

DAFTAR PUSTAKA

- Addor, F. A. S. (2017). Antioxidants in dermatology. *Anais Brasileiros de Dermatologia*, 92(3), 356–362. <https://doi.org/10.1590/abd1806-4841.20175697>.
- Adnan, J. (2016). Formulasi gel ekstrak daun beluntas (*Plucea indica* Less) dengan Na-CMC sebagai basis gel. *Journal of Pharmaceutical Science and Herbal Technology*, 1(1), 41–44.
- Afianti, H., & Murrukmiyadi, M. (2015). PENGARUH VARIASI KADAR GELLING AGENT HPMC TERHADAP SIFAT FISIK DAN AKTIVITAS ANTIBAKTERI SEDIAAN GEL EKSTRAK ETANOLIK DAUN KEMANGI (*Ocimum basilicum* L. forma citratum Back.) <https://doi.org/10.22146/farmaseutik.v11i2.24121>. *Majalah Farmaseutik*, 11(2), 307–316.
- Aguilar, T. A. F., Navarro, B. C. H., & Pérez, J. A. M. (2016). Endogenous Antioxidants: A Review of their Role in Oxidative Stress. In *A Master Regulator of Oxidative Stress - The Transcription Factor Nrf2*. InTech. <https://doi.org/10.5772/65715>.
- Agustiani, F. R. T., Sjahid, L. R., & Nursal, F. K. (2022). Kajian Literatur : Peranan Berbagai Jenis Polimer Sebagai Gelling Agent Terhadap Sifat Fisik Sediaan Gel. *Majalah Farmasetika*, 7(4), 270. <https://doi.org/10.24198/mfarmasetika.v7i4.39016>.
- Ahmad, S. I. (2017). *Ultraviolet Light in Human Health, Diseases and Environment* (S. I. Ahmad, Ed.; Vol. 996). Springer International Publishing. <https://doi.org/10.1007/978-3-319-56017-5>.
- al Haushey, L. (2024). Study of different factors affecting spreadability and release of ibuprofen from carbopol gels using screening design methodology. *ACTA Pharmaceutica Scientia*, 62(2), 480. <https://doi.org/10.23893/1307-2080.APS6230>.
- Allen, L. v. (2016). *The Art, Science and Technology of Pharmaceutical Compounding* (5th ed.). American Pharmacists Association.
- Almeida, I. F., Costa, P. C., & Bahia, M. F. (2010). Evaluation of Functional Stability and Batch-to-Batch Reproducibility of a *Castanea sativa* Leaf Extract with Antioxidant Activity. *AAPS PharmSciTech*, 11(1), 120–125. <https://doi.org/10.1208/s12249-009-9360-9>.
- Almeida, I. F., Maleckova, J., Saffi, R., Monteiro, H., Góios, F., Amaral, M. H., Costa, P. C., Garrido, J., Silva, P., Pestana, N., & Bahia, M. F. (2015). Characterization of an antioxidant surfactant-free topical formulation

containing *Castanea sativa* leaf extract. *Drug Development and Industrial Pharmacy*, 41(1), 148–155.
<https://doi.org/10.3109/03639045.2013.850712>.

Amic, D., Davidovic-Amic, D., Beslo, D., & Trinajstic, N. (2003). *Structure-Radical Scavenging Activity Relationships of Flavonoids*.

Amorati, R., & Valgimigli, L. (2012). Modulation of the antioxidant activity of phenols by non-covalent interactions. *Organic & Biomolecular Chemistry*, 10(21), 4147. <https://doi.org/10.1039/c2ob25174d>.

Apriani, E. F., Nurleni, N., Nugrahani, H. N., & Iskandarsyah, I. (2018). STABILITY TESTING OF AZELAIC ACID CREAM BASED ETHOSOME. *Asian Journal of Pharmaceutical and Clinical Research*, 11(5), 270. <https://doi.org/10.22159/ajpcr.2018.v11i5.23218>.

Badan Standardisasi Nasional. (1996). SNI 16-4399-1996: Sediaan tabir surya. Badan Standardisasi Nasional.

