



DAFTAR PUSTAKA

- Bhattacharjee, R. & Sil, P. C., 2007, Protein isolate from the herb, *Phyllanthus niruri* L. (Euphorbiaceae), plays hepatoprotective role against carbon tetrachloride induced liver damage via its antioxidant properties, *Food and Chemical Toxicology*, **45**, 817–826.
- Cairns, D., 2008, *Essentials of Pharmaceutical Chemistry*, diterjemahkan oleh Rini Maya, Edisi 2, 108-110, EGC, Jakarta.
- Cao, G., Sofic, E., Prior, R. L., 1997, Antioxidant and prooxidant behavior of flavonoids: structure-activity relationships, *Free Radicals in Biology and Medicine*, **22**, 749–760.
- Cao, L., Ding, W., Du, J., Jia, R., Liu, Y., Zhao, C., Shen, Y., Yin, G., 2015, Effects of curcumin on antioxidative activities and cytokine production in Jian carp (*Cyprinus carpio* var. Jian) with CCl₄-induced liver damage, *Fish & Shellfish Immunology*, **43**, 150-157.
- Cerny, D., Lekic, N., Vanova, K., Muchova, L., Horinek, A., Kmonickova, E., Zídek, Z., Kamenikova, L., Farghali H., 2011, Hepatoprotective effect of curcumin in lipopolysaccharide/D-galactosamine model of liver injury in rats: Relationship to HO-1/CO antioxidant system, *Fitoterapia*, **82**, 786–791.
- Clearwae, W., S. Anuchapreeda, K. Nandigama, S. V. Ambudkar, P. Limtrakul, 2004, Biochemical Mechanism of Modulation of Human P-glycoprotein (ABCB1) by Curcumin I, II, and III Purified from Turmeric Powder, *Biochemical Pharmacology*, **68**, 2043-2052.
- Chun, L. J., Thong, M. J., Ronald, W., Busuttil, Hiatt, J. R., 2009, Acetaminophen Hepatotoxicity and acute Liver Failure, *Journal of Clinical Gastroenterology*, **43**, 342-349.
- Dalimarta, S., 1998, *Ramuan Tradisional untuk Pengobatan Hepatitis*, PT Penebar Swadaya, Anggota ikapi, Jakarta.
- Davern, T. J., 2012, Drug-induced liver, *Clinic in Liver Disease*, **16**, 231-245.
- Depkes RI, 1995, *Farmakope Indonesia*, edisi IV, 649, Departemen Kesehatan Republik Indonesia, Jakarta.
- Depkes RI, 2000, *Pedoman Pelaksanaan Uji Klinik Obat Tradisional*, 8-12, Departemen Kesehatan Republik Indonesia, Jakarta.



Depkes RI, 2008, *Farmakope Herbal Indonesia*, edisi 1, 73-77, 97-101, Departemen Kesehatan Republik Indonesia, Jakarta.

Devaraj, V. C., Krishna, B. G., Viswanatha, G. L., Kamath, J. V., Kumar, S., 2011, Hepatoprotective activity of Hepax-A polyherbal formulation, *Asian Pacific Journal Tropical Biomedicine*, **1**, 142-146.

Donatus, I. A., 1994, Antaraksi Kurkumin dengan Parasetamol: Kajian terhadap Aspek Farmakologi dan Toksikologi Perubahan Hayati Parasetamol, *Disertasi*, Fakultas Farmasi, Universitas Gadjah Mada, Yogyakarta.

Dufour D. R., 2008, Liver Disease, in Burtis, C. A., Ashwood, E. R., Bruns, D. E. (Ed.), *Tietz Textbook of Clinical Chemistry and Molecular Diagnostics*, 6th Ed., 675-693, Elsevier, USA.

Goenarwo, E., Chodidjah, Alimi, M. S., Primanandika, W., Muttaqien, A., 2009, Pengaruh Air Perasan Kunyit terhadap Kadar Serum Glutamic Oxaloacetic Transaminase (SGOT), Serum Glutamic Pyruvic Transaminase (SGPT), dan Bilirubin Total Serum Studi Eksperimental pada Tikus yang Diinduksi Parasetamol, *Sains Medika*, **1** (1), 16-23.

