations with a distinctive chocolate smell, and stable during storage. This shows that the basic ingredients used to affect the odor of the dosage form

Table 2. Effect of Olive Oil Concentration and Storage Time on Color

Formula	Storage time (day)				
	0	7	14	21	28
F_0	Yellowish-brown	Yellowish-brown	Yellowish-brown	Yellowish-brown	Yellowish-brown
F_1	Yellowish-brown	Yellowish-brown	Yellowish-brown	Yellowish-brown	Yellowish-brown
F_2	brownish yellow	brownish yellow	brownish yellow	brownish yellow	brownish yellow
F_3	brownish yellow	brownish yellow	brownish yellow	brownish yellow	brownish yellow

F_0 : blank, F_1 : olive oil 5%; F_2 : olive oil 10%; F3 : olive oil 15%

Table 2 shows that F_0 and F_1 have a yellowish brown color, while F_2 and F_3 are brownish yellow due to the higher concentration of olive oil.

Olive oil is a clear or yellow liquid (Hakim, 2017). The color change is affected by differences in the concentration of olive oil in the formula. Fitriani *et al's* research (2016) using olive oil in microemulsion preparations produces a yellow color, as well as Wardiyah's research (2015) which shows a pale yellow cream. However, the research of Sukawati *et al* (2016) showed that the ethanol extract of onion bulbs formulated with olive oil showed a brown color, this color was influenced by the concentration of the ethanolic extract of Tiwai bulbs which were pale red in color.

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This study proves that the color of the preparation is influenced by various lip balm ingredients, especially the colored ones. The results of this study have proven that the concentration of olive oil affects the color of lip balm. The higher the concentration of olive oil, the more yellow the color of the lip balm.

Table 3. The Olive Oil Concentration and Storage Time on Texture

Formula	Storage time (day)				
	0	7	14	21	28
F_0	Semi solid Slightly soft	Semi solid Slightly soft	Semi solid Slightly soft	Semi solid Slightly soft	Semi solid Slightly soft
F_1	Semi solid Soft	Semi solid Soft	Semi solid Soft	Semi solid Soft	Semi solid Soft
F_2	Semi solid Soft	Semi solid Soft	Semi solid Soft	Semi solid Soft	Semi solid Soft
F_3	Semi solid very soft	Semi solid very soft	Semi solid very soft	Semi solid Very soft	Semi solid Very soft

F_0 : blank, F_1 : olive oil 5%; F_2 : olive oil 10%; F3 : olive oil 15%

Table 3 shows that the different concentrations of olive oil affect facial texture, increasing the concentration of olive oil and the texture of the resulting preparation, while the storage time does not show a change in texture or is stable up to 28 days of storage.

The base used in this study was beeswax (cera flava, yellow wax). Wax bases play an important role in the hardness of moisturizers and are very often used in lip balm research to increase hardness. The maximum limit for the use of beeswax in a formula is 5-20% (Cahyadi, 2009). Olives are widely used as a softener. (Eryani & Rashati, 2016) Research by Eryani & Rashati (2016) shows that formula with 10% olive oil produces a soft liquid soap, while a formula with 40% olive oil produces a very soft liquid soap.

The results of this study have proven that the concentration of olive oil affects the texture of lip balm. The higher the concentration of olive oil used, the softer the texture of the dosage form.

Table 4. The Olive Oil Concentration and Storage Time on Homogeneity

Formula	Storage time (day)				
	0	7	14	21	28
F_0	homogeneous	homogeneous	homogeneous	homogeneous	inhomogeneous
F_1	homogeneous	homogeneous	homogeneous	homogeneous	inhomogeneous
F_2	homogeneous	homogeneous	homogeneous	homogeneous	homogeneous
F_3	homogeneous	homogeneous	homogeneous	homogeneous	homogeneous

The homogeneity of the preparation is indicated by the absence of coarse grains visible on the glass object. From this test, it shows that changes in homogeneity occur in F_0 and F_1 on the 28^{th} day of examination.

