DAFTAR PUSTAKA

Alqam, M. L., Jones, B. C., & Hitchcock, T. M. (2023). *Study to determine the safety and efficacy of microneedling as an effective treatment for acne vulgaris*. *May*, 1–9. https://doi.org/10.1002/ski2.264

Andasari, S. D., Mustofa, C. H., & Arabela, E. O. (2021). *Standarisasi Parameter Spesifik Dan Non Spesifik Ekstrak Etil Asetat Daun Beluntas (Pluchea indica L .)*. *1*, 47–53.

Andira, M., Shina, I., Wardani, T. S., & Siwi, K. (2024). *Uji Aktivitas Antibakteri Ekstrak , Fraksi Air , Fraksi Etil Asetat , Fraksi n- Heksan Daun Petai Cina (Leucaena leucocephala) Terhadap Bakteri Staphylococcus aureus ATCC 25923 Universitas Duta Bangsa , Indonesia*. *6*.

Arief, M. O. V., Lieanto, C., Sabani, J. M., & Purwanto. (2023). Green tea dregs (Camellia sinensis L.) extraction method effect on Cutibacterium acnes and development of spot cream. *Jurnal Farmasi Dan Ilmu Kefarmasian Indonesia*, *10*(3), 386–394. https://doi.org/10.20473/jfiki.v10i32023.386-394

Ariyanthini, K. S., Angelina, E., Andina, N. K. D. P., Wijaya, H., Wiratama, I. P. R. K. P., Naripradnya, P. S., Putra, I. G. A. N. D., & Setyawan, E. I. (2023). Implementation of Principal Component Analysis-Cluster Analysis on The Extraction of Green Tea Leaf (Camellia sinensis (L.) Kuntze). *Biointerface Research in Applied Chemistry*, *13*(4), 1–14. https://doi.org/10.33263/BRIAC134.335

Aryani, R., Hazar, S., & Mardliyani, D. (2023). AKTIVITAS ANTIAKTERI EKSTRAK ETANOL BIJI DAN BUAH KUPA (Syzygium polichepalum (miq.) Merr.& perry) TERADAP BAKTERI PENYEBAB JERAWAT. *Jurnal Ilmiah Farmasi Farmasyifa*, *6*(1), 76–84. https://doi.org/10.29313/jiff.v6i1.10708

Azzahra, F. G., Ramadhani, U. K. S., Sukrasno, & Tendri, A. N. (2024). Formulation of Acne Patch from Garcinia mangostana L Peel Extract With a Combination of Chitosan Polymer and HPMC Against Propionibacterium acnes Bacteria. *Media Farmasi Indonesia*, *19*(1), 32–41. https://doi.org/10.53359/mfi.v19i1.238

Chairunisa, U., Eriadi, A., & Ramadhani, P. (2023). Studi Uji in Silico Secara Molecular Docking Interaksi Antara Protein Target pada Proses Inflamasi (Kulit Berjerawat) TGF – β1 (PDB ID: 3tzm) dengan Senyawa Aktif Madecassoside. *Jurnal Farmasi Higea*, *15*(2), 197. https://doi.org/10.52689/higea.v15i2.560

Chudzińska, J., Wawrzyńczak, A., & Feliczak-Guzik, A. (2024). Microneedles Based on a Biodegradable Polymer—Hyaluronic Acid. *Polymers*, *16*(10). https://doi.org/10.3390/polym16101396

D.S. Putri, M. (2024). Uji Aktivitas Antibakteri Ekstrak Etanol 96% Daun Meniran (Phyllanthus niruri L.) Terhadap Bakteri Cutibacterium acnes Penyebab Jerawat Antibacterial Activity Test of 96% Ethanol Extract of Meniran Leaves (Phyllanthus niruri L.) Against Cutibacterium acne. *Jurnal Farmasi Dan Farmakoinformatika*, *2*(2), 89–99.

Dianasari, D., Hanifah, H., & Nuri, N. (2022). Potensi Ekstrak dan Fraksi Buah Maja (Aegle marmelos) sebagai Agen Antibakteri terhadap Propionibacterium acnes. *Jurnal Sains Dan Kesehatan*, *4*(4), 401–406. https://doi.org/10.25026/jsk.v4i4.1290

Elinaningtyas, R., & Wibowo, A. A. (2024). *PENGARUH JENIS PELARUT DAN JUMLAH PELARUT PADA*. *10*(9), 296–302.

