

DAFTAR PUSTAKA

- Alestrom, P., Angelo, L., Midtlyng, P. J., Schorderet, D. F., Schulte-Merker, S., Sohm, F., & Warner, S. 2019. *Zebrafish: Housing and Husbandry Recommendations*. *Sage Journals*. 54(3): 213–224.
- Ali, S., van Mill, H.G.J., Richardson, M.K. 2011. Large-Scale Assessment of the Zebrafish Embryo as a Possible Predictive Model in Toxicity Testing. *Zebrafish Embryo Model for Drugs Screens*. 6(6): 1-11.
- Akhondzadeh, S. 2003. Herbal medicine in the treatment of depression: A comprehensive review. *Current Pharmaceutical Design*. 9(5): 316-329.
- American Psychiatric Association. 2013. *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.).
- Anwer, H., Mason, D., Zajitschek, S., Noble, D.W.A., Hesselson, D., Morris, M.J., Lagisz, M., Nakagawa, S. 2021. An Efficient New Assay for Measuring Zebrafish Anxiety: Tall Tank that Better Characterize Between-Individual Differences. *Journal of neuroscience Methods*. 356.
- Apaydin, E.A., Maher, A.R., Shanman, R., Booth, M.S., Jeremy, N.V., Miles., Sorbero, M.E., Hempel, S. 2016. A Systematic Review of St. John's Wort for Major Depressive Disorder. *Systematic Review*. 5(148): 1-25.
- AVMA Guidelines for the Euthanasia of Animals. 2020. *American Veterinary Medical Association*.
- Bahramsoltani, I.K., Grundmann, O., Nakajima, J., Seo, S., Butterweck, V., Minami, Y., Sarro, S., Kawai, Y., Nakaya, Y., Terao, J. 2015. Antidepressant Effect of Extracts from Ginkgo biloba Leaves in Behavioral Models. *Biol Pharm Bull*. 29(8): 1767-1770.
- Berg, E.M., Björnfors, E.R., Pallucchi, I., Picton, L.D., El, M.A. 2018. Principles Governing Locomotion in Vertebrates: Lessons From Zebrafish. *Front Neural Circuits*. 73.
- Black, C. N., Bot, M., Scheffer, P. G., Cuijpers, P., & Penninx, B. W. 2015. Is depression associated with increased oxidative stress? A systematic review and meta-analysis. *Psychoneuroendocrinology*. 51: 164-175.
- Buddhika, H. D. K., Dharmadasa., Pakeerathan, K. 2021. Phytochemical Properties of *Clitoria Ternatea* L. (Fabaceae)-A Distinct Flower Morphometric Plants Available in Sri Lanka. *1st International Electronic Conference Agronomy*. Volume: 1.
- Chandra, S. 2019. Evaluation of Methanolic Extract of *Clitoria ternatea* Hepatoprotective & Nephroprotective Activity in Rats. *J. Drug Deliv. Ther*. 9: 313–319.
- Chayaratanasin, P., Caobi, A., Suparpprom, C., Saenset, S., Pasukamonset, P., Suanpairintr, N., Barbieri, M.A., Adisakwattana, S. 2019. *Clitoria ternatea* Flower Petal Extract Inhibits Adipogenesis and Lipid Accumulation in 3T3-L1 Preadipocytes by Downregulating Adipogenic Gene Expression. *Molecules*. 24(10): 1894.
- Cipriani, A. 2018. Comparative efficacy and acceptability of 21 antidepressant drugs for the acute treatment of adults with major depressive disorder: a systematic review and network meta-analysis. *Lancet*. 391(10128): 1357-1366.



- Dewi, N.W.R.K. 2022. Pemanfaatan dan Potensi Antioksidan pada Bunga Telang (*Clitoria ternatea*): Literatur Review. *Journal Pharmactive*. 1(2): 44-50.
- Demin, K.A., Kolesnikova, T.O., Khatsko, S.L., Meshalkina, D.A., Efimova, E.V., Morzherin, Y.Y., Kauleff, A.V. 2017. Acute Effect of Amitriptyline on Adult Zebrafish: Potential Relevance to Antidepressant Drug Screening and Modeling Human Toxidromes. *Neurotoxicol Teratol*. 62: 27-33.
