

## DAFTAR PUSTAKA

- Abrantes, J.L., J. Barbosa, D. Cavalcanti, R.C. Pereira, C.L.F. Fontes, V.L. Teixeira, *et al.* 2010. The effects of the diterpenes isolated from the Brazilian brown algae *Dictyota pfaffii* and *Dictyota menstrualis* against the Herpes Simplex Type-1 replicative cycle. *Plant. Med.* 76: 339-344.
- Adeniran, A.S. 2011. Dyslipidemia and atherogenic effect of academic stress. *African J. Biochem. Res.* 5(13): 356-359.
- Agardh, C.A. 1820. *Species algarum rite cognitae, cum synonymis, differentiis specificis et descriptionibus succinctis.* Lundae. (i-iv): 1-168.
- Agarwal, A., Prabakaran S.A., & Said T.M. 2005. Prevention of Oxydative Stress Minireview: Injury to Sperm. *J Androl*, 6 (26): 654-660.
- Agbor, G.A., J.E. Oben, J.Y. Ngogang, C. Xinxing, & J.A. Vinson. 2005. Antioxidant capacity of some herbs/spices from cameroon: a comparative study of two methods. *J. Agr. Food Chem.* 53 (17): 6819-6824.
- Ahmed, T., S.H. Raza, A. Maryam, W.N. Setzer, N. Braidy, S.F. Nabavi, M.R. Oliveira, & S.M. Nabavi. 2016. Ginsenoside Rb1 as a neuroprotective agent: A review. *Brain Res. Bull.* 125: 30-43.
- Airanthi, M.W., M. Hosokawa, & K. Miyashita. 2011. Comparative antioxidant activity of edible Japanese brown seaweeds. *J. Food Sci.* 76: 104-111.
- Akalin, U.A. 2012. Antioxidant and angiotensin-converting enzyme inhibitory activity of yoghurt fortified with sodium calcium caseinate or whey protein concentrate. *Dairy Sci. Technol.* 92: 627-639.
- Akcali, A., O. Huck, N. Buduneli, J.L. Davideau, T. Kose, & H. Tenenbaum. 2014. Exposure of *Porphyromonas gingivalis* to cortisol increases bacterial growth. *Arch. Oral Biol.* 59: 30-34.
- Aldwairji, M.A., J. Chu, V.J. Burley, & C. Orfila. 2014. Analysis of dietary fibre of boiled and canned legumes commonly consumed in the United Kingdom. *J. Food Compos. Anal.* 36: 111-116.
- Al Ayadhi, L., A.K. Aida, & S.A. Ali. 2006. The effect of vitamin E, L-arginine, N-nitro L-arginine methyl ester and forskolin on endocrine and metabolic changes of rats exposed to acute cold stress. *Saudi Med. J.* 27(1): 17-22.
- Ale, M.T., H. Maruyama, H. Tamauchi, & J.D. Mikkelsen. 2011. Fucose-containing sulfated polysaccharides from brown seaweeds inhibit proliferation of melanoma cells and induce apoptosis by activation of caspase-3 in vitro. *Mar. Drugs* 9: 2605-2621.
- Almatsier, S. 2002. *Prinsip Dasar Ilmu Gizi.* PT Gramedia Pustaka Utama. Jakarta.
- Almatsier, S. 2004. *Prinsip Dasar Ilmu Gizi.* PT Gramedia Pustaka Utama. Jakarta.

- Alvarez, V., J.W. Lee, F.W. Drislane, M.B. Westover, J. Novy, B.A. Dworetzky, *et al.* 2015. Practice variability and efficacy of clonazepam, lorazepam, and midazolam in status epilepticus: a multicenter comparison. *Epilepsia* 56 (8): 1275-1285.
- American Diabetes Association. 2004. Dietary Carbohydrate (Amount and Type) in Prevention and Management of Diabetes. *Diabetes Care*. USA. 27:2266-2274.
- Amrullah, I.K. 2003. *Nutrisi Ayam Petelur*. Lembaga Satu Gunung Budi Baja. Jakarta.
- Ananthi, S., H.R.B. Raghavendran, A.G. Sunil, V. Gayathri, G. Ramakrishnan, & H.R. Vasanthi. 2010. In vitro antioxidant and in vivo anti-inflammatory potential of crude polysaccharide from *Turbinaria ornata* (marine brown alga). *Food Chemical Toxicology*. 48: 187-192.
- Andarwulan, N., F. Kusnandar, & D. Herawati. 2011. *Analisis Pangan*. Dian Rakyat. Jakarta.
- Aneiros, A. & A. Garateix. 2004. Bioactive peptides from marine sources: pharmacological properties and isolation procedures. *J Chromatogr B Analyt Technol Biomed Life Sci*. 803: 41-53.
- Anggadireja, J.T., A. Zalnika, H. Purnomo, & S. Istini. 2006. *Rumput Laut: Pembudidayaan, Pengolahan, dan Pemasaran Komoditas Perikanan Potensial*. Seri Agribisnis. Penebar Swadaya. Jakarta.
- Anisman, H. & Zacharko R.M. 1991. Multiple Neurochemical and Behavioural Consequences of *Stressors*: Implications for Depression. In *Psychopharmacology of Anxiolytics and Antidepressants*. Pergamon Press, New York, Pp 57-82.
- Ankanna, S., D. Suhrulatha, & N. Savithramma. 2012. Chemotaxonomical studies of some important monocotyledons. *Bot. Res. Int.* 5: 90-96.
- Anonim. 1996. Pengukuran Kadar Kolesterol. *Majalah Kedokteran Indonesia*. (46): 6.
- AOAC. 1984. *Official Methods of Analysis of The Association Analytical Chemist. Inc.* Washington D. C.
- AOAC. 2005. *Official Methods of Analysis of the Association of Analytical Chemists International*. 18th ed. Gathersburg, MD USA Official methods, 2005.08.
- AOAC. 2009. *Integrated Total Dietary Fiber, Assay Procedure Including Resistant Starch and Non Digestible Oligosaccharides*. Megazyme International Ireland.
- AOAC 2011. *Integrated Total Dietary Fiber, Assay Procedure Including Resistant Starch and Non Digestible Oligosaccharides*. Megazyme International Ireland.

