

DAFTAR PUSTAKA

- Abbas, A. K., Lichtman, A. H., Pillai, S. (2020). *Basic immunology: functions and disorders of the immune system*. Philadelphia: Elsevier Health Sciences.
- Adhikari RP. (2021). Staphylococcal Infections: Host and Pathogenic Factors. *Microorganisms*, 18;9(5):1080.
- Anarthe, S. J., Spoorthisudha, P., Swetha, M., Raju, M. G. (2025). In and in vivo screening of *Clitoria ternatea* (Linn.) for immunomodulatory activity. *Int J ChemTech Res*, 10, 116-25.
- Anto, A. (2021). Mengenal bunga telang, si biru dengan beragam manfaat. *Badan Litbang Pertanian Kementrian Pertanian*, 2-6.
- Block, K. I., & Mead, M. N. (2003). Immune System Effects of Echinacea, Ginseng, and Astragalus: A Review. *Integrative Cancer Therapies*, 2(3): 247-267.
- Bratawidjaja, K.G., dan Rengganis. (2014), *Imunologi Dasar*, Badan Penerbit Fakultas Ilmu Kedokteran Universitas Indonesia : Jakarta
- Datta, F. U., Daki, A. N., Benu, I., Detha, A. I. R., Foeh, N. D., & Ndaong, N. A. (2019). Uji aktivitas antimikroba bakteri asam laktat cairan rumen terhadap pertumbuhan *Salmonella enteritidis*, *Bacillus cereus*, *Escherichia coli* dan *Staphylococcus aureus* menggunakan metode difusi sumur agar. *Jurnal Kajian Veteriner*, 66-85.
- Day, M. J., & Schultz, R. D. (2014). *Veterinary Immunology: Principles and Practice*. Boca Raton: CRC Pres.
- Delves, P. J., Martin, S. J., Burton, D. R., Roitt, I. M. (2017). *Roitt's essential immunology*. West Sussex: John Wiley & Sons.
- Efimova, S. S., Zakharova, A. A., Ostroumova, O. S. (2020). Alkaloids modulate the functioning of ion channels produced by antimicrobial agents via an influence on the lipid host. *Frontiers in Cell and Developmental Biology*, 8: 537.
- Febrianti F, Widyasanti A, Nurhasanah S. (2022). Aktivitas Antibakteri Ekstrak Bunga Telang (*Clitoria ternatea* L.) terhadap Bakteri Patogen. *Alchemy J Penelit Kim*, 18(2).
- Fishovitz J, Hermoso JA, Chang M, Mobashery S. (2014). Penicillin-binding protein 2a of methicillin-resistant *Staphylococcus aureus*. *IUBMB Life*, 66(8):572-7.
- Fristiohady, A., Wahyuni, W., Malik, F., Leorita, M., Yusuf, M. I., Febriansyah, H., & Sahidin, S. (2019). Efek Imunomodulator Ekstrak Etanol Spons *Xestospongia* Sp. Terhadap Aktivitas Fagositosis Makrofag Pada Mencit Jantan Galur Balb/C. *Jurnal Mandala Pharmacon Indonesia*, 5(01), 15-30.
- Haag, A. F., Fitzgerald, J. R., & Penadés, J. R. (2019). *Staphylococcus aureus* in Animals. *Microbiology spectrum*, 7(3): 10-1128.
- He, M., T. Wu, S. Pan, Xu, X. (2014). Antimicrobial mechanism of flavonoids against *Escherichia coli* ATCC 25922 by model membrane study. *Appl Surf Sci*, 305: 515–521.