Goldfrank, L. R., Flomenbaum, N. E., Hoffman, R. S., Howland, M. A., Lewin, N. A., Nelson, L. S., 2006, *Goldfrank's Toxicologic Emergencies*, 8th Ed., 93-114,291, Mc Graw-Hill, New York.

Grasso, P., 2002, *Essentials of Pathology for Toxicologist*, 53-54, Taylor & Francis Group, New York.

Gritter, Bobbitt, Schwarting, 1985, *Introduction to Chromatography*, diterjemahkan oleh Kosasih Padmawinata, 107-116, Penerbit ITB, Bandung.

Guzy, J., Zuzana C. Z., Mareková, M., Zenobia C. Z., Tomečková, V., Mojžízová, G., Jaroslav, K. J., 2004, Effect of quercetin on paracetamol-induced rat liver mitochondria dysfunction, *Biologia Bratislava*, **59** (3), 399-403.

Halliwell, B., Gutteridge, J. M., Cross, C. E., 1992, Free radicals, antioxidants, and human disease: where are we now?, *Journal of Laboratory and Clinical Medicine*, **119**, 598–620.

Halliwell, B. & Gutteridge, J.M.C., 2000, *Free Radicals in Biology and Medicine* Oxford University Press, 148–149.

Harish, R. & Shivanandappa, T., 2006, Antioxidant activity and hepatoprotective potential of *Phyllanthus niruri*, *Food Chemistry*, **95**, 180–185.



Hartono, Nurwati, I., Ikasari, F., Wirianto, 2005, Pengaruh Ekstrak Rimpang Kunyit (Curcuma domesticaVal.) terhadap Peningkatan Kadar SGOT dan SGPT Tikus Putih (Rattus norvegicus) akibat Pemberian Asetaminofen, *Jurnal Biofarmasi*, **3** (2), 57-60.

Hascheck, W. M., Wallig, M. A., Rousseaux, C., 2010, *Fundamentals of Toxicologic Pathology*, 2 nd Ed., 197-230, Elsevier Inc., London.

Heijnen, C. G., Haenen, G. R. M. M., Oostveen, R. M., Stalpers, E. M., Bast, A., 2002, Protection of flavonoids against lipid peroxidation: The structure activity relationship revisited, *Free Radical Research*, **36**, 575–581.

Hertiani, T., 2012, Parameter spesifik dalam Hertiani, T., Pramono, S., Mulyani, S. (Ed.), *Bahan Ajar Galenika*, Fakultas Farmasi, Universitas Gadjah Mada, Yogyakarta.

Hinson, J. A., Roberts, D. W., James, L. P., 2010, Mechanism of Acetaminophen Induced Liver Necrosis, *Handbook Experimental Pharmacology*, **196**, 369-405.

Hoffmann, D., 2003, *Medical Herbalism: The Science and Practice of Herbal Medicine*, 101-103, Inner Traditions/Bear & Co, Britain.

Husadha, Y., 1996, Fisiologi dan Pemeriksaan Biokimiawi Hepar, dalam Noer, H.M.S., (Ed.), *Ilmu Penyakit Dalam*, Jilid I ED. III, Balai Penerbitan FKUI, Jakarta.

Ikawati, Z., 2010, *Cerdas Mengenali Obat*, Cetakan I, 26-30, Penerbit Kanisius, Yogyakarta.

Jayaprakasha, G. K., Jagannathan L., Sakariah, K. K., 2005, Chemistry and Biological Activities of *C. longa*, *Trends in Food Science and Technology*, **16**, 533-548.

Jovanovic, S. V., Boone, C. W., Steenken, S., Trinoga, M., Kasley, 2001, How curcumin Works Preferentially with Water Soluble Antioxidant Activity of the Vitamer Fraction in rice Bran, *Journal of Food Science*, **70** (3), 208-213.

Junieva, P. N. & Yazid N. A. D., 2006, *Pengaruh Pemberian Ekstrak Meniran (Phyllanthus sp.) terhadap Gambaran Mikroskopik Paru Tikus Wistar yang Diinduksi Karbon Tetraklorida*, Fakultas Kedokteran, Universitas Diponegoro, Semarang.

Junqueira, L. C. & Carnerio J., 1980, *Basic Histology*, Edisi Ketiga, diterjemahkan oleh Adji Darma, 342–346, Penerbit Buku Kedokteran EGC, Jakarta.