- Archer, G.S., T.H. Friend, D. Caldwell, K. Ameiss, & P.D. Krawczel. 2007. Effect of feeding *Ascophyllum nodosum* for 14 days on the physiology of sheep exposed to exercise and transport. *J. Anim. Sci.* 85: 225-232.
- Archer, G.S., T.H. Friend, D. Caldwell, K. Ameiss, P.D. Krawczel, C. Iacono, H. Keen, & T. Martin. 2008. Impacts of feeding several components of the seaweed *Ascophyllum nodosum* on transported lambs. *Animal Feed Sci. Technol.* 140: 258-271.
- Ariyanti, D. & I.N. Widiyasa. 2011. Aplikasi teknologi *reverse osmosis* untuk pemurnian air skala rumah tangga. *TEKNIK* 32(3): 193-198.
- Arnold, T.M. & N.M. Targett. 2002. Marine tannins: the importance of a mechanistic framework for predicting ecological roles. *J Chem Ecol.* 28: 1919-1934.
- Arrington, L. 1972. *Introductory Laboratory Animal: The Breeding, Care, and Management of Experimental Animal Science*. The Interstate Printers and Publishing Inc. New York.
- Arthur, F.K., E. Woode, E. Terlabi, & C. Larbie. 2012. Evaluation of hepatoprotective effect of aqueous extract of *Annona muricata* (Linn.) leaf against carbon tetrachloride and acetaminophen induced liver damage. *J. Nat. Pharm.* 3: 25-30.
- Arueya, G.L. & G.F. Ugwu. 2017. Development and evaluation of African star apple (*Chrysophyllum albidum*) based food supplement and its potential in combating oxidative stress. *J. Func. Food.* 33: 376-385.
- Aslam, N., A. Kedar, H.S. Nagarajarao, K. Reddy, H. Rashed, T. Cutts, T.L. Abell, & C. Rielly. 2015. Serum catecholamines and dysautonomia in diabetic gastroparesis and liver cirrhosis. *Am. J. Med. Sci.* 350 (2): 81-86.
- Astuti, P., S. Asmarani, C.M. Airin, M. Hera, & S. Luthfiralda. 2009. Comparison Level of Cortisol and Ratio of Neutrophil/Lymphocytes as Acute Stress Marker to Long Transportation of Bligon Bucks. *Proceeding International Seminar on Zoonotic and Tropical Disease*. Faculty of Veterinary Medicine. Universitas Gadjah Mada. Yogyakarta.
- Athukorala, Y., G.N. Ahn, Y.H. Jee, G.Y. Kim, S.H. Kim, & J.H. Ha *et al.* 2009. Antiproliferative activity of sulfated polysaccharide isolated from an enzymatic digest of *Ecklonia cava* on the U-937 cell line. *J. Appl. Phycol.* 21: 307-314.
- Auliani, Rizqie. 1999. *Gizi dan Pengolahan Pangan*. Adicita Karya Nusa. Yogyakarta.
- Avato, P., R. Bucci, A. Tava, C. Vitali, A. Rosato, Z. Bialy, & M. Jurzysta. 2006. Antimicrobial activity of saponins from *Medicago* sp.: Structure-activity relationship. *Phytotherapy Res.* 20: 454-457.
- Azain, M.J. 2004. Role of Fatty Acids in Adipocyte Growth and Development. *J. Animal Sci.* 82: 916-924.

- Badan Standarisasi Nasional. 2006. Cara Uji Kimia-Bagian 2: Penentuan Kadar Air pada Produk Perikanan, SNI-01-2354.2-2006. Jakarta.
- Bahre, T.A. & G.R.F. Tchouya. 2016. Comparative study of the anti-oxidant activity of the total polyphenols extracted from *Hibiscus sabdariffa* L., *Glycine max* L. Merr., yellow tea and red wine through reaction with DPPH free radicals. Review. Arab. J. Chem. 9: 1-8
- Balboa, E.M., E. Conde, A. Moure, E. Falque, & H. Dominguez. 2013. In vitro antioxidant properties of crude extracts and compounds from brown algae. Food Chem. 138: 1764-1785.
- Bansal, V.K. & R.K. Goel. 2012. Gastroprotective effect of *Acacia nilotica* young seedless pod extract: role of polyphenolic constituents. Asian Pac. J. Trop. Med. 2012: 523-528.
- Baratawidjaja, K.G. 2000. Immunologi Dasar. FKUI. Jakarta. Hal. 10-14.
- Beltran, J.M.G., C. Espinosa, F.A. Guardiola, & M.A. Esteban. 2017. Dietary dehydrated lemon peel improves the immune but not the antioxidant status of gilthead seabream (*Sparus aurata* L.). Fish and Shellfish Immun. 64: 426-436.
- Bhat, S.V., B.A. Nagasampagi, & S. Meenakshi. 2009. Natural Products: Chemistry and Application. Narosa Publishing House. New Delhi. India.
- Bindokas, V.P., J. Jordan, C.C. Lee, & R.J. Miller. 1996. Superoxide Production in Rat Hippocampal Neurons: Sensitive Imaging with Ethidine. J. Neurosci. 16: 1324-1336.
- Bishayee, A. & M. Chatterjee. 1995. Mechanism of Anti-stress Activity of *Mikania cordata* Root Extract in Albino Mice. Int. J. Pharmacog. 33: 215-221.
- Boonchum, W, Y. Peerapornpisal, D. Kanjanapothi, J. Pekkoh, C. Pumas, & U. Jamjai. 2011. Antioxidant activity of some seaweed from the gulf of Thailand. International J. Agr. Biol. 13: 95-99.
- Borriello, A., V. Cucciolla, F.D. Ragione, & P. Galletti. 2010. Dietary polyphenols: Focus on resveratrol, a promising agent in the prevention of cardiovascular diseases and control of glucose homeostasis. Nutr. Metab. Cardiovas. 20: 618-625.
- Bowie, A., O'Neill, L.A., 2000. Oxidative Stress and Nuclear Factor-KappaB Activation: a Reassessment of the Evidence in the Light of Recent Discoveries. Biochem. Pharmacol. 59: 13-23.
- Bozcuk, H., G. Uslu, M. Samur, M. Yildiz, T. Ozben, M. Ozdogan, M. Artac, H. Altunbas, I. Akan, & B. Savas. 2004. Tumor necrosis factor-alpha, interleukin-6, and fasting serum insulin correlate with clinical outcome in metastatic breast cancer patients treated with chemotherapy. Cytokine. 27(2-3): 58-65.

