DAFTAR PUSTAKA

Allium, L., Ayu, G., & Saputri, R. (2022). Perbandingan metode maserasi, perkolasi dan ultrasonik terhadap aktivitas antioksidan kulit bawang merah *(*. *9*(3), 913–923.

Arianto, A., Cella, G., & Bangun, H. (2019). *Preparation and Evaluation of Sunscreen Nanoemulsions with Synergistic Efficacy on SPF by Combination of Soybean Oil , Avobenzone , and Octyl Methoxycinnamate*. *7*(17), 2751–2756.

Arrofiqi, M. R., Sakti, A. S., Dita, F., Farmasi, P. S., Kesehatan, F. I., Muhammadiyah, U., Kesehatan, F. I., Lamongan, U. M., Farmasi, D. T., Kesehatan, F. I., & Lamongam, M. (2024). Kajian Literatur : Aplikasi Sejumlah Metode Ekstraksi Konvensional Untuk Mengekstraksi. 7(1).

Astuti, V., Ratnaningsih, Astuti, D., & Al, C. A. et. (2020). Formulasi Dan Evaluasi Emulsi Kombinasi Ekstrak Tomat (*Lycopersicum Esculentum*) Dan Minyak Zaitun Emulgator. *Jurnal Kesehatan Pharmasi (JKPharm)*, *2*(1), 75–82.

Ayu, I., Purnama, D., & Anjasmara, I. K. D. (2023). Tinea Korporis Et Kruris Et Fasialis Dengan Terapi Kombinasi Anti Jamur. 3(1), 46–56.

Bang, Y. J. (2025). *Epidemiological Trends and Clinical Features of Trichophyton rubrum Infections : A 10-Year Retrospective*. *40*(42), 2–9.

Biotechnol, B., Meyer, V., Cairns, T., Barthel, L., King, R., Kunz, P., Schmideder, S., Müller, H., Briesen, H., Dinius, A., & Krull, R. (2021). *Understanding and controlling filamentous growth of fungal cell factories : novel tools and opportunities for targeted morphology engineering*. *Fungal Biology and Biotechnology*, 1–8. https://doi.org/10.1186/s40694-021-00115-6

Casati, S., Asturiol, D., Browne, P., Kleinstreuer, N., & Régimbald-krnel, M. (2022). *Standardisation and international adoption of de fi ned approaches for skin sensitisation*. *August*, 1–7. https://doi.org/10.3389/ftox.2022.943152

Chanyachailert, P. (2023). *Cutaneous Fungal Infections Caused by Dermatophytes and Non-Dermatophytes : An Updated Comprehensive Review of Epidemiology , Clinical Presentations , and Diagnostic Testing*.

Costa, C., Medronho, B., Filipe, A., Mira, I., Lindman, B., Edlund, H., & Norgren, M. (2019). *Emulsion Formation and Stabilization by Biomolecules : The Leading Role of Cellulose*. 1–18.

Dąbrowska, A. K., & Rossi, R. M. (2018). *The relationship between skin function , barrier properties , and body- - dependent factors*. *September 2017*, 165–174. https://doi.org/10.1111/srt.12424

Dahlizar, S., Futaki, M., Okada, A., Kadhum, R., & Todo, H. (2018). *Design of a Topically Applied Gel Spray Formulation with Ivermectin Using a Novel Low Molecular Weight Gelling Agent , Palmitoyl-Glycine- Histidine , to Treat Scabies*. *66*(3), 327–333.

Desbrianto, D., Ulfa, A. M., & Lestari, Y. E. (2024). Uji Stabilitas Formulasi *Spray* Nanoemulsi Variasi Polietilen Glikol 400 Ekstrak Bunga Telang (*Clitoria Ternatea* L .) Sebagai Tabir Sury*a Stability Test Of Spray Nanoemulsion Formulation Polyethylene Glycol Variation 400 Telang Flower Extract (Clitoria T*. *7*(1), 132–145.

Drozłowska, E., Bartkowiak, A., & Trocer, P. (2021). *Formulation and Evaluation of Spray-Dried Reconstituted Flaxseed Oil-in-Water Emulsions Based on Flaxseed Oil Cake Extract as Emulsifying and Stabilizing Agent*.

Edegbo, E., Okolo, M. O., Adegoke, A. S., Omatola, A., Idache, B. M., Abraham, J. O., Akor, M. E., Zakari, D. A., Alaba, A. Z., Omale, S., & Yahaya, A. (2023). *Phytochemical screening and antifungal activity of Cassia alata (Linn .) crude leaf extracts*. *17*(August), 176–183. https://doi.org/10.5897/AJMR2023.9711

Erwin, Fadliannur, A. (2024). Ekstraksi dan Isolasi Bahan Alam Secara Klasik dan Modern. *Science Natural*.

Fatmawati, S., Yuliana, Purnomo, A. S., & Abu Bakar, M. F. (2020). Chemical constituents, usage and pharmacological activity of Cassia alata. *Heliyon*, *6*(7), e04396. https://doi.org/10.1016/j.heliyon.2020.e04396

Fatta, C. A., & Adina, A. B. (2023). Formulasi dan Evaluasi Emulsi Ekstrak Minyak Biji Sawo Manila (*Manilkara zapota* L .) sebagai Penumbuh Rambut. 15(2), 1–10.

Firmansyah, W. (2023). Formulasi Dan Uji Stabilitas Fisik Sediaan Masker Gel *Peel-Off* Ekstrak Etanol Umbi Porang (*Amorphophallus Muelleri*) Sebagai Antioksidan berbagai manfaat lain salah satunya dapat digunakan sebagai antioksidan . Hal ini sesuai dengan. 1(4).

Gong, C., Chen, F., & Kang, C. (2023). *Theoretical and experimental studies on the oil-based emulsion spray*. *April*, 1–9. https://doi.org/10.3389/fpls.2023.1164200

Góralska, K., Blaszkowska, J., & Dzikowiec, M. (2018). Neuroinfections caused by fungi. *Infection*, *46*(4), 443–459. https://doi.org/10.1007/s15010-018-1152-2

Hamsinah, M, V. P., & Al, E. (2023). Formulasi Sediaan Lotion Ekstrak Daun Tanaman Porang (*Amorphophallus muelleri Blume*) Yang Stabil Secara Farmaseutik. *Pharmacoscript*, *6*(2), 139–151.

Handayani, A., & Irianti, R. (2022). Kajian Etnobotani Cassia alata L . (Gelinggang) Pada Masyarakat Dayak Bakumpai Desa Bagus Kabupaten *Barito Kuala Sebagai Buku Ilmiah Populer*. *1*(4).

Harborne, J. B. (1998). *Phytochemical Methods: A Guide to Modern Techniques of Plant Analysis* (3rd ed.). Chapman & Hall. https://link.springer.com/book/9780412572609

Howell, S. A. (2023). *Dermatopathology and the Diagnosis of Fungal Infections*.

80(June), 1–10. https://doi.org/10.3389/bjbs.2023.11314

Kamilah, N. I., Almira, M. D., & Sapada Ibrahim Edy. (2024). Formulasi dan Evaluasi Sediaan Foot Spray Dari Kombinasi Ekstrak Etanol Daun Pandan Wangi (*Pandanus Amaryllifolius* Roxb.) dan Ekstrak Etanol Daun Salam (*Syzygium Polyanthum* W.). *Jurnal Kesehatan Tambusai*, *5*(1), 2040–2052.

Karlina, D. W. (2024). Formulasi dan Evaluasi Nano *Spray* Gel dengan Ekstrak Daun Sirih Merah (*piper crocatum Ruiz & Pav*) Sebagai Antioksidan dengan Variasi Konsentrasi Carbopol 940 *Optimization Formulation and Evalution of Nano Spray Gel with Red Betel Leaf Extract (piper crocatum Ruiz & Pav) as Antioxidant with Variation of Carbopol 940 Concentration*.

Kresnawati, Y., Fitrianingsih, S., Purwaningsih, C. P., Farmasi, F., Tinggi, S., Farmasi, I., & Pharmasi, Y. (2022). Formulasi dan uji potensi sediaan spray gel niasiamida dengan propilenglikol sebagai humektan 1,3. 6(2), 281–290.

Kupikowska-stobba, B., & Domagała, J. (2024). *applied sciences Critical Review of Techniques for Food Emulsion Characterization*. 1–50.

Li, D., Fan, S., Zhao, H., Song, J., Guo, L., Li, W., Xu, X., & Li, Q. (2025). *Worldwide trends and future projections of fungal skin disease burden: a comprehensive analysis from the Global Burden of Diseases study* 2021. *Frontiers in Public Health*, *13*(June). https://doi.org/10.3389/fpubh.2025.1580221

Lourenço, F. R., Francisco, F. L., Regina, M., Ferreira, S., & Andreoli, T. D. J. (2015). *Design Space Approach for Preservative System Optimization of an Anti-Aging Eye Fluid Emulsion*. *18*(3), 551–561.

Mahmudati, N., Waluyo, L., Harini, R., & Maghfiroh, K. (2025). *Assistance of Aisyiyah members in Kucur Village , Dau District , Malang Regency in making simplisia*. *6*(2), 300–308.