Baskara, I. B. B., Suhendra, L., & Wrasianti, L. P. (2020). Pengaruh Suhu Pencampuran dan Lama Pengadukan terhadap Karakteristik Sediaan Krim. *JURNAL REKAYASA DAN MANAJEMEN AGROINDUSTRI*, 8(2), 200. <https://doi.org/10.24843/JRMA.2020.v08.i02.p05>.

Bertolo, M. R. V., Martins, V. C. A., Horn, M. M., Brenelli, L. B., & Plepis, A. M. G. (2020). Rheological and antioxidant properties of chitosan/gelatin-based materials functionalized by pomegranate peel extract. *Carbohydrate Polymers*, 228, 115386. <https://doi.org/10.1016/j.carbpol.2019.115386>.

Bertolo, M. R. V., Martins, V. da C. A., Plepis, A. M. de G., & Junior, S. B. (2023). Acerola (*Malpighia emarginata*) and açai (*Euterpe oleracea*) extracts as active compounds of starch/gelatin-based solutions: Rheological characterization. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 676, 132288. <https://doi.org/10.1016/j.colsurfa.2023.132288>.

Blois, M. (1958). Antioxidant Determinations by the Use of a stable Free Radical. *Nature*, 1199–1200. <https://doi.org/10.1038/1811199a0>.

Bouska, M., Huang, K., Kang, P., & Bai, H. (2019). Organelle aging: Lessons from model organisms. *Journal of Genetics and Genomics*, 46(4), 171–185. <https://doi.org/10.1016/j.jgg.2019.03.011>.

Burke, K. E. (2018). Mechanisms of aging and development—A new understanding of environmental damage to the skin and prevention with topical antioxidants. *Mechanisms of Ageing and Development*, 172, 123–130. <https://doi.org/10.1016/j.mad.2017.12.003>.

- Changdrian, S., & Zulkarnain, A. K. (2023). *Optimasi Karbopol dan HPMC sebagai Gelling Agent Terhadap Sifat Fisik dan Uji Stabilitas dalam Formulasi Sediaan Gel Minyak Biji Kelor*.
- Damayanti. (2017). *Penuaan Kulit dan Perawatan Kulit Dasar pada Usia Lanjut (Skin Aging and Basic Skin Care in Elderly)*.
- Depkes RI. (2020). *Farmakope Indonesia (VI)*. Departemen Kesehatan Republik Indonesia.
- Deuschle, V. C. K. N., Deuschle, R. A. N., Bortoluzzi, M. R., & Athayde, M. L. (2015). Physical chemistry evaluation of stability, spreadability, in vitro antioxidant, and photo-protective capacities of topical formulations containing *Calendula officinalis* L. leaf extract. *Brazilian Journal of Pharmaceutical Sciences*, 51(1), 63–75. <https://doi.org/10.1590/S1984-82502015000100007>.
- Dunaway, S., Odin, R., Zhou, L., Ji, L., Zhang, Y., & Kadekaro, A. L. (2018). Natural Antioxidants: Multiple Mechanisms to Protect Skin From Solar Radiation. *Frontiers in Pharmacology*, 9. <https://doi.org/10.3389/fphar.2018.00392>.
- Elsayed Azab, A., A Adwas, A., Ibrahim Elsayed, A. S., A Adwas, A., Ibrahim Elsayed, A. S., & Quwaydir, F. A. (2019). Oxidative stress and antioxidant mechanisms in human body. *Journal of Applied Biotechnology & Bioengineering*, 6(1), 43–47. <https://doi.org/10.15406/jabb.2019.06.00173>.
- Farkas, O., Jakus, J., & Héberger, K. (2004). Quantitative Structure – Antioxidant Activity Relationships of Flavonoid Compounds. *Molecules*, 9(12), 1079–1088. <https://doi.org/10.3390/91201079>.
- Fatimi, H. A., Zulkarnain, A. K., & Laksitorini, M. D. (2023). ARTICLE HISTORY Optimization of 3,4-Dimethoxychalcone and Rutin Containing Gel with Simplex Lattice Design and In Vitro-In Vivo Test as a Sunscreen. In *Pharmaceutical Sciences and Research (PSR)* (Vol. 10, Issue 2).
- Gunarti, N. S., Hidayah, H., Larasati, B., & Agustina, P. (2023). Formulasi Sediaan Sampo Antiketombe Ekstrak Etanol Daun Jambu Air (*Syzygium aqueum* (Burm.f.) Alston). *Pharmaceutical and Biomedical Sciences Journal (PBSJ)*, 5(1), 53–65. <https://doi.org/10.15408/pbsj.v5i1.29851>.
- Hamzah, N., Ibrahim, S., & Tjahjono, D. H. (2024). Evaluation of phenolic compounds as cross-linkers to improve the qualities of halal gelatin from milkfish scales (*Chanos chanos*). *Narra J*, 4(3), e907. <https://doi.org/10.52225/narra.v4i3.907>.