- Breitmaier, E. 2007. Terpenes: Flavors, Fragrances, Pharmaca, Pheromones. Wiley-VCH Verlag GmbH & Co. KgaA. Germany.
- Brigo, F., N.L. Bragazzi, S. Bacigaluppi, R. Nardone, & E. Trinka. 2016. Is intravenous lorazepam really more effective and save than intravenous diazepam as first-line treatment for convulsive status epilepticus? A systematic review with meta-analysis of randomized controlled trials. *Epilep. Behav.* 64: 29-36.
- Brody, T. 1999. Nutritional Biochemistry. 2<sup>nd</sup> edition. Academic Press. California.
- Bronstein, M.D. 2011. Physiology and Patophysiology of the HPA Axis. In: Cushing's Syndrome. 1<sup>st</sup> ed. Patophysiology, Diagnosis, and Treatment. Springer. New York. p. 1-13.
- Brookes, P.S., Bolanos J.P., & Heales S.J.R. 1999. The Assumption that Nitric Oxide Inhibits Mitochondrial ATP Synthesis is Correct. *FEBS Letter.* 446: 261-263.
- Budhiyanti, S.A., S. Raharjo, W. Djagal, Murseno, & I.Y.B. Lelana. 2011. Free radical scavenging, metal chelating, and singlet oxygen quenching activity of fractionated brown seaweed *S. hystrix* extract. *J. Bio. Sciences.* 10: 3923.
- Budhiyanti, S.A., S. Raharjo, D.W. Marseno, & I.Y.B. Lelana. 2012. Antioxidant activity of brown algae *Sargassum* species extract from the coastline of Java Island. *American J. Agr. Biol. Sci.* 7(3): 337-346.
- Bun T., R.N. Yi, L.F. Cao, S.B. Li, R.R. Tan, M. Chen, X.X. Li, C. Wang, Y.F. Li, H. Kurihara, & R.R. He. 2015. Comparing antioxidant capacity of purine alkaloids: A new, efficient trio for screening and discovering potential antioxidants in vitro and in vivo. *Food Chem.* 176: 411-419.
- Cahyaningrum, K., A. Husni, & S.A. Budhiyanti. 2016. Aktivitas antioksidan ekstrak rumput laut cokelat (*Sargassum polycystum*). *AGRITECH* 36: 2-9.
- Camacho, O., L. Mattio, S. Draisma, S. Fredericq, & G. Diaz-Pulido. 2015. Morphological and molecular assessment of *Sargassum* (Fucales, Phaeophyceae) from Carribean Columbia, including the proposal of *Sargassum giganteum* sp. nov., *Sargassum schnetteri* comb. nov. and *Sargassum* section *Cladophyllum* sect. nov. *Systematic. Biodivers.* 13 (2): 105-130.
- Campbell, N.A., J.B. Reece, & L.G. Mitchell. 1999. Biologi. Edisi V. Jilid III. Penerjemah: W. Manalu. Erlangga. Jakarta. 436 p.
- Candrawati, S. 2013. Pengaruh aktivitas fisik terhadap stres oksidatif. *Mandala of Health.* 6: 1.
- Caroprese, M., M. Albenzio, A. Marzano, L. Schena, G. Annicchiarico, & A. Sevi. 2010. Relationship between cortisol response to stress and behavior, immune profile, and production performance of dairy ewes. *J. Dairy Sci.* 93: 2395-2604.