Majekodunmi, Olaribigbe, Stephen, Al, & Et, A. A. E. (2014). *Development and evaluation of antimicrobial herbal formulations containing the methanolic extract of C assia alata for skin diseases*. *Journal of Coastal Life Medicine*, *2*(11), 872–875. https://doi.org/10.12980/JCLM.2.201414D93

Maslahah, N. (2024). Standar simplisia tanaman obat sebagai bahan sediaan herbal. *2*(2), 1–4.

Maulana, F. A., Sukmawati, A., Fauzi, A., & Wahyuni, A. S. (2024). Formulasi dan Penilaian Fisik Sediaan Spray Minyak Kemiri (*Aleurites moluccana* (L .) Wild) dan Seledri (*Apium graveolens*) sebagai Pertumbuhan Rambut. 11(2), 284–303.

Maulidia, F., Adidah, S. N., Yoshi, C. N., Puspita, D., Jl, A., Sarkawi, G., Bakti, H., & Selatan, K. (2025). Perbedaan Teknik Ekstraksi dan Pengaruhnya terhadap Aktivitas Biologis serta Hasil Senyawa Fitokimia pada Bahan Alam. *Journal Pendidikan Kimia, Fisika Dan Biologi*, *September*.

Mcclements, D. J. (2015). *Critical Review of Techniques and Methodologies for*

Characterization of Emulsion Stability Critical Review of Techniques and Methodologies for Characterization. *8398*(September). https://doi.org/10.1080/10408390701289292

Mechanisms, R., Martinez-rossi, N. M., Peres, N. T. A., Bitencourt, T. A., & Martins, P. (2021). *State-of-the-Art Dermatophyte Infections : Epidemiology*.

Nur Aulia Aenin, Joko Santoso, K. (2025). Formulasi Dan Uji Sifat Fisik Sediaan Spray Gel Niacinamide Dengan Menggunakan Gylcerin Pada Konsentrasi Yang Berbeda. *12*(1), 40–47. https://doi.org/https://doi.org/10.35874/jic.v12i1.1426

Nurleni, N. (2023). Formulasi Sediaan Serum Asam Kojat Dengan Variasi Gliserin Sebagai Enhancer dan Evaluasi Stabilitas Fisika Waktu Sebenarnya. *3*, 611–617.

Ogba, O. M., Udoh, D. I., & Udonkang, M. I. et al. (2023). *Tropical Journal of Natural Product Research Antimicrobial Effect of Cassia alata Leaf Extracts on Fungal Isolates from Tinea Infections*. *Journal of Natural Produc*, *7*(May), 3034–3037.

Oladeji, O. S., Adelowo, F. E., Oluyori, A. P., & Bankole, D. T. (2020). *Ethnobotanical Description and Biological Activities of Senna alata*. *2020*.

Oyedeji, F. O., Fawehinmi, A. B., Etatuvie, S. O., & Lawal, H. (2021). *Comparative Efficacy of Antidermatophyte Creams Formulated from Ethanol Extracts of Cassia Occidentalis and Cassia Alata Leaves. Annual Research & Review in Biology*, *36*(4), 1–18. https://doi.org/10.9734/ARRB/2021/v36i430359

Oyedeji, F. O., Fawehinmi, A. B., & Lawal, H. (2020). *Antidermatophyte Activity of Ethanol Extract and Stability of Creams Formulated from Cassia alata. Journal of Biochemistry*, *29*(10), 1–8. https://doi.org/10.9734/IJBCRR/2020/v29i1030234

Permata, Y. & F. (2024). *Studi Pendahuluan:* Uji Efektivitas Antioksidan dan Skrining Fitokimia Ekstrak Bunga Telang (*Clitoria ternatea* L.) sebagai Antioksidan dengan Air sebagai Pelarut. *Vol. 2 No.* https://doi.org/https://doi.org/10.33479/jfmc.v2i1.18

Putu, N., & Paramita, R. (2016). Identifikasi Jamur pada Beberapa Bumbu Dapur Secara Makroskopis dan Mikroskopis. *10*(1), 25–31.

Putyatin, B. (2024). *Identifying The Influence Of The Concentration Of Surfactants On The Technological Indicators Of. Journal of Enterprise Technologies*, *6*, 6–15. https://doi.org/10.15587/1729-4061.2024.317819

Rasyid, N. Q., Rasiyanto, E., & Arham, C. (2024). Paraben Pada Produk Perawatan Bayi Menggunakan Spektrofotometer Uv-Vis. *Jurnal Medika: Media Ilmiah Analis Kesehatan*, *8*, 45–53.

Sakti, A. S., Anggie, V., Rahmawati, E., & Fazadini, S. Y. (2024). Pengaruh Pemilihan Metode Ekstraksi Infusa Dan Dekokta Terhadap Kadar Total Senyawa Fenolik. *7*(2), 228–249.

Salsabila, E., Wulandari, F., & Rohana, E. (2024). *Formulation and SPF Value Evaluation of Sunscreen Spray Gel Containing Lime Peel Extract (Citrus aurantifolia)*. *11*(1), 42–52. https://doi.org/10.20473/jfiki.v11i12024.42-52

Saptarini, N. M., Mustarichie, R., Hasanuddin, S., & Corpuz, M. J. T. (2024). *Cassia alata L .: A Study of Antifungal Activity against Malassezia furfur , Identification of Major Compounds , and Molecular Docking to Lanosterol 14-Alpha Demethylase*.

Schmitt, P. D. O., Fischer, A. F., Meri, R., & Cruz, A. B. (2018). *Compatibility and efficiency of preservatives in emulsive cosmetics containing high surfactant content*.

Schwartzberg, L. S. (2018). Safety of Polysorbate 80 in the Oncology Setting. *Advances in Therapy*, *35*(6), 754–767. https://doi.org/10.1007/s12325-018-0707-z

Sharma, U., & Dhungana, J. (2025). *A Review of the Dermatophytes A Review of the Dermatophytes*. *December*, 0–18. https://doi.org/10.20944/preprints202512.2071.v1

Sri, D. B. (2024). *Buku Ekstraksi Bahan Alam Edisi 2024 1*.

Tanjung, C., Tsani, I., Fajr, A., Khoiriyah, I., Hadi, M. R., Nabila, S. P., & Akmal, T. (2024). *Formulasi dan Evaluasi Sediaan Spray gel Minyak Atsiri Niaouli (Melaleuca quinquenervia L .) dengan Karbopol 940 sebagai Pembentuk Gel*. *02*(01), 1–6.

Tatullo, M., Marrelli, B., Facente, A., Paduano, F., & Qutachi, O. (2024). Novel biopolymer spray formulation for drug delivery in precision dentistry. *Heliyon*, *10*(16), e36038. https://doi.org/10.1016/j.heliyon.2024.e36038

Udin, B., Ismiyati, R., Ismiyati, R., Kholifah, E., Endah, E., & Endah, E. (2023). Narrative Review: Analisis Fitokimia Dan Manfaat Ekstrak Ketepeng Cina (*Cassia alata* L.) Sebagai Antijamur. *Jurnal Farmasi Udayana*, *12*(1), 46. https://doi.org/10.24843/jfu.2023.v12.i01.p08

Untari, E. K., Farmasi, P. S., Kedokteran, F., Tanjungpura, U., & Kunci, K. (2018). Uji Fisikokimia dan Uji Iritasi Sabun Antiseptik Kulit Daun Aloe vera (L .) Burm . f. *Artikel Penelitian*, *3*, 55–61.

Wa Ode, R. (2022). Pengembangan Dan Pengujian Sifat Fisik Sediaan *Spray* Gel Dari Ekstrak Etanol Batang Etlıngera Rubroloba Menggunakan Basis Gel Na-Cmc Wa. *Journal Borneo*, *2*(2), 38–49.

Wahyuningsih, R., Adawiyah, R., Sjam, R., Prihartono, J., Ayu Tri Wulandari, E., Rozaliyani, A., Ronny, R., Imran, D., Tugiran, M., Siagian, F. E., & Denning, D. W. (2021). Serious fungal disease incidence and prevalence in Indonesia. Mycoses, 6*4*(10), 1203–1212. https://doi.org/10.1111/myc.13304