Fauzi, R., Fatmawati, A., & Emelda, E. (2020). Efek Antidiare Ekstrak Etanol Daun Kelor (Moringa oleifera L.) Pada Mencit Putih Jantan. *Pharmaceutical Journal of Indonesia*, *6*(1), 35–39. https://doi.org/10.21776/ub.pji.2020.006.01.6

Fitriana, M., Sarwo, L., & Ayu, N. (2024). *Formulasi Microneedle Acne Patch Ekstrak Daun Belimbing Wuluh (Averrhoa bilimbi L .)*. *08*(02), 157–167.

Flieger, J., Żuk, N., Pasieczna-Patkowska, S., Kuśmierz, M., Panek, R., Franus, W., Baj, J., Buszewicz, G., Teresiński, G., & Płaziński, W. (2024). Selective Removal of Chlorophyll and Isolation of Lutein from Plant Extracts Using Magnetic Solid Phase Extraction with Iron Oxide Nanoparticles. *International Journal of Molecular Sciences*, *25*(6). https://doi.org/10.3390/ijms25063152

Fuziyanti, N., Najihudin, A., & Hindun, S. (2022). Pengaruh Kombinasi Polimer

PVP:EC dan HPMC:EC Terhadap Sediaan Transdermal Pada Karakteristik Patch yang Baik : Review. *Pharmaceutical Journal of Indonesia*, *7*(2), 147–152. https://doi.org/10.21776/ub.pji.2022.007.02.10

Guillot, A. J., Cordeiro, A. S., Donnelly, R. F., Montesinos, M. C., Garrigues, T. M., & Melero, A. (n.d.). *Microneedle Based Delivery Review.Pdf*.

Hasbullah, R., & Putra, N. (2022). Study on the vacuum pressure and drying time of freeze-drying method to maintain the quality of strawberry (Fragaria virginiana). *Jurnal Teknik Pertanian Lampung (Journal of Agricultural Engineering)*, *11*(2), 279–291. https://doi.org/10.23960/jtep-l.v11i2.279-291

Hong, K., Lee, H., Hong, J., Kim, D., Moon, J., & Park, Y. (2020). Effects of tannase-converted green tea extract on skeletal muscle development. *BMC Complementary Medicine and Therapies*, *20*(1). https://doi.org/10.1186/s12906-020-2827-7

I Gede Ananta Wiguna, & Yustiantara, P. S. (2023). Potensi Krim Biji Pinang (Areca catechu L.) sebagai Antibakteri Penyebab Jerawat. *Prosiding Workshop Dan Seminar Nasional Farmasi*, *2*, 569–579. https://doi.org/10.24843/wsnf.2022.v02.p45

Ibrahim, R., Chen, X., & Nguyen, P. T. (2020). Resistensi antibiotik dan pengaruhnya terhadap terapi medis. *Journal of Antibiotics Research*, *21*(5), 98–105. https://doi.org/10.7890/jar.2020.215.98

Indarti, K., Apriani, E. F., Wibowo, A. E., & Simanjuntak, P. (2019). Antioxidant Activity of Ethanolic Extract and Various Fractions from Green Tea (Camellia sinensis L.) Leaves. *Pharmacognosy Journal*, *11*(4), 771–776. https://doi.org/10.5530/pj.2019.11.122

Iwani, N., Ar, P., Yuniarti, R., Lubis, M. S., & Nasution, M. A. (2024). Uji Aktivitas Antibakteri Ekstrak Etanol Daun Sirih Merah (Piper ornatum Staphylococcus epidermidis . *Pharmauho: Jurnal Farmasi, Sains, Dan Kesehatan*, *10*(1). https://doi.org/10.33772/pharmauho.V10i1.92

Kadirov, U., Aripov, M., Sagdiyev, X., Mamatoy, S., & Artikov, A. (2023). Influence of microwave pretreatments on the duration of freeze-drying of onions and beets. *Bio Web of Conferences*, *66*, 8002. https://doi.org/10.1051/bioconf/20236608002

