BAB V
KESIMPULAN DAN SARAN

A. Kesimpulan

Kesimpulan yang didapatkan dari penelitian yang telah dilakukan adalah sebagai berikut:

Pertama, keempat formula krim memenuhi syarat uji mutu fisik dan stabilitas yang baik.

Kedua, ketiga konsentrasi minyak biji nyamplung memberikan efek *anti aging* pada hewan uji yang diinduksi sinar UV-A

Ketiga, minyak biji nyamplung dengan konsentrasi 15% memberikan efek *anti-aging* paling efektif dibanding konsentrasi 10% dan 20%

Ketiga, keempat formula krim memiliki nilai IIPR (Indeks Iritasi Primer) sebesar 1-1,7 (Krim sedikit mengiritasi) dan IIO (Indeks Iritasi Okuler) sebesar 0 (krim tidak mengiritasi), maka krim minyak biji nyamplung aman untuk digunakan.

B. Saran

Saran yang dapat disusun dari penelitian yang telah dilakukan adalah sebagai berikut:

Pertama, peneliti selanjutnya diharapkan dapat melakukan uji aktivitas anti aging dengan parameter dan metode lain seperti histologi

Kedua, peneliti selanjutnya diharapkan dapat melakukan identifikasi dan karakterisasi minyak biji nyamplung dengan parameter lain.

DAFTAR PUSTAKA

Agung KRIG. 2016. *Podiatri: Atlas "Suku Awon".* Jakarta: Bhuana Ilmu Populer.

Ahmad Z, Damayanti. 2018. Penuaan kulit : patofisiologi dan manifestasi klinik. *Periodical of Dermatology and Venereology* 30: 208-215.

Ainaro EP. Amilia G, Sani EP. 2015. Formulasi sediaan masker gel pell-off mengandung lender bekicot (*Achatina fullica* Bowdich) sebagai pelembab kulit. ISSN 2460-6472

Ansel *et al.* 2016. Biological activty of polynesian *Calophyllum inophyllum* oil extract on human skin cells. *Planta Medica* ISSN 0032-0943.

Ansel, H.C. 1989. *Pengantar Bentuk Sediaan Farmasi*. Diterjemahkan Oleh Farida Ibrahim, Asmanizar, Lis Aisyah, Edisi keempat. Jakarta. Universitas Indonesia Press.

Aramo. 2012. *Skin and Hair Diagnosis System*. Sugnam: Aramh Huvis Korea Lt.

Battie C, Bernerd F, Bino DS, Marionnet C,Verschoore M. 2014. New insight in photoaging,UVA induced damage and skin types. *Experimental Dermatology* 23 Suppl 1:7-12.

Budiana NS. 2013. *Buah Ajaib Tumpas Penyakit*. Jakarta: Penebar Swadaya.

Budiawan, A. 2018. Uji Aktivitas Antikerut Krim Mikroemulsi Dan Nanoemulsi Ekstrak Angkak (*Red Yeast Rice*) Secara *in vitro* Dan *in vivo*. [Tesis]. Surakarta: Fakultas Farmasi. Universitas Setia Budi.

D'Orazio J, Jarrett S, Ortiz AA, Scott T. 2013. UV radiation and the skin . *Int. J. Mol. Sci* 14: 12222-12248.

Danusantoso H. 2003. Peran radikal bebas terhadap beberapa penyakit paru. J *Kedokteran Trisakti* 22: 31-36.

Departemen Kesehatan Republik Indonesia. 1979. *Farmakope Indonesia Edisi Ketiga*. Jakarta: Departemen Kesehatan RI.

Dewi R, Anwar E, Yunita KS. 2014. Uji stabilitas fisik Formula krim yang mengandung ekstrak kacang kedelai (*Glycine max*). Depok: Universitas Indonesia

Dirjen POM. 1985. *Formuularium Kosmetika Indonesia*. Jakarta: Penerbit Departemen Kesehatan RI

Draize, T.H., G. Woodland, dan H.O. Calvey. 1944. Methods for the study of irritation and toxicity of substances applied topically to the skin and mucous membranes. *J Pharmacol Exp Ther* 82:377-390.

Duraivel, S. Shaheda, A. Basha, R. Pasha, E. Jilani. 2014. Formulation and Evaluation of Antiwrinkle Activity of Cream and Nano Emulsion of *Moringa oleifera* Seed Oil. *Journal of Pharmacy and Biological Sciences*: 58–73.

Elmitra. 2017. *Dasar-Dasar Farmasetika dan Sediaan Semi Solid*. Yogyakarta: Deepublish.

Erungan AC, Sri P, Syeni BD. 2009. Aplikasi karaginan dalam pembuatan skin lotion. Bogor:Departemen Teknologi Dan Hasil Perairan Fakultas Perikanan Dan Ilmu Kelautan. Institut Teknologi Bogor

Faradiba, Faisal A, Ruhama M. 2013. Formulasi krim wajah dari sari buah jeruk lemon (*Vitis vinifera* L.) dengan variasi konsentrasi elmugator. *Majalah Farmasi dan Farmakologi*. 17: 17-20

Fauzi AR, Nurmalina R. 2012. Merawat Kulit dan Wajah. Jakarta: Elex Media Komputindo.

Fitriana AY, Wahyuningrum R, Sudarso. 2012. Daya repelan dan uji iritasi Formula lotion ekstrak eatnol daun sirih (*Piper betle* Linn) dengan variasi basis lanolin terhadap nyamuk *Aedes aegypti*. *Pharmacy*. 9: 39-57.

Ganceviciene R, Liakou AI, Theodoridis A,Makrantonaki E, Zouboulis CC. 2012. Skin anti agig strategies. *Dermato-Endocrinology* 4: 308-319.

Gozali *et al*. 2009. Formulasi krim pelembab wajah yang menggunakan tabir surya nanopartikel zink oksida salut silikon. *Farmaka*. 07:37-47

Hameed *et al*. 2019. Skin sebum and skin elasticity: Major influencing factors for facial pores. *Journal of Cosmetic Dermatology*. Vol 18 Issue 6

Harborne, JB. 1987. *Metode Fitokimia: Penentuan Cara Modern Menganalisa Tumbuhan*. Terbitan kedua. Padmawinata K, Soediro I; penerjemah. Bandung: ITB

Hermawan D. 2016. *Sehat Selalu dengan Vitamin D*. Yogyakarta: Andi Offset.

Jadoon *et al*. 2015. Anti-aging potential of phytoextract loades-pharmaceutical creams for human skin cell longetivity. Oxidative Mmedicine and Cellular Longevity. Diakses Diakses pada 20 Mei 2020, dari : http://dx.doi.org/10.1155/2015/709628. Pada pukul 09.45

James W.D, Berger T.G, Elston D.M. 2006. *Andrew's diseases of the skin: Clinical dermatology* (10th ed). Philadelphia: Elsevier Saunders

Kaltz R, Goldman R, editor. 2003. *Anti-Aging Therapeutic*. Vol VI. Chicago: A4M Publications. Hlm 1

Kementrian Kesehatan Republik Indonesia. 2014. *Farmakope Indonesia Edisi V*. Jakarta: Kementrian Kesehatan RI.

Kusumadewi. 2002. *Perawatan dan Tata Rias Wajah Wanita Usia 40+*. Jakarta: Gramedia Pustaka Utama.

Lan C. 2019. Effect and interactions of increased environmental temperature and UV radiation on photoageing and photocarcinogenesis of the skin. *Experimental Dermatology*. 28: 23-27

Léguillier T *et al*. 2015. The wound healing and antibacterial activity of five ethnomedical *Calophyllum inophyllum* oils: an alternative therapeutic strategy to treat infected wounds. PLoS One 10: e0138602. doi: 10.1371/ journal.pone.0138602.

Leksono B, Windyarini E, Hasnah T. 2014. *Budidaya Nyamplung (Calophyllum inophyllum L.) untuk Bioenergi dan Propek Pemanfaatan Lainnya*. Bogor: IPB Press.

Lingga L. 2012. *The Healing Power of Antioxidant*. Jakarta: Elex Media Komputindo.

Loomis T. 1978. *Toksikologi Dasar*. Yogyakarta: IKIP Semarang Press

Lu FC. 1995. *Toksikologi Dasar, Asas, Organ, Sasaran dan Peniliaian Resiko*.

Second Edition. Jakarta: UI Press

Lumenta, Nico A. 2006. *Kenali Jenis Penyakit dan Cara Penyembuhannya.* Jakarta: Gramedia Pustaka Utama.

Mailana D, Nuryanti, Harwoko. 2016. Formulasi sediaan krim antioksidan ekstrak etanolik daun alpukat (*Persea americana* Mill). *Acta Pharm Indones*. 4:21-28

Marzulli LA, Maibach HI. 2008. *Marzulli and Maibach's Dermatotoxicology*. Zhai H, Wilhelm KP, Maibach HI, editor. New York: CRC Press.

Matheos H, Runtuwene MRJ, Sudewi S. 2014. Aktivitas antioksidan dari ekstrak daun kayu bulan (*Pisonia alba*). Jurnal Ilmiah Farmasi 4:235-246

Mulistyarini S *et al***.** 2018. *Intisari Ilmu Kesehatan Kulit dan Kelamin*. Malang: UB Press.

Muliyawan D, Suriana N. 2013. *A-Z Tentang Kosmetik*. Jakarta: Elex Media Komputindo.

Pandel R, Poljsak B, Godic A, Dahmane R. 2013. Skin photoaging and the role of antioxidant in its prevention. *ISRN Dermatol* 2013:1-11.

Parwata IMOA. 2016. *Kimia Terapan Program Pascasarjana Univeristas Udayana*. Bali: Universitas Udayana

Pearce EC. 2007. *Anatomi dan Fisiologi untuk Paramedis*. Handoyo SY, penerjemah; Mohamad K, editor. Jakarta: Gramedia Pustaka Utama. Terjemahan dari: *Anatomy & Physiology for Nurses.*

Pham-Huy LA, He H, Pham-Huy C. 2008. Free radical, antioxidant in disease and health. *Int J Biomed Sci* 4: 89-96.

Prianto J. 2014. *Cantik : Panduan lengkap Merawat Kulit Wajah*. Jakarta: Gramedia Pustaka Utama.

Priyatna N. 2011. *Beternak dan Bisnis Kelinci Pedaging*. Jakarta: AgroMedia

Puspitasari *et al*. 2016. Aktivitas antioksidan suplemen herbal daun sirsak (Annona muricata L.) dan kulit manggis (Garcinia mangostana L.): Kajian pustaka. *Jurnal Pangan dan Agroindustri* 4:283-280.

Purwasari C. 2013. Perbandingan konsentrasi lemak kakao dan minyak kelapa murni sebagai basis sediaan hand and body lotion ekstrak buah mahkota dewa (*Phaleria macrocarpa* (Scheff.) Boerl). Surakarta:Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Sebelas Maret

Putra GM, Budiana NS. 2006. Kelinci Hias: dilengkapi dengan cara pemilihan dan perawatannya. Depok: Penebar Swadaya.

Qodri ZU, Cahyono B, Suzery M. Analisis kimiawi fraksi n-Heksana dari tanaman purwoceng (*Pimpinella alpina* Molk). Jurnal Kimia Sains dan Aplikasi 16: 27-32.

Ramadhan P. 2015. *Mengenal Antioksidan.* Yogyakarta : Graha Ilmu.

Reharivelomanana P *et al*. 2018. Tamanu oil and skin active properties: from traditional to modern cosmetic uses. *OCL* 25:1-5.

Rejeki S , Wahyunigsih SS. 2015. Formulasi gel tabir surya minyak nyamplung (Tamanu oil) dan uji nilai SPF secara in vitro. *University Research Colluqium* ISSN 2407-9189: 97-103.

Restiani R. 2017. Aktivitas antioksidan hidroliast protein bungkil nyamplung (*Calophyllum inophyllum*). Di dalam: *Biologi, Pembelajaran, daan Lingkungan Hidup Perspektif Interdispliner. Prosiding Seminar Nasional III Tahun 2017*. Universitas Muhammaadiyah Malang, 29 April 2017. Yogyakarta: Universitas Kristen Duta Wacana. hlm 7-12

Rohman A, Sumantri. 2018. *Analisis Makanan*. Yogyakarta: Gadjah Mada University Press.

Rowe CR, Sheskey PJ, Quinn ME. 2009. *Handbook of Pharmaceutical Excipients* Sixth edition. USA: Pharmaceutical Press and American Pharamcist Association.

Ruwanto B. 2007. *Asas-Asas Fisika*. Bogor: Yudhistira.

Said T *et al.* 2007. Cytoprotective effect agains UV-induced DNA damage and oxidative stress: role of new biological UV filter. *European Journal of Pharmaceutical Sciences* 30: 203-210.

Saladin K. 2014. *Human Anatomy Fourth Edition*. New York: McGraw Hill.

Shin *et al*. 2019. Molecular mechanism of dermal aging and antiaging approaches. *International Journal of Molecular Sciences*. 20:1-16

Stevans PF. 1980. A revision of the old world species of Calophyllum (Guttiferae). *Journal of The Arnold Arboretum* 61:117-424.

Sundur S, Shrivastava B, Sharma P, Raj SS, Jayasekhar VL. 2014. A review article of pharmacological activities and biological importance of *Calophyllum inophyllum. International Journal of Advanced Research* 2:599-603.

Susanto DF, Aparamarta HW, Widjaja A, Firdaus, Gunawan S. 2019. *Calophyllum inophyllum: Beneficial Phytochemicals, Their Uses and Identification.* Diakses pada 8 Oktober 2019, dari DOI : http://dx.doi.org/10.5772/intechopen.86911. Pada pukul 10.30.

Swastika, Mufrod A, Purwanto. 2013. Aktivitas krim ekstrak sari tomat (*Solanum lycopersicum L*.) Kajian pustaka. *Trad Med Journal* 18:132-140

Syakir M, Karmawati E. *Tanaman Perkebunan Penghasil Bahan Bakar Nabati*. Diakses pada 9 Oktober 2019, dari www.litbang.pertanian.go.id/bahan-bakar-nabati/nyamplung. Pada pukul 9.45.

Ulaen *et al*. 2012. Pembuatan salep anti jerawat dari ekstrak rimpang temulawak (*Curcuma xanthorrhiza* Roxb). *Jurnal Ilmiah Farmasi*. 3: 45-49

Uwa LM. 2017. The anti-aging efficacy of antioxidant. *Curr Trends Biomedical Eng & Biosci* 7: 001-003.

Vinardell MP, Mitjan M. 2008. Alternative methods for eye and skin irritation tests: An overview. *Journal of Pharmaceutical Sciences* 97: 46-59.

Voight R. 1994. *Buku Pelajaran Teknologi Farmasi*. Soewandi SN, penerjemah. Yogyakarta: Gadjah Mada University Press.

Widodo H. 2013. *Ilmu Meracik Obat untuk Apoteker*. Yogyakarta: D-Medika.

Wilson DB, Moon S, Armstrong F. 2012. Comprehensive reviw of ultraviolet radiation and the current status on sunscreen. *The Journal of Clinical Aesthetic Dermatology* 5: 18-22.

Wilson, Don E, Reeder DM. 2005. *Mammal Specis of The World: A Taxonomic and Geographic References* 3rd ed. USA: John Hopkins University Press.

Winarsi H. 2007. *Antioksidan Alami dan Radikal Bebas*. Yogyakarta: Kanisius.

Windarwati S. 2011. Pemanfaatan Fraksi Aktif Ekstrak Tanaman Jarak Pagar (*Jatropha curcas* Linn) sebagai Zat Antimikroba dan Antioksidan dalam Sediaan Kosmetik. [Tesis]. Bogor. Sekolah Pascasarjana. IPB.

Windriyati YN, Wahyuningrum DP, Mihadi MM. 2007. Pengaruh perbedaan konsentrasi ekstrak etanolik umbi bengkuang (*Pachyrrizhus erosus, Urb*) dalam sediaan krim terhadap sifat fisiknya. *Jurnal Ilmu Farmasi dan Farmasi Klinik*. 4: 1-3

Youngson R. 2005. *Antioksidan: Manfaat Vitamin C & E bagi Kesehatan*. Purwoko S, penerjemah; Juwono L, editor. Jakarta: Arcan. Terjemahan dari: *Antioxidant: Vitamin & E For Health.*

Yuslianti RE. 2018. *Pengantar Radikal Bebas dan Antioksidan*. Yogyakarta : Deepublish.