- Dirgayunita, A. 2016. Depresi: Ciri, Penyebab dan Penangannya. *Jurnal An-Nafs: Kajian Penelitian Psikologi*. 1(1): 1-14.
- Dziurkowska, E., Mesolowski, M. 2021. Cortisol as a Biomarker of Mental Disorder Severity. *Journal of Clinical Medicine*. 10(21): 1-17.
- Eames, S.C., Philipson, L.H., Prince, V.E., Kinkel, M.D. 2010. Blood Sugar Measurement in Zebrafish Reveals Dynamic of Glucose Homeostasis. *Zebrafish*. 7(2): 205-213.
- Egan, R.J., Bergner, C.L., Hart, P.C., Cachat, J.M., Canavello, P.R., Elegente, M.F., Elkhayat, S.I., Bartels, B.K., Tien, A.K., Tien, D.H., Mohnot, S., Beeson, E., Glasgow, E., Amri, H., Zukowska, Z., Kauleff, A.V. 2009. Understanding Behavioral and Physiological Phenotypes of Stress and Anxiety in Zebrafish. *Behavioural Brain Research*. 205(1): 38-44.
- Fang, L., Liu, C., Miller, Y.I. 2014. Zebrafish Models of Dyslipidemia: Relevance to Atherosclerosis and Angiogenesis. *Transl Res*. 163(2): 99-108.
- Faught, E., Vijayan, M. M. 2019. Postnatal Triglyceride Accumulation is Regulated by Mineralocorticoid Receptor Activation under Basal and Stress Conditions. *J Physiol*. 597(19): 4927-4941.
- Gohlen, B., Mehla, J., Gupta, P. 2018. *Clitoria ternatea* Linn: A Herb with Potential Pharmacological Activities: Future Prospects as Therapeutic Herbal Medicine. *J. Pharma Reports*. 3(1): 1-8.
- Han, A. L. 2022. Association Between Lipid Ratio and Depression: A Cross-Sectional Study. *Sci Rep*. 12(1): 1-8.
- Howe, K., et al. 2013. The zebrafish reference genome sequence and its relationship to the human genome. *Nature*. 496(7446): 498-503.
- Huang, Y., Xu, P., Fu, X., Ren, Z., Cheng, J., Lin, Z., ... & Gao, Y. 2021. The effect of triglycerides in the associations between physical activity, sedentary behavior and depression: an interaction and mediation analysis. *Journal of affective disorders*. 295: 1377-1385.
- Iqbal, T., Elahi, A., Wijns, W., Shahzad, A. 2023. Cortisol detection methods for stress monitoring in connected health. *Health Sciences Review*. 6: 100079.
- Jeyaraj, E.J., Lim, Y.Y., Choo, W.S. 2021. Extraction methods of butterfly pea (*Clitoria ternatea*) flower and biological activities of its phytochemicals. *J. Food Sci. Technol*. 58: 2054–2067.
- Ka, J., Jin, S.W. 2021. Zebrafish as an Emerging Model for Dyslipidemia and Associated Diseases. *J Lipid Atheroscler*. 10(1): 42-56.



- Kalueff, A., Echevarria, D., and Stewart, A. 2014. Gaining translational momentum: more zebrafish models for neuroscience research. *Prog Neuropsychopharmacol Biol Psychiatry*. 55:1–6.
- Kalueff, A.V., Stewart, A.M., and Gerlai, R. 2014. Zebrafish as a new emerging model for studying complex brain disorders. *Trends Pharmacol Sci*. 35 (2): 63-75.
- Karstens, A.J., Korzun, I., Avery, E.T., Kassel, M.T., Keelan, R., Kales, H., Abercrombie, H., Eisenlohr-Moul, T., Langenecker, S.A., Weisenbach, S. 2019. Examining HPA-axis functioning as a mediator of the relationship between depression and cognition across the adult lifespan. *Neuropsychol Dev Cogn B Aging Neuropsychol Cogn*. 26(4): 507-520.