- Hawilla, A., Zulkarnain, A. K., & Lukitaningsih, E. (2023). Stabilitas dan Sifat Fisik Sediaan Mikroemulgel Resveratrol Sebagai Tabir Surya dan Antiaging Secara In Vitro. *Majalah Farmaseutik*, 19(2), 155–163.
- Hinneburg, I., Mrestani, Y., & Neubert, R. H. H. (2004). Development and Application of a CE Method for Quantification of Phenolic Compounds in Extracts from Buckwheat Herb and in Semi-Solid Formulations Containing the Extracts. *Chromatographia*, 59(9–10). <https://doi.org/10.1365/s10337-004-0255-3>.
- Houilleberghs, M., Verheyden, L., Voorspoels, F., Chandran, C. V., Duerinckx, K., Radhakrishnan, S., Martens, J. A., & Breynaert, E. (2023). Magneto-hydrodynamic mixing: A new technique for preparing carbomer hydrogels. *AIChE Journal*, 69(2). <https://doi.org/10.1002/aic.17911>.
- Houilleberghs, M., Verheyden, L., Voorspoels, F., Chandran, C. V., Duerinckx, K., Radhakrishnan, S., Martens, J. A., & Breynaert, E. (2023). Magneto-hydrodynamic mixing: A new technique for preparing carbomer hydrogels. *AIChE Journal*, 69(2). <https://doi.org/10.1002/aic.17911>.
- Indira Priyadarsini, K. (2013). Chemical and Structural Features Influencing the Biological Activity of Curcumin. *Current Pharmaceutical Design*, 19(11), 2093–2100. <https://doi.org/10.2174/138161213805289228>.
- Islam, N., Irfan, M., Zahoor, A. F., Iqbal, M. S., Syed, H. K., Khan, I. U., Rasul, A., Khan, S.-U.-D., Alqahtani, A. M., Ikram, M., Abdul Qayyum, M., Khames, A., Inam, S., & Abourehab, M. A. S. (2021). Improved Bioavailability of Ebastine through Development of Transfersomal Oral Films. *Pharmaceutics*, 13(8), 1315. <https://doi.org/10.3390/pharmaceutics13081315>.
- Itokawa, H., Shi, Q., Akiyama, T., Morris-Natschke, S. L., & Lee, K.-H. (2008). Recent advances in the investigation of curcuminoids. *Chinese Medicine*, 3(1), 11. <https://doi.org/10.1186/1749-8546-3-11>.
- Judiantoro, C. L. (2023). *Optimasi HPMC dan Karbopol sebagai Gelling Agent terhadap Sifat Fisik dan Stabilitas Formulasi Sediaan Emulgel Minyak Biji Anggur*.
- Kamal, N. S., Alayoubi, A., Elfakhri, K. H., Ibrahim, S., Seggel, M., Ashraf, M., & Zidan, A. (2020). Effects of formulation variables on the in vitro performance of testosterone transdermal gel. *International Journal of Pharmaceutics*, 590, 119951. <https://doi.org/10.1016/j.ijpharm.2020.119951>.
- Karim Zulkarnain, A., Titiasari Kharismawati, G., Anjani Larasati, F., Mada Yogyakarta, G., & Utara, S. (2023). Optimization of Gelling Agent and

Sunscreen Activity Test on 4-OH-chalcone Gel Using In Vitro Method. In *RESEARCH ARTICLE 112 Indonesian J Pharm* (Vol. 34, Issue 1).

