DAFTAR PUSTAKA

Achakzai, Abdul Kabir Khan., Palwasha Achakzai, Ayeesha Masood, Safdar Ali Kayani and Rasool Bakhsh Tareen. 2009. Respon of Plant Parts and Age on The Distribution of Secondary Metabolites on Plants Found in Quetta. *Pak. J. Bot*. Vol 41(5): 21292135.

Adibah, Alkhonsa dan Edi Dharmana. 2017. Uji Efektifitas Larvisida Rebusan Daun Sirih (*Piper betle* L.) Terhadap Larva Aedes aegypti: Studi Pada Nilai LC50, LT50, Serta Kecepatan Kematian Larva. *Jurnal Kedokteran Diponegoro*. Volume 6, Nomor 2, ISSN 2540-8844.

Adhikari, Priyanka., Anita Pandey, Vasudha Agnihotri, Veena Pande. 2018. Selection of Solvent and Extraction Method for Determination of Antimicrobial Potential of *Taxus wallichiana* Zucc. *Research in Pharmacy*. ISSN 2231-5339.

Agoes, G. 2007. *Teknologi Bahan Alam*. ITB Press Bandung.

Ajuru, Mercy Gospel. Light Femi Williams, and Gospel Ajuru. 2017. Qualitative and Quantitative Phytochemical Sceening of Some Plants Used and Ethnomedicine in the Niger Delta Region of Nigeria. *Journal of Food and Nutrition Sciences*. Vol, 5 (5): 198-205, ISSN: 2330-7285.

Amaliana, L. N. 2008. Uji Sitotoksik Ekstrak Etanol 70 % Buah Merica Hitam (*Piper nigrum* L.) terhadap Sel Hela. *Skripsi.* Fakultas Farmasi Universitas Muhammadiyah Surakarta. Surakarta.

Anwar, N.S. 2001. Manfaat obat tradisional sebagai afrodisiak serta dampak positifnya untuk menjaga stamina. *Makalah pada Seminar Setengah Hari "Menguak Manfaat Herbal bagi Vitalitas Seksual"*, Jakarta, 13 Oktober 2001. Hal. 8.

Astuti, Rodi. 2010. Pengaruh Ekstrak Daun Sirsak (*Annona muricata* L) Terhadap Mortalitas Kecoa Amerika (*Periplaneta americana*) Dewasa. *Jurnal Respotory Universitas Lampung.*

Astuti, Engrid Juni *et a*l., 2017. Steam and Water Distillation of *Piper betle, Ocimum basilium, Cymbopogo winterianus,* and *Citrus hystrix* Leaves for Activity of Insect Repellent against Mosquito. *Atlantis Press*. vol. 2.

Asprey, G. F.; Thornton, P. Medicinal Plants of Jamaica. *J. West Indies Med*. 1976, 3, 17-20.

Atal, C. K.; Dhar, K. C.; Pelter, A. Isolation and Structure Determination of (+)-Diaeudesmin, The First Naturally Occuring Diaxially Substituted, 3,7 -Dioxabicyclo[3,3,3O] OctaneL ignan. *J. Chem. SOCC*. 1967, 2228-2231.

Atmaja, Rohmat Priya. 2013. Identifikasi Golongan Senyawa Toksik Dari Ekstrak Metanolik Daun *Piper* spp. Terhadap Sel Kanker Payudara T47D. *Tesis*. Program Studi Biologi, Universitas Gadjah Mada.

Bele, Archana A. and Anibha Khale. 2011. An Overview on Thin Layer Chromatography. *IJPSR*. Vol. 2, ISSN: 0975-8232.

Bhadauria NS and Singh P. 2009. Assessment of Losses in Paddy Caused Leptocorisa varicornis. *Annals of Plant Protection Sciences*. Vol 17(1): 231.

Bisset NG. 1994. *Herbal Drugs and Phytopharmaceuticals A handbook for practice on a scientific basis*. Medpharm Scientific Publishers. CRC.

Boix, Y.F, Victotio, C.P, Defaver, A.C.A, Arruda R.D.C.D.O, Sato, A., & Lage, C.L.S. 2011. Glandular trichomes of Rosmarinus officinalis L.: anatomical and phytochemical analyses of leaf volatiles. *Plant Biosystems*. Vol.145 (4): 848–856.

Borowicz, K. K., Gasior, M., Kleeinrok, Z., and Czuczwar, S. J. 1996. "*Competitive NMDA-Receptor Antagonists, LY235959 and LY233053, Enhance the Protective Efficacy of Various Antiepileptic Drugs against Maximal Electroshock-Induced Seizures in Mice*." Epilepsia 37: 618-24.

BPTP Kep Babel dan IRRI. 2010. Masalah Lapang, Hama, Penyakit, Hara pada Padi. http://bbpadi.litbang.deptan.go.id/index.php/in/hama-padi/ 206- hama-walang- sangit-leptcorisa-oratorius-.html. Diakses 05 Oktober 2018 pukul 08:45 WIB.

B R., Guruprasad and Akmal Pasha. 2014. Assessment of repellency and insecticidal activity of Ajuga parviflora (Benth) and Trichilia connaroides (W&A) leaf extracts against stored product insects. *Journal of Entomology and Zoology*. Vol. 2 (4): 221-226.

Cai, Li. 2014. *Thin Layer Chromatoghraphy. Current Protocol Essential Laboratory Technique*. Division of Mathematics and Science, University of South Carolina Salkehatchie, Walterboro, South Carolina.