- Cartea, M.E., M. Francisco, P. Soengas, & P. Velasco. 2011. Phenolic compounds in Brassica vegetables. *Molecules*, 16: 251-280.
- Casas-Valdez, M., H. Hernandez-Contreras, A. Marin-Alvarez, R.N. Aguila-Ramirez, C.J. Hernandez-Guerrero, I. Sanchez-Rodriguez, & S. Carrillo-Dominguez. 2006. The seaweed *Sargassum* (Sargassaceae) as tropical alternative for goats' feeding. *Rev. Biol. Trop.* 54: 83-92.
- Castelo, PM, TS Barbosa, LJ Pereira, FLA Fronseca, & MBD Gaviao. 2012. Awakening salivary cortisol levels of children with sleep bruxism. *Clin. Biochem.* 45: 651-654.
- Castro, A.A., M. Moretti, T.S. Casagrande, C. Martinello, F. Petronilho, A.V. Steckert, R. Guerrini, G. Calo, F.D. Pizzol, J. Quevedo, & E.C. Gavioli. 2009. Neuropeptide S produces hyperlocomotion and prevents oxidative stress damage in the mouse brain: A comparative study with amphetamine and diazepam. *Pharmacol. Biochem. Behav.* 91: 636-642.
- Cauto, T.C., M.Y.M. Brancaglioni, M.N. Cardoso, A.B. Protzner, F.D. Garcia, R. Nicolato, R.A.L.P. Aguiar, H.V. Leite, & H. Correa. 2015. What is the best tool for screening antenatal depression? *J. Affect. Disorder.* 178: 12-17.
- Cencic, A. & W. Chingwaru. 2010. The role of functional foods, nutraceuticals, and food supplement in intestinal health. *Nutrient.* 2: 611-625.
- Cha, S.H., G.N. Ahn, S.J. Heo, K.N. Kim, K.W. Lee, C.B. Song, S.K. Cho, & Y.J. Jeon. 2006. Screening of extracts from marine green and brown algae in Jeju for potential marine angiotensin-I converting enzyme (ACE) inhibitory activity. *J Korean Soc Food Sci Nutr.* 35: 307-314.
- Chacko, B.K., D. Zhi, V.M. Darley-Usmar, & T. Mitchell. 2016. The bioenergetic health index is a sensitive measure of oxidative stress in human monocytes. *Red Biol.* 8: 43-50.
- Chamidah, A., Y. Marsono, E. Harmayani, & Haryadi. 2013. Pengaruh metode ekstraksi terhadap karakteristik *crude* laminaran dari *Sargassum duplicatum*. *AGRITECH* 33 (3): 251-257.
- Chandini, S.K., P. Ganesan, & N. Bhaskar. 2008. In vitro antioxidant activities of three selected brown seaweeds of India. *Food Chem.* 107: 707-713.
- Chang, C. Y., Wu, K. C., & Chiang, S. H. 2007. Antioxidant properties and protein compositions of porcine haemoglobin hydrolysates. *Food Chemistry.* 100: 1537–1543. *Environ. Toxicol. Pharmacol.* 33: 288-296.
- Cheng, A.Y.Y. & Fantus, I.G. 2005. Oral antihyperglycemic therapy for type 2 diabetes mellitus. *Can. Med. Assoc. J.* 172 (2): 213-226.
- Chi OZ, Choi YK, Lee DI, Kim YS, & Lee I. 2001. Intraoperative mild hypothermia does not increase the plasma concentration of stress hormones during neurosurgery. *Can. J. Anesthes.* 48: 815-818.

- Chih-Hung Guo, P.C. Chen, K.P. Lin, M.Y. Shih, & W.S. Ko. 2012. Trace metal imbalance associated with oxidative stress and inflammatory status in anti-hepatitis C virus antibody positive subjects. *Environ. Toxicol. Pharmacol.* 33: 288-296.
- Chillingworth, N.L., S.G. Morham, & L.F. Donaldson. 2006. Sex differences in inflammation and inflammatory pain in cyclooxygenase-deficient mice. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 291: 327-334.
- Chiueh, C.C., & P. Rauhala. 1999. The Redox Pathway of S-nitrosoglutathione, Glutathione, and Nitric Oxide in Cell to Neuron Communications. *Free Radical.* 31: 641-650.
- Choi, E.Y., H.J. Hwang, I.H. Kim, & T.J. Nam. 2009. Protective effects of a polysaccharide from *Hizikia fusiformis* against ethanol toxicity in rats. *Food Chem. Toxicol.* 47: 134-139.
- Chowienzyk, PJ, Watts GF, Cockcroft JR, Brett SE, & Ritter JM. 1994. Sex Differences in Endothelial Function in Normal and Hypercholesterolaemic Subjects. *Lancet.* 344: 305-6.
- Chrousos, G.P. 2009. Stress and disorders of the stress system. *Nat. Rev. Endocrinol.* 5: 374-381.
- Chun-Yung Huang, S.J. Wu, W.N. Yang, A.W. Kuan, & C.Y. Chen. 2016. Antioxidant activities of crude extracts of fucoidan extracted from *Sargassum glaucescens* by a compressional-puffing-hydrothermal extraction process. *Food Chem.* 197: 1121-1129.
- Clark, J.D., D.R. Rager, & J.P. Calpin. 1997. Animal well-being II: stress and distress. *Lab. Animal Sci.* 47(6): 571-579.
- Collip, D., N.A. Nicolson, M. Lardinois, T. Lataster, J.V. Os, & I. Myin-Germeys. 2011. Daily cortisol, stress reactivity and psychotic experiences in individuals at above average genetic risk for psychosis. *Psychol. Med.* 41: 2305-2315.
- Connan, S., F. Goulard, V. Stiger, E. Deslandes, & E.A. Gall. 2004. Interspecific and temporal variation in phlorotannin levels in an assemblage of brown algae. *Bot. Mar.* 47: 410-416.
- Coria-Tellez, A.V., E. Montalvo-Gonzalez, E.M. Yahia, & E.N. Obledo-Vazquez. 2016. *Annona muricata*: a comprehensive review on its traditional medicinal uses, phytochemicals, pharmacological activities, mechanisms of action and toxicity. *Arabian J. Chem.* xxx: xxx-xxx.
- Costa, L.S., G.P. Fidelis, C.B.S. Telles, N. Dantas-Santos, R.B.G. Camara, & S.L. Cordeiro *et al.* 2011. Antioxidant and antiproliferative activities of heterofucans *Sargassum filipendula*. *Mar. Drugs.* 9: 952-966.
- Couto, T.C., M.Y.M. Brancaglion, M.N. Cardoso, A.B. Protzner, F.D. Garcia, R. Nicolato, R.A.L.P. Aguiar, H.V. Leite, & H. Correa. 2015. What is the best tool for screening antenatal depression? *J Affect Disord.* 178: 12-17.