- Kartini, K., Setiawan, F., Sukweenadhi, J., Yunita, O., & Avanti, C. (2020). Selection of potential Indonesian plant species for antioxidant. *IOP Conference Series: Earth and Environmental Science*, 457(1), 012040. <https://doi.org/10.1088/1755-1315/457/1/012040>.
- Karudumpala, S., Sangeetha G., Gnana Praksh, K., Harikrishna, G., Balaji, G., & Anudeep, K. (2014). Formulation and Evaluation of Carisoprodol Topical Gel. *Research J. Pharm. and Tech*, 7(1), 34–38.
- Kaur, G., & Mehta, S. K. (2017). Developments of Polysorbate (Tween) based microemulsions: Preclinical drug delivery, toxicity and antimicrobial applications. *International Journal of Pharmaceutics*, 529(1–2), 134–160. <https://doi.org/10.1016/j.ijpharm.2017.06.059>.
- Khan, N., Ahmed, S., Sheraz, M. A., Anwar, Z., & Ahmad, I. (2023). *Pharmaceutical based cosmetic serums* (pp. 167–210). <https://doi.org/10.1016/bs.podrm.2022.11.006>.
- Kharisma, P. N. S., Ritmaleni, & Sardjiman. (2015). *Daya Tangkap Senyawa Tetrahidroheksagamavunon-5 (THHGV-5), Tetrahidroheksagamavunon-7 (THHGV-7) dan 1,5-bis-(4'-triflorometilfenil)-pentan-3-on (THC7) terhadap Radikal 2,2-difenil-1-pikrilhidrazil dan Daya Reduksinya terhadap Ion Feri*.
- Kolman, M., Smith, C., Chakrabarty, D., & Amin, S. (2021). Rheological stability of carbomer in hydroalcoholic gels: Influence of alcohol type. *International Journal of Cosmetic Science*, 43(6), 748–763. <https://doi.org/10.1111/ics.12750>.
- Kusumorini, N., Nugroho, A. K., Pramono, S., & Martien, R. (2022). Determination of The Potential Antioxidant Activity of Isolated Piperine from White Pepper Using DPPH, ABTS, and FRAP Methods. *Majalah Farmaseutik*, 18(4), 454. <https://doi.org/10.22146/farmaseutik.v18i4.70246>.
- Lanti, F., Murrukmi Hadim Mimiek, & Ritmaleni. (2017). *Formulasi Gel Anti Aging Tetrahidro Heksagamavunon-5: Sifat Fisik, Stabilitas Fisik, Iritasi Primer, Difusi Membran, dan Histopatologi Kolagen*.
- Lokesh N. Patil, & Swati P. Deshmukh. (2023). Apple serum for health and beauty. *GSC Biological and Pharmaceutical Sciences*, 25(2), 180–186. <https://doi.org/10.30574/gscbps.2023.25.2.0438>.
- Lucas, R., McMichael, T., Smith, W., Armstrong, B. K., Prüss-Üstün, A., & World Health Organization. (2006). *Solar ultraviolet radiation: global burden of*

disease from solar ultraviolet radiation (Annette Prüss-Üstün, Hajo Zeeb, Colin Mathers, & Michael Repacholi, Eds.; Vol. 13). World Health Organization Public Health and the Environment.

