

DAFTAR PUSTAKA

- Adelusi, T.I., Oyedele, A.Q.K., Boyenle, I.D., Ogunlana, A.T., Adeyemi, R.O., Ukachi, C.D., Idris, M.O., Olaoba, O.T., Adedotun, I.O., Kolawole, O.E., Xiaoxing, Y., and Abdul-Hammed, M., 2022, Molecular modeling in drug discovery, *Informatics Med. Unlocked*, 29, 100880.
- Aguilera, E., Varela, J., Birriel, E., Serna, E., Torres, S., Yaluff, G., de Bilbao, N.V., Aguirre-López, B., Cabrera, N., Díaz Mazariegos, S., de Gómez-Puyou, M.T., Gómez-Puyou, A., Pérez-Montfort, R., Minini, L., Merlino, A., Cerecetto, H., González, M., and Alvarez, G., 2016, Potent and Selective Inhibitors of Trypanosoma cruzi Triosephosphate Isomerase with Concomitant Inhibition of Cruzipain: Inhibition of Parasite Growth through Multitarget Activity, *ChemMedChem*, 1328–1338.
- Anonim, 2021, *World Malaria Report 2018*, World Health Organization, Geneva.
- Andromeda, Ekawardhani, S., and Berbudi, A., 2020, The role of Curcumin as an antimalarial agent, *Syst. Rev. Pharm.*, 11, 18–25.
- Azam, S.S. and Abbasi, S.W., 2013, Molecular docking studies for the identification of novel melatonergic inhibitors for acetylserotonin-O-methyltransferase using different docking routines, *Theor. Biol. Med. Model.*, 10, 1–16.
- Azlin, E., 2016, Obat Anti Malaria, *Sari Pediatr.*, 5, 150.
- Barret, R., 2018, Lipinski's Rule of Five, *Ther. Chem.*, 97–100.
- Basuki, S., Fitriah, Riyanto, S., Budiono, Dachlan, Y.P., and Uemura, H., 2014, Two novel mutations of pfdhps K540T and I588F, affecting sulphadoxine-pyrimethamine-resistant response in uncomplicated falciparum malaria at Banjar district, South Kalimantan Province, Indonesia, *Malar. J.*, 13, 1–8.
- Boittier, E.D., Tang, Y.Y., Buckley, M.E., Schuurs, Z.P., Richard, D.J., and Gandhi, N.S., 2020, Assessing molecular docking tools to guide targeted drug discovery of cd38 inhibitors, *Int. J. Mol. Sci.*, 21, 1–19.
- Bruice, P.Y., 2016, *Organic Chemistry, Global Edition*, 8th edition, Pearson, California.
- Budimarwanti, C. and Handayani, S., 2010, Efektivitas Katalis Asam Basa Pada Sintesis 2-hidroksikalkon, Senyawa yang Berpotensi Sebagai Zat Warna, *Pros. Semin. Nas. Kim. dan Pendidik. Kim.*, 2–10.
- Calderón, F., Wilson, D.M., and Gamo, F.J., 2013, *Antimalarial drug discovery: Recent progress and future directions*, Vol. 59, 1st Edition, Elsevier Science Publishing co. Inc., United States.
- Carapina da Silva, C., Pacheco, B.S., das Neves, R.N., Dié Alves, M.S., Sena-Lopes, Â., Moura, S., Borsuk, S., and de Pereira, C.M.P., 2019, Antiparasitic