- Karuppiyah, V., Fengli Zhang dan Zhiyong Li. 2015. Chapter 13: Natural Products with Anticancer Activity from Marine Fungi: 253-267. *Hanbook of Anticancer Drugs from Marine Origin*. Springer International Publishing. Switzerland
- Kementrian Kesehatan Republik Indonesia. 2023. *Infodatin: Situasi Kesehatan Jiwa*. Jakarta: Pusat Data dan Informasi Kesehatan RI.
- Kennedy, S. H. 2013. A Review of Antidepressant Therapy in Primary Care: Current Practices and Future Directions. *Prim Care Companion CNS Disord*. 15(2): 1-10.
- Kessler, R. C., Bromet, E. J. 2013. The Epidemiology of Depression Across Cultures. *Annual Review of Public Health*. 34: 119-138.
- Khushboo, S. B. 2017. Antidepressants: Mechanism of Action, Toxicity and Possible Amelioration. *Journal of Applied Biotechnology & Bioengineering*. 3(5): 437-448.
- Lachowicz, J., Niedzialek, K., Ewelina, R., Aleksandra, S., Katarzyna, S., Jaroslaw, S., and Anna, S. 2021. Zebrafish as an Animal Model for Testing Agents with Antidepressant Potential. *Journal Life*. 11 (792): 1-19.
- Lawrence, Christian. 2007. The Husbandry of Zebrafish (*Danio rerio*): A Review. *Aquaculture*. 269: 1-20.
- Lely, N., Rasyad, A.A., & Sundari, A.A., 2023. Uji Aktivitas Antidepresan Fraksi Etil Asetat Ekstrak Daun Sirih Merah (*Piper crocatum* Ruiz & Pav.) Terhadap Mencit Putih Jantan Galur Swiss Webster. *Jurnal Ilmiah Bakti Farmasi*. 7(2): 15-24.
- Lopresti, A.L., Smith, S.J., Drummond, P.D. 2022. Modulation of The Hypothalamic-Pituitary-Adrenal (HPA) Axis by Plants and Phytonutrients: A Systematic Review of Human Trials. *Nutr Neurosci*. 25(8): 1704-1730.
- Lu, Z., Li, Y., Syn, W.K., Wang, Z., Lopes-Virella, M.F., Lyons, T.J., Huang, Y. 2020. Amitriptyline Inhibits Nonalcoholic Steatohepatitis and Atherosclerosis Induced by High-Fat Diet and

LPS Through Modulation of Sphingolipid Metabolism. *Am J Physiol Endocrinol Metab.* 318(2): 131-144

- Lüffe, T.M., D'Orazio, A., Bauer, M. 2021. Increased locomotor activity via regulation of GABAergic signalling in *foxp2* mutant zebrafish-implications for neurodevelopmental disorders. *Transl Psychiatry.* 11(1):529.
- Macrí S., Neri D., Ruberto T., Mwaffo V., Butail S., Porfiri, M. 2017. Three-dimensional scoring of zebrafish behavior unveils biological phenomena hidden by two-dimensional analyses. *Sci. Rep.* 7:1962
- Magno, L.D., Fontes, A., Gonçalves, B.M., Gouveia, A., J. 2015. Pharmacological study of the light/dark preference test in zebrafish (*Danio rerio*): Waterborne administration. *Pharmacol. Biochem. Behav.* 135:169–176.
- Maharani, G., dan Hidayaturrahmah. 2020. Analisis Profil Lipid Ikan Gelodok (*Periophthalmodon schlosseri*) di Desa Tanipah dan Desa Kuala Lupak Kalimantan Selatan. *Jurnal Pharmascience.* 7(2): 89-98.
- Malhi, G. S., Mann, J. J. 2018. Depression. *Lancet.* 392(10161): 2299-2312.
- Manjula, P. 2013. Phytochemical Analysis of *Clitoria ternatea* a Valuable Medicinal Plant. *Journal of The Indian Botanical Society.* 92(374): 173-178.
- Marcon, M., Mocelin, R., Benvenuti, R., Tales, C., Ana, P.H., Diogo, L.O., Gessi, K., Leonardo, J.G.B., Angelo, P. 2018. Environmental Enrichment Modulates the Response to Chronic Stress in Zebrafish. *Journal of Experimental Biology.* 221(4): 1-7.