Junqueira, L. C., Carnerio, J., Robert O. K., 1995, *Basic Histology*, Edisi Kedelapan, diterjemahkan oleh Dr. Jan Tambayong, 352–353, Penerbit Buku Kedokteran EGC, Jakarta.

Krithika, R., Mohankumar, R., Verma, R. J., Shrivastav, P. S., Mohamad, I. L., Gunasekaran, P., 2009, Isolation, characterization and antioxidative effect of phyllanthin against CCl₄-induced toxicity in HepG2 cell line, *Journal of the International Chemical Biology Society*, **181**, 351-358.

Limantara, L., & Rahayu, P., 2008, Sains dan Teknologi Pigmen Alami, Prosing Sains dan Teknologi Pigmen Alami, Seminar Nasional Pigmen 2008 – Hotel Grand Wahid Salatiga, 5 September 2008.

Lingappa, V. R., 1995, Liver Disease, in McPhee, S. J., Lingappa, V. R., Ganong, W. F., Lange, J. D., *Pathophysiology of Disease, An Introduction to Clinical Medicine*, 1st edition, 327-361, Prentice-Hall International Inc., New York.

Lu, F. C., 1991, *Basic Toxicology: Fundamentals, Target Organs, and Risk Assessment*, diterjemahkan oleh Nugroho, E., 206-216, UI Press, Jakarta.

Lukitaningsih, E., & Sudarmanto, A., 2013, *Petunjuk Praktikum Kromatografi*, Fakultas Farmasi, Universitas Gadjah Mada, Yogyakarta.

Maheswari, R. K., Singh, A. K., Gaddipati, J., Srimal, R. C., 2006, Multiple biological activities of curcumin: a short review, *Life Science*, **78**, 2081–2087.

Makoshi, M. S., Adanyeguh, M. I., Nwatu, L. I., 2013, Hepatoprotective effect of *Phyllanthus niruri* aqueous extract in acetaminophen sub-acute exposure rabbits, *Journal of Veterinary Medicine and Animal Health*, 5 (1), 8-15.

Mangunwardoyo, W., Cahyaningsih, E., Usia, T., 2009, Ekstraksi dan Identifikasi Senyawa Antimikroba Herba Meniran (*Phyllanthus niruri L.*), *Jurnal Ilmu Kefarmasian Indonesia*, **7** (2), 57-63.

Markham, K. R., 1988, *Cara Mengidentifikasi Flavonoid*, diterjemahkan oleh K. Radmawinata, Penerbit ITB, Bandung.

Meister, A., 1995, Mitochondrial changes associated with glutathione deficiency, *Biochimica et Biophysica Acta*, **1271** (1), 35-42.

Moridani, M. Y., Pourahmad, J., Bui, H., Siraki, A., O'Brien, P. J., 2003, Dietary flavonoid iron complexes as cytoprotective superoxide radical scavengers. *Free Radicals in Biology and Medicine*, **34**, 243–253.



Mutschler, E., 1991, *Dinamika Obat*, diterjemahkan oleh Mathilda & Anna, Edisi 5, 177-201, ITB Press, Bandung.

Myhrstad, M. C., Carlsen, H., Nordstrom, O., Blomhoff, R., Moskaug, J. J., 2002, Flavonoids increase the intracellular glutathione level by transactivation of the gamma-glutamylcysteine synthetase catalytical subunit promoter, *Free Radicals in Biology and Medicine*, **32**, 386–393.

Nelson, S. D., 1995, Mechanisms of the Formation and Disposition of Reactive Metabolites that Can Cause Acute Liver Injury. *Drug Metabolism Review*, **27**, 147-177.

Noer, H. M. S., 1987, Fisiologi dan Biokimiawi Hepar, dalam Soeparman (Ed.), *Ilmu Penyakit Dalam*, Jilid I Ed. II, 541-546, Balai Penerbitan FKUI, Jakarta.

Novianto, A., 2014, Studi Mekanisme Hepatoprotektif Ekstrak Kunyit (*Curcuma domestica Val.*) dan Ekstrak Meniran (*Phyllanthus niruri Linn.*) pada Tikus yang Diinduksi Parasetamol, *Tesis*, Fakultas Farmasi, Universitas Gadjah Mada, Yogyakarta.