- activity of synthetic curcumin monocarbonyl analogues against *Trichomonas vaginalis*, *Biomed. Pharmacother.*, 111, 367–377.
- Cas, M.D. and Ghidoni, R., 2019, Dietary curcumin: Correlation between bioavailability and health potential, *Nutrients*, 11, 2147.
- Lo Cascio, F., Marzullo, P., Kayed, R., and Palumbo Piccionello, A., 2021, Curcumin as scaffold for drug discovery against neurodegenerative diseases, *Biomedicines*, 9, 1–25.
- Chakrabarti, R., Rawat, P.S., Cooke, B.M., Coppel, R.L., and Patankar, S., 2013, Cellular Effects of Curcumin on *Plasmodium falciparum* Include Disruption of Microtubules, *PLoS One*, 8, 57302.
- Chaturvedi, R., Chhibber-Goel, J., Verma, I., Gopinathan, S., Parvez, S., and Sharma, A., 2021, Geographical spread and structural basis of sulfadoxine-pyrimethamine drug-resistant malaria parasites, *Int. J. Parasitol.*, 51, 505–525.
- Chaudhary, K.K. and Mishra, N., 2016, A Review on Molecular Docking: Novel Tool for Drug Discovery, *JSM Chem.*, 4, 1029.
- Chen, Y.C., 2015, Beware of docking!, *Trends Pharmacol. Sci.*, 36, 78–95.
- Cheng, F., Li, W., Liu, G., and Tang, Y., 2013, In silico ADMET prediction: recent advances, current challenges and future trends, *Curr. Top. Med. Chem.*, 13, 1273–1289.
- Copetti, P.M., Bissacotti, B.F., da Silva Gündel, S., Bottari, N.B., Sagrillo, M.R., Machado, A.K., Ourique, A.F., Chitolina Schetinger, M.R., and Schafer da Silva, A., 2022, Pharmacokinetic profiles, cytotoxicity, and redox metabolism of free and nanoencapsulated curcumin, *J. Drug Deliv. Sci. Technol.*, 72, 103352.
- Dagen, M., 2020, *History of malaria and its treatment*, 1st Edition, Elsevier Ltd, United State.
- Dube, P.N., Mokale, S., and Datar, P., 2014, CoMFA and docking study of 2,N6-disubstituted 1,2-dihydro-1,3,5-triazine-4,6-diamines as novel PfDHFR enzyme inhibitors for antimalarial activity, *Bull. Fac. Pharmacy, Cairo Univ.*, 52, 125–134.
- Gaillard, T., 2018, Evaluation of AutoDock and AutoDock Vina on the CASF-2013 Benchmark, *J. Chem. Inf. Model.*, 58, 1697–1706.
- Gitawati, R., 2018, Interakaksi Obat dan Beberapa Implikasinya, *Media Litbang Kesehatan*, 18, 175–184.
- Glaab, E., 2016, Building a virtual ligand screening pipeline using free software: A survey, *Brief. Bioinform.*, 17, 352–366.
- Gupta, S.C., Patchva, S., Koh, W., and Aggarwal, B.B., 2012, Discovery of curcumin, a component of golden spice, and its miraculous biological activities, *Clin. Exp. Pharmacol. Physiol.*, 39, 283–299.

- Hafid, A.F., Puliansari, N., Lestari, N.S., Tumewu, L., Rahman, A., and Widyawaruyanti, A., 2017, Skrining Aktivitas Antimalaria Beberapa Tanaman Indonesia Hasil Eksplorasi Dari Hutan Raya Cangar, Batu-Malang, Jawa Timur, *J. Farm. Dan Ilmu Kefarmasian Indones.*, 3, 7.
- Hewlings, S.J. and Kalman, D.S., 2017, Curcumin: A review of its effects on human health, *Foods*, 6, .
- Hu, X., Shrimp, J.H., Guo, H., Zakharov, A., Jain, S., Shinn, P., Simeonov, A., Hall, M.D., and Shen, M., 2020, Non-covalent TMPRSS2 inhibitors identified from virtual screening., *bioRxiv Prepr. Serv. Biol.*,.
- Kantele, A. and Jokiranta, T.S., 2011, Review of cases with the emerging fifth human malaria parasite, *Plasmodium knowlesi*, *Clin. Infect. Dis.*, 52, 1356–1362.
- Khlebnikov, A.I., Tutone, M., Caballero, J., Luis Velázquez-Libera, J., Rossino, G., Navarro-Retamal, C., and Collina, S., 2019, Docking, Interaction Fingerprint, and Three-Dimensional Quantitative Structure-Activity Relationship (3D-QSAR) of Sigma Receptor Ligands, Analogs of the Neuroprotective Agent RC-33, *Front. Chem.* / www.frontiersin.org, 1, 496.
- Khor, P.Y., Mohd Aluwi, M.F.F., Rullah, K., and Lam, K.W., 2019, Insights on the synthesis of asymmetric curcumin derivatives and their biological activities, *Eur. J. Med. Chem.*, 183, 111704.
- Kumar, P., Kandi, S.K., Manohar, S., Mukhopadhyay, K., and Rawat, D.S., 2019, Monocarbonyl Curcuminoids with Improved Stability as Antibacterial Agents against *Staphylococcus aureus* and Their Mechanistic Studies, *ACS Omega*, 4, 675–687.
- Kunwittaya, S., Treeratanapiboon, L., Srisarin, A., Isarankura-Na-Ayudhya, C., and Prachayasittikul, V., 2014, In vitro study of parasite elimination and endothelial protection by curcumin: Adjunctive therapy for cerebral malaria, *EXCLI J.*, 13, 287–299.
- Kusuma, W., Lestari, A.A.W., Herawati, S., Putu, I.W., and Yasa, S., 2014, Pemeriksaan Mikroskop Dan Tes Diagnostik Cepat Dalam Menegakkan Diagnosis Malaria, *e-Jurnal Med. Udayana*, 3, 170–186.
- Lam, K.W., Tham, C.L., Liew, C.Y., Syahida, A., Rahman, M.B.A., Israf, D.A., and Lajis, N.H., 2012, Synthesis and evaluation of DPPH and anti-inflammatory activities of 2,6-bisbenzylidenecyclohexanone and pyrazoline derivatives, *Med. Chem. Res.*, 21, 333–344.
- Li, Q., Chen, J., Luo, S., Xu, J., Huang, Q., and Liu, T., 2015, Synthesis and assessment of the antioxidant and antitumor properties of asymmetric curcumin analogues, *Eur. J. Med. Chem.*, 93, 461–469.
- López-Lázaro, M., Willmore, E., Jobson, A., Gilroy, K.L., Curtis, H., Padget, K., and Austin, C.A., 2007, Curcumin induces high levels of topoisomerase I- and II-DNA complexes in K562 leukemia cells, *J. Nat. Prod.*, 70, 1884–