Zhang S, Duan E. 2018. Fighting aginst skin aging : the way from bench and bedside. *Cell Transplantation* 27:729-738

L A M P I R A N

Lampiran 1. Hasil izin kode etik hewan

HEALTH RESEARCH ETHICS COMITTE
KOMISI ETIK PENELITIAN KESEHATAN

Dr. Moewardi General Hospital
RSUD Dr. Moewardi

ETHICAL CLEARANCE
KELAIKAN ETIK

Nomor : 388 / II / HREC / 2020

The Health Research Ethics Committee Dr. Moewardi
Komisi Etik Penelitian Kesehatan RSUD Dr. Moewardi

after reviewing the proposal design, herewith to certify
setelah menilai rancangan penelitian yang diusulkan, dengan ini menyatakan

That the research proposal with topic :
Bahwa usulan penelitian dengan judul

UJI AKTIVITAS ANTI AGING KRIM MINYAK BIJI NYAMPLUNG (Calophyllum inophyllum L.) PADA PUNGGUNG KELINCI NEW ZEALAND YANG DIPAPAR SINAR UV-A

Principal investigator : Fitra Indah Wiratantri
Peneliti Utama 22164789A

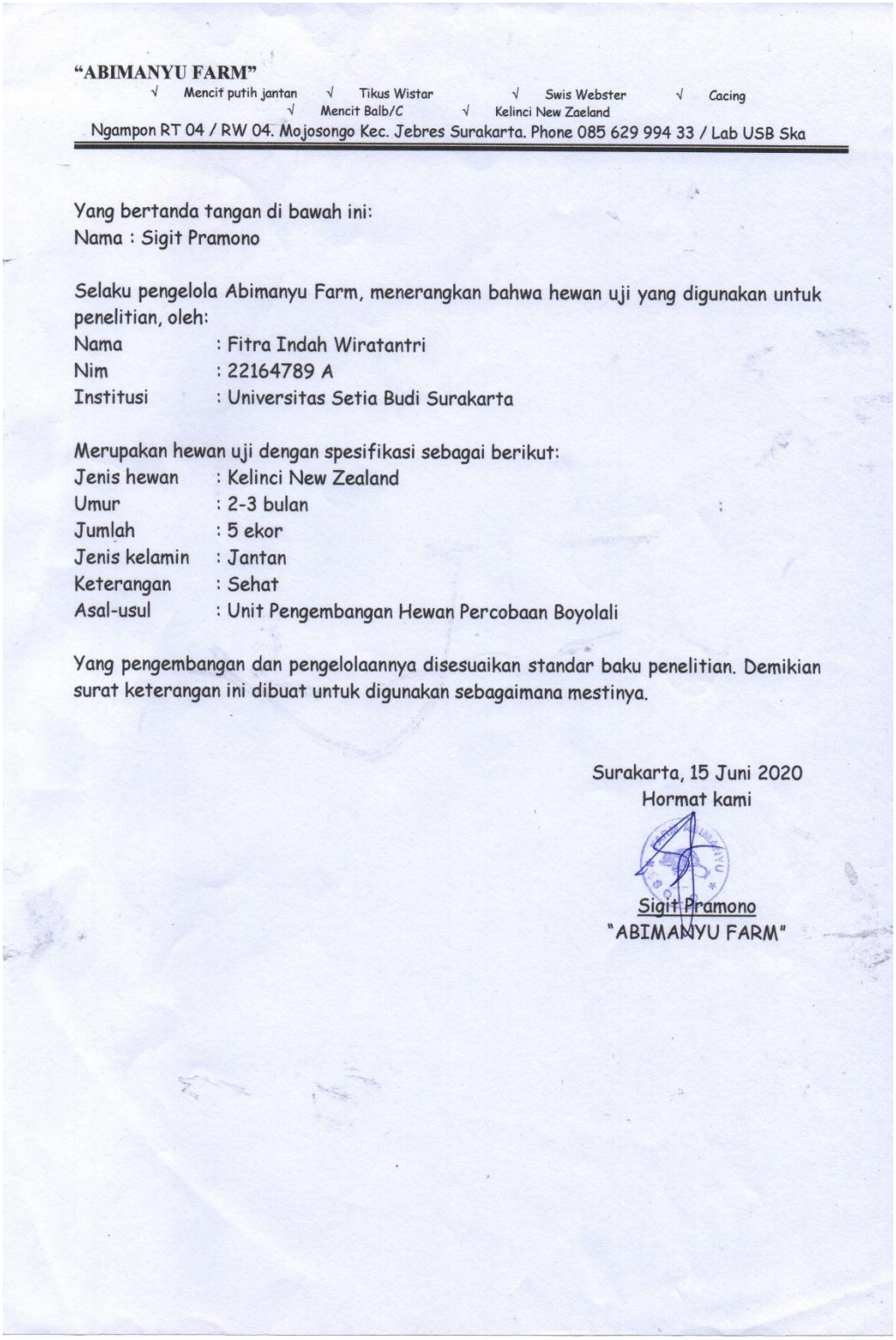
Location of research : Unversitas Setia Budi
Lokasi Tempat Penelitian

Is ethically approved
Dinyatakan layak etik

Issued on : 05 Maret 2020
Chairman
Ketua

Dr. Wahyu Dwi Atmoko., Sp.F
19770224 201001 1 004

Lampiran 2. Surat keterangan hewan uji



"ABIMANYU FARM"

√ Mencit putih jantan √ Tikus Wistar √ Swis Webster √ Cacing
√ Mencit Balb/C √ Kelinci New Zaeland

Ngampon RT 04 / RW 04. Mojosongo Kec. Jebres Surakarta. Phone 085 629 994 33 / Lab USB Ska

Yang bertanda tangan di bawah ini:
Nama : Sigit Pramono

Selaku pengelola Abimanyu Farm, menerangkan bahwa hewan uji yang digunakan untuk penelitian, oleh:

Nama	: Fitra Indah Wiratantri
Nim	: 22164789 A
Institusi	: Universitas Setia Budi Surakarta

Merupakan hewan uji dengan spesifikasi sebagai berikut:

Jenis hewan	: Kelinci New Zealand
Umur	: 2-3 bulan
Jumlah	: 5 ekor
Jenis kelamin	: Jantan
Keterangan	: Sehat
Asal-usul	: Unit Pengembangan Hewan Percobaan Boyolali

Yang pengembangan dan pengelolaannya disesuaikan standar baku penelitian. Demikian surat keterangan ini dibuat untuk digunakan sebagaimana mestinya.

Surakarta, 15 Juni 2020
Hormat kami

Sigit Pramono
"ABIMANYU FARM"

Lampiran 3. *Certificate of Analysis* minyak biji nyamplung

Happy Green

Importer of Essential Oils, Absolutes, and Carrier Oils
Jakarta, Indonesia Customessentialoil@gmail.com Phone 081295037988

Certificate of Analysis

Product	Organic Tamanu Oil
Batch No.	515794
Manufacture Date	May 2019
Retest Date	May 2021
Appearance	Fluid liquid
Colour	Colorless to Greenish Yellow
Odour	Conforms to Standard

Physico-Chemical Properties: -	Results
Specific Gravity at 20°C	0.921
Refractive Index at 20°C	1.430
Optical Rotation 20°C	+2°

Lampiran 4. Perhitungan berat jenis

Perhitungan berat jenis minyak biji nyamplung

Diketahui :

a. Bobot piknometer kosong = 33,8376 gram
b. Bobot piknometer + air = 82,7148
c. Bobot piknometer + minyak = 79,0928

Perhitungan :

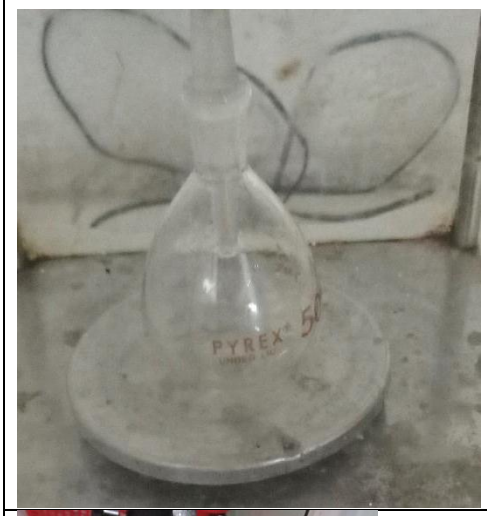
$$\rho \text{ (berat jenis)} = \frac{massa\ minyak - piknometer\ kosong}{volume\ piknometer}$$

$$= \frac{79{,}0928 - 33{,}8376}{50\ ml}$$

= 0,9218 gram/ml

Lampiran 5. Gambar penelitian

A. Gambar Alat, Bahan dan Proses Penelitian

	Minyak Biji Nyamplung
	Piknometer
	Viskometer Rion

	Alat daya lekat
	Alat daya sebar
	pH meter

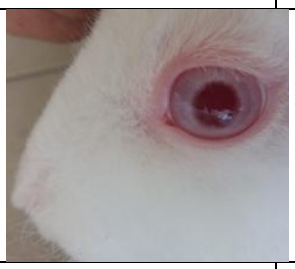
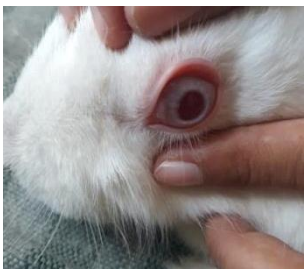
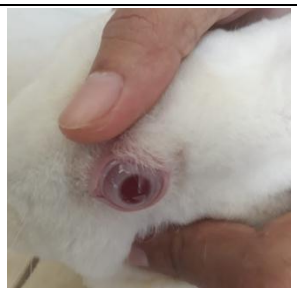
	Krim minyak biji nyamplung (Formula 1, 2, 3 dan 4
	Krim kontrol positif
	Gambar Alat *Skin Analyzer EH900U*
	Gambar proses mencukur bulu kelinci

	Gambar proses induksi sinarUV-A
	Gambar proses pengukuran parameter menggunakan alat Skin Analyzer

B. Gambar Uji Keamanan

Kelinci	Uji Iritasi Primer		
	24	48	72
F1			

F2	
F3	
F4	

Kelinci	Uji Iritasi Okuler		
	24	48	72
F1			
F2			
F3			
F4			

Lampiran 6. Hasil uji mutu fisik krim

1. Organoleptis

Pemeriksaan	Hari ke	F1	F2	F3	F4
Warna	1	Putih	Hijau	Hijau	Hijau
	7	Putih	Hijau	Hijau	Hijau
	14	Putih	Hijau	Hijau	Hijau
	21	Putih	Hijau	Hijau	Hijau
Bau	1	Khas	Khas minyak	Khas minyak	Khas minyak
	7	Khas	Khas minyak	Khas minyak	Khas minyak
	14	Khas	Khas minyak	Khas minyak	Khas minyak
	21	Khas	Khas minyak	Khas minyak	Khas minyak
Tekstur	1	Semi padat	Semi padat	Semi padat	Semi padat
	7	Semi padat	Semi padat	Semi padat	Semi padat
	14	Semi padat	Semi padat	Semi padat	Semi padat
	21	Semi padat	Semi padat	Semi padat	Semi padat

2. Homogenitas

Formula	Hari ke- 1	Hari ke- 7	Hari ke- 14	Hari ke- 21
F 1	Homogen	Homogen	Homogen	Homogen
F 2	Homogen	Homogen	Homogen	Homogen
F 3	Homogen	Homogen	Homogen	Homogen
F 4	Homogen	Homogen	Homogen	Homogen

3. pH

Formula	Hari ke- 1	Hari ke-7	Hari ke-14	Hari ke-21
F 1	6,43	6,36	6,25	6,2
	6,7	6,5	6,32	6,29
	6,65	6,56	6,4	6,33
Rata-rata±SD	6,59± 0,14	6,47 ±0,10	6,32±0,08	6,27±0,07
F 2	6,25	6,17	6,1	6,05
	6,58	6,44	6,4	6,38
	6,3	6,29	6,2	6,18
Rata-rata±SD	6,38 ±0,18	6,30 ±0,14	6,23± 0,15	6,20± 0,17
F 3	6,35	6,3	6,29	6,19
	6,2	6,18	6,11	6,09
	6,4	6,32	6,3	6,27
Rata-rata±SD	6,32 ±0,10	6,27±0,08	6,23± 0,11	6,18 ±0,09
F 4	5,85	5,7	5,66	5,6
	5,64	5,59	5,45	5,38
	5,53	5,47	5,36	5,26
Rata-rata±SD	5,67 ±0,16	5,59± 0,12	5,49 ±0,15	5,41 ±0,17

4. viskositas

Formula	Hari ke-1	Hari ke-7	Hari ke-14	Hari ke-21
F1	400	400	390	380
	380	370	360	355
	380	375	355	350
Rata-rata ±SD	386,67 ±11,55	381,67± 16,07	368,33 ±18,93	361,67 ±16,07
F2	200	180	165	160
	230	220	210	210
	240	220	215	200
Rata-rata ±SD	223,33 ±20,82	206,67 ±23,09	196,67 ±27,54	190,00 ±26,46
F3	160	150	130	120
	165	120	110	100
	180	150	140	100
Rata-rata ±SD	168,33 ±10,41	140± 17,32	126,67 ±15,28	106,67 ±11,55
F4	130	110	100	95
	145	120	120	85
	150	150	130	115
Rata-rata ±SD	141,67±10,41	126,67± 20,82	116,67±15,28	98,33± 15,28

5. Daya lekat

Formula	Hari ke- 1	Hari ke- 7	Hari ke- 14	Hari ke- 21
F1	4,6	4,3	4,1	3,9
	4,4	4	3,8	3,5
	4,5	4,2	3,8	3,4
Rata-rata±SD	4,50± 0,10	4,17±0,15	3,90± 0,17	3,60± 0,26
F2	2,75	2,6	2	1,7
	2,5	2,2	2	1,8
	2,45	2,3	2,1	1,9
Rata-rata±SD	2,57 ±0,16	2,37 ±0,21	2,03 ±0,06	1,80±0,10
F3	2,3	2,1	1,8	1,5
	2,19	2	1,8	1,6
	2,28	2,2	2	1,7
Rata-rata±SD	2,26 ±0,06	2,10±0,10	1,87 ±0,12	1,60 ±0,10
Formula 4	1,7	1,5	1,2	1,1
	2	1,7	1,5	1,1
	2,1	1,6	1,4	1,2
Rata-rata±SD	1,93±0,21	1,60 ±0,10	1,37 ±0,15	1,13 ±0,06

6. Daya sebar

a. Tanpa beban

Formula	Hari ke- 1	Hari ke- 7	Hari ke-14	Hari ke- 21
F1	3,45	3,78	4,18	4,83
	3,43	3,75	4,13	4,85
	3,38	3,85	4,18	4,88
Rata-rata±SD	3,42 ±0,038	3,79±0,052	4,16±0,029	4,85±0,023
F2	3,65	4,3	5,35	5,58
	3,675	4,63	5,375	5,7
	3,7	4,575	5,425	5,85
Rata-rata±SD	3,68±0,025	4,50±0,175	5,38±0,038	5,71±0,138
F3	4,025	4,825	5,43	6,23
	4,05	4,98	5,45	6,2
	4	5,075	5,3	6,225
Rata-rata±SD	4,03±0,025	4,96±0,126	5,39±0,080	6,22±0,014
F4	4,2	5,375	6,08	6,43
	4,275	5,30	6,15	6,425
	4,275	5,25	6,15	6,475
Rata-rata±SD	425±0,043	5,31±0,063	6,13±0,043	6,64±0,029

b. Beban 50 gram

Formula	Hari ke- 1	Hari ke- 7	Hari ke- 14	Hari ke- 21
F1	3,75	4,275	4,8	5,175
	3,725	4,25	4,7	5,3
	3,625	4,275	4,65	5,225
Rata-rata±SD	3,700±0,066	4,267±0,014	4,717±0,076	5,233±0,063
F2	4	4,6	5,4	6,25
	3,975	4,55	5,15	6
	4,075	4,52	5,1	5,9
Rata-rata±SD	4,017±0,052	4,557±0,040	5,217±0,161	6,050±0,180
F3	4,3	5,15	5,75	6,45
	4,35	5,225	5,675	6,575
	4,325	5,075	5,8	6,55
Rata-rata±SD	4,325±0,025	5,150±0,075	5,742±0,063	6,525±0,066
F4	4,525	5,4	6,2	6,625
	4,55	5,325	6,05	6,575
	4,5	5,3	6,15	6,6
Rata-rata±SD	4,525±0,025	5,342±0,052	6,133±0,076	6,600±0,025

c. Beban 100 gram

Formula	Hari ke- 1	Hari ke- 7	Hari ke- 14	Hari ke- 21
F1	4,275	4,775	5,4	5,85
	4,2	4,625	5,325	5,9
	4,075	4,575	5,3	5,625
Rata-rata±SD	4,183±0,101	4,658±0,104	5,342±0,052	5,792±0,146
Formula 2	4,55	5,175	6,05	6,3
	4,575	5,05	6,1	6,4
	4,6	5,175	6,075	6,375
Rata-rata±SD	4,575±0,025	5,133±0,072	6,075±0,025	6,358±0,052
Formula 3	5,075	5,6	6,425	6,65
	5,075	5,65	6,45	6,675
	5,1	5,525	6,375	6,65
Rata-rata±SD	5,083±0,014	5,592±0,063	6,417±0,038	6,658±0,014
Formula 4	5,45	6,275	6,6	7,1
	5,45	6,25	6,675	7,025
	5,475	6,225	6,55	7,075
Rata-rata±SD	5,458±0,014	6,250±0,025	6,608±0,063	7,067±0,038

d. Beban 150 gram

Formula	Hari ke- 1	Hari ke- 7	Hari ke- 14	Hari ke- 21
F1	5	5,35	6,125	6,55
	4,95	5,4	6,15	6,6
	4,95	5,375	6,3	6,6
Rata-rata±SD	4,967±0,029	5,375±0,025	6,192±0,095	6,583±0,029
F2	5,375	5,975	6,475	7
	5,375	5,9	6,5	6,95
	5,325	6	6,475	6,9
Rata-rata±SD	5,358±0,029	5,958±0,052	6,483±0,014	6,950±0,050
F3	5,525	6,45	6,725	7,175
	5,5	6,425	6,7	7,25
	5,475	6,4	6,65	7,15
Rata-rata±SD	5,500±0,025	6,425±0,025	6,692±0,038	7,192±0,052
F4	5,625	6,45	6,925	7,4
	5,575	6,425	7,075	7,35
	5,55	6,375	7,125	7,325
Rata-rata±SD	5,583±0,038	6,417±0,038	7,042±0,104	7,358±0,038

Lampiran 7. Hasil uji SPSS uji mutu fisik krim

1. Data statistik pH

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for pH	.107	48	.200*	.948	48	.034

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Levene's Test of Equality of Error Variances[a]

Dependent Variable:pH

F	df1	df2	Sig.
.680	15	32	.784

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + formula + waktu + formula * waktu

Tests of Between-Subjects Effects

Dependent Variable:pH

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	5.967[a]	15	.398	23.455	.000
Intercept	1798.546	1	1798.546	106043.720	.000
formula	5.579	3	1.860	109.647	.000
waktu	.343	3	.114	6.739	.001
formula * waktu	.045	9	.005	.297	.970
Error	.543	32	.017		
Total	1805.056	48			
Corrected Total	6.510	47			

a. R Squared = ,917 (Adjusted R Squared = ,878)

pH

Tukey HSD[a,,b]

formula	N	Subset 1	Subset 2	Subset 3
krim minyak biji nyamplung 20%	12	5.5408		
krim minyak biji nyamplung 15%	12		6.2500	
krim minyakbiji nyamplung 10%	12		6.2783	6.2783
krim kontrol negatif	12			6.4158
Sig.		1.000	.950	.066

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,017.

a. Uses Harmonic Mean Sample Size = 12,000.

pH

Tukey HSD[a,,b]

formula	N	Subset 1	Subset 2	Subset 3
krim minyak biji nyamplung 20%	12	5.5408		
krim minyak biji nyamplung 15%	12		6.2500	
krim minyakbiji nyamplung 10%	12		6.2783	6.2783
krim kontrol negatif	12			6.4158
Sig.		1.000	.950	.066

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,017.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

pH

Tukey HSD[a,,b]

waktu	N	Subset 1	Subset 2
hari ke- 21	12	6.0183	
hari ke- 14	12	6.0700	
hari ke- 7	12	6.1567	6.1567
hari ke- 1	12		6.2400
Sig.		.063	.411

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,017.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

Kruskal-Wallis Test

Ranks

	Formula	N	Mean Rank
pH	krim kontrol negatif	12	37.17
	krim minyakbiji nyamplung 10%	12	28.00
	krim minyak biji nyamplung 15%	12	26.33
	krim minyak biji nyamplung 20%	12	6.50
	Total	48	

Test Statistics[a,b]

	pH
Chi-Square	30.647
df	3
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: formula

Ranks

	waktu	N	Mean Rank
pH	hari ke- 1	12	30.29
	hari ke- 7	12	26.67
	hari ke- 14	12	22.17
	hari ke- 21	12	18.88
	Total	48	