- Huang, Y. H., Huang, C. C., Chen, C. C., Yang, K. J., Huang, C. Y. (2015). Inhibition of *Staphylococcus aureus* PriA helicase by flavonol kaempferol. *The protein journal*, 34(3): 169-172.
- Hutagalung, A. S. (2022). Review Artikel: Potensi Imunomodulator Dari Tumbuhan Genus *Garcinia* Sebagai Bahan Suplemen Baru. *Farmaka*, 20(3), 97-103.
- Ilyas, Y. M., Diantini, A., Ghozali, M., Sahidin, I., & Fristiody, A. (2022). Immunomodulatory potency *Etlingera rubroloba* AD poulsen fruit ethanol extract against macrophage phagocytic activity and CD4 levels in wistar male rats. *Research Journal of Pharmacy and Technology*, 15(9), 4067-4072.
- Istini dan Santoso, B. (2018). Pengaruh Penambahan Serum dan lama Waktu Inkubasi Lateks terhadap Aktivitas Fagositosis Makrofag Tikus Sprague Dawley (SD) dalam Menunjang Kegiatan Penelitian. *Indonesian Journal of Laboratory*, 1(1): 16-22.
- Iwo, M.I. (2024). *Orasi Ilmiah Guru Besar Institut Teknologi Bandung: Peran Imunomodulator dalam Kesehatan*. Bandung: ITB Press.
- Jensch-Junior, B.E., Pressinotil, N., Borges, J.C.S and Silva, C.D. (2006). Characterization of Macrophage Phagocytosis of the Tropical Fish *Prochilodus srofa*, *Aquaculture*, 251 : 509-515.
- Jeyaraj EJ., Lim YY., Choo WS. (2022). Antioxidant, cytotoxic, and antibacterial activities of *Clitoria ternatea* flower extracts and anthocyanin-rich fraction, *Sci Rep*, 12(1): 1–12.
- Johnsen Stefani, L., Wohlgemuth, S., Schütte, L., Halbgebauer, R., Bergmann, C. B., Huber-Lang, M., Wohlgemuth, L. (2026). Macrophages on demand: How tissue trauma shapes their role. *European Journal of Trauma and Emergency Surgery*, 52(1): 17.
- Kane, T.L., Carothers, K.E., Lee, S.W. (2018). Virulence Factor Targeting of the Bacterial Pathogen *Staphylococcus aureus* for Vaccine and Therapeutics. *Curr Drug Targets*, 19: 111–127.
- Kazuma, K., Noda, N., and Suzuki, M., (2003). Flavonoid Composition Related to Petal Color in Different Lines of *Clitoria Ternatea*. *Phytochemistry*, 64: 1133–1139.
- Kirana, I.D.A.A., Bodhi, W., Lebang, J.S., Fatimawali. (2023). Uji Aktivitas Fagositosis Makrofag dari Ekstrak Kulit Buah Jeruk Nipis Sebagai Imunomodulator. *Jurnal Kesehatan Tambusai*, 4(3):3021-3027.
- Kosai, P., Kanjana Sirisidthi, Kanita Jiraungkoorskul & Wannee Jiraungkoorskul. (2015). Review on Ethnomedicinal uses of Memory Boosting Herb, Butterfly Pea, *Clitoria ternatea*. *Journal of Natural Remedies*, 15(2):71-76.
- Kumar, T., Sharma, A., Dutta, S., Sachin, J., Dutta, G., Sharma, P. R. (2021). A Concise Review of Immune System and Natural Immune Modulators. *J. Pharm. Sci. Rev. Res.*, 68(2), 79-84.
- Lendeckel U, Venz S, Wolke C. (2022). Macrophages: shapes and functions. *ChemTexts*, 8(2):12.

- Llor C, Bjerrum L. (2014). Antimicrobial resistance: risk associated with antibiotic overuse and initiatives to reduce the problem. *Ther Adv Drug Saf*, 5(6):229-41.
- Ma'ruf, N. Q., Hotmian, E., Tania, A. D., Antasionasti, I., Fatimawali, & Tallei, T. E. (2022). In silico analysis of the interactions of *Clitoria ternatea* (L.) bioactive compounds against multiple immunomodulatory receptors. In *AIP Conference Proceedings*, 2638(1): 070006.
- Mahatmanti, F. W., Kusumaningrum, S. B. C., & Alauhdin, M. (2025). *Buku Referensi Kimia Material: Pemanfaatan Bunga Telang sebagai Indikator Alami pada Kemasan Pangan*. Pekalongan: Penerbit NEM.
- Malak, A. (2023). Immunomodulation: Types, Mechanisms, and Significance. *American Journal of Physiology Biochemistry and Pharmacology*. 13(10): 01-02.
- Malik, F., Bafadal, M., Munasari, D., Andriani, R., Y, M. I., Fristiohady, A., & Nurfinti, W.O. (2022). Aktivitas Imunomodulator Ekstrak. Etanol. Buah *Etlingera rubroloba* A.D. Poulsen. Terhadap Fagositosis Sel Makrofag Pada Tikus Jantan Galur Wistar. *Jurnal Mandala Pharmacon Indonesia*, 8(1), 96–112.
- Malik, F., Jabbar, A. (2023). Peningkatan Sitokin Interferon Gama Tikus Wistar Setelah Diberikan Ekstrak Etanol Buah *Etlingera rubroloba* A. D. Poulsen Sebagai Immunostimulator. Increased Interferon-Gamma Cytokines In Wistar Rats Treated With *Etlingera rubroloba* A.D. Poulsen Fruits. *Medical Sains*, 8(2), 559–566.
- Markey, B., Finola, L., Archambault, M., Cullinane, A., & Maguire, D. (2013). *Clinical Veterinary Microbiology Second Edition*. New York: Elsevier.
- Marpaung, A. M. (2020). Tinjauan manfaat bunga telang (*Clitoria ternatea* l.) bagi kesehatan manusia. *Journal of Functional Food and Nutraceutical*, 63-85.
- Marshall, J. S., Upton, J. E., Vliagoftis, H., Hildebrand, K. J., Byrne, A., Watson, W. (2024). Introduction to immunology and immune disorders. *Allergy, Asthma & Clinical Immunology*, 20(3): 69.
- McGlade, E.A., Miyamoto, A. dan Winuthayanon, W. (2022). Progesterone an Inflammatory Response in the Oviduct during Physiological and Pathological Conditions. *Cells*, 11(1075): 1-18.
- Mezhenskyi, O., Andriienkova, K., Goldanova, T., Antmen, E., Soubrie, T., & Vrana, N. E. (2025). Macrophage Phenotype Detection Methodology on Textured Surfaces via Nuclear Morphology Using Machine Learning. *Advanced Intelligent Discovery*, 202500055.
- Mikołajczuk-Szczyrba A, Wnęk-Auguścik K, Średnicka P, Shymialevich D, Jaroszevska E, Wojtczak A, Zapaśnik A, Bucka-Kolendo J, Cieślak H, Nasiłowska J. (2025). Genomic and Phenotypic Landscape of Antibiotic Resistance in Gut Lactic Acid Bacteria from Livestock Environments. *Genes*, 16(12):1518.
- Miladiyah, I., Rachmawaty, F. J. (2017). Potency of xanthone derivatives as antibacterial agent against Methicillin-Resistant *Staphylococcus Aureus* (MRSA). *JKKI: Jurnal Kedokteran dan Kesehatan Indonesia*, 124-135.