Cannell, R.J.P. 1998. Natural Products Isolation, Methods in Biotechnology. Totowa Jersey: Human Press.

Chaveerach Arunrat, Piya Mokkamul, Runglawan Sudmoon, and Tawatchai Tanee. 2006. Ethnobotany of the genus Piper (Piperaceae) in Thailand. *Journal Entobotany Research & Applications*. Vol. 4: :223-231.

Clement, Celine., Bharathi Avula, Diego A. Diaz Grados and Ikhlas A. Khan. 2010. Influence of colour type and previous cultivation on secondary metabolites

in hypocotyls and leaves of maca (*Lepidium meyenii* Walpers). *J Sci Food Agric*. Research Article.

Cuellar C, Armando, Okori. 2010. Preliminary phytochemical and antimicrobial evaluation of the fresh and dried whole plant extracts from Commelina benghalensis. *Rev Colombiana Cienc Anim* 2 (1):104-116.

Da-Costa-Rocha, I, Bonnlaender, B, Sievers, H, Pischel, I, Heinrich, M. 2014. *Hibiscus sabdariffa* L. a phytochemical and pharmacological review. *Food Chemistry*. 165:424-443.

Davis, Edward E. 1985. Insect Repellents: Concepts Of Their Mode Of Action Relative To Potential Sensory Mechanisms In Mosquitoes (Diptera: Culicidae). *Journal Of Medical Entomology*. Vol. 22, no. 3: 237-243.

DepKes RI. 2000. Parameter Standar Umum Ekstrak Tumbuhan Obat. Direktorat Jenderal Pengawasan Obat dan Makanan. Jakarta.

Deshpande, S. N., & Kadam, D. G. 2013. GCMS Analysis and Antibacterial Activity of Piper Betle (Linn) Leaves against Streptococcus Mutans. A*sian Journal of Pharmaceutical and Clinical Research*. Vol 6, Suppl 5, pp. 99-101.

Dicosmo, F, and Tower, G.H.N. 1984. Stress and Seconddary Metabolism inCulture Plant Cell in Phytochemical Adaption to Stress. *Plenum Publishing* Co. Toronto. Pp 15-50.

Dickinson, W.C. 2000. Integrative Plant Anatomy. Tokyo: Academic Press.

Djajanegara dan Wahyudi. 2009. Pemakaian sel Hela dalam uji sitotoksisitas fraksi kloroform dan etanol ekstrak daun Annona squamosa. *Jurnal Ilmu Kefarmasian Indonesia* 7 (1): 7-11.

Elkertati, Mustapha., Abdelali Blenzar1, Abdelmalek Boutaleb Jotei2, Ilham Belkoura3 and Bouchra Tazi. 2013. Acaricide effect of some extracts and fractions on Tetranychus urticae Koch (Acari: Tetranychidae). *African Journal of Agricultural*. Vol. 8(23), pp. 2970-2976. ISSN 1991-637.

Falara V, Akhtar TA, Nguyen TTH et al. (2011) The tomato terpene synthase gene family. *Plant Physiol*. 157:770–789.

Figueiredo, A. Cristina., José G. Barroso,1 Luis G. Pedro1 and Johannes J. C. Scheffer. 2008. Factors affecting secondary metabolite production in plants: volatile components and essential oils. *Flavour Fragr. J*. 23: 213–226.

Fowlis, Ian A. 1998. Gas Chromatography Analytical Chemistry by Open Learning. John Wiley & Sons Ltd: Chichester.

Gandjar, I.G. and Rohman, A. 2007. *Kimia Farmasi Analisis*. Yogyakarta: Pustaka Pelajar, pp 31-36.

Ginting, E. 2013. Carotenoid extraction of orange-fleshed sweet potato and its application as natural food colorant. *J. Teknol. Dan Industri Pangan*, 24.

Gobbo-Neto, Leonardo., Anelize Bauermeister, Humberto T. Sakamoto, Dayana R. Gouvea, João Luis C. Lopes and Norberto P. Lopes. 2017. Spatial and Temporal Variations in Secondary Metabolites Content of the Brazilian Arnica Leaves (Lychnophora ericoides Mart., Asteraceae). *J. Braz. Chem. Soc.*, Vol. 00, No. 00, 1-9.

Goleniowski, Marta, Mercedes Bonfill, Rosa Cusido, andJavier Palazon. 2013. *Phenolic Acid*. Springe-Verlag Berlin Heidelberg.

Grob.R.L. 1995. *Modern Practice of Gas Chromatography*. 3nd.ed. John Wiley and Sons Inc, USA.

Guerra, Rafael Real., Célia Regina Carlini and Fernanda Stanisçuaski. 2013. Role of lysine and acidic amino acid residues on the insecticidal activity of Jackbean urease. *Elsevier*. Vol 71: 76-83.

Gurunathan, Abinaya., Jamuna Senguttuvan and S. Paulsamy. 2016. Evaluation of mosquito repellent activity of isolated oleic acid, eicosyl ester from Thalictrum javanicum. Indian J Pharm. Vol. 78(1):103-110.

Hadi, Mochammad. 2008. Pembuatan Kertas Anti Rayap Ramah lingkungan Dengan Memanfaatkan Ekstrak Daun Kirinyuh (*Eupatorium odoratum*). *Jurnal Universitas diponegoro*, Semarang Vol 6. No.2 Hal 12-18.

Hapsari, T. D., Agustini, T. W., Cahyono, B. 2012. Analisis kimia dan fisik komponen β-karoten dalam mikroalga *Porphyridium cruentum*. *Prosiding ke-1 Bioteknologi Kelautan dan Perikanan*, Semarang.