Test Statistics[a,b]

	pH
Chi-Square	4.616
df	3
Asymp. Sig.	.202

a. Kruskal Wallis Test

b. Grouping Variable: waktu

2. Data statistik viskositas

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for viskositas	.145	48	.013	.944	48	.024

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances[a]

Dependent Variable:viskositas

F	df1	df2	Sig.
1.085	15	32	.406

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + formula + waktu + formula * waktu

Tests of Between-Subjects Effects

Dependent Variable:viskositas

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	499641.667[a]	15	33309.444	102.163	.000
Intercept	2091675.000	1	2091675.000	6415.361	.000
formula	487545.833	3	162515.278	498.449	.000
waktu	10854.167	3	3618.056	11.097	.000
formula * waktu	1241.667	9	137.963	.423	.913
Error	10433.333	32	326.042		
Total	2601750.000	48			
Corrected Total	510075.000	47			

a. R Squared = ,980 (Adjusted R Squared = ,970)

Viskositas

Tukey HSD[a,,b]

formula	N	Subset 1	Subset 2	Subset 3
krim minyak biji nyamplung 20%	12	120.83		
krim minyak biji nyamplung 15%	12	135.42		
krim minyak biji nyamplung 10%	12		204.17	
krim kontrol negatif	12			374.58
Sig.		.217	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 326,042.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

Viskositas

Tukey HSD[a,,b]

waktu	N	Subset 1	Subset 2	Subset 3
hari ke- 21	12	189.17		
hari ke- 14	12	202.08	202.08	
hari ke- 7	12		213.75	213.75
hari ke- 1	12			230.00
Sig.		.315	.402	.144

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 326,042.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

Kruskal-Wallis Test

Ranks

	Formula	N	Mean Rank
viskositas	krim kontrol negatif	12	42.50
	krim minyak biji nyamplung 10%	12	30.13
	krim minyak biji nyamplung 15%	12	14.83
	krim minyak biji nyamplung 20%	12	10.54
	Total	48	

Test Statistics[a,b]

	viskositas
Chi-Square	39.512
df	3
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: formula

Ranks

	waktu	N	Mean Rank
viskositas	hari ke- 1	12	29.92
	hari ke- 7	12	25.83
	hari ke- 14	12	23.04
	hari ke- 21	12	19.21
	Total	48	

Test Statistics[a,b]

	viskositas
Chi-Square	3.758
df	3
Asymp. Sig.	.289

a. Kruskal Wallis Test

b. Grouping Variable: waktu

3. Data statisitik daya lekat

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for dayalekat	.108	48	.200*	.978	48	.503

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Levene's Test of Equality of Error Variances[a]

Dependent Variable:dayalekat

F	df1	df2	Sig.
1.753	15	32	.090

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + formula + waktu + formula * waktu

Tests of Between-Subjects Effects

Dependent Variable:dayalekat

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	48.900[a]	15	3.260	156.824	.000
Intercept	282.125	1	282.125	13571.835	.000
formula	44.741	3	14.914	717.441	.000
waktu	4.085	3	1.362	65.502	.000
formula * waktu	.074	9	.008	.393	.930
Error	.665	32	.021		
Total	331.689	48			
Corrected Total	49.565	47			

a. R Squared = ,987 (Adjusted R Squared = ,980)

dayalekat

Tukey HSD[a,,b]

formula	N	Subset 1	2	3	4
krim minyak biji nyamplung 20%	12	1.508			
krim minyak biji nyamplung 15%	12		1.956		
krim minyak biji nyamplung 10%	12			2.192	
kontrol negatif	12				4.042
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,021.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

Dayalekat

Tukey HSD[a,,b]

waktu	N	Subset 1	2	3	4
hari ke- 21	12	2.033			
hari ke- 14	12		2.292		
hari ke- 7	12			2.558	
hari ke- 1	12				2.814
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,021.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

4. Data statistik daya sebar tanpa beban

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for dayasebarTB	.116	48	.122	.936	48	.012

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances[a]

Dependent Variable:dayasebarTB

F	df1	df2	Sig.
3.374	15	32	.002

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + waktu + formulasi + waktu * formulasi

Tests of Between-Subjects Effects

Dependent Variable:dayasebarTB

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	41.200[a]	15	2.747	495.412	.000
Intercept	1147.341	1	1147.341	206941.684	.000
waktu	25.689	3	8.563	1544.462	.000
formulasi	14.133	3	4.711	849.704	.000
waktu * formulasi	1.379	9	.153	27.631	.000
Error	.177	32	.006		
Total	1188.719	48			
Corrected Total	41.378	47			

a. R Squared = ,996 (Adjusted R Squared = ,994)

dayasebarTB

Tukey HSD[a,,b]

formulasi	N	Subset 1	2	3	4
krim kontrol negatif	12	4.0575			
krim minyak biji nyamplung 10%	12		4.8175		
krim minyak biji nyamplung 15%	12			5.1492	
krim minyak biji nyamplung 20%	12				5.5321
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,006.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

dayasebarTB

Tukey HSD[a,,b]

waktu	N	Subset 1	2	3	4
hari ke- 1	12	3.8425			
hari ke- 7	12		4.6408		
hari ke- 14	12			5.2667	
hari ke- 21	12				5.8063
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,006.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

Kruskal-Wallis Test

Ranks

	Formulasi	N	Mean Rank
dayasebarTB	krim kontrol negatif	12	12.00
	krim minyak biji nyamplung 10%	12	23.88
	krim minyak biji nyamplung 15%	12	28.38
	krim minyak biji nyamplung 20%	12	33.75
	Total	48	

Test Statistics[a,b]

	dayasebarTB
Chi-Square	15.752
df	3
Asymp. Sig.	.001

a. Kruskal Wallis Test

b. Grouping Variable: formulasi

Ranks

	waktu	N	Mean Rank
dayasebarTB	hari ke- 1	12	8.75
	hari ke- 7	12	20.75
	hari ke- 14	12	30.25
	hari ke- 21	12	38.25
	Total	48	

Test Statistics[a,b]

	dayasebarTB
Chi-Square	29.656
df	3
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: waktu

5. Data statistik daya sebar beban 50 gram

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for dayalekat50gr	.102	48	.200*	.955	48	.065

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Levene's Test of Equality of Error Variances[a]

Dependent Variable:dayalekat50gr

F	df1	df2	Sig.
3.044	15	32	.004

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + formulasi + waktu + formulasi * waktu

dayalekat50gr

Tukey HSD[a,,b]

formulasi	N	Subset 1	2	3	4
krim kontrol negatif	12	4.4792			
krim minyak biji nyamplung 10%	12		4.9600		
krim minyak biji nyamplung 15%	12			5.4354	
krim minyak biji nyamplung 20%	12				5.6500
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,006.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

dayalekat50gr

Tukey HSD[a,,b]

waktu	N	Subset 1	2	3	4
hari ke- 1	12	4.1417			
hari ke- 7	12		4.8288		
hari ke- 14	12			5.4521	
hari ke- 21	12				6.1021
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,006.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

6. Data statistik daya sebar beban 100 gram

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for dayasebar100gr	.125	48	.057	.972	48	.291

a. Lilliefors Significance Correction

Levene's Test of Equality of Error Variances[a]

Dependent Variable:dayasebar100gr

F	df1	df2	Sig.
3.306	15	32	.002

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + formulasi + waktu + formulasi * waktu

Tests of Between-Subjects Effects

Dependent Variable:dayasebar100gr

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31.682[a]	15	2.112	508.495	.000
Intercept	1561.230	1	1561.230	375869.906	.000
formulasi	11.992	3	3.997	962.378	.000
waktu	19.321	3	6.440	1550.516	.000
formulasi * waktu	.369	9	.041	9.860	.000
Error	.133	32	.004		
Total	1593.045	48			
Corrected Total	31.815	47			

a. R Squared = ,996 (Adjusted R Squared = ,994)

dayasebar100gr

Tukey HSD[a,,b]

formulasi	N	Subset 1	Subset 2	Subset 3	Subset 4
krim kontrol negatif	12	4.9938			
krim minyak biji nyamplung 10%	12		5.5354		
krim minyak biji nyamplung 15%	12			5.9375	
krim minyak biji nyamplung 20%	12				6.3458
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,004.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

dayasebar100gr

Tukey HSD[a,,b]

waktu	N	Subset 1	Subset 2	Subset 3	Subset 4
hari ke- 1	12	4.8250			
hari ke- 7	12		5.4083		
hari ke- 14	12			6.1104	
hari ke- 21	12				6.4688
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,004.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

7. Data statistik daya sebar beban 150 gram

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for dayasebar150gr	.077	48	.200*	.982	48	.651

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Levene's Test of Equality of Error Variances[a]

Dependent Variable:dayasebar150gr

F	df1	df2	Sig.
2.518	15	32	.014

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + formulasi + waktu + formulasi * waktu

Tests of Between-Subjects Effects

Dependent Variable:dayasebar150gr

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	23.861[a]	15	1.591	667.581	.000
Intercept	1877.814	1	1877.814	788066.016	.000
formulasi	4.666	3	1.555	652.741	.000
waktu	18.802	3	6.267	2630.257	.000
formulasi * waktu	.393	9	.044	18.303	.000
Error	.076	32	.002		
Total	1901.751	48			
Corrected Total	23.937	47			

a. R Squared = ,997 (Adjusted R Squared = ,995)

dayasebar150gr

Tukey HSD[a,,b]

formulasi	N	Subset 1	2	3	4
krim kontrol negatif	12	5.7792			
krim minyak biji nyamplung 10%	12		6.1875		
krim minyak biji nyamplung 15%	12			6.4521	
krim minyak biji nyamplung 20%	12				6.6000
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,002.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

dayasebar150gr

Tukey HSD[a,,b]

waktu	N	Subset 1	2	3	4
hari ke- 1	12	5.3521			
hari ke- 7	12		6.0438		
hari ke- 14	12			6.6021	
hari ke- 21	12				7.0208
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = ,002.

a. Uses Harmonic Mean Sample Size = 12,000.

b. Alpha = 0,05.

Lampiran 8. Hasil uji stabilitas krim

a. Viskositas

Siklus	Replikasi	F1	F2	F3	F4
1	1	390	250	150	155
	2	350	220	165	120
	3	390	250	145	135
Rata-rata ±SD		376,67 ±23,09	240,00 ±17,32	153,33 ±10,41	136,67 ±17,56
2	1	380	255	140	120
	2	360	250	155	130
	3	380	200	165	150
Rata-rata ±SD		373,33 ±11,55	235,00 ±30,41	153± 12,58	133,33 ±15,28
3	1	380	190	150	120
	2	360	250	145	120
	3	380	260	160	150
Rata-rata ±SD		373,33 ±11,55	233,33 ±37,86	151,67 ±7,64	130,00 ±17,32
4	1	390	210	170	140
	2	350	230	130	130
	3	360	250	150	125
Rata-rata ±SD		366,67 ±20,82	230,00 ±20,00	150,00 ±20,00	131,67 ±7,64
5	1	350	190	165	100
	2	350	250	155	150
	3	390	250	130	135
Rata-rata±SD		363,33 ±23,09	230,00± 34,64	150,00 ±18,03	128,33 ±25,66
6	1	360	200	150	110
	2	370	230	155	155
	3	350	250	140	120
Rata-rata±SD		360,00 ±10,00	226,67 ±25,17	148,33 ±7,64	128,33 ±23,63

b. pH

Siklus	Replikasi	F1	F2	F3	F4
1	1	6,45	6,3	6,25	5,75
	2	6,5	6,4	6,18	5,7
	3	6,41	6,32	6,37	5,68
	Rata-rata	6,45	6,34	6,27±	5,71
	±SD	±0,05	±0,05	0,10	±0,04
2	1	6,43	6,21	6,18	5,65
	2	6,4	6,41	6,26	5,69
	3	6,42	6,29	6,36	5,71
	Rata-rata	6,42	6,30	6,27	5,68
	±SD	±0,02	±0,10	±0,09	±0,03
3	1	6,48	6,23	6,15	5,66
	2	6,38	6,32	6,31	5,54
	3	6,4	6,34	6,29	5,65
	Rata-rata	6,42	6,30	6,25	5,62
	±SD	±0,05	±0,06	±0,09	±0,07
4	1	6,37	6,22	6,16	5,6
	2	6,36	6,4	6,33	5,63
	3	6,36	6,2	6,22	5,61
	Rata-rata	6,36	6,27	6,24	5,61
	±SD	±0,01	±0,11	±0,09	±0,02
5	1	6,37	6,15	6,23	5,49
	2	6,36	6,35	6,29	5,65
	3	6,36	6,25	6,16	5,63
	Rata-rata	6,36	6,25	6,23	5,59
	±SD	±0,01	±0,10	±0,07	±0,09
6	1	6,38	6,21	6,18	5,62
	2	6,3	6,33	6,1	5,59
	3	6,33	6,19	6,27	5,54
	Rata-rata	6,34	6,24	6,18	5,58
	±SD	±0,04	±0,08	±0,09	±0,04

Lampiran 9. Hasil uji SPSS stabilitas pH krim

1. Data statistik uji stabilitas pH krim kontrol negatif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for siklus1	.196	3	.	.996	3	.878
Standardized Residual for siklus2	.253	3	.	.964	3	.637
Standardized Residual for siklus3	.314	3	.	.893	3	.363
Standardized Residual for siklus4	.385	3	.	.750	3	.000
Standardized Residual for sikus5	.385	3	.	.750	3	.000
Standardized Residual for siklus6	.232	3	.	.980	3	.726

a. Lilliefors Significance Correction

Pairwise Comparisons

Measure:phkrimbasis

(I) siklus	(J) siklus	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.037	.033	1.000	-.531	.604
	3	.033	.045	1.000	-.741	.808
	4	.090	.026	1.000	-.367	.547
	5	.090	.026	1.000	-.367	.547
	6	.117	.042	1.000	-.605	.838
2	1	-.037	.033	1.000	-.604	.531
	3	-.003	.023	1.000	-.406	.400
	4	.053	.007	.229	-.062	.169
	5	.053	.007	.229	-.062	.169
	6	.080	.015	.519	-.184	.344
3	1	-.033	.045	1.000	-.808	.741
	2	.003	.023	1.000	-.400	.406
	4	.057	.027	1.000	-.415	.528
	5	.057	.027	1.000	-.415	.528
	6	.083	.009	.165	-.069	.236
4	1	-.090	.026	1.000	-.547	.367
	2	-.053	.007	.229	-.169	.062
	3	-.057	.027	1.000	-.528	.415
	5	.000	.000	.	.000	.000
	6	.027	.020	1.000	-.324	.377
5	1	-.090	.026	1.000	-.547	.367
	2	-.053	.007	.229	-.169	.062
	3	-.057	.027	1.000	-.528	.415
	4	.000	.000	.	.000	.000
	6	.027	.020	1.000	-.324	.377
6	1	-.117	.042	1.000	-.838	.605

2	-.080	.015	.519	-.344	.184
3	-.083	.009	.165	-.236	.069
4	-.027	.020	1.000	-.377	.324
5	-.027	.020	1.000	-.377	.324

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Tests of Within-Subjects Effects

Measure:phkrimbasis

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
siklus	Sphericity Assumed	.030	5	.006	6.234	.007
	Greenhouse-Geisser	.030	1.422	.021	6.234	.092
	Huynh-Feldt	.030	3.923	.008	6.234	.015
	Lower-bound	.030	1.000	.030	6.234	.130
Error(siklus)	Sphericity Assumed	.009	10	.001		
	Greenhouse-Geisser	.009	2.844	.003		
	Huynh-Feldt	.009	7.847	.001		
	Lower-bound	.009	2.000	.005		

Friedman Test

Test Statistics[a]

N	3
Chi-Square	1.667
df	5
Asymp. Sig.	.893

a. Friedman Test

2. Data statistik uji stabilitas pH krim minyak biji nyamplung 10%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for siklus1	.314	3	.	.893	3	.363
Standardized Residual for siklus2	.219	3	.	.987	3	.780
Standardized Residual for siklus3	.321	3	.	.881	3	.328
Standardized Residual for siklus4	.353	3	.	.824	3	.174
Standardized Residual for siklus5	.175	3	.	1.000	3	1.000
Standardized Residual for siklus6	.337	3	.	.855	3	.253

a. Lilliefors Significance Correction

Tests of Within-Subjects Effects

Measure:pHkrim10

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
siklus	Sphericity Assumed	.020	5	.004	2.076	.152
	Greenhouse-Geisser	.020	1.692	.012	2.076	.254
	Huynh-Feldt	.020	5.000	.004	2.076	.152
	Lower-bound	.020	1.000	.020	2.076	.286
Error(siklus)	Sphericity Assumed	.019	10	.002		
	Greenhouse-Geisser	.019	3.383	.006		
	Huynh-Feldt	.019	10.000	.002		
	Lower-bound	.019	2.000	.010		

Pairwise Comparisons

Measure:pHkrim10

(I) siklus	(J) siklus	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.037	.029	1.000	-.465	.539
	3	.043	.032	1.000	-.506	.593
	4	.067	.035	1.000	-.543	.676
	5	.090	.031	1.000	-.438	.618
	6	.097	.018	.476	-.208	.401
2	1	-.037	.029	1.000	-.539	.465
	3	.007	.043	1.000	-.729	.742
	4	.030	.031	1.000	-.498	.558
	5	.053	.007	.229	-.062	.169
	6	.060	.031	1.000	-.468	.588
3	1	-.043	.032	1.000	-.593	.506
	2	-.007	.043	1.000	-.742	.729
	4	.023	.064	1.000	-1.080	1.127
	5	.047	.038	1.000	-.618	.711
	6	.053	.049	1.000	-.795	.902
4	1	-.067	.035	1.000	-.676	.543
	2	-.030	.031	1.000	-.558	.498
	3	-.023	.064	1.000	-1.127	1.080
	5	.023	.037	1.000	-.618	.665
	6	.030	.020	1.000	-.316	.376
5	1	-.090	.031	1.000	-.618	.438
	2	-.053	.007	.229	-.169	.062
	3	-.047	.038	1.000	-.711	.618
	4	-.023	.037	1.000	-.665	.618
	6	.007	.035	1.000	-.603	.616
6	1	-.097	.018	.476	-.401	.208

2	-.060	.031	1.000	-.588	.468
3	-.053	.049	1.000	-.902	.795
4	-.030	.020	1.000	-.376	.316
5	-.007	.035	1.000	-.616	.603