- Marchianti, A. C. N., Sakinah, E. N., Elfiah, U., Putri, N. K. S., Wahyuliswari, D. I., Maulana, M., & Ulfa, E. U. (2021). Gel formulations of *Merremia mammosa* (Lour.) accelerated wound healing of the wound in diabetic rats. *Journal of Traditional and Complementary Medicine*, 11(1), 38–45. <https://doi.org/10.1016/j.jtcme.2019.12.002>.
- Marlina, Salman, Filza, H., Nur, E., & Poppy, A. N. (2023). Antioxidant serum gel formulation with a combination of secretome from mesenchymal stem cells and rosemary oil. *IOP Conference Series: Earth and Environmental Science*, 1228(1), 012036. <https://doi.org/10.1088/1755-1315/1228/1/012036>.
- Marzuki, A., & Pakki, E. (2017). *STABILITAS FISIK SEDIAAN KRIM EKSTRAK ETANOL KULIT BATANG BANYURU (Pterospermum celebicum Miq.) DENGAN VARIASI PHYTOCREAM®*.
- Mazidah, S. L., Zulkarnain, A. K., & Ritmaleni. (2024). *Optimasi Karbopol dan HPMC Sebagai Gelling Agent Serta Uji Aktivitas Gel Pentagamavunon-5 Sebagai Tabir Surya Secara In Vitro*.
- McDaniel, D., Farris, P., & Valacchi, G. (2018). Atmospheric skin aging—Contributors and inhibitors. *Journal of Cosmetic Dermatology*, 17(2), 124–137. <https://doi.org/10.1111/jocd.12518>.
- Michalak, M. (2022). Plant-Derived Antioxidants: Significance in Skin Health and the Ageing Process. *International Journal of Molecular Sciences*, 23(2), 585. <https://doi.org/10.3390/ijms23020585>.
- Muhlida, V. I., Zulkarnain, A. K., & Ritmaleni. (2023). *Optimasi Gelling Agent Karbopol dan Na-CMC serta Uji Aktivitas Gel Heksagamavunon-5 sebagai Tabir Surya secara In Vitro*.
- Mursyid, A. M., Zulkarnan, I., & Khusnia. (2023). FORMULASI SERUM EKSTRAK DAUN KEMANGI (*Ocimum basilicum*. L) SEBAGAI ANTIOKSIDAN. *Makassar Pharmaceutical Science Journal*, 1(2), 43–56. <https://journal.farmasi.umi.ac.id/index.php/mpsj>.
- Neha, K., Haider, M. R., Pathak, A., & Yar, M. S. (2019). Medicinal prospects of antioxidants: A review. *European Journal of Medicinal Chemistry*, 178, 687–704. <https://doi.org/10.1016/j.ejmech.2019.06.010>.