Hebert, R. B. 1996. *Biosintesis Metabolit Sekunder. Alih Bahasa Bambang Srigandono*. Semarang: IKIP Semarang Press. Hal. 103-123.

Hendrich, Andrzej B. 2006. Flavonoid-membrane interactions: possible consequences for biological effects of some polyphenolic compounds. Acta Pharmacologica Sinica. Vol.27 (1): 27–40. ISSN 1671-4083.

Hostettmann K, Mardton A, Hostettmann M. 1998. *Preparative Chromatography Techniques*. Springer-verlag Berlin Heidelberg.

Hussain, Syed Zameer and Khushnuma Maqbool. 2014. GC-MS: Principle, Technique and Its Aplication in Food Science. *Int J Curr Sci*. Vol: 13, E 116-126. ISSN 2250-1770.

Iijima Y, Rikanati R.D, Fridman E, Gang DR, Bar E, Lewinsohn E, & Pichersky E. 2004. The Biochemical and molecular basis for the divergent patterns in the biosynthesis of terpenes and phenylpropenes in the peltate glands of three cultivars of basil. *Plant Physiology*. Vol.136: 3724–3736.

Indrayani, L., Soetjipto H. dan Sihasale L. 2006. Skrining Fitokimia dan Uji Toksisistas Ekstrak Daun Pecut Kuda (*Stachytapheta jamaicensis* L. Vahl) Terhadap Larva Udang *Artemia salina* leach. Fakultas Sains dan Matematika, Universitas Kristen Satya Wacana.

Insanu, Muhammad, Lia Marliana, and Nabila Pandu Dinilah. 2017. Comparison of Antioxidant Activities from Four Species of Piper. *Journal Pharmaciana*. Vol. 7, ISSN: 2088-4559.

Istiqomah. 2013. Perbandingan Metode Ekstraksi Maserasi Dan Sokletasi Terhadap Kadar Piperin Buah Cabe Jawa (Piperis Retrofracti Fructus). *Skrips*i. UIN Jakarta.

Jankowska, Milena., Justyna Rogalska, Joanna Wyszkowska and Maria Stankiewicz. 2017. Molecular Targets for Components of Essential Oils in the Insect Nervous System—A Review. J. Molecules. Vol. 23, 34: 2301-0034.

Jayarathna, S.P.N.C *et al*. 2016. Phenetic Varition and Preliminary Pytochemichan Screning of Pper Species in Sri Lanka. *The Journal of Agricultural Science*. Vol. 11, no. 3.

J. B. Harborne, N.J. Walton, D.E. Brown. 1996. Classes and functions of secondary products in chemicals from Plants, Perspectives on Secondary plant products‖ Imperial College press, pp.1-25.

Jekli. 2018. Efektifitas Ekstrak Kloroform dan Metanol Daun Piper betle,L., P. AduncumL., P. nogrim L., P. retrofractum Vahl, dan P. crocatum Ruitz & Pav Sebagai Agen Repelan Walang Sangit (Leptocorisa oratorius F. 1794). *Srikpsi*. Fakultas Biologi, Uneversitas Gadjah Mada.

A. Bourgaud, A. Gravot, S. Milesi, E. Gontier. 2001. Production of plant secondary metabolites: a historical perspective‖ *Volume 161*, Issue 5, hal. 839–851.

Harborne, J.B,. 1987. *Metode Fitokimia*. Edisi ke dua, Bandung: ITB.

Harborne JB. 1998. *Phytochemical Methods: A guide to modern techniques of plant analysis 3rd Edition*. Chapman and Hall, London.

Hartini, Yustian Sri., Subagus Wahyuono, Sitarina Widyarini, dan Agustinus Yuswanto. 2013. Uji Aktivitas Fagositosis Makrofag Fraksi-fraksi dari Ekstrak Metanol Daun Sirih Merah (*Piper crocatum* Ruiz & Pav.) Secara In-Vitro. *Jurnal Ilmu Kefarmasian Indonesia*. Vol. 11, No. 2, ISSN 1693-1831.

Hermanto, S. 2008. *Mengenal Lebih Jauh Teknik Analisa Kromatografi dan Spektrofotometri*. Pusat Laboratorium Terpadu UIN Syarif Hidayatullah Jakarta.

Heriyati, Siti Khotimah, Elvi Rusmiyanto, Pancaning Wardoyo. 2016. Aktivitas Antibakteri Fraksi Diklorometan dan N-Heksana Paku Sisik Naga (*Drymoglossum piloselloides* (L) Presl.) Terhadap Bakteri *Staphylococcus aureus* dan *Salmonella typhi*. *Jurnal Protobiont*. Vol. 5 (3): 82-88.

Hieu, T. T., W. S. Choi, S.-I. Kim, M. Wang, and Y.-J. Ahn. 2015. Enhanced repellency of binary mixtures of Calophyllum inophyllum nut oil fatty acids or their esters and three terpenoids to Stomoxys calcitrans. *Pest Management Science*. 71: 1213–1218.

Hostettmann. K. 1995. *Cara Kromatografi Preparatif*. Bandung: ITB.

Kabera, Justin N. et al., 2014. Plant Secondary Metabolites: Biosynthesis, Clasification, Fungtion and Pharmacological Properties. *Journal of Pharmacy and Pharmacology*. Vol. 2.

Kamatou G.P., Vermaak I., and Viljoen A.M. 2012. Eugenol—From the Remote Maluku Islands to the International Market Place: A Review of a Remarkable and Versatile Molecule. *Journal Molecules*.17:6953-6981.