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

3. Data statistik uji stabilitas pH krim minyak biji nyamplung 15%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for siklus1	.236	3	.	.977	3	.712
Standardized Residual for siklus2	.196	3	.	.996	3	.878
Standardized Residual for siklus3	.343	3	.	.842	3	.220
Standardized Residual for siklus4	.243	3	.	.972	3	.679
Standardized Residual for siklus5	.187	3	.	.998	3	.915
Standardized Residual for siklus6	.182	3	.	.999	3	.935

a. Lilliefors Significance Correction

Tests of Within-Subjects Effects

Measure:pHkrim15

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
siklus	Sphericity Assumed	.015	5	.003	.454	.801
	Greenhouse-Geisser	.015	1.547	.010	.454	.628
	Huynh-Feldt	.015	5.000	.003	.454	.801
	Lower-bound	.015	1.000	.015	.454	.570
Error(siklus)	Sphericity Assumed	.065	10	.006		
	Greenhouse-Geisser	.065	3.094	.021		
	Huynh-Feldt	.065	10.000	.006		
	Lower-bound	.065	2.000	.032		

Pairwise Comparisons

Measure:pHkrim15

(I) siklus	(J) siklus	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.000	.044	1.000	-.753	.753
	3	.017	.074	1.000	-1.254	1.288
	4	.030	.092	1.000	-1.553	1.613
	5	.040	.093	1.000	-1.565	1.645
	6	.083	.009	.165	-.069	.236
2	1	.000	.044	1.000	-.753	.753
	3	.017	.035	1.000	-.593	.626
	4	.030	.061	1.000	-1.021	1.081
	5	.040	.080	1.000	-1.346	1.426
	6	.083	.046	1.000	-.717	.883
3	1	-.017	.074	1.000	-1.288	1.254
	2	-.017	.035	1.000	-.626	.593
	4	.013	.028	1.000	-.479	.505
	5	.023	.061	1.000	-1.024	1.071
	6	.067	.073	1.000	-1.196	1.330
4	1	-.030	.092	1.000	-1.613	1.553
	2	-.030	.061	1.000	-1.081	1.021
	3	-.013	.028	1.000	-.505	.479
	5	.010	.040	1.000	-.688	.708
	6	.053	.089	1.000	-1.480	1.587
5	1	-.040	.093	1.000	-1.645	1.565
	2	-.040	.080	1.000	-1.426	1.346
	3	-.023	.061	1.000	-1.071	1.024
	4	-.010	.040	1.000	-.708	.688
	6	.043	.087	1.000	-1.454	1.541
6	1	-.083	.009	.165	-.236	.069
	2	-.083	.046	1.000	-.883	.717
	3	-.067	.073	1.000	-1.330	1.196
	4	-.053	.089	1.000	-1.587	1.480
	5	-.043	.087	1.000	-1.541	1.454

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

4. Data statistik uji stabilitas pH krim minyak biji nyamplung 20%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for siklus1	.276	3	.	.942	3	.537
Standardized Residual for siklus2	.253	3	.	.964	3	.637
Standardized Residual for siklus3	.358	3	.	.812	3	.144
Standardized Residual for siklus4	.253	3	.	.964	3	.637
Standardized Residual for siklus5	.343	3	.	.842	3	.220
Standardized Residual for siklus6	.232	3	.	.980	3	.726

a. Lilliefors Significance Correction

Tests of Within-Subjects Effects

Measure:pHkrim20

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
siklus	Sphericity Assumed	.040	5	.008	2.514	.101
	Greenhouse-Geisser	.040	1.551	.026	2.514	.220
	Huynh-Feldt	.040	5.000	.008	2.514	.101
	Lower-bound	.040	1.000	.040	2.514	.254
Error(siklus)	Sphericity Assumed	.032	10	.003		
	Greenhouse-Geisser	.032	3.102	.010		
	Huynh-Feldt	.032	10.000	.003		
	Lower-bound	.032	2.000	.016		

Pairwise Comparisons

Measure:pHkrim20

(I) siklus	(J) siklus	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.027	.038	1.000	-.638	.691
	3	.093	.038	1.000	-.556	.742
	4	.097	.027	1.000	-.364	.557
	5	.120	.070	1.000	-1.089	1.329
	6	.127	.009	.072	-.026	.279
2	1	-.027	.038	1.000	-.691	.638
	3	.067	.046	1.000	-.733	.867
	4	.070	.015	.667	-.194	.334
	5	.093	.035	1.000	-.516	.703
	6	.100	.040	1.000	-.598	.798
3	1	-.093	.038	1.000	-.742	.556
	2	-.067	.046	1.000	-.867	.733
	4	.003	.047	1.000	-.809	.816
	5	.027	.081	1.000	-1.371	1.424

	6	.033	.046	1.000	-.767	.833
4	1	-.097	.027	1.000	-.557	.364
	2	-.070	.015	.667	-.334	.194
	3	-.003	.047	1.000	-.816	.809
	5	.023	.043	1.000	-.725	.772
	6	.030	.026	1.000	-.427	.487
5	1	-.120	.070	1.000	-1.329	1.089
	2	-.093	.035	1.000	-.703	.516
	3	-.027	.081	1.000	-1.424	1.371
	4	-.023	.043	1.000	-.772	.725
	6	.007	.069	1.000	-1.183	1.197
6	1	-.127	.009	.072	-.279	.026
	2	-.100	.040	1.000	-.798	.598
	3	-.033	.046	1.000	-.833	.767
	4	-.030	.026	1.000	-.487	.427
	5	-.007	.069	1.000	-1.197	1.183

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Lampiran 10. Hasil SPSS uji stabilitas viskositas krim

1. Data statistik uji stabilitas viskositas krim kontrol negatif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for siklus1	.385	3	.	.750	3	.000
Standardized Residual for siklus2	.385	3	.	.750	3	.000
Standardized Residual for siklus3	.385	3	.	.750	3	.000
Standardized Residual for siklus4	.292	3	.	.923	3	.463
Standardized Residual for siklus5	.385	3	.	.750	3	.000
Standardized Residual for siklus6	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

Tests of Within-Subjects Effects

Measure:viskokrimbasis

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
siklus	Sphericity Assumed	577.778	5	115.556	.477	.786
	Greenhouse-Geisser	577.778	1.971	293.071	.477	.650
	Huynh-Feldt	577.778	5.000	115.556	.477	.786
	Lower-bound	577.778	1.000	577.778	.477	.561
Error(siklus)	Sphericity Assumed	2422.222	10	242.222		
	Greenhouse-Geisser	2422.222	3.943	614.322		
	Huynh-Feldt	2422.222	10.000	242.222		
	Lower-bound	2422.222	2.000	1211.111		

Pairwise Comparisons

Measure:viskokrimbasis

(I) siklus	(J) siklus	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	3.333	6.667	1.000	-111.848	118.515
	3	10.000	10.000	1.000	-162.772	182.772
	4	10.000	10.000	1.000	-162.772	182.772
	5	13.333	13.333	1.000	-217.029	243.696
	6	16.667	18.559	1.000	-303.984	337.317
2	1	-3.333	6.667	1.000	-118.515	111.848
	3	6.667	3.333	1.000	-50.924	64.257
	4	6.667	8.819	1.000	-145.704	159.037
	5	10.000	11.547	1.000	-189.500	209.500

	6	13.333	12.019	1.000	-194.312	220.979
3	1	-10.000	10.000	1.000	-182.772	162.772
	2	-6.667	3.333	1.000	-64.257	50.924
	4	.000	10.000	1.000	-172.772	172.772
	5	3.333	12.019	1.000	-204.312	210.979
	6	6.667	8.819	1.000	-145.704	159.037
4	1	-10.000	10.000	1.000	-182.772	162.772
	2	-6.667	8.819	1.000	-159.037	145.704
	3	.000	10.000	1.000	-172.772	172.772
	5	3.333	20.276	1.000	-346.977	353.643
	6	6.667	14.530	1.000	-244.365	257.698
5	1	-13.333	13.333	1.000	-243.696	217.029
	2	-10.000	11.547	1.000	-209.500	189.500
	3	-3.333	12.019	1.000	-210.979	204.312
	4	-3.333	20.276	1.000	-353.643	346.977
	6	3.333	18.559	1.000	-317.317	323.984
6	1	-16.667	18.559	1.000	-337.317	303.984
	2	-13.333	12.019	1.000	-220.979	194.312
	3	-6.667	8.819	1.000	-159.037	145.704
	4	-6.667	14.530	1.000	-257.698	244.365
	5	-3.333	18.559	1.000	-323.984	317.317

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Friedman Test

Test Statistics[a]

N	3
Chi-Square	.806
df	5
Asymp. Sig.	.977

a. Friedman Test

2. Data statistik uji stabilitas viskositas krim minyak biji nyamplung 10%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for siklus1	.385	3	.	.750	3	.000
Standardized Residual for siklus2	.356	3	.	.818	3	.157
Standardized Residual for siklus3	.337	3	.	.855	3	.253
Standardized Residual for siklus4	.175	3	.	1.000	3	1.000
Standardized Residual for siklus5	.385	3	.	.750	3	.000
Standardized Residual for siklus6	.219	3	.	.987	3	.780

a. Lilliefors Significance Correction

Tests of Within-Subjects Effects

Measure:viskokrim10

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
siklus	Sphericity Assumed	329.167	5	65.833	.091	.992
	Greenhouse-Geisser	329.167	1.513	217.534	.091	.870
	Huynh-Feldt	329.167	5.000	65.833	.091	.992
	Lower-bound	329.167	1.000	329.167	.091	.791
Error(siklus)	Sphericity Assumed	7208.333	10	720.833		
	Greenhouse-Geisser	7208.333	3.026	2381.855		
	Huynh-Feldt	7208.333	10.000	720.833		
	Lower-bound	7208.333	2.000	3604.167		

Pairwise Comparisons

Measure:viskokrim10

(I) siklus	(J) siklus	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	5.000	23.629	1.000	-403.244	413.244
	3	6.667	27.285	1.000	-464.733	478.066
	4	10.000	15.275	1.000	-253.913	273.913
	5	10.000	26.458	1.000	-447.111	467.111
	6	13.333	18.559	1.000	-307.317	333.984
2	1	-5.000	23.629	1.000	-413.244	403.244
	3	1.667	36.094	1.000	-621.936	625.269
	4	5.000	28.431	1.000	-486.211	496.211
	5	5.000	33.292	1.000	-570.186	580.186
	6	8.333	30.867	1.000	-524.963	541.630
3	1	-6.667	27.285	1.000	-478.066	464.733
	2	-1.667	36.094	1.000	-625.269	621.936
	4	3.333	12.019	1.000	-204.312	210.979
	5	3.333	3.333	1.000	-54.257	60.924
	6	6.667	8.819	1.000	-145.704	159.037
4	1	-10.000	15.275	1.000	-273.913	253.913
	2	-5.000	28.431	1.000	-496.211	486.211
	3	-3.333	12.019	1.000	-210.979	204.312
	5	.000	11.547	1.000	-199.500	199.500
	6	3.333	3.333	1.000	-54.257	60.924
5	1	-10.000	26.458	1.000	-467.111	447.111
	2	-5.000	33.292	1.000	-580.186	570.186
	3	-3.333	3.333	1.000	-60.924	54.257
	4	.000	11.547	1.000	-199.500	199.500
	6	3.333	8.819	1.000	-149.037	155.704

6	1	-13.333	18.559	1.000	-333.984	307.317
	2	-8.333	30.867	1.000	-541.630	524.963
	3	-6.667	8.819	1.000	-159.037	145.704
	4	-3.333	3.333	1.000	-60.924	54.257
	5	-3.333	8.819	1.000	-155.704	149.037

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Friedman Test

Test Statistics[a]

N	3
Chi-Square	.962
df	5
Asymp. Sig.	.966

a. Friedman Test

3. Data statistik uji stabilitas viskositas krim minyak biji nyamplung 15%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for siklus1	.292	3	.	.923	3	.463
Standardized Residual for siklus2	.219	3	.	.987	3	.780
Standardized Residual for siklus3	.253	3	.	.964	3	.637
Standardized Residual for siklus4	.175	3	.	1.000	3	1.000
Standardized Residual for siklus5	.276	3	.	.942	3	.537
Standardized Residual for siklus6	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

Tests of Within-Subjects Effects

Measure:viskokrim15

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
siklus	Sphericity Assumed	61.111	5	12.222	.058	.997
	Greenhouse-Geisser	61.111	1.983	30.811	.058	.944
	Huynh-Feldt	61.111	5.000	12.222	.058	.997
	Lower-bound	61.111	1.000	61.111	.058	.832
Error(siklus)	Sphericity Assumed	2113.889	10	211.389		
	Greenhouse-Geisser	2113.889	3.967	532.897		
	Huynh-Feldt	2113.889	10.000	211.389		
	Lower-bound	2113.889	2.000	1056.944		

Pairwise Comparisons

Measure:viskokrim15

(I) siklus	(J) siklus	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.000	10.000	1.000	-172.772	172.772
	3	1.667	10.138	1.000	-173.488	176.822
	4	3.333	16.415	1.000	-280.267	286.934
	5	3.333	9.280	1.000	-156.992	163.659
	6	5.000	2.887	1.000	-44.875	54.875
2	1	.000	10.000	1.000	-172.772	172.772
	3	1.667	6.009	1.000	-102.156	105.490
	4	3.333	16.915	1.000	-288.907	295.574
	5	3.333	17.401	1.000	-297.298	303.965
	6	5.000	10.408	1.000	-174.827	184.827
3	1	-1.667	10.138	1.000	-176.822	173.488
	2	-1.667	6.009	1.000	-105.490	102.156
	4	1.667	10.929	1.000	-187.157	190.490
	5	1.667	14.240	1.000	-244.360	247.694
	6	3.333	8.819	1.000	-149.037	155.704
4	1	-3.333	16.415	1.000	-286.934	280.267
	2	-3.333	16.915	1.000	-295.574	288.907
	3	-1.667	10.929	1.000	-190.490	187.157
	5	.000	13.229	1.000	-228.556	228.556
	6	1.667	13.642	1.000	-234.033	237.366
5	1	-3.333	9.280	1.000	-163.659	156.992
	2	-3.333	17.401	1.000	-303.965	297.298
	3	-1.667	14.240	1.000	-247.694	244.360
	4	.000	13.229	1.000	-228.556	228.556
	6	1.667	7.265	1.000	-123.849	127.182

6	1	-5.000	2.887	1.000	-54.875	44.875
	2	-5.000	10.408	1.000	-184.827	174.827
	3	-3.333	8.819	1.000	-155.704	149.037
	4	-1.667	13.642	1.000	-237.366	234.033
	5	-1.667	7.265	1.000	-127.182	123.849

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

4. Data statistik uji stabilitas viskositas krim minyak biji nyamplung 20%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for siklus1	.204	3	.	.993	3	.843
Standardized Residual for siklus2	.253	3	.	.964	3	.637
Standardized Residual for siklus3	.385	3	.	.750	3	.000
Standardized Residual for siklus4	.253	3	.	.964	3	.637
Standardized Residual for siklus5	.269	3	.	.949	3	.567
Standardized Residual for siklus6	.304	3	.	.907	3	.407

a. Lilliefors Significance Correction

Tests of Within-Subjects Effects

Measure:viskokrim20

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
siklus	Sphericity Assumed	156.944	5	31.389	.084	.993
	Greenhouse-Geisser	156.944	1.694	92.621	.084	.897
	Huynh-Feldt	156.944	5.000	31.389	.084	.993
	Lower-bound	156.944	1.000	156.944	.084	.800
Error(siklus)	Sphericity Assumed	3755.556	10	375.556		
	Greenhouse-Geisser	3755.556	3.389	1108.177		
	Huynh-Feldt	3755.556	10.000	375.556		
	Lower-bound	3755.556	2.000	1877.778		

Pairwise Comparisons

Measure:viskokrim20

(I) siklus	(J) siklus	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	3.333	15.899	1.000	-271.356	278.023
	3	6.667	14.814	1.000	-249.272	262.605
	4	5.000	7.638	1.000	-126.957	136.957
	5	8.333	24.889	1.000	-421.672	438.339
	6	8.333	23.333	1.000	-394.801	411.467
2	1	-3.333	15.899	1.000	-278.023	271.356
	3	3.333	3.333	1.000	-54.257	60.924
	4	1.667	13.017	1.000	-223.232	226.565
	5	5.000	12.583	1.000	-212.400	222.400
	6	5.000	16.073	1.000	-272.692	282.692
3	1	-6.667	14.814	1.000	-262.605	249.272
	2	-3.333	3.333	1.000	-60.924	54.257
	4	-1.667	13.642	1.000	-237.366	234.033
	5	1.667	15.899	1.000	-273.023	276.356
	6	1.667	19.221	1.000	-330.417	333.750
4	1	-5.000	7.638	1.000	-136.957	126.957
	2	-1.667	13.017	1.000	-226.565	223.232
	3	1.667	13.642	1.000	-234.033	237.366
	5	3.333	18.559	1.000	-317.317	323.984
	6	3.333	15.899	1.000	-271.356	278.023
5	1	-8.333	24.889	1.000	-438.339	421.672
	2	-5.000	12.583	1.000	-222.400	212.400
	3	-1.667	15.899	1.000	-276.356	273.023
	4	-3.333	18.559	1.000	-323.984	317.317
	6	.000	7.638	1.000	-131.957	131.957
6	1	-8.333	23.333	1.000	-411.467	394.801
	2	-5.000	16.073	1.000	-282.692	272.692
	3	-1.667	19.221	1.000	-333.750	330.417
	4	-3.333	15.899	1.000	-278.023	271.356
	5	.000	7.638	1.000	-131.957	131.957

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Friedman Test

Test Statistics[a]

N	3
Chi-Square	.481
df	5
Asymp. Sig.	.993

a. Friedman Test

Lampiran 11. Hasil uji Skin Analyzer hewan uji

1. Data persen kolagen

Kelompok uji	replikasi	Hasil persen kolagen					
		Sebelum induksi UV-A	Setelah induksi UV-A	Hari ke-1	Hari ke-7	Hari ke- 14	Hari ke- 21
-	1	53	47	48	51	57	60
	2	6	49	50	50	56	63
	3	56	45	48	50	57	61
	4	61	50	50	52	55	58
	5	65	49	50	51	59	62
Rata-rata±SD		59,2±4,71	48±2,00	49,2±1,10	50,8±0,84	56,8±1,48	60,8±1,92
+	1	60	51	58	65	70	77
	2	59	50	61	65	69	73
	3	61	49	56	65	67	73
	4	55	48	59	65	74	75
	5	63	53	58	67	72	75
Rata-rata±SD		59,6±2,97	50,2±1,92	58,4±1,82	65,4±0,89	70,4±2,70	74,6±1,67
F2	1	69	53	57	61	68	70
	2	61	50	54	62	65	69
	3	61	49	55	59	63	68
	4	63	51	53	59	63	69
	5	59	49	55	60	67	71
Rata-rata±SD		62,6±3,85	50,4±1,67	54,8±1,48	60,2±1,30	65,2±2,28	69,4±1,14
F3	1	61	49	55	59	60	67
	2	63	50	59	65	72	79
	3	57	50	55	63	67	72
	4	58	45	57	62	65	69
	5	67	56	65	69	73	74
Rata-rata±SD		61,2±4,02	50±3,94	58,2±4,15	63,6±3,71	67,4±5,32	72,2±4,66
F4	1	68	54	61	65	70	79
	2	60	49	57	59	63	70
	3	70	57	63	67	70	73
	4	65	53	57	59	67	75
	5	69	59	64	66	68	71
Rata-rata±SD		64±4,04	53,33±3,85	60,33±3,29	63,67±3,90	67,67±2,88	74,00±3,58