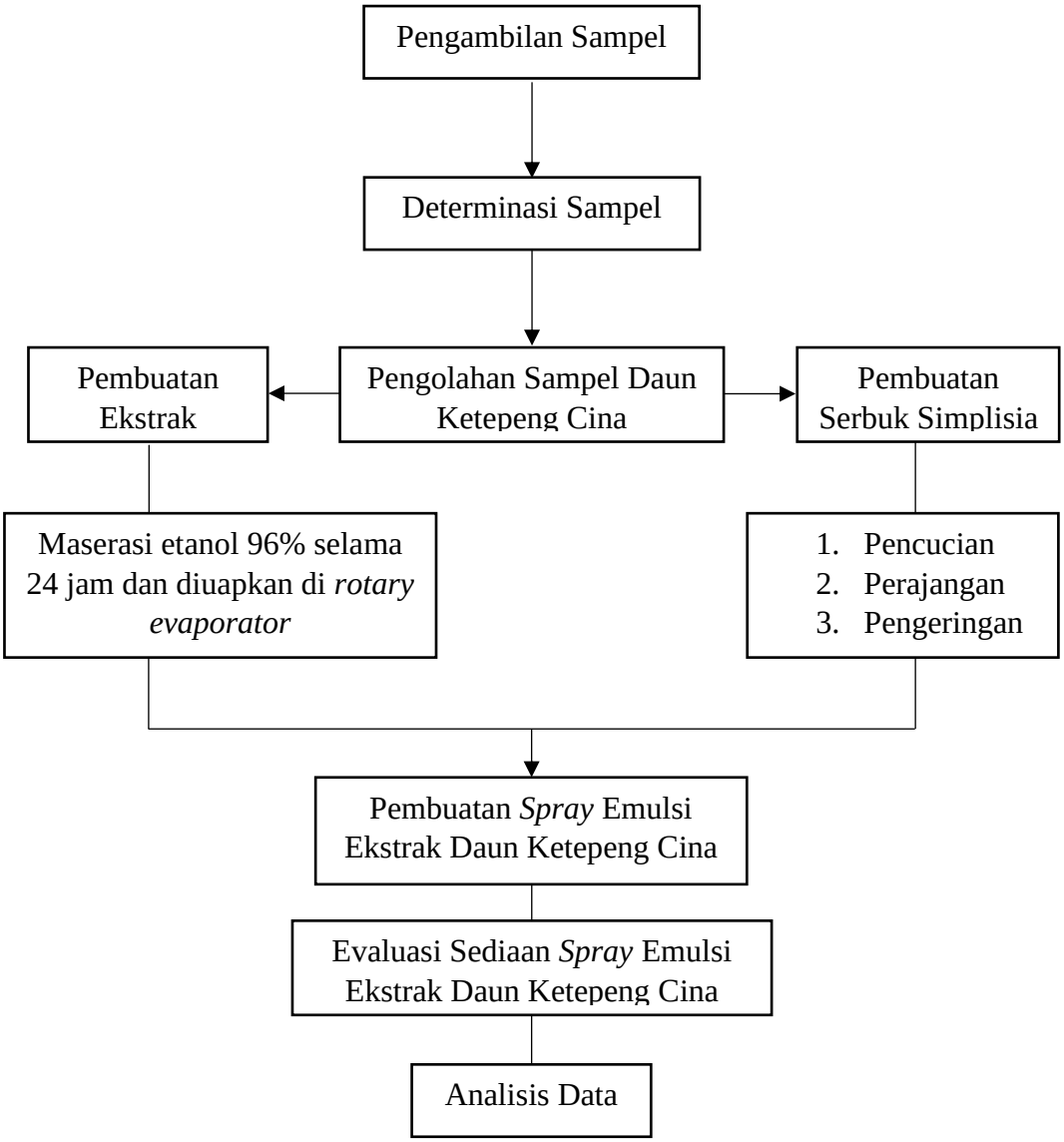
Wikantyasning, E. R., & Indianie, N. (2021). Optimisasi Tween 80 dan Span 80 Sebagai Emulgator dalam Formula Krim Tabir Surya Kombinasi Ekstrak Etanol Daun Alpukat (*Persea americana* M .) dan Nanopartikel Seng Oksida

Dengan Metode *Simplex Lattice Design*. *Jurnal IImu Farmasi*, *1*.

Xiao, T., Ma, X., Hu, H., Xiang, F., Zhang, X., Zheng, Y., & Dong, H. (2025). *Food Chemistry : X Advances in emulsion stability : A review on mechanisms , role of emulsifiers , and applications in food. Food Chemistry: X*, *29*(February), 102792. https://doi.org/10.1016/j.fochx.2025.102792

LAMPIRAN

Lampiran 1. Skema Alur Penelitian



Gambar 4.1 Skema Alur Penelitian

Lampiran 2. Perhitungan Formulasi Sediaan *Spray* Emulsi

Perhitungan formulasi sediaan *spray* emulsi dengan bobot 100 ml.

1. **Formulasi 1 (0% ekstrak daun Ketepeng Cina)**

   Tween 80 : $\frac{3\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 3\ \text{g}$

   Span 80 : $\frac{2\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 2\ \text{g}$

   Paraffin : $\frac{10\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 10\ \text{g}$

   Gliserin : $\frac{5\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 5\ \text{g}$

   Metil Paraben : $\frac{0{,}1\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 0{,}1\ \text{g}$

   Propil Paraben : $\frac{0{,}03\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 0{,}03\ \text{g}$

   Aquadest : 100 ml – (0 + 3 + 2 + 10 + 5 + 0,1 + 0,03)

   100 ml – 20,13 g

   79,87 ml

2. **Formulasi 2 (0,5% ekstrak daun Ketepeng Cina)**

   Ekstrak : $\frac{0{,}5\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 0{,}5\ \text{g}$

   Tween 80 : $\frac{3\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 3\ \text{g}$

   Span 80 : $\frac{2\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 2\ \text{g}$

   Paraffin : $\frac{10\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 10\ \text{g}$

   Gliserin : $\frac{5\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 5\ \text{g}$

   Metil Paraben : $\frac{0{,}1\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 0{,}1\ \text{g}$

   Propil Paraben : $\frac{0{,}03\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 0{,}03\ \text{g}$

   Aquadest : 100 ml – (0,5 + 3 + 2 + 10 + 5 + 0,1 + 0,03)

   100 ml – 20,63 g

   79,37 ml

3. Formulasi 3 (1% ekstrak daun Ketepeng Cina)

Ekstrak : $\frac{1\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 1\ \text{g}$

Tween 80 : $\frac{3\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 3\ \text{g}$

Span 80 : $\frac{2\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 2\ \text{g}$

Paraffin : $\frac{10\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 10\ \text{g}$

Gliserin : $\frac{5\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 5\ \text{g}$

Metil Paraben : $\frac{0{,}1\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 0{,}1\ \text{g}$

Propil Paraben : $\frac{0{,}03\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 0{,}03\ \text{g}$

Aquadest : 100 ml – (1 + 3 + 2 + 10 + 5 + 0,1 + 0,03)

100 ml – 21,13 ml

78,87 ml

4. Formulasi 4 (2% ekstrak daun Ketepeng Cina)

Ekstrak : $\frac{2\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 2\ \text{g}$

Tween 80 : $\frac{3\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 3\ \text{g}$

Span 80 : $\frac{2\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 2\ \text{g}$

Paraffin : $\frac{10\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 10\ \text{g}$

Gliserin : $\frac{5\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 5\ \text{g}$

Metil Paraben : $\frac{0{,}1\ \text{g}}{100\ \text{ml}} \times 100\ \text{mL} = 0{,}1\ \text{g}$

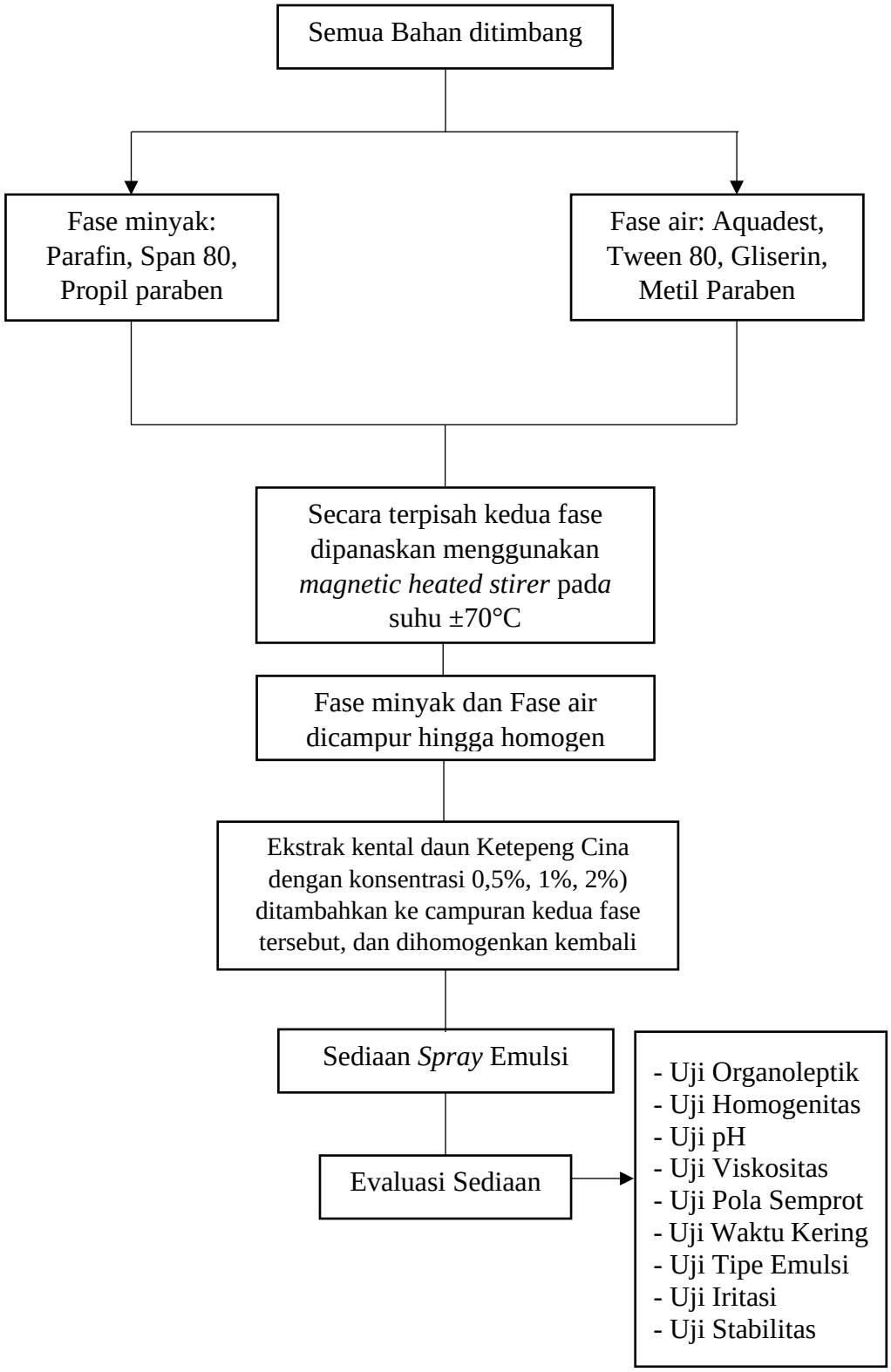
Propil Paraben : $\frac{0{,}03\ \text{g}}{100\ \text{ml}} \times 100\ \text{ml} = 0{,}03\ \text{g}$