Karsidi, J., Rustam, R., Laoh. JH, 2014. Uji beberapa konsentrasi *Piper aduncum* L. Ekstrak Daun untuk Kontrol *Leptocorisa oratorius* Fabricius (Hemiptera, Alydidae) Tanaman Padi (*Oryza sativa* L.), repositoria jppertanian dd140697.

Katritzky, Alan R.. Zuoquan Wang, Svetoslav Slavov, Maia Tsikolia, Dimitar Dobchev, Novruz G. Akhmedov, C. Dennis Hall, Ulrich R. Bernier, Gary G. Clark, and Kenneth J. Linthicum. 2008. Synthesis and bioassay of improved mosquito repellents predicted from chemical structure. *Journal PNAS*. Vol. 105, no. 21: 7359-7364.

Krishnamurthy, K.S., V.A Parthasarathy, K.V Saji & B. Krishnamoorthy. 2009. Ideotype concept in black pepper (Piper nigrum L.). *Journal of Spices and Aromatic Crops*. Vol. 19 (1 & 2): 01–13.

Krniski, Diones and Louis Amilton Foerster. 2016. Toxicity of essential oils from leaves of Piperaceae species in rice stalk stink bug eggs, *Tibraca limbativentris* (Hemiptera: Pentatomidae). *Ciência e Agrotecnologia*. Vol 40(6):676-687.

Kristianingrum, S., Siswani, E.D., dan Fillaeli, A., 2011. Pengaruh Jenis Asam pada Sintesis Silika Gel dari Abu Bagasse dan uji Sifat Adsorptifnya terhadap Ion Logam Tembaga (II). *Prosiding Seminar Nasional Kimia*. UNY.

Kurniasi, Dewi. 2012. Ekstraksi. *Makalah*. Akademi Analisis Kesehatan.

Kusmana, Acep, Agus Budiman and Arif Hidayat. 2017. Development Production and Food Comsumpsion in Indonesia. Munich Personal RePEc Archive (MPRA). FST UIN, Paper No. 79976.

Leeuwen Thomas Van, Bartel Vanholme, Steven Van Pottelberge, Pieter Van Nieuwenhuyse, Ralf Nauen, Luc Tirry, and Ian Denholm. 2008. Mitochondrial heteroplasmy and the evolution of insecticide resistance: Non-Mendelian inheritance in action. *Pnas*. No. 16, Vol. 105: 5980–5985.

Lenny, S. 2006. Senyawa Flavanoida, Fenilpropanida dan Alkaloida. *Karya Ilmiah*. Departemen Kimia Fakultas MIPA Universitas Sumatera Utara.

Li, Yan-qun., De-xin Kong, Rong-shao Huang, Hui-ling Liang, Chuan-gui Xua, Hong Wu. 2013. Variations in essential oil yields and compositions of Cinnamomum cassia leaves at different developmental stages. *Industrial Crop and Product*. Vol. 47: 92-101.

Liang, Y., Xieb P., Chan K., 2004. Review: Quality control of herbal medicines. *Journal of Chromatography* B. 812, 53-70.

Lingga, N. 2004. *Laporan Kegiatan Training Instrumen GC-MS Shimadzu* QP 2010.

Luz, Shirlley F.M. *et al*., 2017. Secondary Metabolic Profiles of Two Cultivar of Piper nigrum (Black Pepper) Resulting from Infecton by Fusarium solani f. sp. Piperis. *Internation Journal of Molecular Science*.

Ma Y, Fu RS, Huo XB (2004) Inhibition of high effect cypermethrin on Na-KATPase of Blattella germanica. *Chin J Public Health*. Vol. 20: 1440–1441.

Manoi, Feri. 2007. "Sirih Merah Sebagai Tanaman Multi Fungsi". *Warta Penelitian Dan Pengembangan Tanaman Industri*. Volume 13 Nomor 2.

Marini dan Meiny Suzery. 2012. Isolasi Senyawa dari Ekstrak Heksan Purwoceng (Pimpinella alpine Molk) dan Toksisitasnya dengn BSLT. Jurnal Sains dan Matematika. Vol. 20 (1): 21-25.

Marinova, D., et al. (2005). "Total phenolics and total flavonoids in bulgarian fruits and vegetables." *Journal of the University of Chemical Technology and Metallurgy*. 40 (3): 255-260.

Marstya, Yuliana Rikha. 2009. Aktivitas Antioksidan, Kadar fenolat dan flavonoid ekstrak buah pare belut (*Trichosanthes anguina* L). Universitas Sebelas Maret Surakarta.

Masa, Cristina Valares., Teresa Sosa Díaz, Juan Carlos Alías Gallego and Natividad Chaves Lobon. 2016. Quantitative Variation of Flavonoids and Diterpenes in

Leaves and Stems of Cistus ladanifer L. at Different Ages. *Molecules*. Vol. 21.

Maslikah, Siti Imroatul., Sri Rahayu Lestari, dan NuningWulandari. 2016. Active Compounds of Red betel (*Piper crocatum*) Extract for Safe Antioxidant as Cytotoxicity Test Revealed. *International Journal of ChemTech Research*. Vol.9, No.04 pp 513-520, ISSN: 0974-4290.

Matthews, H. J., R. E. Down, and N. Audsley. 2010. Effects of Manduca sexta allatostatin and an analogue on the peach-potato aphid Myzus persicae (Hemiptera: Aphididae) and degradation by enzymes in the aphid gut. Arch. *Insect Biochem*. Vol. 75: 139–157.