2. Data persen elastisitas

Kelompok uji	replikasi	Hasil persen elastisitas					
		Sebelum induksi UV-A	Sesudah induksi UV-A	Hari ke- 1	Hari ke-7	Hari ke- 14	Hari ke- 21
-	1	59	44	50	53	55	60
	2	63	52	54	57	59	60
	3	62	49	53	53	62	65
	4	61	52	57	60	63	65
	5	57	45	51	55	61	63
Rata-rata±SD		60,4±2,41	48,4±3,78	53±2,74	55,6±2,97	60±3,16	62,6±2,51
+	1	63	50	58	65	70	73
	2	63	49	56	64	69	73
	3	62	53	61	65	70	76
	4	62	51	60	63	66	75
	5	61	50	58	65	69	72
Rata-rata±SD		62,2±0,58	50,6±1,71	58,6±2,22	64,4±0,96	68,8±1,89	73,8±1,50
F2	1	60	50	54	62	65	70
	2	62	51	56	61	67	69
	3	64	54	56	62	66	68
	4	55	45	52	57	60	64
	5	58	50	54	62	66	70
Rata-rata±SD		59,8±3,49	50±3,24	54,4±1,67	60,8±2,17	64,8±2,77	68,2±2,49
F3	1	59	51	58	61	65	68
	2	60	50	57	63	66	70
	3	62	50	59	62	66	71
	4	58	49	54	60	65	70
	5	58	48	54	61	64	68
Rata-rata±SD		59,4±1,67	49,6±1,14	56,4±2,30	61,4±1,14	65,2±0,84	69,4±1,34
F4	1	60	50	56	63	67	71
	2	60	51	59	62	65	72
	3	63	52	58	64	66	70
	4	65	52	58	62	64	69
	5	60	53	59	65	69	71
Rata-rata±SD		61,6±2,30	51,6±1,14	58±1,22	63,2±1,30	66,2±1,92	70,6±1,14

3. Data persen kelembaban

Kelompok uji	Replikasi	Hasil persen kelembaban					
		Sebelum induksi UV-A	Sesudah induksi UV-A	Hari ke- 1	Hari ke- 7	Hari ke- 14	Hari ke- 21
-	1	12	5	9	12	14	16
	2	14	6	7	8	10	12
	3	11	5	7	9	10	11
	4	10	3	5	6	8	10
	5	9	3	4	6	8	9
Rata-rata±SD		11,2±1,92	4,4±1,34	6,4±1,95	8,2±2,49	10±2,45	11,6±2,70
+	1	7	4	9	14	17	20
	2	9	3	9	13	16	19
	3	9	3	10	13	17	20
	4	13	6	12	16	19	21
	5	10	7	12	15	19	22
Rata-rata±SD		9,6±2,19	4,6±1,82	10,4±1,52	14,2±1,30	17,6±1,34	20,4±1,14
F2	1	10	4	6	10	13	15
	2	13	6	10	12	15	16
	3	12	5	8	10	14	15
	4	8	2	5	10	14	16
	5	10	5	6	9	12	13
Rata-rata± SD		10,6±1,95	4,4±1,52	7±2,00	10,2±1,10	13,6±1,14	15±1,22
F3	1	11	5	8	13	14	17
	2	9	4	7	12	14	16
	3	19	10	12	16	18	21
	4	10	4	7	11	15	17
	5	11	6	8	9	13	16
Rata-rata±SD		12±4,00	5,8±2,49	8,4±2,07	12,2±2,59	14,8±1,92	17,4±2,07
F4	1	14	7	11	14	17	19
	2	11	4	10	15	18	20
	3	13	7	12	15	18	21
	4	9	4	9	12	17	20
	5	10	3	7	10	14	17
Rata-rata± SD		11,4±2,07	5±1,87	9,8±1,92	13,2±2,17	16,8±1,64	19,4±1,52

4. Data luas pori-pori

Kelompok uji	Replikasi	Hasil luas pori-pori					
		Sebelum induksi UV-A	Sesudah induksi UV-A	Hari ke-1	Hari ke-7	Hari ke-14	Hari ke-21
-	1	0,02	0,1	0,07	0,04	0,03	0,01
	2	0,05	0,19	0,18	0,16	0,1	0,05
	3	0	0,11	0,08	0,05	0,03	0,01
	4	0,03	0,13	0,09	0,04	0,01	0
	5	0	0,16	0,14	0,08	0,07	0,04
Rata-rata±SD		0,02±0,02	0,138±0,037	0,112±0,047	0,074±0,051	0,048±0,036	0,022±0,022
+	1	0	0,17	0,09	0,05	0,01	0
	2	0,04	0,13	0,09	0,04	0,01	0
	3	0,01	0,16	0,09	0,04	0,02	0,01
	4	0	0,1	0,05	0,03	0	0
	5	0,03	0,18	0,11	0,09	0,02	0,01
Rata-rata±SD		0,016±0,02	0,148±0,033	0,086±0,022	0,05±0,023	0,012±0,008	0,004±0,005
F2	1	0,01	0,17	0,1	0,05	0,03	0,01
	2	0	0,18	0,14	0,09	0,07	0,01
	3	0,01	0,17	0,13	0,1	0,06	0,03
	4	0,02	0,18	0,09	0,05	0,03	0,01
	5	0	0,09	0,07	0,04	0,02	0
Rata-rata±SD		0,008±0,008	0,158±0,038	0,106±0,029	0,066±0,027	0,042±0,022	0,012±0,011
F3	1	0,01	0,14	0,1	0,05	0,03	0
	2	0	0,18	0,14	0,07	0,04	0,01
	3	0,02	0,17	0,1	0,06	0,03	0,01
	4	0	0,15	0,09	0,05	0,02	0
	5	0,05	0,13	0,09	0,06	0,03	0,02
Rata-rata±SD		0,016±0,021	0,154±0,021	0,104±0,021	0,058±0,008	0,03±0,007	0,008±0,008
F4	1	0,01	0,13	0,08	0,05	0,01	0
	2	0,04	0,11	0,09	0,04	0,02	0
	3	0	0,19	0,15	0,09	0,05	0,01
	4	0,02	0,17	0,12	0,08	0,05	0,02
	5	0	0,13	0,09	0,03	0,01	0
Rata-rata±SD		0,014±0,0167	0,146±0,033	0,106±0,029	0,058±0,026	0,028±0,020	0,006±0,009

Lampiran 12. Hasil perhitungan nilai AUC

1. Perhitungan AUC kolagen

Kelompok	AUC kolagen					
	AUC_{0}^{1}	AUC_{1}^{7}	AUC_{7}^{14}	AUC_{14}^{21}	AUC_{21}^{28}	Total
Kontrol negatif	50	285	346,5	378	409,5	1469
	55	297	350	371	416,5	1489,5
	50,5	279	343	374,5	413	1460
	55,5	300	357	374,5	395,5	1482,5
	57	297	353,5	385	423,5	1516
Rata-rata±SD	1483,4±21,53892					
Kontrol positif	55,5	327	430,5	472,5	514,5	1800
	54,5	333	441	469	497	1794,5
	55	315	423,5	462	490	1745,5
	51,5	321	434	486,5	521,5	1814,5
	58	333	437,5	486,5	514,5	1829,5
Rata-rata±SD	1796,8±36,59235					
%peningkatan	18,85					
Krim minyak biji nyamplung 10%	61	330	413	451,5	483	1738,5
	55,5	312	406	444,5	469	1687
	55	312	399	427	458,5	1651,5
	57	312	392	427	462	1650
	54	312	402,5	444,5	483	1696
Rata-rata±SD	1684,6±23,82007					
%peningkatan	12,84					
Krim minyak biji nyamplung 15%	55	312	399	416,5	444,5	1627
	56,5	327	434	479,5	528,5	1825,5
	53,5	315	413	455	486,5	1723
	51,5	306	416,5	444,5	469	1687,5
	61,5	363	469	497	514,5	1905
Rata-rata±SD	1753,6±98,97853					
%peningkatan	15,88					
Krim minyak biji nyamplung 20%	61	345	441	472,5	521,5	1841
	54,5	318	406	427	465,5	1671
	63,5	360	455	479,5	500,5	1858,5
	59	330	406	441	497	1733
	64	369	455	469	486,5	1843,5
Rata-rata±SD	1789,4±89,88048					
%peningkatan	17,46					

2. Perhitungan AUC elastisitas

Kelompok	AUC Elastisitas					
	AUC $_{0}^{1}$	AUC $_{1}^{7}$	AUC $_{7}^{14}$	AUC $_{14}^{21}$	AUC $_{21}^{28}$	Total
Kontrol negatif	51,5	282	360,5	378	402,5	1474,5
	57,5	318	388,5	406	416,5	1586,5
	55,5	306	371	402,5	444,5	1579,5
	56,5	327	409,5	430,5	448	1671,5
	51	288	371	406	434	1550
Rata-rata±SD	1578±70,98627					
Kontrol positif	56,5	324	430,5	472,5	500,5	1784
	56	315	420	465,5	497	1753,5
	57,5	342	441	472,5	511	1824
	56,5	333	430,5	451,5	493,5	1765
	55,5	324	430,5	469	493,5	1772,5
Rata-rata±SD	1781,625±27,0892					
%peningkatan	11,43					
Krim minyak biji nyamplung 10%	55	312	406	444,5	472,5	1690
	56,5	321	409,5	448	476	1711
	59	330	413	448	469	1719
	50	291	381,5	409,5	434	1566
	54	312	406	448	476	1696
Rata-rata±SD	1671,5±62,78774					
%peningkatan	5,59					
Krim minyak biji nyamplung 15%	55	327	416,5	441	465,5	1705
	55	321	420	451,5	476	1723,5
	56	327	423,5	448	479,5	1734
	53,5	309	399	437,5	472,5	1671,5
	53	306	402,5	437,5	462	1661
Rata-rata±SD	1708,5±31,86495					
%peningkatan	7,64					
Krim minyak biji nyamplung 20%	55	318	416,5	455	483	1727,5
	55,5	330	423,5	444,5	479,5	1733
	57,5	330	427	455	476	1745,5
	58,5	330	420	441	465,5	1715
	56,5	336	434	469	490	1785,5
Rata-rata±SD	1730,25±27,02915					
%peningkatan	8,80					

3. Perhitungan AUC kelembaban

Kelompok	AUC Kelembaban					
	AUC_{0}^{1}	AUC_{1}^{7}	AUC_{7}^{14}	AUC_{14}^{21}	AUC_{21}^{28}	Total
Kontrol negatif	8,5	42	73,5	91	105	320
	10	39	52,5	63	77	241,5
	8	36	56	66,5	73,5	240
	6,5	24	38,5	49	63	181
	6	21	35	49	59,5	170,5
Rata-rata ±SD	230,6 ±59,73211					
Kontrol positif	5,5	39	80,5	108,5	129,5	363
	6	36	77	101,5	122,5	343
	6	39	80,5	105	129,5	360
	9,5	54	98	122,5	140	424
	8,5	57	94,5	119	143,5	422,5
Rata-rata ±SD	382,5 ± 37,97697					
%peningkatan	39,71242					
Krim minyak biji nyamplung 10%	7	30	56	80,5	98	271,5
	9,5	48	77	94,5	108,5	337,5
	8,5	39	63	84	101,5	296
	5	21	52,5	84	105	267,5
	7,5	33	52,5	73,5	87,5	254
Rata-rata ±SD	285,3 ±32,88731					
%peningkatan	19,1728					
Krim minyak biji nyamplung 15%	8	39	73,5	94,5	108,5	323,5
	6,5	33	66,5	91	105	302
	14,5	66	98	119	136,5	434
	7	33	63	91	112	306
	8,5	42	59,5	77	101,5	288,5
Rata-rata ±SD	330,8 ±59,02817					
%peningkatan	30,29021					
Krim minyak biji nyamplung 20%	10,5	54	87,5	108,5	126	386,5
	7,5	42	87,5	115,5	133	385,5
	10	57	94,5	115,5	136,5	413,5
	6,5	39	73,5	101,5	129,5	350
	6,5	30	59,5	84	108,5	288,5
Rata-rata ±SD	364,8 ±48,24883					
%peningkatan	36,78728					

4. Perhitungan AUC pori-pori

Kelompok	AUC Pori-pori					
	AUC_{0}^{1}	AUC_{1}^{7}	AUC_{7}^{14}	AUC_{14}^{21}	AUC_{21}^{28}	Total
Kontrol negatif	0,06	0,51	0,385	0,245	0,14	1,34
	0,12	1,11	1,19	0,91	0,525	3,855
	0,055	0,57	0,455	0,28	0,14	1,5
	0,08	0,66	0,455	0,175	0,035	1,405
	0,08	0,9	0,77	0,525	0,385	2,66
Rata-rata±SD	2,152±1,095528					
Kontrol positif	0,085	0,78	0,49	0,21	0,035	1,41
	0,085	0,66	0,455	0,175	0,035	1,605
	0,085	0,75	0,455	0,21	0,105	0,885
	0,05	0,45	0,28	0,105	0	2,165
	0,105	0,87	0,7	0,385	0,105	2,165
Rata-rata±SD	1,646 ±0,542038					
%penurunan	23,51301					
Krim minyak biji nyamplung 10%	0,09	0,81	0,525	0,28	0,14	2,695
	0,09	0,96	0,805	0,56	0,28	2,67
	0,09	0,9	0,805	0,56	0,315	1,82
	0,1	0,81	0,49	0,28	0,14	1,19
	0,045	0,48	0,385	0,21	0,07	1,19
Rata-rata±SD	1,913 ±0,748111					
% penurunan	11,10595					
Krim minyak biji nyamplung 15%	0,075	0,72	0,525	0,28	0,105	2,345
	0,09	0,96	0,735	0,385	0,175	1,92
	0,095	0,81	0,56	0,315	0,14	1,6
	0,075	0,72	0,49	0,245	0,07	1,765
	0,09	0,66	0,525	0,315	0,175	1,765
Rata-rata±SD	1,879± 0,28402					
%penurunan	12,68587					
Krim minyak biji nyamplung 20%	0,07	0,63	0,455	0,21	0,035	1,41
	0,075	0,6	0,455	0,21	0,07	2,655
	0,095	1,02	0,84	0,49	0,21	2,365
	0,095	0,87	0,7	0,455	0,245	1,32
	0,065	0,66	0,42	0,14	0,035	1,32
Rata-rata±SD	1,814 ±0,644626					
%penurunan	15,70632					

Lampiran 13. Hasil Statistika Kolagen Hewan Uji dengan Skin Analyzer

1. Hasil uji statistik One Way Anova AUC kolagen

One-Sample Kolmogorov-Smirnov Test

		AUC kolagen
N		25
Normal Parameters[a,,b]	Mean	318.800
	Std. Deviation	71.7960
Most Extreme Differences	Absolute	.066
	Positive	.054
	Negative	-.066
Kolmogorov-Smirnov Z		.332
Asymp. Sig. (2-tailed)		1.000

a. Test distribution is Normal.

b. Calculated from data.

ANOVA

AUC kolagen

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	76095.900	4	19023.975	7.991	.001
Within Groups	47616.100	20	2380.805		
Total	123712.000	24			

AUC kolagen

Tukey HSD[a]

		Subset for alpha = 0.05		
Krim	N	1	2	3
krim kontrol negatif	5	230.600		
krim minyak biji nyamplung 10%	5	285.300	285.300	
krim minyak bij nyamplung 15%	5		330.800	330.800
krim minyak biji nyamplung 20%	5		364.800	364.800
krim kontrol positif	5			382.500
Sig.		.416	.113	.470

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5,000.