Aquadest : 100 ml – (2 + 3 + 2 + 10 + 5 + 0,1 + 0,03)

100 ml – 22,13 g

77,87 ml

Lampiran 3. Skema Pembuatan Sediaan *Spray* Emulsi



Gambar 5.1 Skema Pembuatan Sediaan *Spray* Emulsi

Lampiran 4. Lembar Persetujuan (Informed consent)

LEMBAR PENJELASAN PENELITIAN

(INFORMASI UNTUK CALON RESPONDEN)

Judul Penelitian

"Formulasi Sediaan *Spray* Emulsi Ekstrak Etanol Daun Ketepeng Cina (*Cassia alata* L.) Sebagai Antijamur."

Peneliti : Magdalena Arista Dua Helmi

Program Studi : Farmasi

Institusi : Institut Kesehatan Mitra Bunda

Nomor kontak peneliti: 087856937125

1. Tujuan penelitian. Penelitian ini bertujuan untuk memformulasikan sediaan spray emulsi yang mengandung ekstrak etanol daun Ketepeng Cina (Cassia alata L.) serta mengevaluasi karakteristik fisik dan stabilitas sediaan yang dihasilkan. Penelitian ini juga dilakukan sebagai bagian dari pengembangan sediaan berbahan alam yang berpotensi digunakan sebagai sediaan antijamur.

2. Mengapa Anda diminta menjadi responden. Anda diminta untuk berpartisipasi sebagai responden karena memenuhi persyaratan yang telah ditentukan oleh peneliti dan sesuai dengan tujuan pengujian dalam penelitian. Keikutsertaan Anda sepenuhnya bersifat sukarela. Keputusan untuk ikut maupun tidak ikut dalam penelitian ini tidak akan memengaruhi hak Anda dalam memperoleh pelayanan atau perlakuan apa pun.

3. Prosedur penelitian. Apabila Anda bersedia mengikuti penelitian ini, Anda akan diminta untuk mengikuti prosedur yang telah ditetapkan oleh peneliti. Pengujian yang melibatkan responden berupa penggunaan sediaan spray emulsi pada area kulit yang telah ditentukan untuk mengamati kemungkinan timbulnya reaksi iritasi pada kulit. Selama pengujian, kondisi kulit akan diamati dan dicatat oleh peneliti sesuai dengan parameter yang telah ditetapkan. Sebelum pelaksanaan, peneliti akan memberikan penjelasan mengenai tata cara penggunaan sediaan dan prosedur pengamatan.

4. Lama keikutsertaan. Keikutsertaan Anda dalam penelitian berlangsung selama waktu yang telah ditentukan sesuai dengan jadwal penelitian. Waktu pemberian sediaan dan pengamatan kondisi kulit akan dijelaskan terlebih dahulu oleh peneliti sebelum penelitian dilaksanakan.

5. Risiko dan ketidaknyamanan. Penggunaan sediaan spray emulsi pada kulit dapat menimbulkan reaksi yang tidak diinginkan pada individu tertentu. Reaksi tersebut dapat berupa kemerahan (eritema), rasa gatal, rasa perih, sensasi terbakar, atau pembengkakan (edema). Apabila selama penelitian Anda merasakan ketidaknyamanan atau mengalami reaksi pada kulit, Anda diharapkan segera

memberitahukan kepada peneliti. Peneliti akan melakukan pengamatan terhadap kondisi tersebut dan dapat menghentikan penggunaan sediaan apabila diperlukan untuk menjaga keamanan dan kenyamanan responden.

6. Manfaat penelitian. Keikutsertaan Anda diharapkan dapat memberikan kontribusi dalam pengembangan sediaan farmasi berbahan alam, khususnya sediaan spray emulsi yang mengandung ekstrak etanol daun Ketepeng Cina (Cassia alata L.) sebagai kandidat sediaan antijamur. Namun, manfaat langsung terhadap kondisi kulit Anda tidak dapat dijamin karena penelitian ini terutama bertujuan untuk mengevaluasi keamanan penggunaan sediaan melalui pengamatan terhadap kemungkinan terjadinya iritasi.

7. Kerahasiaan data. Seluruh informasi, identitas, dan data yang diperoleh dari Anda selama penelitian akan dijaga kerahasiaannya oleh peneliti. Data yang diperoleh hanya akan digunakan untuk kepentingan penelitian dan akademik. Identitas responden tidak akan dicantumkan dalam laporan penelitian, skripsi, publikasi, maupun penyajian hasil penelitian, melainkan akan menggunakan kode atau bentuk identifikasi lain yang tidak secara langsung menunjukkan identitas responden.

8. Hak untuk menolak atau mengundurkan diri. Keikutsertaan Anda dalam penelitian ini sepenuhnya bersifat sukarela. Anda memiliki hak untuk menolak berpartisipasi atau mengundurkan diri dari penelitian kapan saja, baik sebelum maupun selama penelitian berlangsung, tanpa harus memberikan alasan. Keputusan tersebut tidak akan menimbulkan sanksi, kerugian, ataupun memengaruhi hak Anda untuk memperoleh pelayanan sebagaimana mestinya.

9. Biaya dan kompensasi. Peneliti akan memberikan penjelasan mengenai biaya yang berkaitan dengan keikutsertaan dalam penelitian serta ketentuan mengenai kompensasi, apabila ada, sesuai dengan kebijakan dan ketentuan yang berlaku di institusi tempat penelitian dilaksanakan.

10. Kontak peneliti. Jika Anda memiliki pertanyaan, membutuhkan penjelasan tambahan, atau mengalami keluhan yang berkaitan dengan penelitian, Anda dapat menghubungi peneliti pada kontak berikut:

Magdalena Arista Dua Helmi, No. HP 087856937125

LEMBAR PERSETUJUAN MENJADI RESPONDEN

(INFORMED CONSENT)

Saya yang bertanda tangan di bawah ini:

Nama : MUJI NUR MA'RIFAH

Umur : 22 TAHUN

Jenis kelamin : PEREMPUAN

Alamat : PUNGGUR

No.HP(opsional) : 081949222033

Setelah mendapatkan penjelasan yang cukup mengenai penelitian berjudul "Formulasi Sediaan *Spray* Emulsi Ekstrak Etanol Daun Ketepeng Cina (*Cassia alata* L.) Sebagai Antijamur", saya telah memahami tujuan, prosedur, lama keikutsertaan, kemungkinan risiko atau ketidaknyamanan, manfaat, kerahasiaan data, serta hak saya sebagai responden.

Saya telah diberikan kesempatan untuk bertanya dan telah memperoleh jawaban atas pertanyaan yang saya ajukan. Saya memahami bahwa keikutsertaan saya bersifat sukarela dan saya dapat menolak atau mengundurkan diri kapan saja tanpa konsekuensi atau sanksi.

Dengan ini saya menyatakan bahwa:

☑ BERSEDIA menjadi responden dalam penelitian ini.

☐ TIDAK BERSEDIA menjadi responden dalam penelitian ini.

Saya memberikan persetujuan ini secara sadar, sukarela, dan tanpa paksaan dari pihak mana pun.

Batam, 27 JUNI 2026

Responden	**Peneliti**
(.....)	(Magdalena Arista Dua Helmi)

Lampiran 5. Determinasi Tanaman

HERBARIUM UNIVERSITAS ANDALAS (ANDA)
Departemen Biologi FMIPA Universitas Andalas Kampus Limau Manih Padang
Sumbar Indonesia 25163 Telp. +62-751-777427 e-mail: herbariumanda@yahoo.com

Nomor : 137/K-ID/ANDA/II/2026
Lampiran : -
Perihal : Hasil Identifikasi

Kepada yth,
apt. Rastria Meilanda, S.Farm, M.Sc
Di
Tempat

Dengan hormat,
Sehubungan dengan surat permohonan determinasi sampel dari Institut Kesehatan Mitra Bunda No. 013/K/S1-FARM/IKMB/I/2026 tanggal 17 Januari 2026 di Herbarium Universitas Andalas Departemen Biologi FMIPA Universitas Andalas, kami telah membantu mengidentifikasi tumbuhan yang dibawa, dari:

Nama : apt. Rastria Meilanda, S.Farm, M.Sc
Instansi : Institut Kesehatan Mitra Bunda

Berikut ini diberikan hasil identifikasi yang dikeluarkan dari Herbarium Universitas Andalas.