- Martinez, D.A.E., Alcaide., Martín, M.J., González-Gross, M. 2022. Basal Values of Biochemical and Hematological Parameters in Elite Athletes. *Int J Environ Res Public Health.* 19(5): 1-15.
- Maximino, C., Brito, T.M., Silva, B.A.W., Herculano, A.M., Morato, S., Gouveia, A. 2010. Measuring Anxiety in Zebrafish: A Critical Review. *Behavior Brain Research.* 214: 157-171.
- Meshalkina, D.A., Kysil, E.V., Antonova, K.A., Demin, K.A., Kolesnikova, T.O., Khatsko, S.L., Gainetdinov, R.R., Alekseeva, P.A., Kalueff, A.V. 2018. The Effects of Chronic Amitriptyline on Zebrafish Behavior and Monoamine Neurochemistry. *Neurochem Res.* 43(6): 1191-1199
- Miller, A. H., Maletic, V., Raison, C. L. 2009. Inflammation and its discontents: the role of cytokines in the pathophysiology of major depression. *Biological psychiatry.* 65(9): 732-741.



- Mohammadi, F., Zahraee, H., Kazemi, M. I., Habibi, Z. S., Taghdisi, S. M., Abnous, K., Chen, C. H. 2023. Recent advances in aptamer-based platforms for cortisol hormone monitoring. *Talanta*. 125010.
- Mukherjee, P.K., Kumar, V., Kumar, N.S., Heinrich, M. 2008. The Ayurvedic medicine *Clitoria ternatea*—From traditional use to scientific assessment. *J. Ethnopharmacol.* 120: 291–301.
- Nachammai, V., Jeyabalan, S., Muthusamy, S. 2021. Anxiolytic Effects of Silibinin and Naringenin on Zebrafish Model: A Preclinical Study. *Indian Journal of Pharmacology.* 53(6): 457-464.
- Nam, Y., Lim, C.H., Lee, S.H., Chung, S.J., Chung, Y.H., Shin, Y.K., Kim, M.G., Sohn, U.D., Kim, H.C., Jeong, J.H. 2015. Single-dose, Randomized, Open-label, 2-way Crossover Study of The Pharmacokinetics of Amitriptyline Hydrochloride 10- and 25-mg Tablet in Healthy Male Korean Volunteers. *Clinical Therapeutics.* 37(2): 302-310.
- Ngadni, M.A., Akhtar, M.T., Ismail, I.S., Norazhar, A.I., Lee, S.Y., Maulidiani, M., Shaari, K. 2021. Cloriorienolactones and Isoflavonoids of *Clitoria ternatea* Roots Alleviate Stress-Like Symptoms in a Reserpine-Induced Zebrafish Model. *Molecules.* 26(14): 4137
- Nguyen, M., Stewart, A.M., and Allan, V.K. 2014. Aquatic blues: Modeling depression and antidepressant action in zebrafish. *Journal Progress in Neuro-Psychopharmacology & Biological Psychiatry.* 55: 26–39.
- Niadi, A. T., Dewi, M. K., Harun, Y. Z. 2022. Uji Aktivitas Senyawa Aktif Kunyit (*Curcuma Longa* L.) sebagai Kandidat Antidepresan dengan Metode In Silico. *In Bandung Conference Series: Medical Science.* 2(1): 646-652.
- Oguis, G.K., Gilding, E.K., Jackson, M.A., and Craik, D.J. 2019. Butterfly Pea (*Clitoria ternatea*), a Cyclotide-Bearing Plant with Applications in Agriculture and Medicine. *Front. Plant Sci.* 10 (645): 1-23.
- Patra, B.N., Khandelwal, S.K., Chadda, R.K., & Ramakrishnan, L. 2014. A Controlled Study of Serum Lipid Profiles in Indian Patients with Depressive Episode. *Indian Journal of Psychological Medicine.* 36(2): 129-133.
- Pedroso, G.L., Hammes, T.O., Escobar, T.D., Frasco, L.B., Forgiarini, L.F., Da Silveira, T.R. 2012. Blood Collection for Biochemical Analysis in Adult Zebrafish. *Journal of Visualized Experiments.* 63: 1-3.