Maurya, Anupam et al., 2018. Vacuum Liquid Chromatoghraphy: Simple, Efficient and Versatile Separaton Technique for Natural Product. *Juniper*. Vol. 7. ISSN 2474-7610.

Mukhriani. 2014. Ekstraksi, Pemisaan Senyawa, dan Identifikasi Senyawa Aktif. *Jurnal Kesehatan*. Vol. 7, no. 2.

Monzote, Lianet, Ramón Scull, Paul Cos and William N. Setzer. 2017. Essential Oil from Piper aduncum: Chemical Analysis, Antimicrobial Assessment, and Literature Review. *Medicines*. 4: 49.

Moghaddam, Mohammad and Leila Mehdizadeh. 2017. Chemistry of Essensial Oils and Factors Influencing Thei Constituents. *Elsivier*.

Nair Cl., Jayachandran K, and Shashindar S. 2008. Biodegradation of Phenol. *African Journal of Biotechnology*. 7. 4951-4958.

Nerio, L.S., Olivero-Verbel, J., and Stashenko, E., 2010. Repellent Activity of Essential Oils: *A Review, Bioresour. Technol*, 101: 372–378.

Newall, CA, Anderson LA, Phillipson JD. 1996. Herbal Medicines a Guide for Health-care Professionals. *The Pharmaceutical Press*. London.

Nhlatussania, Sani. 2012. Keefektifan Insektisida Nabati Dengan Bua Metode Esktraksi yang Berbeda. *Skripsi*. Departemen Proteksi Tanaman, Fakultas Pertanian, Institut Pertanian Bogor.

Ningsih, Viana *et al*., 2013. Uji toksisitas fraksi aktif ekstrak etanol daun ginje (*Thevetia peruviana*) dengan metode Brine Shrimp Test dan profil kandungan kimia fraksi teraktif. *Jurnal Biofarmasi*. Vol. 11, No. 2, pp. 48-57. ISSN: 1693-2242.

Ngo, Thanh Van et al., 2017. Inpact of Different Extraction Solvents on Bioactive Compounds and Antioxidant Capacity from the Root of *Salacia chinensis* L. *Journal of Food Quality*. Volume 2017.

Novizan, 2002. *Membuat dan Memanfaatkan Pestisida Ramah Lingkungan*. Jakarta: Agro Media Pustaka.

Nugroho, L. Hartanto. 2017. *Struktur dan Produk Jaringan Sekretori Tumbuhan*. Yogyakarta: UGM Press. Hal. 131-135, 189-190.

Okonkwo, C.O. and O.C. Ohaeri. 2013. Insecticidal potentials of some selected plants. *Journal of Chemical and Pharmaceutical Research*. ISSN: 0975-7384 CODEN(USA) : JCPRC5.

Oliveira, Gisele L. *et al*., 2013. Growth Study and Essential Oil Analysis of *Piper aduncum* from Two Sites of Cerrado Biome of Minas Gerais State, Brazil. *Elsevier*. 743-753.

Oregon State University. (2012). GC-MS: How does it Work? Environmental Health Sciences Center Corvallis OR 97331 http://www.unsolvedmysteries.oregonstate.edu/MS_05.

Orjala, J., Wright A.D., Behreds, H., Folkers, G., Sticher, O., Ruegger, H., Rail, T. 2004.'Cytotoxic and Antibacterial Dyhidrohalcones from *Piper aduncum*', *J. Nat. Prod.*, Jan; 57(1):18-26.

Parthasarathy, U., G.R. Asish., T.J. Zachariah., K.V. Saji., J.K. George., K. Jayarajan., P.A. Mathew. 2008. Spatial Influence on the Important Biochemical Properties of Piper nigrum Linn. Leaves. *Natural Product Radiance* Vol. 7(5) : 444-447.

Pathak, M. D and Z.R. Khan,1994. *Insect Pest of Rice*. IRRI. Manila. Philippines.

Pavia, Donald L., Gary M. Lampman, George S. Kritz, Randall G. Engel. 2006. Introduction to Organic Laboratory Techniques (4th Ed.). Thomson Brooks/Cole. pp. 797–817.

Pratiwi, Ambar. 2013. Aktivitas Antioksidan Ekstrak Kloroform dan Metanol Daun *Piper* spp. *Tesis*. Fakultas Biologi, Universitas Gadjah Mada.

Pelayo, Vianey R. Torres., Ma. Socorro Fernandez, Oscar Carmona-ernandez, Jorge Molina-Toress and J. Armando Lozada-Garcia. 2016. A Phytochemical and Ethnopharmalogical Review of Te Genus Piper as a Potent Bio-Insecticide. *Research & Review: Research Journal of Biology*. Vol. 4, ISSN: 2322-0066.

Pérez-Gutiérrez, Salud., Miguel Angel Zavala-Sánchez, Marco Martín González-Chávez, Norma Cecilia Cárdenas-Ortega and Miguel Angel Ramos-López. 2011. Bioactivity of Carica papaya (Caricaceae) against *Spodoptera frugiperda* (Lepidoptera: Noctuidae). *Molecules*. Vol 16: 7502-7509.

Permadi, Afif, Sutanto, Sri Wardatun. 2014. Perbandingan Metode Ekstraksi Bertingkat dan Tidak Bertingkat Terhadap Flavanoid Total Herba Ciplukan (*Physalis angulata* L.) Secara Kolorimetri. Program Studi Farmasi, FMIPA. Universitas Pakuan.