- Ming, D., Wang, D., Cao, F., Xiang, H., Mu, D., Cao, J., Wang, T. (2017). Kaempferol inhibits the primary attachment phase of biofilm formation in *Staphylococcus aureus*. *Frontiers in microbiology*, 8: 2263.
- Miyakawa, M. E. F., Casanova, N. A., & Kogut, M. H. (2024). How did antibiotic growth promoters increase growth and feed efficiency in poultry?. *Poultry science*, 103(2), 103278.
- Moellering Jr, R. C. (2012). MRSA: the first half century. *Journal of antimicrobial chemotherapy*, 67(1), 4-11.
- Netea, M. G., Schlitzer, A., Placek, K., Joosten, L. A., & Schultze, J. L. (2019). Innate and adaptive immune memory: an evolutionary continuum in the host's response to pathogens. *Cell host & microbe*, 25(1): 13-26.
- Nikolic, P., & Mudgil, P. (2023). The Cell Wall, Cell Membrane and Virulence Factors of *Staphylococcus aureus* and Their Role in Antibiotic Resistance. *Microorganisms*, 11(2): 259.
- Ningsih, A. W., Nur Arifin, J. F., Devitri, R. W., Septiarini, R. T., Zahara, E. S., Maulidya, V., & Klau, I. S. (2025). Tinjauan Literatur: Efektivitas Maserasi Sebagai Metode Ekstraksi Fitokimia. *OBAT: Jurnal Riset Ilmu Farmasi dan Kesehatan*, 3(6), 228-242.
- Nugraha AP, Rahmadhani D, Puspitaningrum MS, Rizqianti Y, Kharisma V, Ernawati DS. (2021). Molecular docking of anthocyanins and ternatin in *Clitoria ternatea* as coronavirus disease oral manifestation therapy. *J Adv Pharm Technol Res*. 12(4).
- Oguis, G.K., Gilding, E.K., Jackson, M.A., Craik, D.J. (2019). Butterfly pea (*Clitoria ternatea*), a cyclotide-bearing plant with applications in agriculture and medicine. *Front. Plant Sci.*, 10: 645.
- Oktarina, D. R., Susilowati, Y., & Halimah, E. (2021). The potential of *Phyllanthus* genus plants as immunomodulatory and anti inflammatory. *Indonesian Journal of Biological Pharmacy*, 1(2), 47-77.
- Prakarsa, C. P., Bodhi, W., Datu, O.S. (2024). Uji Aktivitas Fagositosis Makrofag Ekstrak Tanaman Gedi (*Ablemoschus Manihot* L.) Sebagai Imunomodulator. *Pharmacon*, 13(1): 419-430.
- Pramudya, M., Kurniawan, G. A., Maulina, Z. S., Lintangmukti, K. C., Hayati, A., Puspitasari, A. O., Sajidah, E. S. (2025). Anti-inflammatory and immunomodulatory properties of butterfly pea (*Clitoria ternatea* L.) in rats exposed to oral polystyrene nanoplastics. *Adv. Anim. Vet. Sci*, 13(10), 2313-2322.
- Praworo., K, 2011, *Terapi Medipic Medical Picture*. Jakarta: Penebar Plus.
- Prescott, K., Kortman, S., Duque, J., Muramoto, J., Shennan, C., Greenstein, G., & Haffa, A. L. (2023). Analysis of trace volatile compounds emitted from flat ground and formed bed anaerobic soil disinfestation in strawberry field trials on California's Central Coast. *Agronomy*, 13(5): 1190.
- Priyani R. (2020). Manfaat Tanaman Sambiloto (*Andrographis paniculata* Ness) Terhadap Sistem Imun Tubuh, *Jurnal Ilmu Kedokteran Dan Kesehatan*, 7 (3).