1888.

- Maier, A.G., Matuschewski, K., Zhang, M., and Rug, M., 2019, *Plasmodium falciparum*, *Trends Parasitol.*, 35, 481–482.
- Mardianis, Y., Anwar, C., and Haryadi, W., 2017, Sintesis Analog Kurkumin Monoketon Berbahan Dasar Sinamaldehyde Dan Uji Aktivitasnya Sebagai Inhibitor Enzim A-Glukosidase the Synthesis of Curcumine Analogue Monocetone From Cinamaldehyde and Its Activity Test As A-Glucocycle Enzyme Inhibitor, *J. Sains Dasar*, 6, 123–132.
- Martín-Cordero, C., López-Lázaro, M., Gálvez, M., and Ayuso, M.J., 2003, Curcumin as a DNA topoisomerase II poison, *J. Enzyme Inhib. Med. Chem.*, 18, 505–509.
- McMurry, J., 2012, *Organic Chemistry*, 8th Edition, Brooks/Cole, Cengage Learning, Belmont.
- Merlot, C., 2010, Computational toxicology—a tool for early safety evaluation, *Drug Discov. Today*, 15, 16–22.
- Modrzynska, K.K., 2010, The genetics of drug resistance in malaria - identification of genes conferring chloroquine and artemisinin resistance in rodent malaria parasite *Plasmodium chabaudi*, *Thesis*, University of Edinburgh, Edinburgh.
- Moroy, G., Martiny, V.Y., Vayer, P., Villoutreix, B.O., and Miteva, M.A., 2012, Toward in silico structure-based ADMET prediction in drug discovery, *Drug Discov. Today*, 17, 44–55.
- Morris, G.M., Huey, R., Lindstrom, W., Sanner, M. F., Belew, R. K., Goodsell, D. S. and Olson, A. J., 2009, “Autodock4 and AutoDockTools4: automated docking with selective receptor flexibility.”, *J. Comput. Chem.*, 30: 2785–2791.
- Noureddin, S.A., El-Shishtawy, R.M., and Al-Footy, K.O., 2019, Curcumin analogues and their hybrid molecules as multifunctional drugs, *Eur. J. Med. Chem.*, 182, 111631.
- Nzila, A., 2006, The past, present and future of antifolates in the treatment of *Plasmodium falciparum* infection, *J. Antimicrob. Chemother.*, 57, 1043–1054.
- Oddoux, O., Debourgogne, A., Kantele, A., Kocken, C.H., Jokiranta, T.S., Vedy, S., Puyhardy, J.M., and Machouart, M., 2011, Identification of the five human *Plasmodium* species including *P. knowlesi* by real-time polymerase chain reaction, *Eur. J. Clin. Microbiol. Infect. Dis.*, 30, 597–601.
- Pandey, A., Gupta, R.K., and Srivastava, R., 2011, Curcumin-the yellow magic, *Asian J. Appl. Sci.*, 4, 343–354.
- Pandey, A. and Shingadia, D., 2022, Treatment and prevention of malaria in children, *Paediatr. Child Heal. (United Kingdom)*, 32, 207–212.