Pratiwi, Ni Putu Rahayu Kusuma dan I Wayan Muderawan. 2016. Analisis Kandungan Kimia Ekstrak Daun Sirih Hijau (Piper betle) Dengan GC-MS. *Prosiding Seminar Nasional MIPA*. ISBN 978-602-6428-00-4.

Pratiwi. 2015. Aktivitas Antibakteri Fraksi Metanol Herba Sisik Naga (*Drymoglossum piloselloides* L.) Terhadap Bakteri *Escherichia coli* dan *Staphylococcus epidermidis. Naskah Publikasi*. Fakultas kedokteran, Universitas Tanjungpura, Pontianak.

Prayong, P., Weerapreeyakula, N. dan Sripanidkulchaia, B. 2007. Validation of isocratic eluting and stepwise flow rate gradient for HPLC determination of catechins, gallic acid and caffeine in tea. *Science Asia* 33: 113-117.

Purwata, I M. A. O., Santi, S. R., Sulaksana, I M., & Widiarthini, I A. A. 2011. "Aktivitas Larvasida Minyak Atsiri pada Daun Sirih (*Piper betle* linn) terhadap Larva Nyamuk Aaedes aegypti". *Jurnal kimia* 5 (1): 88-93.

Qadeer & Rehan. 1998. *Proses Pengolahan Minyak Bumi*. Bandung.

Rafshanjani Md. Abu Shuaib, Shumaina Parvin, Md. Abdul Kader, Monika Rani Saha, Most. Afia Akhtar. 2014. Invitro Antibacterial, Antifungal And Insecticidal Activities Of Ethanolic Extracy And Its Fractionates of *Sanchezia speciosa* hokk. F. *International Research Journal Of Pharmacy*. Vol. 5 (9).

Rahuman, A. Abdul., P. Venkatesan & Geetha Gopalakrishnan. 2008. Mosquito larvicidal activity of oleic and linoleic acids isolated from Citrullus colocynthis (Linn.) Schrad. *Springer*. Vol. 103: 1383-1390.

Rajashekar,Yallappa., Anjanappa Raghavendra, and Nandagopal Bakthavatsalam. 2014. Acetylcholinesterase Inhibition by Biofumigant (Coumaran) from Leaves of Lantana camara in Stored Grain and Household Insect Pests. *BioMed Research International*. Vol. 2014.

Rami, Esha. 2013. Studies on Quantitative Phytochemical Analysis of Piper longum Linn. *International Journal of Pharma and Bio Sciences*. Vol. 4(3): (B) 1381-1388, ISSN 0975-6299.

Reveny, Julia. 2011. Daya Antimikroba Ekstrak dan Fraksi Daun Sirih Merah (Piper betle Linn.). *Jurnal Ilmu Dasar*. Vol. 12 No. 1.

Romadanu, Siti Hanggita Rachmawati, Shanti Dwita Lestari. 2014. Pengujian Aktivitas Antioks Idan Ekstrak Bunga Lotus (*Nelumbo nucifera*). *FishtecH*. Vol. 3, No.1.

Rueda, Angelica Plata., Juliana Mendonça Campos, Gabriela da Silva Rolim Luis Carlos Martínez, Marcelo Henrique Dos Santos, Flávio Lemes Fernandes, Jose Eduardo Serrão, José Cola Zanuncio. 2018. Terpenoid constituents of cinnamon and clove essential oils cause toxic effects and behavior repellency response on granary weevil, *Sitophilus granarius*. *Elsevier*, Ecotoxicology and Environmental Safety 156: 263–270.

Saito, S.T., Welzel, A., Suyenaga, E.S. dan Bueno, F. 2006. A Method for fast determination of epigallocatechin gallate (EGCG), epicatechin (EC), catechin (C) and caffeine (CAF) in green tea using HPLC. Ciênc. Tecnol. Aliment, Campinas 26: 394-400.

Sarker SD, Latif Z, & Gray AI. 2006. Natural products isolation. In: Sarker SD, Latif Z, & Gray AI, editors. Natural Products Isolation. 2nd ed. Totowa (New Jersey). *Humana Press* Inc. hal. 6-10, 18.

Sastrohamidjojo, Hardjono. 2005. *Kimia Dasar*. Yogyakarta: UGM Press.

Sastrohamidjojo, H. 2005. *Kromatografi*. Yogyakarta: Liberty.

Schilmiller AL, Charbonneau AL, Last RL. 2012. Identification of a BAHD acetyltransferase that produces protective acyl sugars in tomato trichomes. *Proc Natl Acad* .Sci USA 109:16377–16382.

Schultz *et al*., 2006. Natural Insect Repellents: Activity Against Mosquitoes and Cockroaches. *Symposium*. American Chemical Society.

Seidel V. 2006. Initial and ulkextraction. In: Sarker SD, Latif Z & Gray Al, editors. Natural product Isolation, 2nd ed. Totowa (Ney Jersey). Humana Press Inc. hal. 31-5

Septiana, Rina. 2011. Identifikasi dan Uji Aktivitas Antibakteri Fraksi Teraktif Daun Sirih Merah (*Piper crocatum* Ruiz & Pav). *Skripsi*. Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Sebelas Maret.

Setiowati, Nur Eliza. 2009. Studi Komparatif Komponen kimia Penyusun Minyak Atsiri Daun Sirih Merah (*Piper crocatum* Ruiz & Pav), Sirih hijau (*Piper betle* L.), Lada (*Piper nigrum* L.) dan Kemukus (*Piper cubeba* L.). *Skripsi*. Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Sebelas Maret.