- Quinn, P. J., Markey, B. K., Leonard, F. C., Fitzpatrick, E. S., & Fanning, S. (2011). *Veterinary Microbiology and Microbial Disease*. West Susse: John Wiley & Sons.
- Ramadhani, S., Khairullah, A. R., Effendi, M. H., Sukmanadi, M., Tyasningsih, W., Millannia, S. K., Kaben, S. E. (2024). Detection of the methicillin-resistant *Staphylococcus aureus* gene encoding *mecA* in nasal swabs of cats in Surabaya, Indonesia. *Open Veterinary Journal*, 14(11): 3026.
- Rifai, M., Dliyauddin, M., & Lestari, N. D. (2026). *IMUNOLOGI MODERN: Konsep Dasar, Mekanisme Respon Imun, dan Pembelajaran dari Covid-19*. Malang: Octopus Corpora Indonesia.
- Salamah, N & Erlinda Widyasari. (2015). Aktivitas Antioksidan Ekstrak Metanol Daun Kelengkeng (*Euphoria longan* (L.) Steud.) Dengan Metode Penangkapan Radikal 2,2'-Difenil-1- Pikrilhidrazil. *Pharmaciana*, 5(1): 25-34.
- Santosa, D. F. (2023). Beneficial health effects of butterfly pea (*Clitoria ternatea*): A literature review. *Indonesia Journal of Biomedical Science*, 17(2), 244-247.
- Sharma, Y., Arora, M. & Bala, K. (2024). The potential of immunomodulators in shaping the future of healthcare. *Discov Med* 1, 37.
- Sumartini, & Ikrawan, Y. (2020). Analisis Bunga Telang (*Clitoria ternatea*) dengan Variasi PH Metode Liquid Chromatograph-Tandem Mass Spectrometry (LC-MS/MS). *Pasundan Food Technology Journal*, 7(2): 70–77.
- Thakur, A. V., Ambwani, S., Kumar, S., & Ambwani, T. K. (2025). Exploring the immunomodulatory potential of *Clitoria ternatea* using chicken lymphocytes. *Journal of Phytopharmacology*, 14(4), 287–290.
- Tidball JG, Wehling-Henricks M. (2007). Macrophages promote muscle membrane repair and muscle fibre growth and regeneration during modified muscle loading in mice in vivo. *J. Physiol*, 578: 327-36.
- Tizard, I. R. (2024). *Veterinary immunology-E-book: Veterinary immunology-E-book*. Missouri: Elsevier Health Sciences.
- Vasanthakumari, R. (2016). *Textbook of microbiology*. India: Wolters Kluwer India Pvt Ltd.
- Verma PR, Itankar PR, Arora SK. (2013). Evaluation of antidiabetic antihyperlipidemic and pancreatic regeneration, potential of aerial parts of *Clitoria ternatea*. *Rev Bras Farmacogn*, 23(5): 244-247.
- Waluyo, B., Wilisaberta, P., & Saptadi, D. (2024). *Pemanfaatan dan Pemuliaan Poliploidi Bunga Telang (Clitoria Ternatea L.)*. Yogyakarta: Deepublish.
- Wang, R., Lan, C., Benlagha, K., Camara, N.O.S., Miller, H., Kubo, M., Heegaard, S., Lee, P., Yang, L., Forsman, H. and Li, X. (2024). The interaction of innate immune and adaptive immune system. *MedComm*, 5(10): 714.
- Widianingrum, D.C., Noviandi, C.T., Salasia, S.I.O. (2019). Antibacterial and immunomodulator activities of virgin coconut oil (VCO) against *Staphylococcus aureus*. *Heliyon*, 5(10).

- World Health Organization. (2023). *Antimicrobial resistance*.
<https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance>.
- Yumni, G. G., Sumantri, S., Nuraini, I., & Nafis, I. J. (2022). Profil Antioksidan dan Kadar Flavonoid Total Fraksi Air dan Etil Asetat Ekstrak Etanol Bunga Telang (*Clitoria ternatea* L.). *Cendekia Eksakta*, 7(1), 12–17.
- Zahara, M. (2022). Ulasan singkat: deskripsi kembang telang (*Clitoria ternatea* L.) dan manfaatnya. *Jurnal Jeumpa*, 9(2), 719-728.
- Zhang, Z. Zuo, G. Lin. (2007). Intestinal and hepatic glucuronidation of flavonoids, *Mol Pharm*, 4(6): 833–845.