Nurrochmad, A. & Murwanti, R., 2000, Efek hepatoprotektif ekstrak alkohol rimpang temu putih (*Curcuma zedoaria Rosc.*) pada tikus putih jantan, *Pharmacon*, **1** (1), 31-36.

Orsolic, N., Knezevic, A. H., Sver, L., Terzic, S., Basic, I., 2004, Immunomodulatory and antimetastatic action of propolis and related polyphenolic compounds, *Journal of Ethnopharmacology*, **94**, 307–315.

Padua L. S., Bunyapraphatsara N., Lemmens R. H. M. J., 1999, Medicinal and poisonous plants 1, *PROSEA*, **12**, 210-219.

Padma, P. & Setty, O. H., 1999, Protective effect of *Phyllanthus* against CCl_4 -induced mitochondrial dysfunction, *Life Science*, **64**, 2411–2417.

Pinzanie, M., Marra, F., Carloni, V., 1998, Signal transduction in hepatic stellate cells, *Liver*, **18**, 2–13.

Price, S. A. & Wilson, L. M., 1992, *Pathophysiology, Clinical Concepts of Disease Processes*, diterjemahkan oleh Peter anugerah, edisi 4, buku 1, 27-30, 92-94, Penerbit Buku Kedokteran EGC, Jakarta.

Purba, E. R., & Martosupono, M., 2009, Kurkumin sebagai Senyawa Antioksidan, *Prosiding Seminar Sains dan Pendidikan Sains*, **IV** (3), 607-621.



- Rachmawati, H., Hartiadi, R. L. Y., Fidrianny, I., Adnyana, I. K., 2013, Hepatoprotective Activity of Saponin Fraction of Oyong Seed Flesh and Its Combination Against CCl₄-Induced Chronic Liver Damage in Male Wistar Rat, *Indonesian Journal of Pharmacology*, **24** (3), 177 – 185.
- Ram, V. J., 2001, Herbal Preparations as a Source of Hepatoprotective agents, *Drug news Perspect*, **14**, 353.
- Ramadori, G. & Armbrust, T., 2001, Cytokines in the liver, *European Journal of Gastroenterology & Hepatology*, **13**, 777–784.
- Ressang, A. A., 1984, *Buku Pelajaran Patologi Khusus Veteriner*, Edisi II, 237-248, Bali Cattle Disease Investigation Unit, Denpasar.
- Reyes-Gordillo, K., Segovia, J., Shibayama, M., Vergara, P., Morenoa, M. G., Muriel, P., 2007, Curcumin protects against acute liver damage in the rat by inhibiting NF-κB, proinflammatory cytokines production and oxidative stress, *Biochimica et Biophysica Acta*, **1770**, 989–996.
- Sabir, S. M. & Rocha, J. B. T., 2008, Water-extractable phytochemicals from *Phyllanthus niruri* exhibit distinct in vitro antioxidant and in vivo hepatoprotective activity against paracetamol-induced liver damage in mice, *Food Chemistry*, **111**, 845–851.
- Santosa, S., 2004, *SPSS Versi 10 Mengolah data Statistik secara Profesional*, 220-230, 261-275, 379-459, 401-408, Elex, Media Komputindo, Jakarta.
- Sarkar, M.K. & Sil, P.C., 2007, Hepatocytes are protected by herb *Phyllanthus niruri* protein isolate against thioacetamide toxicity, *Pathophysiology*, **14**, 113–120.
- Sattler, S., Saffrane, L., Farmer, E., Krischke, M., Mueller, M. J., Penna, D., 2006, Nonenzymatic Lipid Peroxidation Reprograms Gene Expression and Activates Defense Markers in Arabidopsis Tocopherol-Deficient Mutants, *The Plant Cell*, **18**, 3706-3720.
- Sebastian, T. & Setty, O.H., 1999, Protective effect of *Phyllanthus* against ethanol-induced mitochondrial dysfunction, *Alcohol*, **17**, 29–34.
- Shamasundar, K. V., Singh, B., Thakur, R. S., Hussain, A., Kiso, Y., & Hikino, H., 1985, Antihepatotoxic principles of *Phyllanthus niruri* herbs, *Journal of Ethnopharmacology*, **14** (1), 41–44.
- Singh, S. V., Hu, X., Srivastava, S. K., Singh, M., Xia, H., Orchard, J. L., Zaren, H. A., 1998, Mechanism of inhibition of benzo[a]pyreneinduced forestomach cancer in mice by dietary curcumin, *Carcinogenesis*, **19** (8), 1357-60.