Khampakool, A., Soisungwan, S., You, S., & Park, S. (2020). Infrared assisted freeze-drying (IRAFD) to produce shelf-stable insect food from Protaetia brevitarsis (White-spotted flower chafer) larva. *Food Science of Animal Resources*, *40*(5), 813–830. https://doi.org/10.5851/kosfa.2020.e60

Khumaidi, A., Nugrahani, A. W., & Gunawan, F. (2020). Aktivitas Antibakteri Ekstrak Etanol Daun Kapas (Gossypium barbadense L.) terhadap Staphylococcus epidermidis dan Propionibacterium acnes. *Jurnal Farmasi Udayana*, *9*(1), 52. https://doi.org/10.24843/jfu.2020.v09.i01.p08

Kinoshita, R., Ishima, Y., Chuang, V. T. G., Watanabe, H., Shimizu, T., Ando, H., Okuhira, K., Otagiri, M., Ishida, T., & Maruyama, T. (2021). The therapeutic effect of human serum albumin dimer-doxorubicin complex against human pancreatic tumors. *Pharmaceutics*, *13*(8), 1–12. https://doi.org/10.3390/pharmaceutics13081209

Kusrini, A. R. R., & Pusparini. (2024). *Jurnal Akta Trimedika (JAT) LAMA PENGGUNAAN MASKER TIDAK MEMENGARUHI TIMBULNYA JERAWAT PADA PEREMPUAN USIA 15-60 TAHUN*. *1*, 221–232.

Latif, M. S., Nawaz, A., Rashid, S. A., Akhlaq, M., Iqbal, A., Khan, M. J., Khan, M. S., Lim, V., & Alfatama, M. (2022). Formulation of Polymers-Based Methotrexate Patches and Investigation of the Effect of Various Penetration Enhancers: In Vitro, Ex Vivo and In Vivo Characterization. *Polymers*, *14*(11). https://doi.org/10.3390/polym14112211

Lee, C., Kim, J., Um, D. J., Kim, Y., Min, H. S., Shin, J., Nam, J. H., Kang, G., Jang, M., Yang, H., & Jung, H. (2021). Optimization of layered dissolving microneedle for sustained drug delivery using heat-melted poly(Lactic-co-glycolic acid). *Pharmaceutics*, *13*(7), 1–17. https://doi.org/10.3390/pharmaceutics13071058

Lestari, R. T., Gifanda, L. Z., Kurniasari, E. L., Harwiningrum, R. P., Kelana, A. P. I., Fauziyah, K., Wdyasari, S. L., Tiffany, Islamiah, D., Krisimonika, Salean, D. D. C., & Priyandani, Y. (2021). Perilaku mahasiswa terkait cara mengatasi jerawat. *Jurnal Farmasi Komunitas*, *8*(1), 15–19.

Li, H., Li, J., Wang, Y., Liu, C., & Zhou, J. (2023). Advances in dermatological application of gelma hydrogel microneedles. *Skin Research and Technology*,

29(4). https://doi.org/10.1111/srt.13327

Lindawati, N. Y., & Anggraini, R. (2020). Pemanfaatan Ekstrak Etanol Teh Hijau (Camellia sinensis L.) sebagai Chelating Agent Logam Berat Cu dengan Metode SSA. *Jurnal Farmasi Galenika (Galenika Journal of Pharmacy) (e-Journal)*, *6*(2), 295–302. https://doi.org/10.22487/j24428744.2020.v6.i2.15198

Maimuna, Monado, F., & Royani, I. (2020). *Jurnal Fisika imprinted polymer (MIP) nano kafein*. *10*(1), 1–7.