The requirement for homogeneity of lip balm must be homogeneous (Ministry of Health, Republic of Indonesia. 1979). The dosage form that are not evenly dispersed in the base material can cause the drug to not achieve the desired therapeutic effect. Homogeneous of dosage form show good quality because the medicinal ingredients are evenly dispersed in the basic ingredients so that each part of the dosage form contains the same amount of ingredients or is homogeneous (Ulaen *et al*., 2012). In this study, it was carried out on a glass object by observing the presence of coarse grains visible on the object-

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glass. Homogeneous dosage form are characterized by the absence of lumps in the smear, an even structure, and a uniform initial point color

In this study, F_2 and F_3 met the homogeneity requirements and were stable during 28 days of storage. This shows that olive oil affects the physical stability of lip balm. Umri & Rachmawati's research (2019) explains that the specialty of olive oil contains 72% oleic acid which is a monounsaturated fatty acid. Compared to polyunsaturated fatty acids (PUFA, linoleic acid), oleic acid has one double bond that is not easily oxidized and can act as an antioxidant so that it has high stability and can be stable in storage (Umri & Rachmawati, 2019).

Table 5. The Olive Oil Concentration and Storage Time on pH

Formula	pH (Mean ± SD) Day-					$p_{value\ day}$
	0	7	14	21	28	
F_0	5,0 ± 0,0	5,0 ± 0,0	4,6 ± 0,55	4,6 ± 0,55	4,4 ± 0,55	0,144
F_1	6,0 ± 0,0	6,0 ± 0,0	6,0 ± 0,0	6,0 ± 0,0	6,0 ± 0,0	1,000
F_2	5,0 ± 0,0	5,0 ± 0,0	5 ,0± 0,0	5,0 ± 0,0	5,0 ± 0,0	1,000
F_3	5,0 ± 0,0	5,0 ± 0,0	5,0 ± 0,0	5,0 ± 0,0	5,0 ± 0,0	1,000
$p_{value\ Formula}$	<0,001*	<0,001*	0,001*	0,001*	0,001*	

* : The significant signifikan is <0,05 ; *: pH: 4,5 - 6,5 (SNI)

Kruskal-Wallis test showed that olive oil concentration had a significant effect on pH ($p<0.001$), while storage time had no significant effect on ($p>0.05$), all preparations met the pH requirements of 4.5-6.5 (SNI).

Moisturizing preparations must have a pH that is by the pH of the skin, which is between pH 4.5 - 6.5 (Tranggono & Latifah, 2007), so it is safe and comfortable to use on the skin. If the pH of the ointment is too acidic it will irritate the skin, while if it is too alkaline the skin will scaly.

The difference in pH values was caused by variations in the concentration of olive oil in the formula. F_1 shows pH = 6 and F_2 and F_3 shows pH = 5. This is by research by Ariani (2020) which used 2.5 and 7.5% olive oil as nanogel preparations showing 7.6 and 6, respectively, 5. Eryani & Rashati's (2016) research shows that the higher the concentration of olive oil in liquid soap, the more acidic the pH of the preparation (lower). This is because olive oil is an acidic ingredient (Eryani & Rashati, 2016), and has antioxidant activity (Umri & Rachmawati, 2019) which can reduce oxidative and antibacterial reactions by inhibiting bacterial growth in the preparation, so it does not cause a decrease in pH. (Ariani, 2020). It is proven that at F_0 there was a decrease in pH on the 28th day of observation, while F_1, F_2, and F_3 were stable on the 28th day of observation.

Table 6. Effect of Olive Oil Concentration and Storage Time on Melting Point

Formula	**Melting point (°C) (Mean ± SD)** Storage time (day)					**$p_{value\ day}$**
	0	7	14	21	28	
F_0	56,0 ± 0,0	57,0 ± 0,0	57,0 ± 0,0	57,6 ± 0,55	57,6 ± 0,55	0,001*
F_1	54,0 ± 0,0	55,0 ± 0,0	55,0 ± 0,0	55,0 ± 0,0	55,4 ± 0,55	<0,001*
F_2	53,0 ± 0,0	54,0 ± 0,0	54,0 ± 0,0	54,0 ± 0,0	54,0 ± 0,0	<0,001*
F_3	51,0 ± 0,0	52,0 ± 0,0	52,0 ± 0,0	52,0 ± 0,0	52,0 ± 0,0	<0,001*
$p_{Formula}$	<0,001*	<0,001*	<0,001*	<0,001*	<0,001*	

* The significant difference is <0,05; SNI: 50-70°C

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The Kruskall-Wallis test, Table 6, showed that the concentration (p<0.001) and storage time (p=0.001) had a significant effect on the melting point. The melting point of lip balm meets the requirements of 50-70 °C (SNI). Melting point is one indicator of product durability during storage, and a higher temperature for making lip balm is used to maintain its texture during storage and use (Fernandes *et al.*, 2013).