2. Hasil uji statistik Repeated Measures Anova persen kolagen kontrol negatif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sebelumUV	.249	5	.200*	.950	5	.734
Standardized Residual for sesudahUV	.291	5	.191	.905	5	.440
Standardized Residual for minggupertama	.367	5	.026	.684	5	.006
Standardized Residual for minggukedua	.231	5	.200*	.881	5	.314
Standardized Residual for mingguketiga	.246	5	.200*	.956	5	.777
Standardized Residual for minggukeempat	.141	5	.200*	.979	5	.928

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:kolagen

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	751.467	5	150.293	33.824	.000
	Greenhouse-Geisser	751.467	1.947	385.894	33.824	.000
	Huynh-Feldt	751.467	3.769	199.375	33.824	.000
	Lower-bound	751.467	1.000	751.467	33.824	.004
Error(waktu)	Sphericity Assumed	88.867	20	4.443		
	Greenhouse-Geisser	88.867	7.789	11.409		
	Huynh-Feldt	88.867	15.076	5.894		
	Lower-bound	88.867	4.000	22.217		

Pairwise Comparisons

Measure:kolagen

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	11.200*	1.594	.032	1.233	21.167
	3	10.000	1.673	.059	-.465	20.465
	4	8.400	2.064	.228	-4.508	21.308
	5	2.400	2.064	1.000	-10.508	15.308
	6	-1.600	2.040	1.000	-14.356	11.156
2	1	-11.200*	1.594	.032	-21.167	-1.233
	3	-1.200	.490	1.000	-4.264	1.864
	4	-2.800	.735	.284	-7.396	1.796
	5	-8.800*	1.241	.031	-16.561	-1.039
	6	-12.800*	1.319	.009	-21.050	-4.550
3	1	-10.000	1.673	.059	-20.465	.465
	2	1.200	.490	1.000	-1.864	4.264

	4	-1.600	.510	.524	-4.789	1.589
	5	-7.600*	.872	.014	-13.052	-2.148
	6	-11.600*	.927	.004	-17.400	-5.800
4	1	-8.400	2.064	.228	-21.308	4.508
	2	2.800	.735	.284	-1.796	7.396
	3	1.600	.510	.524	-1.589	4.789
	5	-6.000*	.837	.030	-11.233	-.767
	6	-10.000*	1.183	.016	-17.400	-2.600
5	1	-2.400	2.064	1.000	-15.308	10.508
	2	8.800*	1.241	.031	1.039	16.561
	3	7.600*	.872	.014	2.148	13.052
	4	6.000*	.837	.030	.767	11.233
	6	-4.000	.775	.100	-8.844	.844
6	1	1.600	2.040	1.000	-11.156	14.356
	2	12.800*	1.319	.009	4.550	21.050
	3	11.600*	.927	.004	5.800	17.400
	4	10.000*	1.183	.016	2.600	17.400
	5	4.000	.775	.100	-.844	8.844

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

3. Hasil uji statistik Repeated Measures persen kolagen kontrol positif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sebelumUV	.220	5	.200*	.956	5	.777
Standardized Residual for sesudahUV	.141	5	.200*	.979	5	.928
Standardized Residual for minggupertama	.213	5	.200*	.963	5	.826
Standardized Residual for minggukedua	.473	5	.001	.552	5	.000
Standardized Residual for mingguketiga	.159	5	.200*	.990	5	.980
Standardized Residual for minggukeempat	.231	5	.200*	.881	5	.314

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:kolagenkrimpositif

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	1957.900	5	391.580	97.977	.000
	Greenhouse-Geisser	1957.900	1.886	1038.153	97.977	.000
	Huynh-Feldt	1957.900	3.514	557.101	97.977	.000
	Lower-bound	1957.900	1.000	1957.900	97.977	.001
Error(waktu)	Sphericity Assumed	79.933	20	3.997		
	Greenhouse-Geisser	79.933	7.544	10.596		
	Huynh-Feldt	79.933	14.058	5.686		
	Lower-bound	79.933	4.000	19.983		

Pairwise Comparisons

Measure:elastisitas

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	9.800*	.663	.002	5.652	13.948
	3	4.400*	.678	.044	.158	8.642
	4	-1.800	.583	.550	-5.447	1.847
	5	-5.000*	.632	.021	-8.955	-1.045
	6	-9.800*	.374	.000	-12.140	-7.460
2	1	-9.800*	.663	.002	-13.948	-5.652
	3	-5.400	.927	.065	-11.200	.400
	4	-11.600*	.678	.001	-15.842	-7.358
	5	-14.800*	.735	.001	-19.396	-10.204
	6	-19.600*	.678	.000	-23.842	-15.358
3	1	-4.400*	.678	.044	-8.642	-.158
	2	5.400	.927	.065	-.400	11.200
	4	-6.200	1.200	.100	-13.705	1.305
	5	-9.400*	1.249	.025	-17.211	-1.589
	6	-14.200*	.917	.002	-19.932	-8.468
4	1	1.800	.583	.550	-1.847	5.447
	2	11.600*	.678	.001	7.358	15.842
	3	6.200	1.200	.100	-1.305	13.705
	5	-3.200*	.490	.043	-6.264	-.136
	6	-8.000*	.632	.003	-11.955	-4.045
5	1	5.000*	.632	.021	1.045	8.955
	2	14.800*	.735	.001	10.204	19.396
	3	9.400*	1.249	.025	1.589	17.211
	4	3.200*	.490	.043	.136	6.264
	6	-4.800*	.374	.003	-7.140	-2.460

6	1	9.800*	.374	.000	7.460	12.140
	2	19.600*	.678	.000	15.358	23.842
	3	14.200*	.917	.002	8.468	19.932
	4	8.000*	.632	.003	4.045	11.955
	5	4.800*	.374	.003	2.460	7.140

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

4. Hasil uji statistik Repeated Measures persen kolagen krim minyak biji nyamplung 10%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sesudahUV	.261	5	.200*	.859	5	.223
Standardized Residual for sebelumUV	.201	5	.200*	.881	5	.314
Standardized Residual for minggupertama	.246	5	.200*	.956	5	.777
Standardized Residual for minggukedua	.221	5	.200*	.902	5	.421
Standardized Residual for mingguketiga	.233	5	.200*	.884	5	.329
Standardized Residual for minggukeenpat	.237	5	.200*	.961	5	.814

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:kolagen

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	1201.367	5	240.273	82.192	.000
	Greenhouse-Geisser	1201.367	1.807	664.919	82.192	.000
	Huynh-Feldt	1201.367	3.207	374.592	82.192	.000
	Lower-bound	1201.367	1.000	1201.367	82.192	.001
Error(waktu)	Sphericity Assumed	58.467	20	2.923		
	Greenhouse-Geisser	58.467	7.227	8.090		
	Huynh-Feldt	58.467	12.829	4.558		
	Lower-bound	58.467	4.000	14.617		

Pairwise Comparisons

Measure:kolagen

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	12.200*	1.020	.004	5.822	18.578
	3	7.800	1.428	.082	-1.133	16.733
	4	2.400	1.691	1.000	-8.177	12.977
	5	-2.600	1.600	1.000	-12.607	7.407
	6	-6.800	1.772	.277	-17.882	4.282
2	1	-12.200*	1.020	.004	-18.578	-5.822
	3	-4.400	.748	.063	-9.080	.280
	4	-9.800*	.800	.004	-14.803	-4.797
	5	-14.800*	.970	.002	-20.864	-8.736
	6	-19.000*	.837	.000	-24.233	-13.767
3	1	-7.800	1.428	.082	-16.733	1.133
	2	4.400	.748	.063	-.280	9.080
	4	-5.400*	.748	.029	-10.080	-.720
	5	-10.400*	.678	.002	-14.642	-6.158
	6	-14.600*	.678	.000	-18.842	-10.358
4	1	-2.400	1.691	1.000	-12.977	8.177
	2	9.800*	.800	.004	4.797	14.803
	3	5.400*	.748	.029	.720	10.080
	5	-5.000	.837	.059	-10.233	.233
	6	-9.200*	.663	.002	-13.348	-5.052
5	1	2.600	1.600	1.000	-7.407	12.607
	2	14.800*	.970	.002	8.736	20.864
	3	10.400*	.678	.002	6.158	14.642
	4	5.000	.837	.059	-.233	10.233
	6	-4.200*	.663	.048	-8.348	-.052
6	1	6.800	1.772	.277	-4.282	17.882
	2	19.000*	.837	.000	13.767	24.233
	3	14.600*	.678	.000	10.358	18.842
	4	9.200*	.663	.002	5.052	13.348
	5	4.200*	.663	.048	.052	8.348

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

5. Hasil uji statistik Repeated Measures persen kolagen krim minyak biji nyamplung 15%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sebelumUV	.187	5	.200*	.952	5	.750
Standardized Residual for sesudahUV	.300	5	.161	.920	5	.530
Standardized Residual for minggupertama	.224	5	.200*	.842	5	.171
Standardized Residual for minggukedua	.164	5	.200*	.984	5	.955
Standardized Residual for mingguketiga	.206	5	.200*	.943	5	.685
Standardized Residual for minggukeempat	.154	5	.200*	.971	5	.884

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:kolagen

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Waktu	Sphericity Assumed	1473.900	5	294.780	53.145	.000
	Greenhouse-Geisser	1473.900	2.133	690.851	53.145	.000
	Huynh-Feldt	1473.900	4.643	317.412	53.145	.000
	Lower-bound	1473.900	1.000	1473.900	53.145	.002
Error(waktu)	Sphericity Assumed	110.933	20	5.547		
	Greenhouse-Geisser	110.933	8.534	12.999		
	Huynh-Feldt	110.933	18.574	5.973		
	Lower-bound	110.933	4.000	27.733		

Pairwise Comparisons

Measure:kolagen

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	11.200*	1.114	.008	4.236	18.164
	3	3.000	.894	.427	-2.594	8.594
	4	-2.400	1.327	1.000	-10.697	5.897
	5	-6.200	1.934	.491	-18.295	5.895
	6	-11.000	2.025	.084	-23.664	1.664
2	1	-11.200*	1.114	.008	-18.164	-4.236
	3	-8.200*	1.241	.041	-15.961	-.439
	4	-13.600*	1.166	.005	-20.893	-6.307
	5	-17.400*	1.860	.011	-29.033	-5.767
	6	-22.200*	2.059	.006	-35.078	-9.322

3	1	-3.000	.894	.427	-8.594	2.594
	2	8.200*	1.241	.041	.439	15.961
	4	-5.400*	.748	.029	-10.080	-.720
	5	-9.200*	1.463	.049	-18.349	-.051
	6	-14.000*	1.975	.031	-26.351	-1.649
4	1	2.400	1.327	1.000	-5.897	10.697
	2	13.600*	1.166	.005	6.307	20.893
	3	5.400*	.748	.029	.720	10.080
	5	-3.800	.970	.259	-9.864	2.264
	6	-8.600	1.503	.069	-18.002	.802
5	1	6.200	1.934	.491	-5.895	18.295
	2	17.400*	1.860	.011	5.767	29.033
	3	9.200*	1.463	.049	.051	18.349
	4	3.800	.970	.259	-2.264	9.864
	6	-4.800	1.114	.188	-11.764	2.164
6	1	11.000	2.025	.084	-1.664	23.664
	2	22.200*	2.059	.006	9.322	35.078
	3	14.000*	1.975	.031	1.649	26.351
	4	8.600	1.503	.069	-.802	18.002
	5	4.800	1.114	.188	-2.164	11.764

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

6. Hasil uji statistik Repeated Measures persen kolagen krim minyak biji nyamplung 20%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sebelumUV	.254	5	.200*	.889	5	.350
Standardized Residual for sesudahUV	.158	5	.200*	.979	5	.928
Standardized Residual for minggupertama	.250	5	.200*	.862	5	.234
Standardized Residual for minggukedua	.278	5	.200*	.807	5	.093
Standardized Residual for mingguketiga	.218	5	.200*	.871	5	.269
Standardized Residual for minggukeempat	.167	5	.200*	.943	5	.685

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:kolagen

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	1081.067	5	216.213	46.698	.000
	Greenhouse-Geisser	1081.067	1.475	732.745	46.698	.000
	Huynh-Feldt	1081.067	2.130	507.604	46.698	.000
	Lower-bound	1081.067	1.000	1081.067	46.698	.002
Error(waktu)	Sphericity Assumed	92.600	20	4.630		
	Greenhouse-Geisser	92.600	5.901	15.691		
	Huynh-Feldt	92.600	8.519	10.870		
	Lower-bound	92.600	4.000	23.150		

Pairwise Comparisons

Measure:kolagen

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	12.000*	.707	.001	7.578	16.422
	3	6.000*	.894	.039	.406	11.594
	4	3.200	.800	.242	-1.803	8.203
	5	-1.200	.735	1.000	-5.796	3.396
	6	-7.200	1.934	.306	-19.295	4.895
2	1	-12.000*	.707	.001	-16.422	-7.578
	3	-6.000*	.707	.016	-10.422	-1.578
	4	-8.800*	.970	.012	-14.864	-2.736
	5	-13.200*	1.158	.005	-20.440	-5.960
	6	-19.200*	2.311	.017	-33.652	-4.748
3	1	-6.000*	.894	.039	-11.594	-.406
	2	6.000*	.707	.016	1.578	10.422
	4	-2.800	.490	.070	-5.864	.264
	5	-7.200*	1.068	.038	-13.878	-.522
	6	-13.200	2.177	.056	-26.816	.416
4	1	-3.200	.800	.242	-8.203	1.803
	2	8.800*	.970	.012	2.736	14.864
	3	2.800	.490	.070	-.264	5.864
	5	-4.400	1.030	.194	-10.839	2.039
	6	-10.400	2.159	.128	-23.901	3.101
5	1	1.200	.735	1.000	-3.396	5.796
	2	13.200*	1.158	.005	5.960	20.440
	3	7.200*	1.068	.038	.522	13.878
	4	4.400	1.030	.194	-2.039	10.839
	6	-6.000	1.265	.135	-13.911	1.911

6	1	7.200	1.934	.306	-4.895	19.295
	2	19.200*	2.311	.017	4.748	33.652
	3	13.200	2.177	.056	-.416	26.816
	4	10.400	2.159	.128	-3.101	23.901
	5	6.000	1.265	.135	-1.911	13.911

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Lampiran 14. Hasil Statistika Elastisitas Hewan Uji dengan Skin Analyzer

1. Hasil uji statistik One Way Anova AUC elastisitas

One-Sample Kolmogorov-Smirnov Test

		AUC elastisitas
N		25
Normal Parameters[a,,b]	Mean	1693.780
	Std. Deviation	84.0249
Most Extreme Differences	Absolute	.162
	Positive	.099
	Negative	-.162
Kolmogorov-Smirnov Z		.810
Asymp. Sig. (2-tailed)		.527

a. Test distribution is Normal.

b. Calculated from data.

ANOVA

AUC elastisitas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	123600.040	4	30900.010	13.480	.000
Within Groups	45844.500	20	2292.225		
Total	169444.540	24			

AUC elastisitas

Tukey HSD[a]

Krim	N	Subset for alpha = 0.05		
		1	2	3
krim kontrol negatif	5	1572.400		
krim minyak biji nyamplung 10%	5		1676.400	
krim minyak biji nyamplung 15%	5		1699.000	1699.000
krim minyak biji nyamplung 20%	5		1741.300	1741.300
krim kontrol positif	5			1779.800
Sig.		1.000	.241	.095

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5,000.

2. Hasil uji statistik Repeated Measures Anova persen elastisitas krim kontrol negatif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sebelumUV	.198	5	.200*	.957	5	.787
Standardized Residual for sesudahUV	.229	5	.200*	.858	5	.222
Standardized Residual for minggupertama	.167	5	.200*	.964	5	.833
Standardized Residual for minggukedua	.210	5	.200*	.897	5	.391
Standardized Residual for mingguketiga	.224	5	.200*	.912	5	.482
Standardized Residual for minggukeempat	.250	5	.200*	.814	5	.105

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:elastisitaskrimneg

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	715.867	5	143.173	36.185	.000
	Greenhouse-Geisser	715.867	2.390	299.507	36.185	.000
	Huynh-Feldt	715.867	5.000	143.173	36.185	.000
	Lower-bound	715.867	1.000	715.867	36.185	.004
Error(waktu)	Sphericity Assumed	79.133	20	3.957		
	Greenhouse-Geisser	79.133	9.561	8.277		
	Huynh-Feldt	79.133	20.000	3.957		
	Lower-bound	79.133	4.000	19.783		

Pairwise Comparisons

Measure:elastisitaskrimneg

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	12.000*	1.000	.004	5.746	18.254
	3	7.400*	1.030	.030	.961	13.839
	4	4.800	1.463	.457	-4.349	13.949
	5	.400	1.600	1.000	-9.607	10.407
	6	-2.200	1.530	1.000	-11.767	7.367
2	1	-12.000*	1.000	.004	-18.254	-5.746
	3	-4.600	.748	.053	-9.280	.080
	4	-7.200	1.158	.051	-14.440	.040
	5	-11.600*	1.470	.021	-20.792	-2.408
	6	-14.200*	1.744	.019	-25.104	-3.296

3	1	-7.400*	1.030	.030	-13.839	-.961
	2	4.600	.748	.053	-.080	9.280
	4	-2.600	.678	.278	-6.842	1.642
	5	-7.000*	1.049	.039	-13.559	-.441
	6	-9.600*	1.166	.018	-16.893	-2.307
4	1	-4.800	1.463	.457	-13.949	4.349
	2	7.200	1.158	.051	-.040	14.440
	3	2.600	.678	.278	-1.642	6.842
	5	-4.400	1.364	.481	-12.929	4.129
	6	-7.000	1.517	.149	-16.485	2.485
5	1	-.400	1.600	1.000	-10.407	9.607
	2	11.600*	1.470	.021	2.408	20.792
	3	7.000*	1.049	.039	.441	13.559
	4	4.400	1.364	.481	-4.129	12.929
	6	-2.600	.678	.278	-6.842	1.642
6	1	2.200	1.530	1.000	-7.367	11.767
	2	14.200*	1.744	.019	3.296	25.104
	3	9.600*	1.166	.018	2.307	16.893
	4	7.000	1.517	.149	-2.485	16.485
	5	2.600	.678	.278	-1.642	6.842

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

3. Hasil uji statistik Repeated Measures Anova persen elastisitas krim kontrol positif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.231	5	.200*	.881	5	.314
Standardized Residual for ssdhUV	.254	5	.200*	.914	5	.492
Standardized Residual for mggprtm	.221	5	.200*	.953	5	.758
Standardized Residual for mggkdua	.349	5	.046	.771	5	.046
Standardized Residual for mggktga	.348	5	.047	.779	5	.054
Standardized Residual for mggkeempat	.287	5	.200*	.914	5	.490

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:elastisitaskrimpos

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	1629.867	5	325.973	191.000	.000
	Greenhouse-Geisser	1629.867	1.676	972.745	191.000	.000
	Huynh-Feldt	1629.867	2.744	594.037	191.000	.000
	Lower-bound	1629.867	1.000	1629.867	191.000	.000
Error(waktu)	Sphericity Assumed	34.133	20	1.707		
	Greenhouse-Geisser	34.133	6.702	5.093		
	Huynh-Feldt	34.133	10.975	3.110		
	Lower-bound	34.133	4.000	8.533		

Pairwise Comparisons

Measure:elastisitaskrimpos

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	11.600*	.872	.003	6.148	17.052
	3	3.600	1.077	.432	-3.136	10.336
	4	-2.200	.583	.293	-5.847	1.447
	5	-6.600*	.748	.014	-11.280	-1.920
	6	-11.600*	.812	.002	-16.681	-6.519
2	1	-11.600*	.872	.003	-17.052	-6.148
	3	-8.000*	.316	.000	-9.978	-6.022
	4	-13.800*	.735	.001	-18.396	-9.204
	5	-18.200*	.970	.001	-24.264	-12.136
	6	-23.200*	.374	.000	-25.540	-20.860
3	1	-3.600	1.077	.432	-10.336	3.136
	2	8.000*	.316	.000	6.022	9.978
	4	-5.800	.970	.059	-11.864	.264
	5	-10.200*	1.241	.018	-17.961	-2.439
	6	-15.200*	.490	.000	-18.264	-12.136
4	1	2.200	.583	.293	-1.447	5.847
	2	13.800*	.735	.001	9.204	18.396
	3	5.800	.970	.059	-.264	11.864
	5	-4.400*	.400	.006	-6.902	-1.898
	6	-9.400*	.927	.008	-15.200	-3.600
5	1	6.600*	.748	.014	1.920	11.280
	2	18.200*	.970	.001	12.136	24.264
	3	10.200*	1.241	.018	2.439	17.961
	4	4.400*	.400	.006	1.898	6.902
	6	-5.000	1.140	.177	-12.131	2.131

6	1	11.600*	.812	.002	6.519	16.681
	2	23.200*	.374	.000	20.860	25.540
	3	15.200*	.490	.000	12.136	18.264
	4	9.400*	.927	.008	3.600	15.200
	5	5.000	1.140	.177	-2.131	12.131