Mittova, V. (2023). Effects of different drying, extraction methods, and solvent polarity on the antioxidant properties of Paeonia daurica subsp. mlokosewitschii leaves. *Modern Issues of Medicine and Management*, *26*(2), 1–15. https://doi.org/10.56580/geomedi39

Miura, S., Yamagishi, R., Ando, M., Hachikubo, Y., Ibrahim, N. A., Fadilah, N. I. M., Maarof, M., Oshima, M., Goo, S. L., Hayashi, H., Morita, M., Fauzi, M. B., & Takei, S. (2025). Fabrication and Evaluation of Dissolving Hyaluronic Acid Microneedle Patches for Minimally Invasive Transdermal Drug Delivery by Nanoimprinting. *Gels*, *11*(2), 1–17. https://doi.org/10.3390/gels11020089

Nazliniwaty, ., Hanum, T. I., & Laila, L. (2020). *Antioxidant Activity Test of Green Tea (Camellia sinensis L. Kuntze) Ethanolic Extract using DPPH Method*. *August*, 752–754. https://doi.org/10.5220/0010087307520754

Novia, & Noval. (2021). The Effect of Polyvinyl Pyrolidon and Ethyl Cellulose Polymer Combination on Characteristics and Penetration Test of Formulation Transdermal of Dayak Onion Extract Patch (Eleutherine palmifolia (L.). *Jurnal Surya Medika*, *7*(1), 173–184. http://journal.umpalangkaraya.ac.id/index.php/jsm

Novilla, A., Khairinisa, G., Rihibiha, D. D., Syahrian, H., & Shabri. (2023). *Sitotoksisitas Ekstrak Teh Hijau (Camellia sinensis L.) Dari Gambung, Jawa Barat Terhadap Sel Makrofag Raw 264.7*. *10*(1), 23–27. https://doi.org/10.24843/metamorfosa.2023.v10.i01.p03

Novitri, S. A., & Kurniati, N. F. (2021). Pengaruh Kombinasi Ekstrak Etanol Kulit Buah Delima (Punica granatum L.) dengan Batang Sereh

(Cymbopogon citratus) Terhadap Bakteri Escherichia coli ATCC 8739. *Jurnal Kesehatan Medika Saintika*, *12*(1), 198. https://doi.org/10.30633/jkms.v12i1.893

Noviyanti, Sativa, N., & Perdana, F. (2019). Specific And Non Specific Parameters Test Of Ziziphus nummularia (Burm.f.) Wight & Arn. Leaf And Secondary Metabolit Compound. *Jurnal Ilmiah Farmako Bahari*, *10*(2), 197–204.

Nowak, D., & Jakubczyk, E. (2020). The Freeze-Drying of Foods — The Characteristic of the Process Course and the Effect of Its Parameters on the Physical Properties of Food Materials. *Foods*, *9*(1488), 1–27.

Nugraha, B., Faisal, M., & Herman. (2022). Proceeding of Mulawarman Pharmaceuticals Conferences. *Proceeding of Mulawarman Pharmaceuticals Conferences*, 27–29.

Nur, S. (2020). IDENTIFIKASI DAN PENENTUAN KADAR KATEKIN DARI SEDUHAN DAN EKTRAK ETANOL PRODUK TEH HIJAU (Camelia sinensi L) KOMERSIAL SECARA SPEKTROFOTOMETRI UV-VISIBLE. *Majalah Farmasi Dan Farmakologi*, *24*(1), 1–4. https://doi.org/10.20956/mff.v24i1.9261

Nurhaini, S., Turahman, T., & Aisiyah, S. (2024). Formulasi sleeping mask ekstrak daun teh hijau (Camellia sinensis L.) dengan variasi konsentrasi karbopol 940 dan uji aktivitas sebagai antibakteri terhadap Propionibacterium acnes. *Pharmasipha : Pharmaceutical Journal of Islamic Pharmacy*, *7*(2), 44–58. https://doi.org/10.21111/pharmasipha.v7i2.10005

Nurhamidin, A. P. R., Fatimawali, F., & Antasionasti, I. (2021). UJI AKTIVITAS ANTIBAKTERI EKSTRAK N-HEKSAN BIJI BUAH LANGSAT (Lansium domesticum Corr) TERHADAP BAKTERI Staphylococus Aureus DAN Klebsiella Pneumoniae. *Pharmacon*, *10*(1), 748. https://doi.org/10.35799/pha.10.2021.32772

Nurhayati, L. S., Yahdiyani, N., & Hidayatulloh, A. (2020). Perbandingan Pengujian Aktivitas Antibakteri Starter Yogurt dengan Metode Difusi Sumuran dan Metode Difusi Cakram. *Jurnal Teknologi Hasil Peternakan*, *1*(2), 41. https://doi.org/10.24198/jthp.v1i2.27537