In this study, the melting point is in the range of 51-58°C and has met the requirements in the range of 50-70°C (Yulyuswarni, 2018). The results of Nazhifah's research (2018) using grape seed oil moisturizer obtained a melting point of 64 – 55 °C Melting point is one indicator of product durability during storage, and a higher temperature for making lip balm is used to maintain its texture during storage and use (Fernandes *et al.*, 2013). while Haryantio (2020) using almond oil showed a melting point of 57 - 61°C.

Table 7. The Panelists' level of preference for lip moisturizers (smell, color, and texture)

Panelists	Preference levels **(mean ± SD)**				$p_{value\ Formula}$
	F_0*****	F_1****	F_2**	F_3***	
1	2,6 ± 0,5	3,0 ± 0,0	5,0 ± 0,0	3,6 ± 0,5	0,001*
2	2,4 ± 0,5	3,2 ± 0,4	5,0 ± 0,0	3,8 ± 0,4	0,001*
3	3,0 ± 0,0	3,6 ± 0,5	4,8 ± 0,4	4,0 ± 0,0	0,002*
4	3,4 ± 0,5	4,0 ± 0,0	4,8 ± 0,4	4,4 ± 0,5	0,008*
5	2,6 ± 0,5	3,8 ± 0,4	5,0 ± 0,0	4,4 ± 0,5	0,001*
6	2,4 ± 0,9	3,6 ± 0,5	4,8 ± 0,4	4,2 ± 0,4	0,002*
7	3,0 ± 0,0	3,0 ± 0,0	4,4 ± 0,5	3,2 ± 0,4	0,001*
8	3,0 ± 0,0	4,0 ± 0,0	4,8 ± 0,4	4,0 ± 0,0	0,001*
9	3,0 ± 0,0	4,0 ± 0,0	5,0 ± 0,0	4,0 ± 0,0	0,000*
10	2,0 ± 0,0	3,0 ± 0,0	5,0 ± 0,0	4,0 ± 0,0	<0,001*
$p_{value\ Panelist}$	0,002*	<0,001*	0,154	0,004*	

Point 1 : very dislike; 2 : dislike; 3 : neutral; 4 : like; 5 : very like
* The significant difference is <0,05; **: 1st ; ***: 2nd; ****: 3st; AND *****: 5th rank

The Kruskal-Wallis test showed that there was a significant difference in the level of preference between the authors for each formula (ppanalis<0.05) except F_2 (p=0.154), and the level of preference (p<0.05).

The panelists' preference level for the F_2 preparation was higher than the other formulas. Research by Nazhifah (2018) using grape oil as a lip balm showed that the most preferred were grapeseed oil concentration of 7.5%, and Haryantio's research (2020) using 20% Almond oil was the most preferred preparation by panelist.

CONCLUSION

This research has proven that the best formulas that meet the requirements of SNI are F_2, and F_3.

REFERENCES

Anaesthasia, N. C., & Mahanani, S. (2014). Health Conditions and Oral Hygiene of Inpatients At Baptist Hospital Kediri. *J. Stikes Baptist Hospital* Kediri, 7(2).

Ariani, L. W., & Wulandari, W. (2021). Physical Stability of Olive Oil Nanogel (Olea europaeae L.). Exact Scholar, 5(2).

Atikah, A., Arief, A. E., & Suharyani, I. (2016).

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Moisturizing Lipstick-Lip Color Formula Containing Betel nut Simulation Result. *FARMAKU J*, 1(1), 1-9.recurrent kidney stones: A systematic review and meta-analysis. *PloS one*, *16*(5),e0251235.