- Cullen, A.E., P.A. Zunszain, H. Dickson, R.E. Roberts, H.L. Fisher, C.M. Pariante, & K.R. Laurens. 2014. Cortisol awakening response and diurnal cortisol among children at elevated risk for schizophrenia: relationship to psychosocial stress and cognition. *Psychoneuroendocrinol.* 46 (100): 1-13.
- Cunningham, J.L. 1997. Colored existence: Racial identity formation in light-skin blacks. *Smith College Studies Soc. Work.* 67(3): 375-400.
- Dabhar, F.S. 2009. Enhancing versus suppressive effects of stress on immune function: implications for immunoprotection and immunopathology. *Neuro Immuno Modulation.* 16 (5): 300-317.
- Dachriyanus., D.O. Katrin, R. Oktarina, O.Ernas, , M. Suhatri & H. Mukhtar. 2010. Uji efek  $\alpha$ -mangostin terhadap kadar kolesterol total, trigliserida, kolesterol HDL dan kolesterol ldl darah mencit putih jantan serta penentuan lethal dosis 50 (Ld50). *Jurnal Sains dan Teknologi Farmasi* 12 (2).
- Dahima, R., S. Mishra, & D. Rathore. 2016. In-vitro antioxidant and reducing potential activity of extracts of *Citrus limon* and *Solanum lycopersicum*. *Der. Pharm. Lett.* 8(10): 258-269.
- Dai, J. & J.R. Mumper. 2010. Plant phenolics: extraction, analysis and their antioxidant and anticancer properties. *Molecules* 15: 7317-7352.
- Dalimartha. 2007. Diabetes Melitus Kadar Glukosa Darah. Swadaya. Jakarta.
- Dalimartha, S. 2008. Atlas Tumbuhan Obat Indonesia. Jilid 5. Pustaka Bunda. Jakarta.
- Dalimartha, S. 2011. 36 Resep Tumbuhan Obat untuk Menurunkan Kolesterol. Penebar Swadaya. Jakarta.
- Daneshfar, A., H.S. Ghaziaskar, & N. Homayoun. 2008. Solubility of gallic acid in methanol, ethanol, water, and ethyl acetate. *J. Chem. Eng.* 53: 776-778.
- Darmawan, M., Tazwir, H. Nurul. 2006. Pengaruh Perendaman Rumput Laut Coklat Segar dalam Berbagai Larutan Terhadap Mutu Natrium Alginat. *Buletin Teknologi Hasil Perikanan* 9 (1) : 26-38.
- Dawczynski, C., R. Schubert, & G. Jahreis. 2007. Amino acids, fatty acids, and dietary fibre in edible seaweed products. *Food Chem.* 103: 891-899.
- Delmann, D.H. & Brown, E.M. 1992. Buku Teks Histologi Veteriner 1 & 2. Edisi ketiga. Penerjemah: Hartono. Judul buku asli: Textbook of Veterinary Histology. Penerbit Universitas Indonesia. Jakarta. 353-361.
- Depkes R.I. 2007. Riset Kesehatan Dasar 2007. Litbangkes Departemen Kesehatan RI. Jakarta.
- Dhianawaty, D. & Ruslin. 2015. Kandungan total polifenol dan aktivitas antioksidan dari ekstrak metanol akar *Imperata cylindrica* (L) Beauv. (Alang-alang). *MKB*, 47 (1): 60-64.

- Dore, C.M.P., M.G.D.C.F. Alves, L.S.E.P. Will, T.G. Costa, D.A. Sabry, L.A.R.S. Rego, C.M. Accardo, H.A.O. Rocha, L.G.A. Filgueira, & E.L. Leite. 2013. A sulfated polysaccharide, fucans, isolated from brown algae *Sargassum vulgare* with anticoagulant, antithrombotic, antioxidant and anti-inflammatory effects. *Carbohydr. Polym.* 91: 467-475.
- Duchen, M.R. 1999. Contributions of Mitochondria to Animal Physiology: from Homeostatic Sensor to Calcium Signalling and Cell Death. *J Physiol*, 516: 1-17.
- Duraismi, R., V.A. Mohite, & A.J. Kasbe. 2010. Anti stress, adaptogenic activity of standardized dried fruit extract of *Aegle marmelos* against diverse stressors. *Asian J. Pharm. Clin. Res.* 3(4).
- Dwivedi, J. & P.D. Sarkar. 2010. Lipoprotein A, Homocysteine, Lipid Profile with Oxidative Stress in Nephritic Syndrome and Cardiovascular Nephropathy. *International J. Pharm. Bio Sci.* 4 (1):B3 40-50.
- Englyst, H., H.S. Wiggins, & J.H. Cummings. 1982. Determination of the non-starch polysaccharides in plant foods by gas-liquid-chromatography of constituent sugars as alditol acetates. *Analyst* 107: 307-318.
- Englyst, K.N., S. Liu, & H.N. Englyst. 2007. Nutritional characterization and measurement of dietary carbohydrates. *Eur. J. Clin. Nutr.* 61: S19-S39.
- Enujiugha, V.N. 2010. The antioxidant and free radical-scavenging capacity of phenolics from African lotus bean seeds (*Parkia biglobosa*). *Advan. Food Sci.* 32(2): 88-93.
- Fachir, H., B. Setiawan, & E. Suhartono. 2005. Antioksidan pada sistem saraf dan perannya pada penyakit neurodegeneratif. *Profesi Medika.* 5 (2): 34-43.
- Farvin, K.H.S. & C. Jacobsen. 2013. Phenolic compounds and antioxidant activities of selected species of seaweeds from Danish Coast. *J. Food Chem.* 138: 1670-1681.
- Fatah, A.M. 1989. Spektroskopi. Hal. 45-46. Fakultas Farmasi UGM. Yogyakarta.
- Firdaus, M., S.S. Karyono, & M. Astawan. 2009. Prevention of endothelial dysfunction in streptozotocin-induced diabetic rats by *Sargassum echinocarpum* extract. *Med. J. Indonesia.* 19: 32-35.
- Firdaus, M. 2011. Aktivitas Antioksidan Ekstrak Rumput Laut Coklat (*Sargassum echinocarpum*) sebagai Pencegah Disfungsi Sel Endothelium Aorta Tikus Diabetes Mellitus. Disertasi Institut Pertanian Bogor. Bogor.
- Firdiyani, F., T.W. Agustini, & W.F. Ma'ruf. 2015. Ekstraksi senyawa bioaktif sebagai antioksidan alami *Spirulina platensis* segar dengan pelarut yang berbeda. *JPHPI* 18(1): 28-37.
- Foerbes, J.M. & Cooper, M.E. 2013. Mechanisms of diabetic complications. *Journal of Physiology Revolution.* 93: 137-188.