- Nikam, S. (2017). ANTI-ACNE GEL OF ISOTRETINOIN: FORMULATION AND EVALUATION. *Asian Journal of Pharmaceutical and Clinical Research*, 10(11), 257. <https://doi.org/10.22159/ajpcr.2017.v10i11.19614>.
- Nirmala, A., Rahmawati, I., & Kuncahyo, I. (2023). Optimization of serum formula active fraction of moringa leaf extract (*Moringa oleifera* Lambk) as antibacterial against *Staphylococcus aureus*. *International Journal of Health Sciences*, 7(S1), 3072–3089. <https://doi.org/10.53730/ijhs.v7nS1.14687>.
- Nurrohim, S., Harjanti, R., & Dewi Purnamasari, N. A. (2022). Formulasi dan Evaluasi Serum Anti-Aging Hesperetin dalam Sistem NLC (Nanostructured Lipid Carriers) dengan Metode Emulsifikasi-Sonikasi. *Media Farmasi Indonesia*, 17(1), 23–35. <https://doi.org/10.53359/mfi.v17i1.195>.
- PATEL, M., SHAIKH, F., PATEL, V., & SURTI, N. (2021). Optimization of Glipizide Floating Matrix Tablet Using Simplex Lattice Design. *Indian Journal of Pharmaceutical Sciences*. <https://doi.org/10.36468/pharmaceutical-sciences.776>.
- Patel, P., Pal, R., Butani, K., Singh, S., & Prajapati, B. G. (2023). Nanomedicine-Fortified Cosmeceutical Serums for The Mitigation of Psoriasis and Acne. *Nanomedicine*, 18(24), 1769–1793. <https://doi.org/10.2217/nmm-2023-0147>.
- Petruk, G., del Giudice, R., Rigano, M. M., & Monti, D. M. (2018). Antioxidants from Plants Protect against Skin Photoaging. *Oxidative Medicine and Cellular Longevity*, 2018(1). <https://doi.org/10.1155/2018/1454936>.
- Putriana, N. A., Rusdiana, T., & Prakoso, M. A. A. (2019). Formulation and Physical Stability Testing of Chitosan Gel from Vaname Shrimp Shell (*Litopenaeus Vannamei*) with Carbopol 940 Gelling Agent. *Indonesian Journal of Pharmaceutics*, 1(3). <https://doi.org/10.24198/ijdp.v1i3.21556>.
- Qamariah, N., Handayani, R., & Maretania, J. (2023). The Serum Formulation of Hati Tanah Tuber Ethanol Extract from Central Kalimantan. *Pharmacognosy Journal*, 14(6s), 978–982. <https://doi.org/10.5530/pj.2022.14.199>.
- Rahmavika, T., Murdiana, H. E., & Rawar, A. (n.d.). FORMULASI DAN UJI ANTIOKSIDAN SERUM MINYAK ATSIRI KULIT JERUK NIPIS (*Citrus aurantifolia*) MENGGUNAKAN VITAMIN E METODE DPPH. In *Pharmamedica Journal* (Vol. 8, Issue 2).
- Ritmaleni, R., Praditya, I., Wibowo, H., & Sardjiman, S. (2015). SYNTHESIS OF TETRAHYDROHEXAGAMAVUNON-5 AND

TETRAHYDROHEXAGAMAVUNON-7. *INDONESIAN JOURNAL OF PHARMACY*, 26(2), 103.
<https://doi.org/10.14499/indonesianjpharm26iss2pp103>.

- Rowe, R. C., Sheskey, P. J., & Quinn, M. E. (2009). *Handbook of Pharmaceutical Excipients*.
- Sardjiman, S. S., Reksohadiprodjo, M. S., Hakim, L., van der Goot, H., & Timmerman, H. (1997). 1,5-Diphenyl-1,4-pentadiene-3-ones and cyclic analogues as antioxidative agents. Synthesis and structure-activity relationship. *European Journal of Medicinal Chemistry*, 32(7–8), 625–630. [https://doi.org/10.1016/S0223-5234\(97\)83288-6](https://doi.org/10.1016/S0223-5234(97)83288-6).
- Saryanti, D., Setiawan, I., Safitri, R. A., Farmasi, D. T., D3, P., Sekolah, F., Ilmu, T., Nasional, K., & Tradisional, D. O. (2019). *OPTIMASI FORMULA SEDIAAN KRIM M/A DARI EKSTRAK KULIT PISANG KEPOK (Musa acuminata L.)* (Vol. 1, Issue 3).
- Schmidlin, C. J., Dodson, M. B., Madhavan, L., & Zhang, D. D. (2019). Redox regulation by NRF2 in aging and disease. *Free Radical Biology and Medicine*, 134, 702–707. <https://doi.org/10.1016/j.freeradbiomed.2019.01.016>.
- Shafiei, M., Balhoff, M., & Hayman, N. W. (2018). Chemical and microstructural controls on viscoplasticity in Carbopol hydrogel. *Polymer*, 139, 44–51. <https://doi.org/10.1016/j.polymer.2018.01.080>.
- Sheskey, P. K. , C. W. G. , & C. C. G. (2017). *Handbook of Pharmaceutical Excipient* (8th ed.). Pharmaceutical Press.
- Sirivibulkovit, K., Nouanthavong, S., & Sameenoi, Y. (2018). Paper-based DPPH Assay for Antioxidant Activity Analysis. *Analytical Sciences*, 34(7), 795–800. <https://doi.org/10.2116/analsci.18P014>.
- Subová, M., Vitková, Z., Čirbusová, E., Erös, I., & Kónya, M. (2005). Vplyv koncentrácie polyméru na reologické vlastnosti hydrogélů Carbopolu 980 s obsahom trimekaíniumchloridu [Effect of polymer concentration on rheological properties of Carbopol 980 hydrogels containing trimecainium chloride]. *Ceska a Slovenska farmacie : casopis Ceske farmaceuticke spolocnosti a Slovenske farmaceuticke spolocnosti*, 54(2), 96–99.
- Suhail, M., Wu, P.-C., & Minhas, M. U. (2020). Using Carbomer-Based Hydrogels for Control the Release Rate of Diclofenac Sodium: Preparation and In Vitro Evaluation. *Pharmaceuticals*, 13(11), 399. <https://doi.org/10.3390/ph13110399>.