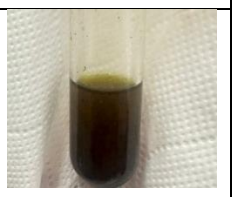
No	Family	Spesies	Nomor Koleksi
1.	Fabaceae	*Senna alata* (L.) Roxb.	IKMB. 22.21 Daun Ketepeng Cina
2.	Lamiaceae	*Coleus scutellarioides* (L.) Benth.	IKMB.22.22 Daun Miana
3.	Annonaceae	*Annona muricata* L.	IKMB.22.71 Daun Sirsak
4.	Melastomataceae	*Melastoma malabathricum* L.	IKMB.22.32 Daun Senduduk

Demikian surat ini dibuat untuk dapat digunakan seperlunya.

Padang, 12 Februari 2026
Kepala,

Dr. Nurainas
NIP. 196908141995122001

Lampiran 6. Hasil Skrining Fitokimia

Pemeriksaan	Reagen	Hasil Uji	Keterangan	Gambar
Alkaloid	Mayer	(+)		
	Dragendroff	(+)	Endapan merah bata	
Flavonoid	Serbuk Mg + HCL Pekat	(+)	Jingga hingga kekuningan	
Saponin	Aquadest Panas + HCL Pekat	(+)	Terbentuk busa	
Tanin	FeCl3	(+)	Hijau Kehitaman	
Terpenoid Steroid	H2SO4 dan Asam Asetat + Liberman Burchard	(+)	Merah Kecoklatan	
Antrakuinon	Kloroform + NH4OH	(+)	Merah Muda	

Lampiran 7. Dokumentasi Preparasi dan Pembuatan Sediaan



Pengambilan daun Ketepeng Cina



Dilakukan sortasi basah



Dicuci menggunakan air mengalir



Daun dirajang menjadi bagian kecil



Dikeringkan dibawah sinar matahari



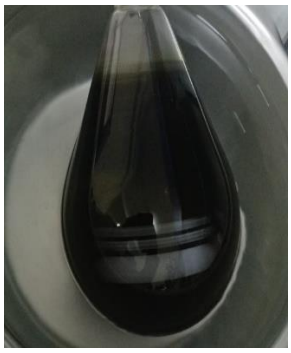
Dihaluskan menggunakan blender



Dimasukkan pelarut etanol 96%



Disaring hasil maserasi



Diekstrak menggunakan *rotary evaporator*



Penimbangan bahan



Formulasi *spray* emulsi

Lampiran 8. Dokumentasi Evaluasi Sediaan *Spray* Emulsi



Uji organoleptis



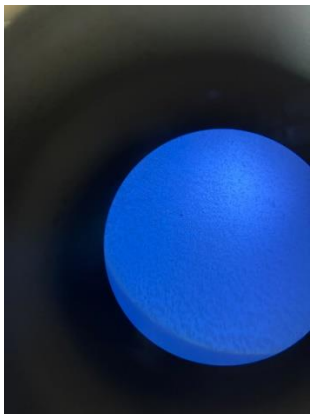
Uji pH



Uji viskositas



Uji pola semprot



Uji tipe emulsi



Uji waktu kering dan iritasi

Lampiran 9. Analisis Data SPSS

1. Uji pH *Cycling Test*

a). Uji Normalitas *Shapiro Wilk*

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formulasi	Statistic	df	Sig.	Statistic	df	Sig.
pH Sebelum	F0	.192	3	.	.997	3	.893
	F1	.189	3	.	.998	3	.908
	F2	.279	3	.	.939	3	.525
	F3	.285	3	.	.932	3	.495
pH Sesudah	F0	.253	3	.	.964	3	.637
	F1	.346	3	.	.836	3	.205
	F2	.241	3	.	.974	3	.689
	F3	.358	3	.	.812	3	.144

a. Lilliefors Significance Correction

b). Uji Homogenitas

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
pH Sebelum	Based on Mean	3.626	3	8	.064
	Based on Median	.940	3	8	.465
	Based on Median and with adjusted df	.940	3	4.119	.498
	Based on trimmed mean	3.344	3	8	.076
pH Sesudah	Based on Mean	4.159	3	8	.047
	Based on Median	.778	3	8	.538
	Based on Median and with adjusted df	.778	3	4.384	.560
	Based on trimmed mean	3.730	3	8	.061

c). Uji *One Way-Anova*

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
pH Sebelum	Between Groups	1.337	3	.446	2.504	.133
	Within Groups	1.424	8	.178		
	Total	2.761	11			
pH Sesudah	Between Groups	3.149	3	1.050	5.639	.023
	Within Groups	1.489	8	.186		
	Total	4.637	11			

Robust Tests of Equality of Means

pH Sesudah

	Statistic[a]	df1	df2	Sig.
Welch	21.975	3	3.344	.011

a. Asymptotically F distributed.

Multiple Comparisons

Dependent Variable: pH Sesudah

Games-Howell

(I) Formulasi	(J) Formulasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F0	F1	.75667	.35046	.367	-1.6680	3.1813
	F2	1.15667	.31899	.164	-1.0496	3.3629
	F3	1.33000*	.15402	.032	.2707	2.3893
F1	F0	-.75667	.35046	.367	-3.1813	1.6680
	F2	.40000	.47373	.832	-1.5370	2.3370
	F3	.57333	.38261	.539	-1.3984	2.5450
F2	F0	-1.15667	.31899	.164	-3.3629	1.0496
	F1	-.40000	.47373	.832	-2.3370	1.5370
	F3	.17333	.35401	.956	-1.5843	1.9310
F3	F0	-1.33000*	.15402	.032	-2.3893	-.2707
	F1	-.57333	.38261	.539	-2.5450	1.3984
	F2	-.17333	.35401	.956	-1.9310	1.5843

*. The mean difference is significant at the 0.05 level.

2. Uji Viskositas *Cycling Test*

a). Uji Normalitas *Shapiro Wilk*

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formulasi	Statistic	df	Sig.	Statistic	df	Sig.
Viskositas Sebelum	F0	.327	3	.	.872	3	.301
	F1	.237	3	.	.976	3	.704
	F2	.175	3	.	1.000	3	1.000
	F3	.258	3	.	.960	3	.614
Viskositas Sesudah	F0	.176	3	.	1.000	3	.987
	F1	.175	3	.	1.000	3	1.000
	F2	.204	3	.	.993	3	.845
	F3	.343	3	.	.843	3	.221

a. Lilliefors Significance Correction

b). Uji Homogenitas

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Viskositas Sebelum	Based on Mean	.173	3	8	.912
	Based on Median	.062	3	8	.979
	Based on Median and with adjusted df	.062	3	7.246	.978
	Based on trimmed mean	.162	3	8	.919
Viskositas Sesudah	Based on Mean	3.345	3	8	.076
	Based on Median	.707	3	8	.574
	Based on Median and with adjusted df	.707	3	3.324	.604
	Based on trimmed mean	3.061	3	8	.091

c). Uji *One Way-Anova*

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Viskositas Sebelum	Between Groups	48.737	3	16.246	.084	.967
	Within Groups	1538.073	8	192.259		
	Total	1586.810	11			
Viskositas Sesudah	Between Groups	282.327	3	94.109	.650	.605
	Within Groups	1157.880	8	144.735		
	Total	1440.207	11			

3. Uji Pola Semprot *Cycling Test*

a). Uji Normalitas *Shapiro Wilk*

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formulasi	Statistic	df	Sig.	Statistic	df	Sig.
Pola Semprot Sebelum	F0	.175	3	.	1.000	3	1.000
	F1	.314	3	.	.893	3	.363
	F2	.276	3	.	.942	3	.537
	F3	.193	3	.	.997	3	.890
Pola Semprot Sesudah	F0	.292	3	.	.923	3	.463
	F1	.253	3	.	.964	3	.637
	F2	.175	3	.	1.000	3	1.000
	F3	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

b). Uji Homogenitas

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Pola Semprot Sebelum	Based on Mean	.111	3	8	.951
	Based on Median	.124	3	8	.943
	Based on Median and with adjusted df	.124	3	7.863	.943
	Based on trimmed mean	.112	3	8	.951
Pola Semprot Sesudah	Based on Mean	.181	3	8	.906
	Based on Median	.078	3	8	.970
	Based on Median and with adjusted df	.078	3	6.964	.970
	Based on trimmed mean	.172	3	8	.913

c). Uji *One Way-Anova*

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Pola Semprot Sebelum	Between Groups	13.077	3	4.359	5.360	.026
	Within Groups	6.507	8	.813		
	Total	19.584	11			
Pola Semprot Sesudah	Between Groups	.729	3	.243	.299	.825
	Within Groups	6.500	8	.813		
	Total	7.229	11			

Multiple Comparisons

Dependent Variable: Pola Semprot Sebelum

Tukey HSD

(I) Formulasi	(J) Formulasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F0	F1	2.75000*	.73636	.024	.3919	5.1081
	F2	.50000	.73636	.902	-1.8581	2.8581
	F3	.78333	.73636	.719	-1.5747	3.1414
F1	F0	-2.75000*	.73636	.024	-5.1081	-.3919
	F2	-2.25000	.73636	.061	-4.6081	.1081
	F3	-1.96667	.73636	.106	-4.3247	.3914
F2	F0	-.50000	.73636	.902	-2.8581	1.8581
	F1	2.25000	.73636	.061	-.1081	4.6081
	F3	.28333	.73636	.979	-2.0747	2.6414
F3	F0	-.78333	.73636	.719	-3.1414	1.5747
	F1	1.96667	.73636	.106	-.3914	4.3247
	F2	-.28333	.73636	.979	-2.6414	2.0747

*. The mean difference is significant at the 0.05 level.