- Fogarty, S. & D.G. Hardie. 2010. Development of protein kinase activators: AMPK as a target in metabolic disorders and cancer. *Biochim. Biophysiol. Acta* 1804: 581-591.
- Folin, O. & V. Ciocalteu. 1944. On tyrosine and tryptophane determinations in proteins. *Journal Biological Chemistry. Todd-Sanford.* 32 (73): 627-650.
- Fond, G., A. Macgregor, M. Leboyer, & A. Michalsen. 2013. Fasting in mood disorders: neurobiology and effectiveness. A review of the literature. *Psychiatry Research.* 209: 253-258.
- Fukumoto, S., A. Morishita, K. Furutachi, T. Terashima, T. Nakayama, & H. Yokogoshi. 2008. Effect of flavour components in lemon essential oil on physical or psychological stress. *Stress Health* 24: 3-12.
- Gamal, E.A.M., F.E. Ahmad, & M.A. Abo-Zeid. 2009. In vitro cancer chemopreventive properties of polysaccharide extract from the brown alga, *Sargassum latifolium*. *Food Chem. Toxicol.* 47: 1378-1384.
- Gamal, E. 2010. Biological importance of marine algae. *Saudi Pharm. J.* 18: 1–25.
- Garces-Rimon, M., C. Gonzales, J.A. Uranga, V. Lopez-Miranda, R. Lopez-Fandino. & M. Miguel. 2016. Pepsin egg white hydrolysate ameliorates obesity-related oxidative stress, inflammation, and steatosis in Zucker fatty rats. *PLOS one.* 11 (3): e0151193.
- Gardner, F.P., R.B. Pearce, & R.L. Mitchel. 1991. *Fisiologi Tanaman Budidaya*. UI-Press. Jakarta.
- George, V.C., D.R. Kumar, V. Rajkumar, P.K. Suresh, & K. Ashok. 2012. Quantitative assessment of the relative antineoplastic potential of the n-butanolic leaf extract of *Annona muricata* Linn. in normal and immortalized human cell lines. *Asian Pac. J. Cancer Prev.* 13: 699-704.
- George, V.C., D.R. Kumar, P.K. Suresh, & R.A. Kumar. 2014. Antioxidant, DNA protective efficacy and HPLC analysis of *Annona muricata* (soursop) extracts. *J. Food Sci. Technol.* 52(4): 2328-2335.
- Ghedolf, N. & N.J. Engeseth. 2002. Antioxidant capacity of honeys from various floral sources based on determination of oxygen radical absorbance capacity and inhibition of in vitro lipoprotein oxidant in human serum samples. *J. Agr. Food Chem.* 50 (10): 3050-3055.
- Giorgio, P. 2000. Flavonoid an antioxidant. *J. Nat. Prod.* 63: 1035-1045.
- Girindra, A. 1988. *Biokimia Patologi Hewan*. PAU-IPB. Bogor. Hal 63-77.
- Goldstein, DS. 2003. Catecholamines and stress. *Endocr. Regul.* 37: 69-80.
- Goldstein, I. & G.L. Hager. 2015. Transcriptional and chromatin regulation during fasting. *Trends Endocrinol. Metab.* 26: 12.

- Gomberg. 2003. Health benefits of fruit and vegetables are from additive and synergistic combinations of phytochemicals. *Am. J. Clin. Nutr.* 78: 517S-520S.
- Goodman, L.S. & A. Gilman. 1985. *The Pharmacological Basis of Therapeutics*. Macmillan. New York. 10022: 85-90.
- Graha, C. 2010. *100 Questions and Answers Cholesterol*. Gramedia. Jakarta.
- Guemes, M., S.A. Rahman, & K. Hussain. 2015. What is a normal blood glucose? *Arch. Dis. Child* 0: 1-6.
- Guiry, M.D. & G.M. Guiry. 2014. *AlgaeBase*. World-wide Electronic Publication. National University of Ireland. Galway (WWW Document) *AlgaeBase*. [www.algaebase.org](http://www.algaebase.org).
- Gultom, A.M. 2003. Penambahan Tepung Kunyit (*Curcuma domestica*) dalam Ransum untuk Meningkatkan Bobot Badan Tikus Putih (*Rattus novergicus*). Departemen Ilmu Produksi dan Teknologi Peternakan, Fakultas Peternakan Institut Pertanian Bogor. Bogor.
- Gunawan, R. 2009. Struktur Histologis Hepar, Jumlah Sel Kupffer, dan Sel Darah Putih Mencit (*Mus musculus* L.) Jantan dengan Perlakuan Puasa. Tesis. Fakultas Biologi, Universitas Gadjah Mada. Yogyakarta.
- Guthrie, H.A. & M.F. Picciano. 1995. *Human Nutrition*. Von Hoffmann Press, Inc. USA.
- Guyton, A.C. & J.E. Hall. 2006. *The Book of Medical Physiology*. 11rded. W.B. Saunders Company. London.
- Guyton, A.C. & J.E. Hall. 2007. *Buku Ajar Fisiologi Kedokteran*. Edisi 9. EGC. Jakarta.
- Halliwell, B. 1992. Reactive Oxygen Species and the Central Nervous System. *J. Neurochem.* 59: 1609-1623.
- Ham, A.W. & T.S. Leeson. 1961. *Histology* 4th edition. J.B. Lippincott Company. Piladelphia, Montreal.
- Hammah, F. & Y. Trihadiningrum. 2008. Penyisihan Fenol pada Limbah Industri dari PT XYZ dengan Eceng Gondok (*Eichhornia crassipes*). *ITS Jurnal Library*. Surabaya.
- Hamza, R.Z. & Al-Harbi, M.S. 2015. Amelioration of paracetamol hepatotoxicity and oxidative stress on mice liver with silymarin and *Nigella sativa* extract supplements. *Asian Pacific J. Trop. Biomed.* 5(7): 521-531.
- Han, X., T. Shen, & H. Lou. 2007. Dietary polyphenols and their biological significance. *Int. J. Mol. Sci.* 8: 950-988.
- Handayani, T., Sutarno, & A.D. Setyawan. 2004. Analisis komposisi nutrisi rumput laut *Sargassum crassifolium* J. Agardh. *Biofarmasi* 2(2): 45-52.