Shah Sunil Kumar, Gopal Garg, Deenanath Jhade, Narendra Patel. 2016. *Piper betle*: Phyotchemical, Pharmacological and Nutrition Value in Health

Management. Review article. *Int. J. Pharm. Sci*. Vol. 34: 181-189. ISSN: 0976 – 044X.

Sharmah, D., A. Kound Sharmah, S. Rahman. 2018. Phytochemicals Derived From Piper Longum in Insect and Mite Pest Management: Review. J*ournal of Applied and Natural Science*. Vol 10 (2): 553-556. ISSN: 0974-9411.

Sholekah, Friska Fitriani. 2017. Perbedaan Ketinggian Tempat Terhadap Kandungan Flavanoid dan Beta Karoten Buah Karika (Carica pubescens) Daerah Dieng Vonosobo. *Prosiding Seminar Nasional*. Jurusan Pendidikan Biologi, Fakultas MIPA, Universitas Negeri Yogyakarta.

Sing, Pallavi, Nainika Tanwar, Trisha Saa, Aishwarya Gupta and Sargam Verma. 2018. Pytochemical Screning and Analisis of *Carica papaya, Agave americana* and *Piper nigrum*. *International Journal of Current Microbiology and Applied Science*. Vol 7 (2): 1786-1794. ISSN: 2319-7706.

Simmons, R.B. 2001. Utility and Evolution of Cytochrome b in Insects. *Journal Molecular Phylogenetics and Evolution*.Vol. 20, No. 2, pp. 196–210.

Sirait, M. 2007. *Penuntun Fitokimia dalam Farmasi*. Bandung: Institut Teknologi Bandung.

Skoog DA, Holler FJ, Crouch SR. 2007. *Principles of Instrumental Analysis*. 6th Eddition. Brooks/Cole Cengage Learning. Chapter 11, 20, 26, 27.

Sparkman, O. D. Penton, Z. E. & Kitson, F. G. (2011). Gas Chromatography. Gas Chromatography and Mass Spectrometry: A Practical Guide. Hal. 15–83.

Stahl-Biskup E, Saez F. Thyme. 2002. The Genus Thymus. Taylor & Francis: London.

Stashenko, Elena and Jairo Rene Martinez. 2014. Gas Chromatography-Mass Spectromatry. *Intech*.

Sudewo. 2005. *Basmi penyakit dengan sirih merah*. Jogjakarta: PT. Agromedia Pustaka.

Sudjadi. 2007. *Kimia Farmasi Analisis.* Pustaka Pelajar: Yogyakarta, 27; 220-255; 353-362.

Suliantari, Betty S. L. Jenie, dan Maggy T. Suhartono. 2012. Aktivitas Antibakteri Fraksi-fraksi Ekstrak Sirih Hijau (Piper betle Linn) Terhadap Patogen Pangan. *J. Teknol. Dan Industri Pangan.* Vol. XXIII No. 2.

Susanto D., Sudrajad, W. Suwinarti and R. Amirta. 2018. Seed Germination and Cuttings Growth of Piper Aduncum. *International Conference on Tropical Studies and Its Application* (ICTROPS).

Syahrir, Muhammad. 2012. Tingkat Selektivitas, Faktor Kapasitas, Jumlah Pelat Teoritik dan Waktu Retensi Analisis PAH dengan GC-FID Menggunakan Kolom RTX-5-MS dan Kolom CP-Sil 8 CB. *Jurnal Chemica*. Vol. 13 Nomor 2: 59-66.

Tabashnik, B. E., Brevault, T., Carriere, Y., 2013. Insect resistance to Bt crops: lessons from the first billion acres. *Nat Biotech*. Vol. 31: 510-521.

Tasmin, N., Erwin. Kusuma, W, irawan. 2014. Isolasi, Identifikasi dan Uji Toksisitas Senyawa Flavonoid Fraksi Kloroform dari Daun Terap (*Artocarpus odoratissimus* Blanco). *Jurnal Kimia FMIPA Unmul*. ISSN 1693-5616 Vol. 12 No. 1.

Thamrin, M. 2009. Potensi Ekstrak Flora Lahan Rawa Sebagai Pestisida Nabati. *Balai Penelitian Pertanian Lahan Rawa.*

Tissier A. 2012. Glandular trichomes: what comes after expressed sequence tags?. *Plant J*. 70:51–68.

Tiwari, P. B. Kumar, M. kaur, G. Kaur, H. Kaur. 2011. Phytochemical Screening and Extraction: A review. *Iternationale Pharmaceutica Sciencia*. Jan-March 2011 1(1).

Tsitsanou, K.E., T. Thireou, C. E. Drakou, K. Koussis, M.V. Keramioti, D.D. Leonidas, E. Eliopoulos, K. Latrou, and S.E. Zoggraphos. 2011. *Anopheles gambiae* Odorant Binding Protein Crystal Complex With The Synthetic Repellent DEET: Implications For Structur-Base Design Of Novel Mosquito Repellents. *Journal Cellular And Molecular Life Science*. Vol 69: 283-297.

Utami, Marsah Rahmawati. 2011. Fraksinasi Senyawa Aktif Minyak Atsiri Daun Sirih Merah (Piper cf. fragile. Benth) Sebagai Pelangsing Aromaterapi Secara in-Vivo. *Tesis*. Sekolah Pascasarjana. Institut Pertanian Bogor.

Utami, Marsah Rahmawati., Irmanida Batubara, dan Latifah K. Darusman. 2017. Isolasi Minyak Atsiri Daun Sirih Merah (Piper cf. fragile. Benth). *Jurnal Agrotek Indonesia* 2 (1): 39 – 43. ISSN: 2477-8494.