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

4. Hasil uji statistik Repeated Measures Anova persen elastisitas krim minyak biji nyamplung 10%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.136	5	.200*	.989	5	.976
Standardized Residual for ssdhUV	.300	5	.161	.922	5	.543
Standardized Residual for mggprtama	.231	5	.200*	.881	5	.314
Standardized Residual for mggkdua	.337	5	.066	.676	5	.005
Standardized Residual for mggktga	.329	5	.082	.778	5	.053
Standardized Residual for mggkeempat	.268	5	.200*	.806	5	.090

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:elastisitaskrim10

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	1108.267	5	221.653	125.228	.000
	Greenhouse-Geisser	1108.267	1.865	594.148	125.228	.000
	Huynh-Feldt	1108.267	3.432	322.911	125.228	.000
	Lower-bound	1108.267	1.000	1108.267	125.228	.000
Error(waktu)	Sphericity Assumed	35.400	20	1.770		
	Greenhouse-Geisser	35.400	7.461	4.745		
	Huynh-Feldt	35.400	13.728	2.579		
	Lower-bound	35.400	4.000	8.850		

Pairwise Comparisons

Measure:elastisitaskrim10

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	9.800*	.490	.001	6.736	12.864
	3	5.400	.872	.052	-.052	10.852
	4	-1.000	1.095	1.000	-7.851	5.851
	5	-5.000	.949	.093	-10.933	.933
	6	-8.400	1.364	.053	-16.929	.129
2	1	-9.800*	.490	.001	-12.864	-6.736
	3	-4.400	.812	.084	-9.481	.681
	4	-10.800*	.800	.003	-15.803	-5.797
	5	-14.800*	.735	.001	-19.396	-10.204
	6	-18.200*	1.114	.001	-25.164	-11.236
3	1	-5.400	.872	.052	-10.852	.052
	2	4.400	.812	.084	-.681	9.481
	4	-6.400*	.678	.011	-10.642	-2.158
	5	-10.400*	.678	.002	-14.642	-6.158
	6	-13.800*	.917	.002	-19.532	-8.068
4	1	1.000	1.095	1.000	-5.851	7.851
	2	10.800*	.800	.003	5.797	15.803
	3	6.400*	.678	.011	2.158	10.642
	5	-4.000*	.548	.028	-7.425	-.575
	6	-7.400*	.400	.001	-9.902	-4.898
5	1	5.000	.949	.093	-.933	10.933
	2	14.800*	.735	.001	10.204	19.396
	3	10.400*	.678	.002	6.158	14.642
	4	4.000*	.548	.028	.575	7.425
	6	-3.400	.600	.072	-7.152	.352
6	1	8.400	1.364	.053	-.129	16.929
	2	18.200*	1.114	.001	11.236	25.164
	3	13.800*	.917	.002	8.068	19.532
	4	7.400*	.400	.001	4.898	9.902
	5	3.400	.600	.072	-.352	7.152

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

5. Hasil uji statistik Repeated Measures Anova persen elastisitas krim minyak biji nyamplung 15%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.201	5	.200*	.881	5	.314
Standardized Residual for ssdhUV	.237	5	.200*	.961	5	.814
Standardized Residual for mggprtama	.251	5	.200*	.868	5	.257
Standardized Residual for mggkdua	.237	5	.200*	.961	5	.814
Standardized Residual for mggktga	.231	5	.200*	.881	5	.314
Standardized Residual for mggkeempat	.273	5	.200*	.852	5	.201

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:elastisitaskrim15

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	1192.567	5	238.513	235.375	.000
	Greenhouse-Geisser	1192.567	2.374	502.314	235.375	.000
	Huynh-Feldt	1192.567	5.000	238.513	235.375	.000
	Lower-bound	1192.567	1.000	1192.567	235.375	.000
Error(waktu)	Sphericity Assumed	20.267	20	1.013		
	Greenhouse-Geisser	20.267	9.497	2.134		
	Huynh-Feldt	20.267	20.000	1.013		
	Lower-bound	20.267	4.000	5.067		

Pairwise Comparisons

Measure:elastisitaskrim15

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	9.800*	.663	.002	5.652	13.948
	3	3.000	.548	.081	-.425	6.425
	4	-2.000	.548	.326	-5.425	1.425
	5	-5.800*	.490	.004	-8.864	-2.736
	6	-10.000*	.548	.001	-13.425	-6.575
2	1	-9.800*	.663	.002	-13.948	-5.652
	3	-6.800*	.663	.008	-10.948	-2.652
	4	-11.800*	.583	.001	-15.447	-8.153
	5	-15.600*	.400	.000	-18.102	-13.098
	6	-19.800*	.735	.000	-24.396	-15.204

3	1	-3.000	.548	.081	-6.425	.425
	2	6.800*	.663	.008	2.652	10.948
	4	-5.000	.837	.059	-10.233	.233
	5	-8.800*	.800	.006	-13.803	-3.797
	6	-13.000*	1.000	.003	-19.254	-6.746
4	1	2.000	.548	.326	-1.425	5.425
	2	11.800*	.583	.001	8.153	15.447
	3	5.000	.837	.059	-.233	10.233
	5	-3.800*	.374	.008	-6.140	-1.460
	6	-8.000*	.632	.003	-11.955	-4.045
5	1	5.800*	.490	.004	2.736	8.864
	2	15.600*	.400	.000	13.098	18.102
	3	8.800*	.800	.006	3.797	13.803
	4	3.800*	.374	.008	1.460	6.140
	6	-4.200*	.374	.005	-6.540	-1.860
6	1	10.000*	.548	.001	6.575	13.425
	2	19.800*	.735	.000	15.204	24.396
	3	13.000*	1.000	.003	6.746	19.254
	4	8.000*	.632	.003	4.045	11.955
	5	4.200*	.374	.005	1.860	6.540

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

6. Hasil uji statistik Repeated Measures Anova persen elastisitas krim minyak biji nyamplung 20%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.356	5	.037	.773	5	.048
Standardized Residual for ssdhUV	.237	5	.200*	.961	5	.814
Standardized Residual for mggprtama	.300	5	.161	.833	5	.146
Standardized Residual for mggkdua	.221	5	.200*	.902	5	.421
Standardized Residual for mggktga	.141	5	.200*	.979	5	.928
Standardized Residual for mggkeempat	.237	5	.200*	.961	5	.814

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:elastisitaskrim20

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	1086.267	5	217.253	88.554	.000
	Greenhouse-Geisser	1086.267	1.807	601.083	88.554	.000
	Huynh-Feldt	1086.267	3.209	338.546	88.554	.000
	Lower-bound	1086.267	1.000	1086.267	88.554	.001
Error(waktu)	Sphericity Assumed	49.067	20	2.453		
	Greenhouse-Geisser	49.067	7.229	6.788		
	Huynh-Feldt	49.067	12.834	3.823		
	Lower-bound	49.067	4.000	12.267		

Pairwise Comparisons

Measure:elastisitaskrim20

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	10.000*	1.000	.008	3.746	16.254
	3	3.600	1.166	.550	-3.693	10.893
	4	-1.600	1.327	1.000	-9.897	6.697
	5	-4.600	1.720	.834	-15.360	6.160
	6	-9.000	1.517	.061	-18.485	.485
2	1	-10.000*	1.000	.008	-16.254	-3.746
	3	-6.400*	.400	.001	-8.902	-3.898
	4	-11.600*	.510	.000	-14.789	-8.411
	5	-14.600*	.872	.001	-20.052	-9.148
	6	-19.000*	.837	.000	-24.233	-13.767
3	1	-3.600	1.166	.550	-10.893	3.693
	2	6.400*	.400	.001	3.898	8.902
	4	-5.200*	.735	.032	-9.796	-.604
	5	-8.200*	1.020	.019	-14.578	-1.822
	6	-12.600*	.678	.001	-16.842	-8.358
4	1	1.600	1.327	1.000	-6.697	9.897
	2	11.600*	.510	.000	8.411	14.789
	3	5.200*	.735	.032	.604	9.796
	5	-3.000*	.447	.039	-5.797	-.203
	6	-7.400*	.748	.009	-12.080	-2.720
5	1	4.600	1.720	.834	-6.160	15.360
	2	14.600*	.872	.001	9.148	20.052
	3	8.200*	1.020	.019	1.822	14.578
	4	3.000*	.447	.039	.203	5.797
	6	-4.400	.812	.084	-9.481	.681

6	1	9.000	1.517	.061	-.485	18.485
	2	19.000*	.837	.000	13.767	24.233
	3	12.600*	.678	.001	8.358	16.842
	4	7.400*	.748	.009	2.720	12.080
	5	4.400	.812	.084	-.681	9.481

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Lampiran 15. Hasil Statistika Kelembaban Hewan Uji dengan Skin Analyzer

1. Hasil uji statistika One Way Anova AUC kelembaban

One-Sample Kolmogorov-Smirnov Test

		AUC kelembaban
N		25
Normal Parameters[a,,b]	Mean	318.8000
	Std. Deviation	71.79601
Most Extreme Differences	Absolute	.066
	Positive	.054
	Negative	-.066
Kolmogorov-Smirnov Z		.332
Asymp. Sig. (2-tailed)		1.000

a. Test distribution is Normal.

b. Calculated from data.

ANOVA

AUC elastisitas

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	123600.040	4	30900.010	13.480	.000
Within Groups	45844.500	20	2292.225		
Total	169444.540	24			

AUC kelembaban

Tukey HSD[a]

		Subset for alpha = 0.05		
Krim	N	1	2	3
krim kontrol negatiff	5	230.6000		
krim minyak biji nyamplung 10%	5	285.3000	285.3000	
krim minyak biji nyamplung 15%	5		330.8000	330.8000
krim minyak biji nyamplung 20%	5		364.8000	364.8000
krim kontrol positif	5			382.5000
Sig.		.416	.113	.470

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5,000.

2. Hasil uji statistik Repeated Measures Anova persen kelembaban krim kontrol negatif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.141	5	.200*	.979	5	.928
Standardized Residual for ssdhUV	.273	5	.200*	.852	5	.201
Standardized Residual for mggprtama	.221	5	.200*	.953	5	.758
Standardized Residual for mggkdua	.212	5	.200*	.895	5	.384
Standardized Residual for mggktga	.300	5	.161	.833	5	.146
Standardized Residual for mggkeempat	.241	5	.200*	.903	5	.427

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:kelembaban

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	201.767	5	40.353	34.490	.000
	Greenhouse-Geisser	201.767	1.352	149.246	34.490	.001
	Huynh-Feldt	201.767	1.797	112.258	34.490	.000
	Lower-bound	201.767	1.000	201.767	34.490	.004
Error(waktu)	Sphericity Assumed	23.400	20	1.170		
	Greenhouse-Geisser	23.400	5.408	4.327		
	Huynh-Feldt	23.400	7.189	3.255		
	Lower-bound	23.400	4.000	5.850		

Pairwise Comparisons

Measure:kelembaban

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	6.800*	.374	.001	4.460	9.140
	3	4.800*	.663	.029	.652	8.948
	4	3.000	1.000	.599	-3.254	9.254
	5	1.200	.970	1.000	-4.864	7.264
	6	-.400	.980	1.000	-6.528	5.728
2	1	-6.800*	.374	.001	-9.140	-4.460
	3	-2.000	.548	.326	-5.425	1.425
	4	-3.800	.860	.173	-9.180	1.580
	5	-5.600*	.872	.045	-11.052	-.148
	6	-7.200*	.970	.026	-13.264	-1.136

3	1	-4.800*	.663	.029	-8.948	-.652
	2	2.000	.548	.326	-1.425	5.425
	4	-1.800	.374	.129	-4.140	.540
	5	-3.600*	.400	.013	-6.102	-1.098
	6	-5.200*	.490	.007	-8.264	-2.136
4	1	-3.000	1.000	.599	-9.254	3.254
	2	3.800	.860	.173	-1.580	9.180
	3	1.800	.374	.129	-.540	4.140
	5	-1.800*	.200	.013	-3.051	-.549
	6	-3.400*	.400	.016	-5.902	-.898
5	1	-1.200	.970	1.000	-7.264	4.864
	2	5.600*	.872	.045	.148	11.052
	3	3.600*	.400	.013	1.098	6.102
	4	1.800*	.200	.013	.549	3.051
	6	-1.600*	.245	.043	-3.132	-.068
6	1	.400	.980	1.000	-5.728	6.528
	2	7.200*	.970	.026	1.136	13.264
	3	5.200*	.490	.007	2.136	8.264
	4	3.400*	.400	.016	.898	5.902
	5	1.600*	.245	.043	.068	3.132

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

3. Hasil uji statistik Repeated Measures Anova persen kelembaban krim kontrol positif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.228	5	.200*	.932	5	.607
Standardized Residual for ssdhUV	.229	5	.200*	.867	5	.254
Standardized Residual for mggprtama	.254	5	.200*	.803	5	.086
Standardized Residual for mggkdua	.221	5	.200*	.902	5	.421
Standardized Residual for mggktga	.273	5	.200*	.852	5	.201
Standardized Residual for mggkeempat	.237	5	.200*	.961	5	.814

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:kelembaban

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	830.000	5	166.000	262.105	.000
	Greenhouse-Geisser	830.000	1.689	491.332	262.105	.000
	Huynh-Feldt	830.000	2.790	297.513	262.105	.000
	Lower-bound	830.000	1.000	830.000	262.105	.000
Error(waktu)	Sphericity Assumed	12.667	20	.633		
	Greenhouse-Geisser	12.667	6.757	1.875		
	Huynh-Feldt	12.667	11.159	1.135		
	Lower-bound	12.667	4.000	3.167		

Pairwise Comparisons

Measure:kelembaban

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	5.000	.837	.059	-.233	10.233
	3	-.800	.583	1.000	-4.447	2.847
	4	-4.600*	.678	.037	-8.842	-.358
	5	-8.000*	.707	.005	-12.422	-3.578
	6	-10.800*	.860	.003	-16.180	-5.420
2	1	-5.000	.837	.059	-10.233	.233
	3	-5.800*	.374	.002	-8.140	-3.460
	4	-9.600*	.400	.000	-12.102	-7.098
	5	-13.000*	.316	.000	-14.978	-11.022
	6	-15.800*	.374	.000	-18.140	-13.460
3	1	.800	.583	1.000	-2.847	4.447
	2	5.800*	.374	.002	3.460	8.140
	4	-3.800*	.374	.008	-6.140	-1.460
	5	-7.200*	.200	.000	-8.451	-5.949
	6	-10.000*	.316	.000	-11.978	-8.022
4	1	4.600*	.678	.037	.358	8.842
	2	9.600*	.400	.000	7.098	12.102
	3	3.800*	.374	.008	1.460	6.140
	5	-3.400*	.245	.002	-4.932	-1.868
	6	-6.200*	.374	.001	-8.540	-3.860
5	1	8.000*	.707	.005	3.578	12.422
	2	13.000*	.316	.000	11.022	14.978
	3	7.200*	.200	.000	5.949	8.451
	4	3.400*	.245	.002	1.868	4.932
	6	-2.800*	.200	.002	-4.051	-1.549

6	1	10.800*	.860	.003	5.420	16.180
	2	15.800*	.374	.000	13.460	18.140
	3	10.000*	.316	.000	8.022	11.978
	4	6.200*	.374	.001	3.860	8.540
	5	2.800*	.200	.002	1.549	4.051

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

*. The mean difference is significant at the ,05 level.

4. Hasil uji statistik Repeated Measures Anova persen kelembaban krim minyak biji nyamplung 10%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.221	5	.200*	.953	5	.758
Standardized Residual for ssdhUV	.254	5	.200*	.914	5	.492
Standardized Residual for mggprtama	.291	5	.191	.905	5	.440
Standardized Residual for mggkdua	.372	5	.022	.828	5	.135
Standardized Residual for mggktga	.237	5	.200*	.961	5	.814
Standardized Residual for mggkeempat	.300	5	.161	.833	5	.146

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:kelembaban

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	393.067	5	78.613	73.931	.000
	Greenhouse-Geisser	393.067	1.398	281.127	73.931	.000
	Huynh-Feldt	393.067	1.918	204.910	73.931	.000
	Lower-bound	393.067	1.000	393.067	73.931	.001
Error(waktu)	Sphericity Assumed	21.267	20	1.063		
	Greenhouse-Geisser	21.267	5.593	3.803		
	Huynh-Feldt	21.267	7.673	2.772		
	Lower-bound	21.267	4.000	5.317		

Pairwise Comparisons

Measure:kelembaban

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	6.200*	.374	.001	3.860	8.540
	3	3.600*	.245	.002	2.068	5.132
	4	.400	.678	1.000	-3.842	4.642
	5	-3.000	.775	.269	-7.844	1.844
	6	-4.400	.980	.163	-10.528	1.728
2	1	-6.200*	.374	.001	-8.540	-3.860
	3	-2.600	.510	.105	-5.789	.589
	4	-5.800*	.663	.014	-9.948	-1.652
	5	-9.200*	.800	.005	-14.203	-4.197
	6	-10.600*	.980	.006	-16.728	-4.472
3	1	-3.600*	.245	.002	-5.132	-2.068
	2	2.600	.510	.105	-.589	5.789
	4	-3.200	.583	.081	-6.847	.447
	5	-6.600*	.678	.009	-10.842	-2.358
	6	-8.000*	.894	.013	-13.594	-2.406
4	1	-.400	.678	1.000	-4.642	3.842
	2	5.800*	.663	.014	1.652	9.948
	3	3.200	.583	.081	-.447	6.847
	5	-3.400*	.245	.002	-4.932	-1.868
	6	-4.800*	.374	.003	-7.140	-2.460
5	1	3.000	.775	.269	-1.844	7.844
	2	9.200*	.800	.005	4.197	14.203
	3	6.600*	.678	.009	2.358	10.842
	4	3.400*	.245	.002	1.868	4.932
	6	-1.400	.245	.070	-2.932	.132
6	1	4.400	.980	.163	-1.728	10.528
	2	10.600*	.980	.006	4.472	16.728
	3	8.000*	.894	.013	2.406	13.594
	4	4.800*	.374	.003	2.460	7.140
	5	1.400	.245	.070	-.132	2.932

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

5. Hasil uji statistik Repeated Measures Anova persen kelembaban minyak biji nyamplung 15%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.399	5	.009	.741	5	.025
Standardized Residual for ssdhUV	.268	5	.200*	.806	5	.090
Standardized Residual for mggprtama	.268	5	.200*	.806	5	.090
Standardized Residual for mggkdua	.179	5	.200*	.984	5	.955
Standardized Residual for mggktga	.261	5	.200*	.859	5	.223
Standardized Residual for mggkeempat	.376	5	.020	.739	5	.023