- Haque, R., S. Saha, & T. Bera. 2011. A peer reviewed of general literature on *Chlorophytum borivilianum* commercial medicinal plant. Int. J. Drug Dev. Res. 3: 140-155.
- Harborne, J.B. 1987. Metode Fitokimia. Second Edition. Padmawinata K., Soediro I., penerjemah. Phytochemical Methods. ITB. Bandung.
- Harborne, J.B. & F.A. Tomos-Barberan. 1991. Ecological Chemistry and Biochemistry of Plant Terpenoids. Clarendon Press. Oxford, England.
- Harborne, J. B. 1995. Metode Fitokimia: Penuntun Cara Modern Menganalisis Tumbuhan. Penerbit ITB. Bandung.
- Hardjoeno, H. 2003. Tes Diabetes Mellitus dalam Interpretasi Hasil Tes Laboratorium Diagnostik Bagian dari Standar Pelayanan Medik. Lembaga Penerbitan Universitas Hassanudin (LEPHAS). 167: 82-90.
- Harper, V., W. Rodwell, & P.A. Mayes. 1979. Biokimia. EGC. Jakarta.
- Hartadi, H., S. Reksohadiprodjo, & A.D. Tillman. 1997. Tabel Komposisi Pakan untuk Indonesia. Gadjah Mada University Press. Yogyakarta.
- Hawab, M., M. Bintang, & E. Kustaman. 1989. Biokimia Lanjutan. Penuntun Praktikum. Pusat Antar Universitas Ilmu Hayati Institut Pertanian Bogor. Bogor.
- Hendayana, S. 1994. Kimia Analitik Instrumen. IKIP Semarang Press. Semarang.
- Herlinda, Y. 1986. Hewan percobaan tikus albino strain Wistar di Unit Penelitian Gizi Diponegoro. Majalah Kedokteran Indonesia 36(11): 491-495.
- Hernandez-Carmona, G., S. C. Dominguez, D.L.A. Higuera, Y.E.R. Montesinos, J.I.M. Alvarez, M.M. Ochoa, *et al.* 2009. Monthly variation in the chemical composition of *Eisenia arborea* J.E. Areschoug. J. App. Phycol. 21: 607-616.
- Holdt, S. L. dan Stefan, Kraan. 2011. Bioactive Compounds in Seaweed : Fuctional Food Applications and Legislation. J App Phycol, 23: 543-597.
- Hong Ye, K. Wang, C. Zhou, J. Liu, & X. Zeng. 2008. Purification, antitumor and antioxidant activities in vitro of polysaccharides from the brown seaweed *Sargassum pallidum*. Food Chem. 111: 428-432.
- Hornback, J. M. 2006. Organic Chemistry. Second edition. Thomson Learning, Inc. All Rights Reserved.
- Hostettmann, K. & A. Marston. 1995. Saponins. Cambridge University Press. London.
- Hsueh, WA, S. Jackson, & R.E. Law. 2001. Control of Vascular Cell Proliferation and Migration by PPAR a New Approach to The Macrovascular Complication of Diabetes. Diabetes Care. 24: 392-7.

- Hu, J., Ferreira A., & Van Eldik L.J. 1997. S100beta Induces Neuronal Cell Death Through Nitric Oxide Release from Astrocytes. *J Neurochem*, 69: 2294-2301.
- Hu, Y., S.C.S. Cheng, K.T. Chan, Y. Ke, B. Xue, F.W.Y. Sin, C. Zeng, & Y. Xie. 2010. Fucoidin enhances dendritic cell-mediated T-cell cytotoxicity against NY-ESO-1 expressing human cancer cells. *Biochem. Biophys. Res. Commun.* 392(3): 329-334.
- Huang, D., B. Ou, & R.L. Prior. 2005. The chemistry behind antioxidant capacity assays. *J. Agr. Chem.* 53: 1841-1856.
- Huang, X.J., Y.K. Choi, H.S. Im, O. Yarimaga, E. Yoon, & H.S. Kim. 2006. Aspartate Aminotransferase (AST/GOT) dan Alanine Aminotransferase (ALT/GPT) Detection Techniques: Review. *Sensors*. 6: 756-782.
- Hudaya, T., S. Prasetyo, & A.P. Kristijarti. 2013. Karakterisasi, Isolasi, dan Uji Keaktifan Senyawa Aktif Buah Mahkota Dewa (*Phaleria macrocarpa*) sebagai Pengawet Makanan Alami. Laporan Penelitian. Lembaga Penelitian dan Pengabdian kepada Masyarakat, Universitas Katolik Parahyangan. Bandung.
- Husadha, Y. 1996. Persatuan Ahli Penyakit Dalam Indonesia: Buku Ajar Ilmu Penyakit Dalam: Fisiologi dan Pemeriksaan Biokimiawi Hati. Jilid I, edisi ketiga. Penerbit FKUI. Jakarta.
- Hye-Ran Lee & Jong Mee Lee. 2009. Anti-stress Effect of Kimchi. *Food Science and Biotechnology*. Korea.
- Holdt, S. L. & Stefan, Kraan. 2011. Bioactive Compounds in Seaweed : Fuctional Food Applications and Legislation. *J App Phycol*, 23: 543-597.
- Intelisano, T.R., F.R. Kithara, D.A. Otsuki, D.T. Fantoni, J.O.C. Auler, & S.R.G. cortopassi. 2008. Total intravenous anesthesia with Propofol-racemic Ketamine and Propofol-S-Ketamine: a comparative study and haemodynamic evaluation in dogs undergoing ovariohysterectomy. *Pesquisa Vet. Brasil*. 28: 216-222.
- International Diabetes Federation. 2011. *IDF Diabetes data*, diakses pada 10 Februari 2016. [www.idf.org](http://www.idf.org).
- International Diabetes Federation. 2013. *Diabetes atlas 6<sup>th</sup> Edition* : Chapter 2 The Global Burden : 29-49.
- Irama, A. 2009. Profil Trigliserida, Kolesterol Darah dan Respon Fisiologis Tikus Wistar yang Diberi Ransum Mengandung Gulai Daging Sapi dan Jeroan. Program Studi Teknologi Hasil Ternak, Fakultas Peternakan, Institut Pertanian Bogor. Bogor.
- Isbagio, D.W. 1992. Euthanasia pada hewan percobaan. *Media Litbangkes* 2(1): 18-24.