Verma, R.S., Padalia, R.C., and Chauhan, A. 2012. Variation in The Volatile Terpenoid of Two Industrially Important Basil (Ocipium bacilicum L.) Cultivars During Plant ontogeny in Two Different Cropping Season from India. *Journal of Agricultural and Food Chemistry*. Vol. 92: 626-631.

Verma, N. Shukula, S. 2015. Inpact of Various Factor Responsible for Fluctuation in Plant Secondary Metabolites. *J. Appl. Res.Med. Arom. Plant*. 2(4), 105-113.

Villamizar, Luz Helena., Maria das Graças Cardoso, Juliana de Andrade, Maria Luisa Teixeira, Maurilio José Soares.. 2017. a *Piper aduncum* essential oil component, has selective activity against Trypanosoma cruzi trypomastigote forms at 4°C. *Mem Inst Oswaldo Cruz*, Rio de Janeiro, Vol. 112(2): 131-139.

Wahjuni, Sri. Made Sukadana, dan Luh Putu Arisanti. 2017. Red *Piper Crocatum* Leaves Extract Ethanol Lowering Malondialdehyde (MDA) and Blood Glucose Level In Hyperglycemic Wistar Rat. *Journal of Global Pharma Technology*. Vol 05 (9): 59-64, ISSN 0975-8542.

Wagan, Tufail Ahmed., Wanlun Cai & Hongxia Hua. 2018. Repellency, toxicity, and antioviposition of essential oil of Gardenia jasminoides and its four major chemical components against whiteflies and mites. *Nature*. Vol. 8: 9375.

Wagner, H. & Bladt, S., 1996, Plan Drug Analysis, A Thin Layer Chromatography Atlas, Second Edition, 6, 126, 151, 152, 196, 197. Germany: Springer.

Wickham John C., Peter R. Chadwick and Duncan C. Stewart. 1974. Factors which Influence the Knockdown Effect of Insecticide Products. *Pestic. Sci*. Vol. 5: 657-664.

Winarno, F.G. 1995. *Kimia Pangan dan Gizi*. Jakarta: Gramedia Pustaka Utama.

Wink, M. 2010. *Introduction in: Annual Plant Review Volume 39: Function and Biotechnology of Plant Secondary Metabolites*. M. Wink (ed). Blackwell Publishing Ltd. United Kingdom.

Wijayakusuma MH, Wirian AS, Yaputra T, Dalimarta S dan Wibowo B. 1996. *Tanaman Berkhasiat Obat di Indonesia*. Jakarta: Pustaka Kartini.

Xiong, Z. Y, Q. Zhou, and X. Su. 2010. The antifeedant effect and enzyme activity of extract from Xanthium sibiricum on Pseudaletia separare. *J. Nat. Sci. Hunan Normal Univ*. Vol. 33: 120–123.

Xu, R., Yang, Y., Weimin, Z., 2012. *Introduction to Natural Product Chemistry*. CRC Press, Taylor and Francis Group, USA, p 15.

Xu Zhifeng, Wenyi Zhu., Yanchao Liu, Xing Liu, Qiushuang Chen, Miao Peng, Xiangzun Wang, Guangmao Shen, Lin He. 2014. Analysis of Insecticide Resistance-Related Genes of the Carmine Spider Mite Tetranychus cinnabarinus Based on a De Novo Assembled Transcriptome. *PLOS ONE*. No. 5, Vol. 9: e94779.

Yeo, Yang Lin *et al*., 2014. Effectiveness of Maceration Periods with Different Extraction Solvents on in -vitro Antimicrobila from Fruit of *Momordica charantia* L. *Journal of Appied Pharmaceutical Science*. Vol. 4 (10). ISSN 2231-3354.

You, Chun Xue., Hai Yan Jiang, Wen Juan Zhang, Shan Shan Guo, Kai Yang, Ning Lei, Ping Ma, Zhu Feng Geng, and Shu Shan Du. 2015. Contact Toxicity and Repellency of the Main Components From the Essential Oil of Clausena anisum-olens Against Two Stored Product Insects. *Journal of Insect Science*. Vol 15 (1): 87.

Yunianti, Lapida. 2016. Uji Ekstrak Daun Sirih Hijau (*Piper betle* L.) Sebagai Insektisida Alami terhadap Mortalitas Walang Sangit (*Leptocorisa acuta*). *Skripsi*. Universitas Sanata Darma, Yogyakarta.

Zarkani, A. 2008. Aktivitas insektisida ekstrak *Piper retrofractum* VAHL. Dan *Tephrosia vogeli*i (L). Serta keamanan ekstrak tersebut terhadap *Diadegma semiclausum* (Hellen). *Tesis*. Program Pascasarjana Institut Pertanian Bogor. (Tidak dipublikasikan).

Zarrad, K. A. Laarif, A. Ben Hamouda, I. Chaieb, and J. Mediouni-Ben Jemâa. 2017. Anticholinesterase Potential of Monoterpenoids on the Whitefly *Bemisia tabaci* and Their Kinetic Studies. *J. Agr. Sci. Tech*. Vol. 19: 643-652.

Zhao, L., J. W. Pridgeon, J. J. Becnel, G. G. Clark, and K. J.Linthicum. 2008. Cytochrome c gene and protein ex-pression: developmental regulation, environmental response, and pesticide sensitivity in *Aedes aegypti*. *J. Med.Entomol*. 45: 401-408.