- Paul, S. and Gupta, M., 2007, A Simple and Efficient Method for Selective Single Aldol Condensation Between Arylaldehydes and Acetone, <http://dx.doi.org/10.1081/SCC-200048425>, 35, 213–222.
- Ramachandra, M.S. and Subbaraju, G. V., 2006, Synthesis and bioactivity of novel caffeic acid esters from *Zuccagnia punctata*, *J. Asian Nat. Prod. Res.*, 8, 683–688.
- Pavia, D.L., Lampman, G.M., Kriz, G.S., and Vyvyan, J.R., 2015, *Introduction to Spectroscopy*, 5th Ed., Cengage Learning, Stamford.
- Rodrigues, F.C., Anil Kumar, N. V., and Thakur, G., 2019, Developments in the anticancer activity of structurally modified curcumin: An up-to-date review, *Eur. J. Med. Chem.*, 177, 76–104.
- Sallares, R., Bouwman, A., and Anderung, C., 2004, The Spread of Malaria to Southern Europe in Antiquity: New Approaches to Old Problems, *Med. Hist.*, 48, 311.
- Santos, F. and Ul, D.Q.B.F.C., 2016, Mass spectrometry, 3rd Edition, Springer International Publishing, Gewerbestrasse.
- Sari, I.W., Junaidin, and Pratiwi, D., 2020, STUDI MOLECULAR DOCKING SENYAWA FLAVONOID HERBA KUMIS KUCING (*Orthosiphon stamineus* B.) PADA RESEPTOR α -GLUKOSIDASE SEBAGAI ANTIDIABETES TIPE 2, *J. Farmagazine*, VII, 54–60.
- Sharma, K. and Raghav, N., 2021, Curcumin analogs as anti-cathepsins agents: Designing, virtual screening, and molecular docking analysis, *Comput. Toxicol.*, 19, 100174.
- Silakari, O. and Singh, P.K., 2021, Molecular docking analysis: Basic technique to predict drug-receptor interactions, *Concepts Exp. Protoc. Model. Informatics Drug Des.*, 131–155.
- Silva, A.C. da, Santos, P.D. de F., Silva, J.T. do P., Leimann, F.V., Bracht, L., and Gonçalves, O.H., 2018, Impact of curcumin nanoformulation on its antimicrobial activity, *Trends Food Sci. Technol.*, 72, 74–82.
- Singh, A., Singh, J.V., Rana, A., Bhagat, Kavita, Gulati, H.K., Kumar, Raman, Salwan, R., Bhagat, Kajal, Kaur, G., Singh, N., Kumar, Randeep, Singh, H., Sharma, S., and Bedi, P.M.S., 2019, Monocarbonyl curcumin based molecular hybrids as potent antibacterial agents, *ACS Omega*, 4, S1–S50.
- Syahri, J., Nasution, H., Nurohmah, B.A., Purwono, B., Yuanita, E., Zakaria, N.H., and Hassaan, N.I., 2020, Design , Synthesis and Biological Evaluation of Aminoalkylated Chalcones as Antimalarial Agent, 49, 2667–2677.
- Talisuna, A.O., Bloland, P., and D'Alessandro, U., 2004, History, Dynamics, and Public Health Importance of Malaria Parasite Resistance, *Clin. Microbiol. Rev.*, 17, 235.
- Tsvetkov, P., Asher, G., Reiss, V., Shaul, Y., Sachs, L., and Lotem, J., 2005,

Inhibition of NAD(P)H:quinone oxidoreductase 1 activity and induction of p53 degradation by the natural phenolic compound curcumin, *Proc. Natl. Acad. Sci. U. S. A.*, 102, 5535–5540.

Wiggers, H.J., Zaioncz, S., Cheleski, J., Mainardes, R.M., and Khalil, N.M., 2017, Curcumin, a Multitarget Phytochemical: Challenges and Perspectives, 1st ed. Elsevier B.V.

Xiong, G., Wu, Z., Yi, J., Fu, L., Yang, Z., Hsieh, C., Yin, M., Zeng, X., Wu, C., Lu, A., Chen, X., Hou, T., and Cao, D., 2021, ADMETlab 2.0: an integrated online platform for accurate and comprehensive predictions of ADMET properties, *Nucleic Acids Res.*, 49, .

Xu, Y., Al-Mualm, M., Terefe, E.M., Shamsutdinova, M.I., Opuencia, M.J.C., Alsaikhan, F., Turki Jalil, A., Hammid, A.T., Enayati, A., Mirzaei, H., Khor, V., Jabbari, A., Salehi, A., Soltani, A., and Mohamed, A., 2022, Prediction of COVID-19 manipulation by selective ACE inhibitory compounds of *Potentilla reptans* root: In silico study and ADMET profile, *Arab. J. Chem.*, 15, 103942.

Yamakoshi, H., Ohori, H., Kudo, C., Sato, A., Kanoh, N., Ishioka, C., Shibata, H., and Iwabuchi, Y., 2010, Structure-activity relationship of C5-curcuminoids and synthesis of their molecular probes thereof, *Bioorganic Med. Chem.*, 18, 1083–1092.

Yuvaniyama, J., Chitnumsub, P., Kamchonwongpaisan, S., Vanichthanankul, J., Sirawaraporn, W., Taylor, P., Walkinshaw, M.D., and Yuthavong, Y., 2003, Insights into antifolate resistance from malarial DHFR-TS structures, *Nat. Struct. Biol.*, 10, 357–365.