- Suprihatin, T., Rahayu, S., Rifa'i, M., & Widyarti, S. (2020). Senyawa pada Serbuk Rimpang Kunyit (*Curcuma longa* L.) yang Berpotensi sebagai Antioksidan. *Buletin Anatomi Dan Fisiologi*, 5(1), 35–42. <https://doi.org/10.14710/baf.5.1.2020.35-42>.
- Susiloningrum, D., & Mugita Sari, D. E. (2021). Uji Aktivitas Antioksidan dan Penetapan Kadar Flavonoid Total Ekstrak Temu Mangga (*Curcuma mangga* Valetton & ZIJP) Dengan Variasi Konsentrasi Pelarut. *Cendekia Journal of Pharmacy*, 5(2), 117–127. <https://doi.org/10.31596/cjp.v5i2.148>.
- Tambunan, S., & Sulaiman, T. N. S. (2019). Gel Formulation of Lemongrass Essential Oil with HPMC and Carbopol Bases. *Majalah Farmaseutik*, 14(2), 87. <https://doi.org/10.22146/farmaseutik.v14i2.42598>.
- Tsabitah, A. F., Zulkarnain, A. K., Wahyuningsih, M. S. H., & Nugrahaningsih, D. A. A. (2020). Optimasi Carbomer, Propilen Glikol, dan Trietanolamin Dalam Formulasi Sediaan Gel Ekstrak Etanol Daun Kembang Bulan (*Tithonia diversifolia*). *Majalah Farmaseutik*, 16(2), 111. <https://doi.org/10.22146/farmaseutik.v16i2.45666>.
- Ungsari Rizki Eka Purwanto, Intan Martha Cahyani, Purwaningsih, Y., Sandhi, B. G. F., & Febryana, F. (2022). Optimization of Polysorbate 80 and Sorbitan Monooleate 80 as Emulsifiers in Foundation Makeup Containing Ethyl Cinnamate. *Indonesian Journal of Pharmacy*. <https://doi.org/10.22146/ijp.3308>.
- Usman, H. N., Pratiwi, L., & Wijianto, B. (2023). Cosmetic Serum Loaded Arabica Coffee (*Coffea arabica*) Extract: Formulation and Antioxidant Study. *Majalah Obat Tradisional*, 28(2), 93–101. <https://doi.org/10.22146/mot.83120>.
- Velkov, Z. A., Kolev, M., & Tadjer, A. (2007). Modeling and statistical analysis of DPPH scavenging activity of phenolics. *Collection of Czechoslovak Chemical Communications*, 72, 1461–1471.
- Venkatesan, P., & Rao, M. N. A. (2000). Structure–Activity Relationships for the Inhibition of Lipid Peroxidation and the Scavenging of Free Radicals by Synthetic Symmetrical Curcumin Analogues. *Journal of Pharmacy and Pharmacology*, 52(9), 1123–1128. <https://doi.org/10.1211/0022357001774886>.
- Walters, R. M., Khanna, P., Hamilton, M., Mays, D. A., & Telofski, L. (2015a). Human Cumulative Irritation Tests of Common Preservatives Used in Personal Care Products: A Retrospective Analysis of Over 45 000

Subjects. *Toxicological Sciences*, 148(1), 101–107.
<https://doi.org/10.1093/toxsci/kfv158>.