Nurhayati, L., Yahdiyani, N., & Hidayatulloh, A. (2020). Perbandingan pengujian aktivitas antibakteri starter yogurt dengan metode difusi sumuran dan metode difusi cakram. *Jurnal Teknologi Hasil Peternakan*, *1*(2), 41. https://doi.org/10.24198/jthp.v1i2.27537

Nwankwo, C. S., Okpomor, E. O., Dibagar, N., Wodecki, M., Zwierz, W., & Figiel, A. (2023). Recent developments in the hybridization of the freeze-drying technique in food dehydration: a review on chemical and sensory qualities. *Foods*, *12*(18), 3437. https://doi.org/10.3390/foods12183437

Ponphaiboon, J., Krongrawa, W., Aung, W. W., Chinatangkul, N., Limmatvapirat, S., & Limmatvapirat, C. (2023). Advances in Natural Product Extraction Techniques, Electrospun Fiber Fabrication, and the Integration of Experimental Design: A Comprehensive Review. *Molecules*, *28*(13). https://doi.org/10.3390/molecules28135163

Pratiwi, A. N. P., Saputri, G. A. R., & Ulfa, A. M. (2023). Pengaruh Waktu Pengeringan Beku (Freeze Drying) Terhadap Evaluasi Fisik Sediaan Gel Bunga Telang (Clitoria ternatea L.) dengan Variasi HPMC. *Jurnal Mandala Pharmacon Indonesia*, *9*(2), 552–561. https://doi.org/10.35311/jmpi.v9i2.351

Pratiwi, B. (2021). Ekstrak Teh Hijau (Camellia sinensis L.) Efektif menghambat pertumbuhan bakteri (Escherichiia coli). *Jurnal Penelitian Perawat Profesional*, *3*(4), 693–697. http://jurnal.globalhealthsciencegroup.com/index.php/JPPP

Rad, Z., Prewett, P., & Davies, G. (2021). An overview of microneedle applications, materials, and fabrication methods. *Beilstein Journal of Nanotechnology*, *12*, 1034–1046. https://doi.org/10.3762/bjnano.12.77

Rahmawati, D., Samodra, G., & Fitriana, A. S. (2022). Skrining Fitokimia Senyawa Metabolit Sekunder Ekstrak Etanol Daun Teh Hijau (Camellia sinensis (L.) Kuntze). *Seminar Nasional Penelitian Dan Pengabdian Kepada Masyarakat*, 385–389.

Reflan, F., Meidyawati, R., & Indrawati, D. (2019). Antibacterial efficacy of 6% green tea extract and 2% chlorhexidine against Enterococcus faecalis biofilm in vitro. *International Journal of Applied Pharmaceutics*, 64–66.

https://doi.org/10.22159/ijap.2019.v11s1.168

RI, K. K. (2017). FARMAKOPE HERBAL INDONESIA EDISI II. *Pills and the Public Purse*, 97–103. https://doi.org/10.2307/jj.2430657.12

Sasmito, B., Dwi, S., & Dearta, D. (2020). Pengaruh suhu dan waktu penyeduhan teh hijau daun Sonneratia alba terhadap aktivitas antioksidannya. *JFMR-Journal of Fisheries and Marine Research*, *4*(1), 109–115. https://doi.org/10.21776/ub.jfmr.2020.004.01.16

Shahriari, M. H., Salmani, H., Akrami, M., & Salehi, Z. (2024). Development of a facile, versatile and scalable fabrication approach of solid, coated, and dissolving microneedle devices for transdermal drug delivery applications. *Giant*, *18*, 100284. https://doi.org/10.1016/j.giant.2024.100284

Sifatullah, N., & Zulkarnain. (2021). Jerawat (Acne vulgaris): Review Penyakit Infeksi Pada Kulit. *Prosiding Biologi Achieving the Sustainable Development Goals* , *November*, 19–23. http://journal.uin-alauddin.ac.id/index.php/psb