4. Uji Waktu Kering *Cycling Test*

a). Uji Normalitas *Shapiro Wilk*

Tests of Normality

	Formulasi	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Waktu Kering Sebelum	F0	.342	3	.	.845	3	.227
	F1	.363	3	.	.801	3	.117
	F2	.238	3	.	.976	3	.702
	F3	.357	3	.	.815	3	.150
Waktu Kering Sesudah	F0	.314	3	.	.893	3	.363
	F1	.319	3	.	.885	3	.339
	F2	.272	3	.	.947	3	.554
	F3	.351	3	.	.828	3	.183

a. Lilliefors Significance Correction

b). Uji Homogenitas

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Waktu Kering Sebelum	Based on Mean	7.435	3	8	.011
	Based on Median	.628	3	8	.617
	Based on Median and with adjusted df	.628	3	2.513	.651
	Based on trimmed mean	6.126	3	8	.018
Waktu Kering Sesudah	Based on Mean	1.007	3	8	.438
	Based on Median	.146	3	8	.929
	Based on Median and with adjusted df	.146	3	6.319	.929
	Based on trimmed mean	.880	3	8	.491

c). Uji *One Way-Anova*

ANOVA

Waktu Kering Sesudah

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3046.917	3	1015.639	6.253	.017
Within Groups	1299.333	8	162.417		
Total	4346.250	11			

Multiple Comparisons

Dependent Variable: Waktu Kering Sesudah

Tukey HSD

(I) Formulasi	(J) Formulasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F0	F1	-11.333	10.406	.705	-44.66	21.99
	F2	-12.667	10.406	.634	-45.99	20.66
	F3	-43.000*	10.406	.014	-76.32	-9.68
F1	F0	11.333	10.406	.705	-21.99	44.66
	F2	-1.333	10.406	.999	-34.66	31.99
	F3	-31.667	10.406	.063	-64.99	1.66
F2	F0	12.667	10.406	.634	-20.66	45.99
	F1	1.333	10.406	.999	-31.99	34.66
	F3	-30.333	10.406	.075	-63.66	2.99
F3	F0	43.000*	10.406	.014	9.68	76.32
	F1	31.667	10.406	.063	-1.66	64.99
	F2	30.333	10.406	.075	-2.99	63.66

*. The mean difference is significant at the 0.05 level.

Robust Tests of Equality of Means

Waktu Kering Sebelum

	Statistic[a]	df1	df2	Sig.
Welch	5.618	3	4.261	.059

a. Asymptotically F distributed.

5. Uji pH Suhu Ruang

a). Uji Normalitas *Shapiro Wilk*

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formulasi	Statistic	df	Sig.	Statistic	df	Sig.
pH Hari-0	F0	.192	3	.	.997	3	.893
	F1	.189	3	.	.998	3	.908
	F2	.279	3	.	.939	3	.525
	F3	.285	3	.	.932	3	.495
pH Hari-7	F0	.253	3	.	.964	3	.637
	F1	.361	3	.	.807	3	.132
	F2	.175	3	.	1.000	3	1.000
	F3	.204	3	.	.993	3	.843
pH Hari-14	F0	.253	3	.	.964	3	.637
	F1	.349	3	.	.832	3	.194
	F2	.253	3	.	.964	3	.637
	F3	.333	3	.	.862	3	.274
pH Hari-21	F0	.364	3	.	.800	3	.114
	F1	.350	3	.	.830	3	.189
	F2	.191	3	.	.997	3	.900
	F3	.276	3	.	.942	3	.537
pH Hari-28	F0	.301	3	.	.912	3	.424
	F1	.329	3	.	.868	3	.290
	F2	.211	3	.	.991	3	.817
	F3	.253	3	.	.964	3	.637

a. Lilliefors Significance Correction

b). Uji Homogenitas

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
pH Hari-0	Based on Mean	3.626	3	8	.064
	Based on Median	.940	3	8	.465
	Based on Median and with adjusted df	.940	3	4.119	.498
	Based on trimmed mean	3.344	3	8	.076
pH Hari-7	Based on Mean	1.678	3	8	.248
	Based on Median	.383	3	8	.768
	Based on Median and with adjusted df	.383	3	4.414	.771
	Based on trimmed mean	1.543	3	8	.277
pH Hari-14	Based on Mean	5.328	3	8	.026
	Based on Median	.589	3	8	.639
	Based on Median and with adjusted df	.589	3	3.223	.660
	Based on trimmed mean	4.541	3	8	.039
pH Hari-21	Based on Mean	11.917	3	8	.003
	Based on Median	1.140	3	8	.390
	Based on Median and with adjusted df	1.140	3	2.091	.494
	Based on trimmed mean	9.912	3	8	.005
pH Hari-28	Based on Mean	10.813	3	8	.003
	Based on Median	1.387	3	8	.315
	Based on Median and with adjusted df	1.387	3	2.064	.441
	Based on trimmed mean	9.308	3	8	.005

c). Uji *One Way-Anova*

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
pH Hari-0	Between Groups	1.337	3	.446	2.504	.133
	Within Groups	1.424	8	.178		
	Total	2.761	11			
pH Hari-7	Between Groups	3.886	3	1.295	409.027	.000
	Within Groups	.025	8	.003		
	Total	3.911	11			

Multiple Comparisons

Dependent Variable: pH Hari-7

Tukey HSD

(I) Formulasi	(J) Formulasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F0	F1	1.27333*	.04595	.000	1.1262	1.4205
	F2	1.07000*	.04595	.000	.9229	1.2171
	F3	1.47333*	.04595	.000	1.3262	1.6205
F1	F0	-1.27333*	.04595	.000	-1.4205	-1.1262
	F2	-.20333*	.04595	.010	-.3505	-.0562
	F3	.20000*	.04595	.010	.0529	.3471
F2	F0	-1.07000*	.04595	.000	-1.2171	-.9229
	F1	.20333*	.04595	.010	.0562	.3505
	F3	.40333*	.04595	.000	.2562	.5505
F3	F0	-1.47333*	.04595	.000	-1.6205	-1.3262
	F1	-.20000*	.04595	.010	-.3471	-.0529
	F2	-.40333*	.04595	.000	-.5505	-.2562

*. The mean difference is significant at the 0.05 level.

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
pH Hari-14	Welch	259.365	3	3.570	.000
pH Hari-21	Welch	193.462	3	4.055	.000
pH Hari-28	Welch	322.535	3	3.970	.000

a. Asymptotically F distributed.

Multiple Comparisons

Games-Howell

Dependent Variable	(I) Formulasi	(J) Formulasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
pH Hari-14	F0	F1	1.16333*	.09244	.005	.6757	1.6510
		F2	1.13667*	.03636	.001	.9139	1.3594
		F3	1.46333*	.05364	.000	1.2430	1.6837
	F1	F0	-1.16333*	.09244	.005	-1.6510	-.6757
		F2	-.02667	.08589	.987	-.6080	.5547
		F3	.30000	.09452	.148	-.1729	.7729
	F2	F0	-1.13667*	.03636	.001	-1.3594	-.9139
		F1	.02667	.08589	.987	-.5547	.6080
		F3	.32667*	.04137	.031	.0665	.5868
	F3	F0	-1.46333*	.05364	.000	-1.6837	-1.2430
		F1	-.30000	.09452	.148	-.7729	.1729
		F2	-.32667*	.04137	.031	-.5868	-.0665
pH Hari-21	F0	F1	.73333	.38326	.425	-1.8302	3.2968
		F2	1.14000*	.05793	.000	.8846	1.3954
		F3	1.45667*	.05270	.001	1.1829	1.7305
	F1	F0	-.73333	.38326	.425	-3.2968	1.8302
		F2	.40667	.38152	.739	-2.1960	3.0093
		F3	.72333	.38076	.432	-1.8971	3.3437
	F2	F0	-1.14000*	.05793	.000	-1.3954	-.8846
		F1	-.40667	.38152	.739	-3.0093	2.1960
		F3	.31667*	.03801	.007	.1489	.4844
	F3	F0	-1.45667*	.05270	.001	-1.7305	-1.1829
		F1	-.72333	.38076	.432	-3.3437	1.8971
		F2	-.31667*	.03801	.007	-.4844	-.1489
pH Hari-28	F0	F1	.76333	.36463	.379	-1.6987	3.2254
		F2	1.18333*	.05249	.000	.9681	1.3986
		F3	1.54333*	.04308	.000	1.3233	1.7634
	F1	F0	-.76333	.36463	.379	-3.2254	1.6987
		F2	.42000	.36417	.702	-2.0524	2.8924
		F3	.78000	.36294	.369	-1.7212	3.2812
	F2	F0	-1.18333*	.05249	.000	-1.3986	-.9681
		F1	-.42000	.36417	.702	-2.8924	2.0524
		F3	.36000*	.03902	.009	.1701	.5499
	F3	F0	-1.54333*	.04308	.000	-1.7634	-1.3233
		F1	-.78000	.36294	.369	-3.2812	1.7212
		F2	-.36000*	.03902	.009	-.5499	-.1701

*. The mean difference is significant at the 0.05 level.