Walters, R. M., Khanna, P., Hamilton, M., Mays, D. A., & Telofski, L. (2015b). Human Cumulative Irritation Tests of Common Preservatives Used in Personal Care Products: A Retrospective Analysis of Over 45 000 Subjects. *Toxicological Sciences*, 148(1), 101–107.
<https://doi.org/10.1093/toxsci/kfv158>.

Warnida, H., Juliannor, A., & Sukawaty, Y. (2016). Formulasi Pasta Gigi Gel Ekstrak Etanol Bawang Dayak (*Eleutherine bulbosa* (Mill.) Urb.). *Jurnal Sains Farmasi & Klinis*, 3(1), 42.
<https://doi.org/10.29208/jsfk.2016.3.1.98>.

Weidinger, A., & Kozlov, A. (2015). Biological Activities of Reactive Oxygen and Nitrogen Species: Oxidative Stress versus Signal Transduction. *Biomolecules*, 5(2), 472–484. <https://doi.org/10.3390/biom5020472>.

Wibowo, H., & Ritmaleni. (2013). *Sintesis tetrahidroheksagamavunon-5 dari starting material heksagamavunon-5 dengan katalis paladium karbon melalui reaksi hidrogenasi*.

Wölflle, U., Seelinger, G., Bauer, G., Meinke, M. C., Lademann, J., & Schempp, C. M. (2014). Reactive Molecule Species and Antioxidative Mechanisms in Normal Skin and Skin Aging. *Skin Pharmacology and Physiology*, 27(6), 316–332. <https://doi.org/10.1159/000360092>.

Yarema, I., Fedorovska, M., & Polovko, N. (2020). DEVELOPMENT OF THE EMULGE LFOR THE ANDROGENIC ALOPECIA TREATMENT. *EUREKA: Health Sciences*, 5, 82–91. <https://doi.org/10.21303/2504-5679.2020.001427>.

Yusharyahya, S. N. (2021). Mekanisme Penuaan Kulit sebagai Dasar Pencegahan dan Pengobatan Kulit Menua. *EJournal Kedokteran Indonesia*, 9(2), 150.
<https://doi.org/10.23886/ejki.9.49.150>.

Yusuf, A. L., Nurawaliah, E., & Harun, N. (2017). Uji efektivitas gel ekstrak etanol daun kelor (*Moringa oleifera* L.) sebagai antijamur *Malassezia furfur*. *Kartika : Jurnal Ilmiah Farmasi*, 5(2), 62.
<https://doi.org/10.26874/kjif.v5i2.119>.

Zhai, K., Brockmüller, A., Kubatka, P., Shakibaei, M., & Büsselberg, D. (2020). Curcumin's Beneficial Effects on Neuroblastoma: Mechanisms, Challenges, and Potential Solutions. *Biomolecules*, 10(11), 1469.
<https://doi.org/10.3390/biom10111469>.

- Zhou, L., & Elias, R. J. (2013). Antioxidant and pro-oxidant activity of (–)-epigallocatechin-3-gallate in food emulsions: Influence of pH and phenolic concentration. *Food Chemistry*, 138(2–3), 1503–1509. <https://doi.org/10.1016/j.foodchem.2012.09.132>.
- Zulkarnain, A. K., Faridhotu, F., & PR, I. N. (2022). Optimization of Gelling Agent of Sunflower (*Helianthus annuus*) Seed Oil Gel and Its Stability and Activity Test In Vitro as Sunscreen. *Majalah Obat Tradisional*, 27(3), 247. <https://doi.org/10.22146/mot.80299>.
- Zulkarnain, A.K., Ichsani, C. N., & Judiantoro, C. L. (2023). Physical properties and stability of grapeseed oil (*Vitis vinifera* L.) skincare formula with gelling agent combination of Na-CMC-carbopol and HPMC-carbopol. *Indonesian Journal of Pharmacology and Therapy*, 4(2). <https://doi.org/10.22146/ijpther.8279>.