Sirri, Y., Warouw, V., Rumengan, I. F., Paransa, D. S., Undap, S. L., & Ginting, E. L. (2022). Isolation and Antibacterial Activity assay of Endophytic Symbiont Bacteria on Seaweed Gracilaria verrucosa originated from Batu Meja Tongkaina Beach, North Sulawesi. *Jurnal Ilmiah PLATAX*, *10*(2), 424. https://doi.org/10.35800/jip.v10i2.42226

Sreeharsha, N., & Al, M. (2022). *Therapeutics of microneedling for skin repair*. *12*(3), 199–204. https://doi.org/10.52711/2231-5659.2022.00035

Sumilat, D. A. (2019). Antibacterial Screening Activity of Several Sponges Against Staphylococcus aureus, Escherichia coli, Staphylococcus saprophyticus, dan Pseudomonas aeruginosa. *Jurnal Ilmiah Platax*, *7*(2), 455. https://doi.org/10.35800/jip.7.2.2019.26026

Unawahi, S., Widyasanti, A., & Rahimah, S. (2022). Ekstraksi Antosianin Bunga Telang (Clitoria ternatea Linn) dengan Metode Ultrasonik Menggunakan Pelarut Aquades dan Asam Asetat. *Jurnal Keteknikan Pertanian Tropis Dan Biosistem*, *10*(1), 1–9. https://doi.org/10.21776/ub.jkptb.2022.010.01.01

Utami, Y. P., Sisang, S., & Burhan, A. (2020). PENGUKURAN PARAMETER SIMPLISIA DAN EKSTRAK ETANOL DAUN PATIKALA (Etlingera

elatior (Jack) R.M. Sm) ASAL KABUPATEN ENREKANG SULAWESI SELATAN. *Majalah Farmasi Dan Farmakologi*, *24*(1), 6–10. https://doi.org/10.20956/mff.v24i1.9831

Vergilio, M. M., Birchall, J. C., Lima, L. L., Rezende, R. A., & Leonardi, G. R. (2023). Drug Delivery Systems based on Microneedles for Dermatological Diseases and Aesthetic Enhancement. *Current Medicinal Chemistry*, *31*(23), 3473–3487. https://doi.org/10.2174/0929867330666230525122913

Wardani, V. K., & Saryanti, D. (2021). Formulasi Transdermal Patch Ekstrak Etanol Biji Pepaya (Carica papaya L.) dengan Basis Hydroxypropil Metilcellulose (HPMC). *Smart Medical Journal*, *4*(1), 38. https://doi.org/10.13057/smj.v4i1.43613

Widyastuti, R. P., Suhardi, S. H., Permana, D., Hasan, K., Kardena, E., & Jatnika, A. (2020). STUDI TINGKAT KETERURAIAN PEWARNA TEKSTIL MENGGUNAKAN LAKASE MURNI DARI Marasmiellus palmivorus. *Manfish Journal*, *1*(01), 21–31. https://doi.org/10.31573/manfish.v1i01.35

Wulandari, A., Farida, Y., & Taurhesia, S. (2020). Perbandingan aktivitas ekstrak daun kelor dan teh hijau serta kombinasi sebagai antibakteri penyebab jerawat. *Jurnal Fitofarmaka Indonesia*, *7*(2), 23–29. https://doi.org/10.33096/jffi.v7i2.535

Wulandari, S., Nisa, Y. S., Taryono, T., Indarti, S., & Sayekti, R. S. (2022). Sterilisasi Peralatan dan Media Kultur Jaringan. *Agrotechnology Innovation (Agrinova)*, *4*(2), 16. https://doi.org/10.22146/a.77010

X.Nguyen, H., & Nguyen, C. N. (2023). *Microneedle-Mediated Transdermal Delivery of Biopharmaceuticals*. 1–35.

Yu, X., Zhao, J., & Fan, D. (2023). The progress in the application of dissolving microneedles in biomedicine. *Polymers*, *15*(20), 4059. https://doi.org/10.3390/polym15204059

Yunio, R. (2023). Uji aktivitas antibakteri ekstrak etanol daun kenikir (Cosmos caudatus) terhadap bakteri Propionibacterium acnes. *FASKES*, *1*(2), 30–42. https://doi.org/10.32665/faskes.v1i2.1945