6. Uji Viskositas Suhu Ruang

a). Uji Normalitas *Shapiro Wilk*

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formulasi	Statistic	df	Sig.	Statistic	df	Sig.
Viskositas Hari-0	F0	.327	3	.	.872	3	.301
	F1	.237	3	.	.976	3	.704
	F2	.175	3	.	1.000	3	1.000
	F3	.258	3	.	.960	3	.614
Viskositas Hari-7	F0	.176	3	.	1.000	3	.987
	F1	.175	3	.	1.000	3	1.000
	F2	.279	3	.	.939	3	.525
	F3	.176	3	.	1.000	3	.987
Viskositas Hari-14	F0	.175	3	.	1.000	3	1.000
	F1	.175	3	.	1.000	3	1.000
	F2	.175	3	.	1.000	3	1.000
	F3	.230	3	.	.981	3	.736
Viskositas Hari-21	F0	.175	3	.	1.000	3	1.000
	F1	.333	3	.	.861	3	.272
	F2	.292	3	.	.924	3	.466
	F3	.175	3	.	1.000	3	1.000
Viskositas Hari-28	F0	.230	3	.	.981	3	.736
	F1	.256	3	.	.962	3	.626
	F2	.256	3	.	.962	3	.626
	F3	.175	3	.	1.000	3	1.000

a. Lilliefors Significance Correction

b). Uji Homogenitas

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Viskositas Hari-0	Based on Mean	.173	3	8	.912
	Based on Median	.062	3	8	.979
	Based on Median and with adjusted df	.062	3	7.246	.978
	Based on trimmed mean	.162	3	8	.919
Viskositas Hari-7	Based on Mean	.940	3	8	.466
	Based on Median	.315	3	8	.814
	Based on Median and with adjusted df	.315	3	4.514	.815
	Based on trimmed mean	.891	3	8	.486
Viskositas Hari-14	Based on Mean	.144	3	8	.931
	Based on Median	.066	3	8	.976
	Based on Median and with adjusted df	.066	3	7.216	.976
	Based on trimmed mean	.139	3	8	.934
Viskositas Hari-21	Based on Mean	3.712	3	8	.061
	Based on Median	.530	3	8	.674
	Based on Median and with adjusted df	.530	3	3.344	.690
	Based on trimmed mean	3.284	3	8	.079
Viskositas Hari-28	Based on Mean	.310	3	8	.817
	Based on Median	.095	3	8	.960
	Based on Median and with adjusted df	.095	3	7.022	.960
	Based on trimmed mean	.292	3	8	.830

c). Uji *One Way-Anova*

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Viskositas Hari-0	Between Groups	48.737	3	16.246	.084	.967
	Within Groups	1538.073	8	192.259		
	Total	1586.810	11			
Viskositas Hari-7	Between Groups	196.327	3	65.442	2.338	.150
	Within Groups	223.933	8	27.992		
	Total	420.260	11			
Viskositas Hari-14	Between Groups	189.063	3	63.021	3.050	.092
	Within Groups	165.287	8	20.661		
	Total	354.349	11			
Viskositas Hari-21	Between Groups	61.253	3	20.418	.247	.861
	Within Groups	660.413	8	82.552		
	Total	721.667	11			
Viskositas Hari-28	Between Groups	234.989	3	78.330	2.437	.140
	Within Groups	257.140	8	32.142		
	Total	492.129	11			

7. Uji Pola Semprot Suhu Ruang

a). Uji Normalitas *Shapiro Wilk*

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formulasi	Statistic	df	Sig.	Statistic	df	Sig.
Pola Semprot Hari-0	F0	.175	3	.	1.000	3	1.000
	F1	.314	3	.	.893	3	.363
	F2	.276	3	.	.942	3	.537
	F3	.193	3	.	.997	3	.890
Pola Semprot Hari-7	F0	.292	3	.	.923	3	.463
	F1	.175	3	.	1.000	3	1.000
	F2	.385	3	.	.750	3	.000
	F3	.253	3	.	.964	3	.637
Pola Semprot Hari-14	F0	.314	3	.	.893	3	.363
	F1	.204	3	.	.993	3	.843
	F2	.314	3	.	.893	3	.363
	F3	.219	3	.	.987	3	.780
Pola Semprot Hari-21	F0	.219	3	.	.987	3	.780
	F1	.175	3	.	1.000	3	1.000
	F2	.219	3	.	.987	3	.780
	F3	.253	3	.	.964	3	.637
Pola Semprot Hari-28	F0	.175	3	.	1.000	3	1.000
	F1	.219	3	.	.987	3	.780
	F2	.175	3	.	1.000	3	1.000
	F3	.193	3	.	.997	3	.890

a. Lilliefors Significance Correction

b). Uji Homogenitas

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Pola Semprot Hari-0	Based on Mean	.111	3	8	.951
	Based on Median	.124	3	8	.943
	Based on Median and with adjusted df	.124	3	7.863	.943
	Based on trimmed mean	.112	3	8	.951
Pola Semprot Hari-7	Based on Mean	1.617	3	8	.261
	Based on Median	.708	3	8	.574
	Based on Median and with adjusted df	.708	3	5.486	.584
	Based on trimmed mean	1.546	3	8	.276
Pola Semprot Hari-14	Based on Mean	.705	3	8	.575
	Based on Median	.375	3	8	.774
	Based on Median and with adjusted df	.375	3	6.611	.774
	Based on trimmed mean	.681	3	8	.588
Pola Semprot Hari-21	Based on Mean	.245	3	8	.863
	Based on Median	.089	3	8	.964
	Based on Median and with adjusted df	.089	3	6.977	.964
	Based on trimmed mean	.233	3	8	.871
Pola Semprot Hari-28	Based on Mean	1.087	3	8	.409
	Based on Median	.781	3	8	.537
	Based on Median and with adjusted df	.781	3	5.759	.548
	Based on trimmed mean	1.068	3	8	.415

c). Uji *One Way-Anova*

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Pola Semprot Hari-0	Between Groups	13.077	3	4.359	5.360	.026
	Within Groups	6.507	8	.813		
	Total	19.584	11			
Pola Semprot Hari-7	Between Groups	1.167	3	.389	.346	.793
	Within Groups	9.000	8	1.125		
	Total	10.167	11			
Pola Semprot Hari-14	Between Groups	4.849	3	1.616	.943	.464
	Within Groups	13.708	8	1.714		
	Total	18.557	11			
Pola Semprot Hari-21	Between Groups	1.854	3	.618	1.521	.282
	Within Groups	3.250	8	.406		
	Total	5.104	11			
Pola Semprot Hari-28	Between Groups	6.789	3	2.263	2.481	.135
	Within Groups	7.298	8	.912		
	Total	14.087	11			

Multiple Comparisons

Dependent Variable: Pola Semprot Hari-0

Tukey HSD

(I) Formulasi	(J) Formulasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F0	F1	2.75000*	.73636	.024	.3919	5.1081
	F2	.50000	.73636	.902	-1.8581	2.8581
	F3	.78333	.73636	.719	-1.5747	3.1414
F1	F0	-2.75000*	.73636	.024	-5.1081	-.3919
	F2	-2.25000	.73636	.061	-4.6081	.1081
	F3	-1.96667	.73636	.106	-4.3247	.3914
F2	F0	-.50000	.73636	.902	-2.8581	1.8581
	F1	2.25000	.73636	.061	-.1081	4.6081
	F3	.28333	.73636	.979	-2.0747	2.6414
F3	F0	-.78333	.73636	.719	-3.1414	1.5747
	F1	1.96667	.73636	.106	-.3914	4.3247
	F2	-.28333	.73636	.979	-2.6414	2.0747

*. The mean difference is significant at the 0.05 level.

4. Uji Waktu Kering Suhu Ruang

a). Uji Normalitas *Shapiro Wilk*

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Formulasi	Statistic	df	Sig.	Statistic	df	Sig.
WaktuKering Hari-0	F0	.342	3	.	.845	3	.227
	F1	.363	3	.	.801	3	.117
	F2	.238	3	.	.976	3	.702
	F3	.357	3	.	.815	3	.150
WaktuKering Hari-7	F0	.321	3	.	.881	3	.328
	F1	.306	3	.	.904	3	.399
	F2	.184	3	.	.999	3	.927
	F3	.253	3	.	.964	3	.637
WaktuKering Hari-14	F0	.253	3	.	.964	3	.637
	F1	.299	3	.	.914	3	.432
	F2	.232	3	.	.980	3	.726
	F3	.253	3	.	.964	3	.637
WaktuKering Hari-21	F0	.282	3	.	.936	3	.510
	F1	.358	3	.	.814	3	.147
	F2	.196	3	.	.996	3	.878
	F3	.204	3	.	.993	3	.843
WaktuKering Hari-28	F0	.175	3	.	1.000	3	1.000
	F1	.319	3	.	.885	3	.339
	F2	.201	3	.	.994	3	.856
	F3	.292	3	.	.923	3	.463

a. Lilliefors Significance Correction

b). Uji Homogenitas

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
WaktuKering Hari-0	Based on Mean	7.435	3	8	.011
	Based on Median	.628	3	8	.617
	Based on Median and with adjusted df	.628	3	2.513	.651
	Based on trimmed mean	6.126	3	8	.018
WaktuKering Hari-7	Based on Mean	8.330	3	8	.008
	Based on Median	1.538	3	8	.278
	Based on Median and with adjusted df	1.538	3	2.173	.406
	Based on trimmed mean	7.449	3	8	.011
WaktuKering Hari-14	Based on Mean	7.630	3	8	.010
	Based on Median	1.578	3	8	.269
	Based on Median and with adjusted df	1.578	3	2.251	.394
	Based on trimmed mean	6.891	3	8	.013
WaktuKering Hari-21	Based on Mean	6.655	3	8	.014
	Based on Median	.712	3	8	.572
	Based on Median and with adjusted df	.712	3	2.430	.618
	Based on trimmed mean	5.688	3	8	.022
WaktuKering Hari-28	Based on Mean	7.889	3	8	.009
	Based on Median	1.282	3	8	.345
	Based on Median and with adjusted df	1.282	3	2.199	.455
	Based on trimmed mean	6.994	3	8	.013

c). Uji *One Way-Anova*

Robust Tests of Equality of Means

		Statistic[a]	df1	df2	Sig.
WaktuKering Hari-0	Welch	5.618	3	4.261	.059
WaktuKering Hari-7	Welch	37.944	3	3.552	.004
WaktuKering Hari-14	Welch	16.819	3	3.431	.015
WaktuKering Hari-21	Welch	3.517	3	3.736	.136
WaktuKering Hari-28	Welch	14.553	3	3.492	.019

a. Asymptotically F distributed.