- Pradeep, P. M., & Das, S. C. 2014. Protective Effects of *Clitoria ternatea* Extract in Chronic Stress-Induced Behavioral and Biochemical Alterations in Mice. *Journal of Ethnopharmacology.* 155(3): 1490-1496.



- Rai, K. S., *et al.* 2012. Antidepressant activity of *Clitoria ternatea* in animal models. *Journal of Ethnopharmacology*. 136(3): 497-501.
- Ramsay, J.M., Feista, G.W., Vargab, Z.M., Westerfiel, M., Kent, M., and Schrecka, C.B. 2006. Whole-body cortisol is an Indicator of Crowding Stress in Adult Zebrafish, *Danio rerio*. *Aquaculture*. 258: 565-574.
- Ramsay, J.M., Feista, G.W., Vargab, Z.M., Westerfiel, M., Kent, M., and Schrecka, C.B. 2009. Whole-body cortisol response of zebrafish to acute net handling stress. *Aquaculture*. 297(14): 157–162.
- Rani, R., Reddy, A.G., Chidrawar, V.R. 2023. *Clitoria ternatea* and its significance in psychopharmacology. *Indian Journal of Natural Products and Resources*. 14(1): 23–28.
- Romero, C.C., Calvo, E., Sánchez-Chaparro, M.A., Valdivielso, P., Sainz, J.C., Cabrera, M., González-Quintela, A., Román, J. 2013. The relationship between job stress and dyslipidemia. *Scand J Public Health*. 41(2): 142
- Rota, E., Broda, R., Cangemi, L., Migliaretti, G., Paccotti, P., Rosso, C., Torre, E., Zeppego, P., Portaleone, P. 2005. Neuroendocrine (HPA axis) and Clinical Correlates during Fluvoxamine and Amitriptyline Treatment. *J Psychiatry*. 2(133): 281-284.
- Rukmana, A., Supardi, L.A., Sjatha, F., and Nurfadilah, M. 2022. Responses of Humoral and Cellular Immune Mediators in BALB/c Mice to LipX (PE11) as Seed Tuberculosis Vaccine Candidates. *Genes (Basel)*. 13(1954): 1-10.
- Russo, C., Maugeri, A., Musumeci, L., Sarro, G.D., Cirimi, S., Michele, N. 2023. Inflammation and Obesity: The Pharmacological Role of Flavonoids in The Zebrafish Model. *Int J Mol Sci*. 24(3).
- Santoriello, C., Zon, L. I. 2012. Hooked! Modeling human disease in zebrafish. *Journal of Clinical Investigation*. 122(7): 2337-2343.
- Sarvaiya, J., and Goswami, S.S. 2016. Pharmacological Profile of Some Medicinal Plants with Antidepressant Activity. *International Journal of Pharmaceutical Sciences and Research*. 7(2): 405-415.
- Siregar, P. A., Diwanta, F., Marwa, N. A., Purba, E. Y. 2023. KONSEP EPIDEMIOLOGI TERJADINYA DEPRESI DI INDONESIA. *Jurnal Kesehatan*. 1(1): 60-73.
- Srichaikul, B. 2018. Ultrasonication extraction, bioactivity, antioxidant activity, total flavonoid, total phenolic and antioxidant of *Clitoria ternatea* linn flower extract for anti-aging drinks. *Pharmacogn. Mag*. 14: 322.
- Suarna, I.W., Wijaya, I.M.S. 2021. Butterfly Pea (*Clitoria ternatea* L.: Fabaceae) Morphological Variations in Bali. *Journal of Tropical Biodiversity and Biotechnology*. 6(2): 1-12.



- Suhadia, M. H. V. P., Luthfiyyah, S., Tika, D. B. D. R. M., Amanu, A. P. 2023. EFEK PEMBERIAN AIR REBUSAN DAUN SIRSAK (*Annona muricata* L.) TERHADAP HORMON KORTISOL PADA MENCIT YANG DIINDUKSI DEPRESI. *Borneo Journal of Biology Education (BJBE)*. 5(1): 1-10.