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

ss

Tests of Within-Subjects Effects

Measure:kelembaban

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	427.767	5	85.553	64.005	.000
	Greenhouse-Geisser	427.767	1.983	215.720	64.005	.000
	Huynh-Feldt	427.767	3.924	109.013	64.005	.000
	Lower-bound	427.767	1.000	427.767	64.005	.001
Error(waktu)	Sphericity Assumed	26.733	20	1.337		
	Greenhouse-Geisser	26.733	7.932	3.370		
	Huynh-Feldt	26.733	15.696	1.703		
	Lower-bound	26.733	4.000	6.683		

Pairwise Comparisons

Measure:kelembaban

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	6.200*	.735	.016	1.604	10.796
	3	3.200	.860	.307	-2.180	8.580
	4	-.200	1.158	1.000	-7.440	7.040
	5	-2.800	1.114	.986	-9.764	4.164
	6	-5.400	.927	.065	-11.200	.400
2	1	-6.200*	.735	.016	-10.796	-1.604
	3	-3.000	.548	.081	-6.425	.425
	4	-6.400*	.927	.035	-12.200	-.600
	5	-9.000*	.707	.003	-13.422	-4.578
	6	-11.600*	.510	.000	-14.789	-8.411

3	1	-3.200	.860	.307	-8.580	2.180
	2	3.000	.548	.081	-.425	6.425
	4	-3.400*	.400	.016	-5.902	-.898
	5	-6.000*	.548	.006	-9.425	-2.575
	6	-8.600*	.400	.000	-11.102	-6.098
4	1	.200	1.158	1.000	-7.040	7.440
	2	6.400*	.927	.035	.600	12.200
	3	3.400*	.400	.016	.898	5.902
	5	-2.600	.600	.185	-6.352	1.152
	6	-5.200*	.583	.013	-8.847	-1.553
5	1	2.800	1.114	.986	-4.164	9.764
	2	9.000*	.707	.003	4.578	13.422
	3	6.000*	.548	.006	2.575	9.425
	4	2.600	.600	.185	-1.152	6.352
	6	-2.600*	.245	.007	-4.132	-1.068
6	1	5.400	.927	.065	-.400	11.200
	2	11.600*	.510	.000	8.411	14.789
	3	8.600*	.400	.000	6.098	11.102
	4	5.200*	.583	.013	1.553	8.847
	5	2.600*	.245	.007	1.068	4.132

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

6. Hasil uji statistik Repeated Measures Anova persen kelembaban krim minyak biji nyamplung 20%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.180	5	.200*	.952	5	.754
Standardized Residual for ssdhUV	.304	5	.149	.817	5	.111
Standardized Residual for mggprtama	.141	5	.200*	.979	5	.928
Standardized Residual for mggkdua	.244	5	.200*	.871	5	.272
Standardized Residual for mggktga	.348	5	.047	.779	5	.054
Standardized Residual for mggkeempat	.254	5	.200*	.914	5	.492

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:kelembaban

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	656.400	5	131.280	131.719	.000
	Greenhouse-Geisser	656.400	1.668	393.623	131.719	.000
	Huynh-Feldt	656.400	2.717	241.561	131.719	.000
	Lower-bound	656.400	1.000	656.400	131.719	.000
Error(waktu)	Sphericity Assumed	19.933	20	.997		
	Greenhouse-Geisser	19.933	6.670	2.988		
	Huynh-Feldt	19.933	10.869	1.834		
	Lower-bound	19.933	4.000	4.983		

Pairwise Comparisons

Measure:kelembaban

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	6.400*	.400	.001	3.898	8.902
	3	1.600	.600	.840	-2.152	5.352
	4	-1.800	.800	1.000	-6.803	3.203
	5	-5.400	.927	.065	-11.200	.400
	6	-8.000*	1.000	.020	-14.254	-1.746
2	1	-6.400*	.400	.001	-8.902	-3.898
	3	-4.800*	.374	.003	-7.140	-2.460
	4	-8.200*	.735	.006	-12.796	-3.604
	5	-11.800*	.735	.001	-16.396	-7.204
	6	-14.400*	.748	.001	-19.080	-9.720
3	1	-1.600	.600	.840	-5.352	2.152
	2	4.800*	.374	.003	2.460	7.140
	4	-3.400*	.400	.016	-5.902	-.898
	5	-7.000*	.447	.001	-9.797	-4.203
	6	-9.600*	.510	.001	-12.789	-6.411
4	1	1.800	.800	1.000	-3.203	6.803
	2	8.200*	.735	.006	3.604	12.796
	3	3.400*	.400	.016	.898	5.902
	5	-3.600*	.400	.013	-6.102	-1.098
	6	-6.200*	.583	.007	-9.847	-2.553
5	1	5.400	.927	.065	-.400	11.200
	2	11.800*	.735	.001	7.204	16.396
	3	7.000*	.447	.001	4.203	9.797
	4	3.600*	.400	.013	1.098	6.102
	6	-2.600*	.245	.007	-4.132	-1.068

6	1	8.000*	1.000	.020	1.746	14.254
	2	14.400*	.748	.001	9.720	19.080
	3	9.600*	.510	.001	6.411	12.789
	4	6.200*	.583	.007	2.553	9.847
	5	2.600*	.245	.007	1.068	4.132

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Lampiran 16. Hasil Statistika Pori-pori Hewan Uji dengan Skin Analyzer

1. Hasil uji statistik One Way Anova AUC

One-Sample Kolmogorov-Smirnov Test

		AUC pori-pori
N		25
Normal Parameters[a,,b]	Mean	1.8408
	Std. Deviation	.71827
Most Extreme Differences	Absolute	.126
	Positive	.126
	Negative	-.102
Kolmogorov-Smirnov Z		.628
Asymp. Sig. (2-tailed)		.825

a. Test distribution is Normal.

b. Calculated from data.

ANOVA

AUC pori-pori

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.301	4	.325	.587	.006
Within Groups	11.081	20	.554		
Total	12.382	24			

AUC pori-pori

Tukey HSD[a]

		Subset for alpha = 0.05		
Krim	N	1	2	3
krim kontrol positif	5	1.6460		
krim minyak biji nyamplung 20%	5	1.8140		
krim minyak biji nyamplung 15%	5		1.8790	
krim minyak biji nyamplung 10%	5		2.1130	
krim kontrol negatif	5			2.4520
Sig.		.574	.723	.673

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5,000.

2. Hasil uji statistik Repeated Measures Anova luas pori-pori krim kontrol negatif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.227	5	.200*	.910	5	.468
Standardized Residual for ssdhUV	.186	5	.200*	.943	5	.687
Standardized Residual for mggprtama	.282	5	.200*	.884	5	.327
Standardized Residual for mggkdua	.282	5	.200*	.775	5	.050
Standardized Residual for mggktga	.290	5	.197	.914	5	.493
Standardized Residual for mggkeempat	.310	5	.131	.871	5	.272

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:pori

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	.058	5	.012	32.371	.000
	Greenhouse-Geisser	.058	2.001	.029	32.371	.000
	Huynh-Feldt	.058	4.004	.015	32.371	.000
	Lower-bound	.058	1.000	.058	32.371	.005
Error(waktu)	Sphericity Assumed	.007	20	.000		
	Greenhouse-Geisser	.007	8.004	.001		
	Huynh-Feldt	.007	16.016	.000		
	Lower-bound	.007	4.000	.002		

Pairwise Comparisons

Measure:pori

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.118*	.014	.018	-.207	-.029
	3	-.092	.018	.110	-.206	.022
	4	-.054	.019	.660	-.170	.062
	5	-.028	.016	1.000	-.126	.070
	6	-.002	.012	1.000	-.074	.070
2	1	.118*	.014	.018	.029	.207
	3	.026	.005	.105	-.006	.058
	4	.064	.010	.051	.000	.128
	5	.090*	.008	.006	.038	.142
	6	.116*	.009	.004	.058	.174

3	1	.092	.018	.110	-.022	.206
	2	-.026	.005	.105	-.058	.006
	4	.038	.007	.100	-.008	.084
	5	.064*	.008	.021	.013	.115
	6	.090*	.012	.027	.013	.167
4	1	.054	.019	.660	-.062	.170
	2	-.064	.010	.051	-.128	.000
	3	-.038	.007	.100	-.084	.008
	5	.026	.009	.729	-.032	.084
	6	.052	.015	.355	-.039	.143
5	1	.028	.016	1.000	-.070	.126
	2	-.090*	.008	.006	-.142	-.038
	3	-.064*	.008	.021	-.115	-.013
	4	-.026	.009	.729	-.084	.032
	6	.026	.007	.278	-.016	.068
6	1	.002	.012	1.000	-.070	.074
	2	-.116*	.009	.004	-.174	-.058
	3	-.090*	.012	.027	-.167	-.013
	4	-.052	.015	.355	-.143	.039
	5	-.026	.007	.278	-.068	.016

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

3. Hasil uji statistik Repeated Measures Anova luas pori-pori krim kontrol positif

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.229	5	.200*	.867	5	.254
Standardized Residual for ssdhUV	.243	5	.200*	.922	5	.544
Standardized Residual for mggprtama	.372	5	.022	.828	5	.135
Standardized Residual for mggkdua	.300	5	.161	.813	5	.103
Standardized Residual for mggktga	.300	5	.161	.813	5	.103
Standardized Residual for mggkeempat	.367	5	.026	.684	5	.006

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:pori

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	.075	5	.015	66.758	.000
	Greenhouse-Geisser	.075	2.228	.034	66.758	.000
	Huynh-Feldt	.075	5.000	.015	66.758	.000
	Lower-bound	.075	1.000	.075	66.758	.001
Error(waktu)	Sphericity Assumed	.004	20	.000		
	Greenhouse-Geisser	.004	8.910	.001		
	Huynh-Feldt	.004	20.000	.000		
	Lower-bound	.004	4.000	.001		

Pairwise Comparisons

Measure:pori

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.132*	.016	.016	-.230	-.034
	3	-.070*	.008	.017	-.122	-.018
	4	-.034	.010	.448	-.098	.030
	5	-.004	.010	1.000	-.065	.057
	6	.012	.008	1.000	-.038	.062
2	1	.132*	.016	.016	.034	.230
	3	.062*	.007	.016	.016	.108
	4	.098*	.010	.008	.037	.159
	5	.128*	.010	.003	.064	.192
	6	.144*	.013	.006	.061	.227
3	1	.070*	.008	.017	.018	.122
	2	-.062*	.007	.016	-.108	-.016
	4	.036	.007	.091	-.006	.078
	5	.066*	.007	.009	.024	.108
	6	.082*	.009	.010	.028	.136
4	1	.034	.010	.448	-.030	.098
	2	-.098*	.010	.008	-.159	-.037
	3	-.036	.007	.091	-.078	.006
	5	.030*	.003	.010	.010	.050
	6	.046	.009	.116	-.012	.104
5	1	.004	.010	1.000	-.057	.065
	2	-.128*	.010	.003	-.192	-.064
	3	-.066*	.007	.009	-.108	-.024
	4	-.030*	.003	.010	-.050	-.010
	6	.016	.009	1.000	-.039	.071

6	1	-.012	.008	1.000	-.062	.038
	2	-.144*	.013	.006	-.227	-.061
	3	-.082*	.009	.010	-.136	-.028
	4	-.046	.009	.116	-.104	.012
	5	-.016	.009	1.000	-.071	.039

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

4. Hasil uji statistik Repeated Measures Anova luas pori-pori krim minyak biji nyamplung 10%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.231	5	.200*	.881	5	.314
Standardized Residual for ssdhUV	.423	5	.004	.659	5	.003
Standardized Residual for mggprtama	.198	5	.200*	.951	5	.742
Standardized Residual for mggkdua	.323	5	.096	.840	5	.166
Standardized Residual for mggktga	.310	5	.131	.871	5	.272
Standardized Residual for mggkeempat	.372	5	.022	.828	5	.135

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:pori

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	.085	5	.017	54.749	.000
	Greenhouse-Geisser	.085	2.151	.039	54.749	.000
	Huynh-Feldt	.085	4.733	.018	54.749	.000
	Lower-bound	.085	1.000	.085	54.749	.002
Error(waktu)	Sphericity Assumed	.006	20	.000		
	Greenhouse-Geisser	.006	8.602	.001		
	Huynh-Feldt	.006	18.931	.000		
	Lower-bound	.006	4.000	.002		

Pairwise Comparisons

Measure:pori

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.150*	.015	.010	-.247	-.053
	3	-.098*	.014	.032	-.185	-.011
	4	-.058	.013	.176	-.140	.024
	5	-.034	.011	.582	-.104	.036
	6	-.004	.005	1.000	-.036	.028
2	1	.150*	.015	.010	.053	.247
	3	.052	.012	.207	-.026	.130
	4	.092	.015	.053	-.002	.186
	5	.116*	.014	.017	.028	.204
	6	.146*	.015	.009	.052	.240
3	1	.098*	.014	.032	.011	.185
	2	-.052	.012	.207	-.130	.026
	4	.040*	.004	.013	.012	.068
	5	.064*	.004	.001	.039	.089
	6	.094*	.010	.012	.030	.158
4	1	.058	.013	.176	-.024	.140
	2	-.092	.015	.053	-.186	.002
	3	-.040*	.004	.013	-.068	-.012
	5	.024	.004	.058	-.001	.049
	6	.054	.009	.052	.000	.109
5	1	.034	.011	.582	-.036	.104
	2	-.116*	.014	.017	-.204	-.028
	3	-.064*	.004	.001	-.089	-.039
	4	-.024	.004	.058	-.049	.001
	6	.030	.008	.269	-.018	.078
6	1	.004	.005	1.000	-.028	.036
	2	-.146*	.015	.009	-.240	-.052
	3	-.094*	.010	.012	-.158	-.030
	4	-.054	.009	.052	-.109	.001
	5	-.030	.008	.269	-.078	.018

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

5. Hasil uji statistik Repeated Measures Anova krim minyak biji nyamplung 15%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.224	5	.200*	.842	5	.171
Standardized Residual for ssdhUV	.180	5	.200*	.952	5	.754
Standardized Residual for mggprtama	.376	5	.020	.739	5	.023
Standardized Residual for mggkdua	.231	5	.200*	.881	5	.314
Standardized Residual for mggktga	.300	5	.161	.883	5	.325
Standardized Residual for mggkeempat	.367	5	.026	.684	5	.006

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:pori

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	.083	5	.017	77.790	.000
	Greenhouse-Geisser	.083	1.453	.057	77.790	.000
	Huynh-Feldt	.083	2.067	.040	77.790	.000
	Lower-bound	.083	1.000	.083	77.790	.001
Error(waktu)	Sphericity Assumed	.004	20	.000		
	Greenhouse-Geisser	.004	5.812	.001		
	Huynh-Feldt	.004	8.269	.001		
	Lower-bound	.004	4.000	.001		

Pairwise Comparisons

Measure:pori

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.138*	.017	.017	-.242	-.034
	3	-.088	.016	.079	-.188	.012
	4	-.042	.010	.185	-.103	.019
	5	-.014	.010	1.000	-.075	.047
	6	.010	.009	1.000	-.049	.069
2	1	.138*	.017	.017	.034	.242
	3	.050*	.006	.021	.010	.090
	4	.096*	.007	.003	.049	.143
	5	.124*	.008	.002	.073	.175
	6	.148*	.010	.002	.087	.209

3	1	.088	.016	.079	-.012	.188
	2	-.050*	.006	.021	-.090	-.010
	4	.046*	.007	.037	.004	.088
	5	.074*	.007	.006	.032	.116
	6	.098*	.009	.007	.041	.155
4	1	.042	.010	.185	-.019	.103
	2	-.096*	.007	.003	-.143	-.049
	3	-.046*	.007	.037	-.088	-.004
	5	.028*	.002	.002	.015	.041
	6	.052*	.004	.002	.029	.075
5	1	.014	.010	1.000	-.047	.075
	2	-.124*	.008	.002	-.175	-.073
	3	-.074*	.007	.006	-.116	-.032
	4	-.028*	.002	.002	-.041	-.015
	6	.024	.004	.058	-.001	.049
6	1	-.010	.009	1.000	-.069	.049
	2	-.148*	.010	.002	-.209	-.087
	3	-.098*	.009	.007	-.155	-.041
	4	-.052*	.004	.002	-.075	-.029
	5	-.024	.004	.058	-.049	.001

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.

6. Hasil uji statistik Repeated Measures Anova luas pori-pori krim minyak biji nyamplung 20%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Standardized Residual for sblmUV	.201	5	.200*	.881	5	.314
Standardized Residual for ssdhUV	.287	5	.200*	.914	5	.490
Standardized Residual for mggprtama	.311	5	.129	.871	5	.269
Standardized Residual for mggkdua	.221	5	.200*	.915	5	.501
Standardized Residual for mggktga	.258	5	.200*	.782	5	.057
Standardized Residual for mggkeempat	.349	5	.046	.771	5	.046

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Within-Subjects Effects

Measure:pori

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
waktu	Sphericity Assumed	.078	5	.016	55.348	.000
	Greenhouse-Geisser	.078	1.293	.060	55.348	.000
	Huynh-Feldt	.078	1.649	.047	55.348	.000
	Lower-bound	.078	1.000	.078	55.348	.002
Error(waktu)	Sphericity Assumed	.006	20	.000		
	Greenhouse-Geisser	.006	5.171	.001		
	Huynh-Feldt	.006	6.595	.001		
	Lower-bound	.006	4.000	.001		

Pairwise Comparisons

Measure:pori

(I) waktu	(J) waktu	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.132*	.020	.038	-.255	-.009
	3	-.092	.017	.082	-.197	.013
	4	-.044	.015	.644	-.138	.050
	5	-.014	.012	1.000	-.090	.062
	6	.008	.009	1.000	-.046	.062
2	1	.132*	.020	.038	.009	.255
	3	.040*	.005	.028	.006	.074
	4	.088*	.006	.002	.052	.124
	5	.118*	.008	.002	.068	.168
	6	.140*	.012	.004	.066	.214
3	1	.092	.017	.082	-.013	.197
	2	-.040*	.005	.028	-.074	-.006
	4	.048*	.006	.018	.012	.084
	5	.078*	.006	.003	.042	.114
	6	.100*	.010	.010	.034	.166
4	1	.044	.015	.644	-.050	.138
	2	-.088*	.006	.002	-.124	-.052
	3	-.048*	.006	.018	-.084	-.012
	5	.030*	.004	.039	.002	.058
	6	.052	.009	.057	-.002	.106
5	1	.014	.012	1.000	-.062	.090
	2	-.118*	.008	.002	-.168	-.068
	3	-.078*	.006	.003	-.114	-.042
	4	-.030*	.004	.039	-.058	-.002
	6	.022	.006	.293	-.014	.058

6	1	-.008	.009	1.000	-.062	.046
	2	-.140*	.012	.004	-.214	-.066
	3	-.100*	.010	.010	-.166	-.034
	4	-.052	.009	.057	-.106	.002
	5	-.022	.006	.293	-.058	.014

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

a. Adjustment for multiple comparisons: Bonferroni.