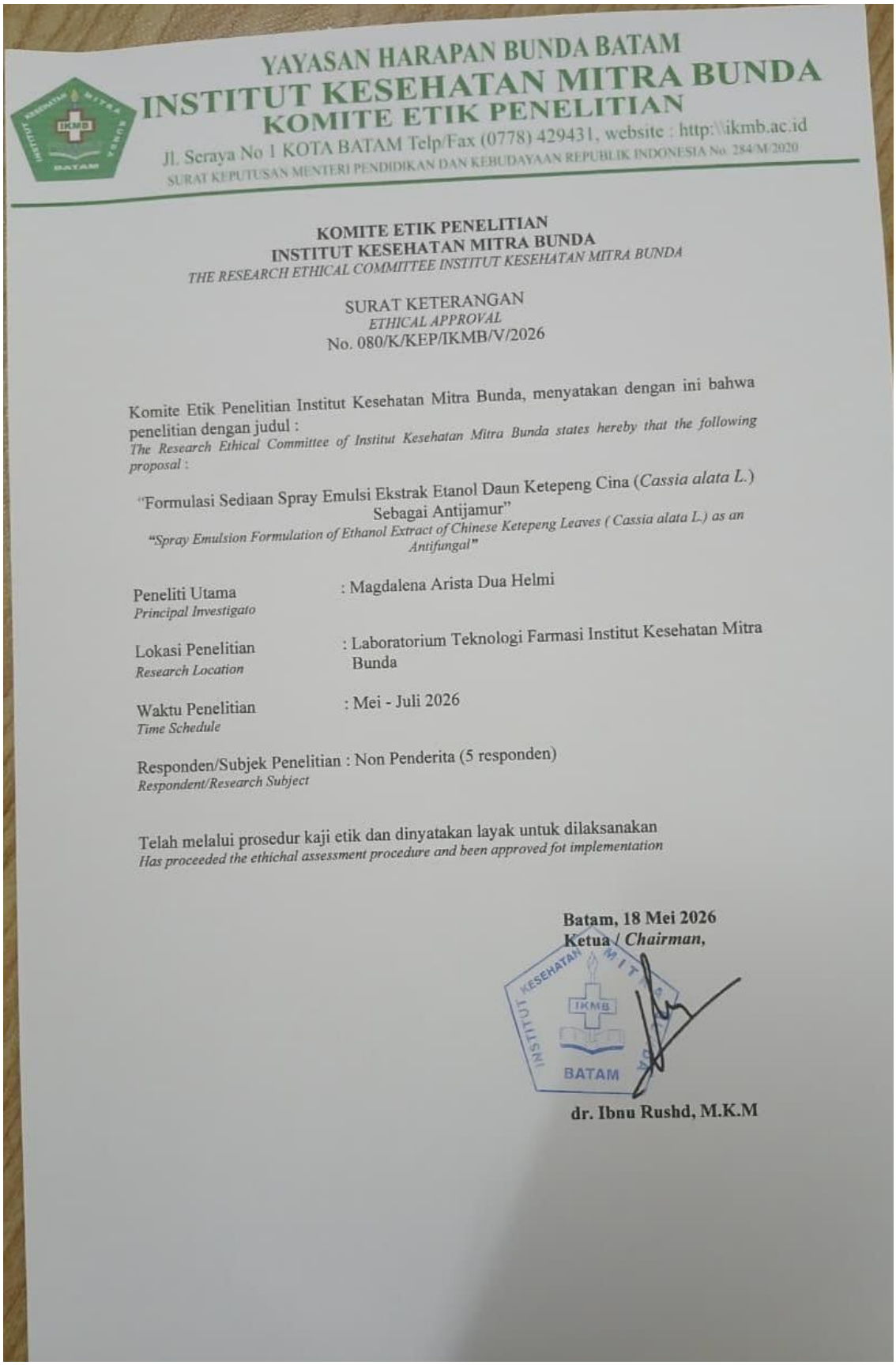
Multiple Comparisons

Games-Howell

Dependent Variable	(I) Formulasi	(J) Formulasi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
WaktuKering Hari-7	F0	F1	-45.333	23.921	.429	-203.95	113.28
		F2	-3.333	5.497	.925	-26.38	19.72
		F3	-36.333*	3.496	.015	-57.55	-15.11
	F1	F0	45.333	23.921	.429	-113.28	203.95
		F2	42.000	24.074	.472	-113.51	197.51
		F3	9.000	23.697	.977	-154.67	172.67
	F2	F0	3.333	5.497	.925	-19.72	26.38
		F1	-42.000	24.074	.472	-197.51	113.51
		F3	-33.000*	4.422	.036	-61.14	-4.86
	F3	F0	36.333*	3.496	.015	15.11	57.55
		F1	-9.000	23.697	.977	-172.67	154.67
		F2	33.000*	4.422	.036	4.86	61.14
WaktuKering Hari-14	F0	F1	-31.000	35.822	.825	-249.69	187.69
		F2	-13.000	9.978	.618	-60.73	34.73
		F3	-45.000	8.863	.087	-105.07	15.07
	F1	F0	31.000	35.822	.825	-187.69	249.69
		F2	18.000	35.032	.949	-215.42	251.42
		F3	-14.000	34.731	.973	-254.28	226.28
	F2	F0	13.000	9.978	.618	-34.73	60.73
		F1	-18.000	35.032	.949	-251.42	215.42
		F3	-32.000*	4.749	.045	-62.55	-1.45
	F3	F0	45.000	8.863	.087	-15.07	105.07
		F1	14.000	34.731	.973	-226.28	254.28
		F2	32.000*	4.749	.045	1.45	62.55
WaktuKering Hari-28	F0	F1	-35.000	30.022	.694	-227.11	157.11
		F2	-17.000	8.813	.347	-53.24	19.24
		F3	-41.333*	5.897	.041	-78.72	-3.95
	F1	F0	35.000	30.022	.694	-157.11	227.11
		F2	18.000	30.205	.926	-170.79	206.79
		F3	-6.333	29.486	.995	-209.86	197.20
	F2	F0	17.000	8.813	.347	-19.24	53.24
		F1	-18.000	30.205	.926	-206.79	170.79
		F3	-24.333	6.766	.156	-68.12	19.45
	F3	F0	41.333*	5.897	.041	3.95	78.72
		F1	6.333	29.486	.995	-197.20	209.86
		F2	24.333	6.766	.156	-19.45	68.12

*. The mean difference is significant at the 0.05 level.

Lampiran 10. Kode Etik



YAYASAN HARAPAN BUNDA BATAM
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SURAT KEPUTUSAN MENTERI PENDIDIKAN DAN KEBUDAYAAN REPUBLIK INDONESIA No. 284/M/2020

KOMITE ETIK PENELITIAN
INSTITUT KESEHATAN MITRA BUNDA
THE RESEARCH ETHICAL COMMITTEE INSTITUT KESEHATAN MITRA BUNDA

SURAT KETERANGAN
ETHICAL APPROVAL
No. 080/K/KEP/IKMB/V/2026

Komite Etik Penelitian Institut Kesehatan Mitra Bunda, menyatakan dengan ini bahwa penelitian dengan judul :
The Research Ethical Committee of Institut Kesehatan Mitra Bunda states hereby that the following proposal :

"Formulasi Sediaan Spray Emulsi Ekstrak Etanol Daun Ketepeng Cina (*Cassia alata L.*) Sebagai Antijamur"
"Spray Emulsion Formulation of Ethanol Extract of Chinese Ketepeng Leaves (Cassia alata L.) as an Antifungal"

Peneliti Utama *Principal Investigato* : Magdalena Arista Dua Helmi

Lokasi Penelitian *Research Location* : Laboratorium Teknologi Farmasi Institut Kesehatan Mitra Bunda

Waktu Penelitian *Time Schedule* : Mei - Juli 2026

Responden/Subjek Penelitian *Respondent/Research Subject* : Non Penderita (5 responden)

Telah melalui prosedur kaji etik dan dinyatakan layak untuk dilaksanakan
Has proceeded the ethichal assessment procedure and been approved fot implementation

Batam, 18 Mei 2026
Ketua / *Chairman*,

dr. Ibnu Rushd, M.K.M