Cahyadi, W. 2009. Food Additives. Jakarta: Buni Aksara. 63-74.

Djajadisastra, J. (2004). Cosmetic stability. In HIKI Half Day Seminar. Depok: Department of Pharmacy, Faculty of Mathematics and Natural Sciences, University of Indonesia.

Eryani, M. C., & Rashati, D. (2016). The Effect of Variations in Olive Oil Concentration on the Softness of Liquid Soap. Health Scientific *J Jember Pharmacy* Academy, 1(2), 19.

Fernandes, A.R., Dario, M.F., Pinto, C.A.S.D.O., Kaneko, T.M., Baby, A.R., Velasco., M.V.B. (2013). Stability Evaluation of Organic Lip moisturizer. *Braz. J. Pharm. Sci*.. 49(2). 294-295

Fitriani, E. W., Imelda, E., Kornelis, C., & Avanti, C. (2016). Characterization and Physical Stability of A/O Type Microemulsions with Various Oil Phases. *PSR*, 3(1), 31-44.

Hakim, N. A. (2017). Formula and Evaluation of Nanoemulsion from Extra Virgin olive oil (Extra Pure Olive Oil) as Anti-Aging.

Haryantio, S. (2020). Formula and Evaluation of Stick Textured Lip Moisturizing Preparations With Almond Oil (Almond Oil) as Lip Balm

Mardiyah, U. (2020). Red Lips Hegemony. *J Interaction*, 3(12), 43-53.

Ministry of Health, Republic of Indonesia. (1979), Indonesian Pharmacopoeia Ed. V, Jakarta

Mulyani, E. (2016). Effect of Aerosil Addition on Physical Properties of Spinach Duri Leaf Extract Suppositories (Amaranthus spinosus, Linn) with Fatty Base (oleum cacao). *JSM*, 1(2), 41-50,

Mursyid, A. M. (2017) "Evaluation of Physical Stability and Diffusion Profile of Gel (Olive Oil) Preparations." *J. Fitofarm Ind*., . 4,(1), 205-211, doi:10.33096/jffi.v4i1.229.

Nazhifah, H. (2018). Formula And Evaluation Of Lip Balm Dosage form From Grapeseed Oil As Lip Moisturizer Thesis

Nurany, A., Amal, A. S. S., & Estikomah, S. A. (2018). Lipstick Formula for Rosella Flower Extract (Hibiscus Sabdariffa) As Colorant And Olive Oil As Emollient. *Pharm. J. Islam. Pharm*, 2(1), 34-41.

Nuzantry, J. K., & Widayati, R. I. (2015). The effectiveness of a mixture of aloe vera extract and olive oil in a moisturizing formula on dry skin (Doctoral dissertation, Faculty of Medicine).

Sukawati, Y., Warnida, H., & Artha, A. V. (2016). The formula for solid bath soap is ethanol extract of tiwai onion bulbs (Eleutherine bulbosa (mill.) Urb.). *Pharm Media*, 13(1), 14-22.

Tranggono, R. I., and Latifah, F. (2007). Cosmetic Science Handbook. Jakarta: PT Gramedia Pusaka Utama, 11-32, 167.

Ulaen, S. P. J., Banne, Y. & Suatan, R. A. (2012). Making Anti-Acne Ointment from Temulawak (Curcuma xanthorrhiza Roxb.) Rhizome Extract. *Pharm Sci J.;* 3; 45-49.

Umri, Z. F., & Rachmawati, W. (2019). Identification of Soybean Oil Added in Olive Oil Products by Gas Chromatography–Mass Spectroscopy Method. *ad-Dawaa' J Pharm Sci*, 2(2).

Wardiyah, S. (2015). Comparison of the physical properties of creams, gels, and ointments containing ethyl p-methoxycinnamate from kencur (Kaempferia galanga linn.) rhizome extract, Thesis,

Yulyuswarni. 2018. Formula of Red Dragon Fruit Skin Extract (Hylocereus polyrhizus) As Natural Colorant In Lipstick Preparations. *J. Health Analyst*. 7(1). Page 675.

Submitted: 24 Maret 2022 Revised : 30 Maret 2022 Accepted : 30 Maret 2022