- Stewart, A., & Kalueff, A. V. 2015. The Behavioral Effects of Acute Doxorubicin Exposure in Adult Zebrafish. *Behavioural Pharmacology*. 26(7): 655-661
- Stewart, A., Wu, N., Cachat, J., Hart, P., Gaikwad, S., Wong, K., Utterback, E., Gilder, T., Kyzar, E., Newman, A., Carlos, D., Chang, K., Hook, M., Rhymes, C., Caffery, M., Greenberg, M., Zadina, J., Kalueff, A.V. 2011. Pharmacological Modulation of Anxiety-like Phenotypes in Adult Zebrafish Behavioral Models. *Prog Neuropsychopharmacol Biol Psychiatry*. 35(6): 1421
- Tafet, G. E., Nemeroff, C. B. 2016. The links between stress and depression: psychoneuroendocrinological, genetic, and environmental interactions. *The Journal of neuropsychiatry and clinical neurosciences*. 28(2): 77-88.
- Tanwi Priya, T. P., Shashank Maurya, S. M., Khan, K. H. 2013. *Cholesterol: genetic, clinical and natural implications*.
- Teame, T., Zhang, Z., Ran, C., Zhang, H., Yang, Y., Ding, Q., Xie, M., Gao, C., Ye, Y., Duan, M., Zhou, Z. 2019. The use of zebrafish (*Danio rerio*) as biomedical models. *Anim Front*. 9(3): 68-77.
- Tekle, E., Gelaw, Y., Asrie, F. 2022. Hematological Profile Changes Among Oral Contraceptive Users: A Narrative Review. *J Blood Med*. 13: 525-536.
- Tengguna, L., & Andri, A. 2015. Depresi dan Penyakit Jantung. *Cermin Dunia Kedokteran*. 42(2): 401333.
- Thour, A., Marwaha, R. 2023. *Amitriptyline*. Treasure Island (FL): StatPearls Publishing
- Wang, Y., Liu, T., Xie, Y., Li, N., Liu, Y., Wen, J., Zhang, M., Feng, W., Huang, J., Guo, Y., Kabbas, J.T., Wang, D., Granato, D. 2022. *Clitoria ternatea* Blue Petal Extract Protects Against Obesity, Oxidative Stres, and Inflammation Induced by a High-Fat, High-Fructose Diet in C57BL/6 mice. *Food Res Int*. 162.
- World Health Organization. 2020. *Depression and Other Common Mental Disorders: Global Health Estimates*.
- Wysokiński, A., Strzelecki, D., Kłoszewska, I. 2015. Levels of triglycerides, cholesterol, LDL, HDL and glucose in patients with schizophrenia, unipolar depression and bipolar disorder. Diabetes Metabolic Syndrome. *Clinical Research*. 9(3): 168-176.



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- Yatham, L.N., Arumugham, S.S., Kesavan, M., Ramachandran, K., Murthy, N.S., Saraf, G., Ouyang, Y., Bond, D.J., Schaffer, A., Ravindran, A., Ravindran, N., Frey, B.N., Daigneault, A., Beaulieu, S., Lam, R.W., Kondapuram, N., Reddy, M.S., Bhandary, R.P., Ashok, M.V., Ha, K., Ahn, Y.M., Milev, R., Wong, H., Reddy, Y.C.J. 2023. Duration of Adjunctive Antidepressant Maintenance in Bipolar I Depression. *N Engl J Med.* 389(5): 430-440.
- Zian, N.F.A.M., Swain, P., Faudzi, S.M.M., Zakaria, N., Ibrahim, W.N.W., Bakar, N.A., Shaari, K., Stanslas, J., Choi, T.I., & Kim, C.H. 2022. Mapping Molecular Networks within *Clitoria ternatea* Linn. Against LPS-Induced Neuroinflammation in Microglial Cells, with Molecular Docking and In Vivo Toxicity Assesment in Zebrafish. *Journals Pharmaceuticals.* 15(4): 467.
- Zhang, C., Yang, Y., Zhu, D. M., Zhao, W., Zhang, Y., Zhang, B., Yu, Y. 2020. Neural correlates of the association between depression and high density lipoprotein cholesterol change. *Journal of psychiatric research.* 130: 9-18.