- Somchit, M. N., Zuraini, A., Bustaman, A. A., Somchit, N., Sulaiman, N. R., Norantulina, R., 2005, Protective activity of turmeric (Curcuma longa) in Paracetamol induced Hepatotoxicity in Rats, *International Journal of Pharmacology*, **1** (3), 252-256.
- Sreejayan, N. & Rao, M. N. A., 1994, Curcuminoids as potent inhibitors of lipid peroxidation, *The Journal of Pharmacy and Pharmacology*, **46**, 1013–1016.
- Stockham, S. L. & Scott, M. A., 2002, *Fundamentals of Veterinary Clinical Pathology*, 1st Ed., State Pr. Blackwell Publishing Co., Iowa.
- Stoner, G.D. & H. Mukhtar, 1995, *Polyphenols as Cancer Chemopreventive Agents_A Review*, www.teahealth.co.uk/cgi_gen/reslib/0000000030.htm.
- Suyatna, F. D., Syamsudin, Ganiswara S., Sadikin M., 2006, Efek Kurkumin terhadap Aktivitas Enzim Glutation Peroksidase Mitokondria Hepar Tikus yang Diinduksi dengan Butilhidroperoksida-tersier, *Jurnal Universitas Indonesia*, 1-5.
- Thippeswamy, A. H. M., Shirodkar, A., Koti, B.C., Sadiq, A. J., Praveen D. M., Viswanatha S. A. H. M., Patil, M., 2011, Protective role of *Phyllanthus niruri* extract in doxorubicin-induced myocardial toxicity in rats, *Indian Journal of Pharmacology*, **43** (1), 31–35.
- Unander, D. W., Webster, G. L., Blumberg, B. S., 1995, Usage and bioassays in *Phyllanthus* (Euphorbiaceae), IV, Clustering of antiviral uses and other effects, *Journal of Ethnopharmacology*, **45**, 1–18.
- Underwood, J. C., 1996, *General and Systematic Pathology*, diterjemahkan oleh Sardjadi, Edisi 2 Vol 1, 6, 119-120, Penerbit Buku Kedokteran EGC, Jakarta.
- Venkateswaran, P. S., Millman, I., Blumberg, B. S., 1987, Effects of an extract from *Phyllanthus niruri* on hepatitis B and woodchuck hepatitis viruses: in vitro and in vivo studies, *Proceedings of the National Academy of Sciences USA*, **84**, 274–278.
- Wei, Y. H., 1998, Oxidative stress and mitochondrial DNA mutations in human aging, *Proceedings of the Society for Experimental Biology and Medicine*, **217**, 53–63.
- Willard, M.D. & Tvedten, H., 1999, *Small Animal Clinical Diagnosis By Laboratory Methods*, 4th Ed., 235-238, Saunders, Sweeden.



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EFEK HEPATOPROTEKTIF SEDIAAN YANG BERISI CAMPURAN EKSTRAK KUNYIT (*Curcuma domestica* Val.) DAN
MENIRAN (*Phyllanthus niruri* L.) PADA TIKUS JANTAN WISTAR TERINDUKSI PARACETAMOL
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Yan, F., Zhang, Q., Jiao, L., Hana, T., Zhang, H., Qina, L., Khalid, R., 2009,
Synergistic hepatoprotective effect of Schisandralignans with Astragalus
polysaccharides on chronic liver injury in rats, dalam *Phytomedicine*, **16** (9),
805-813.

Yousef, M. I., Omar, S. A. M., El-Guendi, M. I., Abdelmegid, L. A., 2010, Potential
protective effects of quercetin and curcumin on paracetamol-induced
histological changes, oxidative stress, impaired liver and kidney functions
and haematotoxicity in rat, *Food and Chemical Toxicology*, **48**, 3246–3261.

Zimmerman, H. J., 1978, *Hepatotoxicity The Adverse Effect of Drugs and Other
Chemical on The Liver*, 46-51, 95-101, 167-197, Appleton Century, Crofts,
New York.