- Ishola, I.O., M. Chatterjee, S. Tota, N. Tadigopulla, O.O. Adeyemi, G. Palit, & R. Shukla. 2012. Antidepressant and anxiolytic effects of amentoflavone isolated from *Cnestis ferruginea* in mice. *Pharmacol. Biochem. Behav.* 103(2): 322-331.
- Ito, Y., A. Mizukuchi, M. Kise, H. Aot, S. Yamamoto, R. Yoshira, & J. Yokoyama. 2005. Postprandial blood glucose and insulin responses to pre-germinated brown rice in healthy subjects. *J. Med. Invest.* 52: 159-164.
- Iwai, K. 2008. Antidiabetic and antioxidant effects of polyphenols in brown alga *Ecklonia stolonifera* in genetically diabetic KK-Ay mice. *Plant Food Hum. Nutr.* 63: 163-169.
- Jang, K.H., B.H. Lee, B.W. Choi, H.S. Lee, & J. Shin. 2005. Chromenes from the brown alga *Sargassum siliquastrum*. *J. Nat. Prod.* 68: 716-723.
- Jarvik, M.E. 1967. The psychopharmacological revolution. *Psychol. Today.* 1: 51-59.
- Jassim, S.A.A. & M.A. Naji. 2003. Novel antiviral agents: a medicinal plant perspective. *J. Appl. Microbio.* 95: 412-427.
- Je, J.Y., P.J. Park, E.K. Kim, J.S. Park, H.D. Yoon, K.R. Kim, *et al.* 2009. Antioxidant activity of enzymatic extracts from the brown seaweed *Undaria pinnatifida* by electron spin resonance spectroscopy. *LWT-Food Sci. Technol.* 42: 874-878.
- Jia, D.Y., M.X. Zhang, Y.R. Yao, W. Jin, J.W. Liu, J.L. Wang, & B.C. Chen. 2013. Effects of ginsenosida Rb1 on the mRNA expression of tyrosine kinase B in the hippocampus of acute immobilization stress rats. *Zhongguo Zhong Xi Yi Jie He Za Zhi* 33(3): 376-379.
- Joshi, T., S.P. Sah, & A. Singh. 2012. Antistress activity of ethanolic extract of *Asparagus racemosus* Willd roots in mice. *Indian J. Exp. Biol.* 50: 419-424.
- Jing Li, S. Wang, X. Yang, G. Pang, H. Zheng, B. Shen, G. Li, D. Shi, J. Wang, L. Feng, M. Li, W. Wei, W. Qin, & L. Xie. 2014. Effect of sulfated polysaccharides from *Laminaria japonica* on vascular endothelial cells in psychological stress rats. *J. Ethnopharmacol.* 151: 601-608.
- Jing Xue, V. Rai, S. Frolov, D. Singer, S. Chabierski, J. Xie, S. Reverdatto, D.S. Burz, A.M. Schmidt, R. Hoffman, & A. Shekhtman. 2011. Advanced glycation end product (AGE) recognition by the receptor for AGEs (RAGE). *National of Health Institute Publicc Access.* 19(5): 722-732.
- Julie, K.S. 2005. *Stedman's Medical Dictionary*. Fourth edition. Lippincott William & Wilkins. United States, America.
- Junqueira, L.C. 2007. *Histologi Dasar: Teks & Atlas*. Ed. 10. EGC. Jakarta.
- Jurzysta, M. & G.R. Waller. 1996. Antifungal and Haemolytic Activity of Aerial Parts of Alfafa (*Medicago*) Species in Relation to Saponin Composition. In *Saponin Used in Food and Agriculture*, G.R. Waller, K. Yamasaki (eds). Plenum Press. New York. pp 565-574.

- Kalsi, D.S. 2015. What is the effect of fasting on the lifespan of neurons? Ageing Res. Rev. 24: 160-165.
- Kang, C., Y.B. Jin, H. Lee, M. Cha, E. Sohn, J. Moon, C. Park, S. Chun, E. Jung, J. Hong, S.B. Kim, J. Kim, & E. Kim. 2010. Brown alga *Ecklonia cava* attenuates type 1 diabetes by activating AMPK and Akt signaling pathways. J. Food Chem. Technol. 48: 509-516.
- Kannan, G., T.H. Terrill, B. Kouakou, & S. Galipalli. 2007. Blood metabolite changes and live weight loss following brown seaweed extract supplementation in goats subjected to stress. Small Ruminant Res. 73: 228-234.
- Kannur, D.M., V.I. Hukkeri, and K.S. Akki. 2006. Adaptogenic activity of *Caesalpinia bonduc* seed extract in rats. J. Ethnopharmacol. 108: 327-331.
- Katsma, D. & G. Smith. 1997. Analysis of needle path during intramuscular injection. Nurs. Res. 46(5): 288-292.
- Kay, I. 1998. Animal Physiology. Bios Scientific Publishers Limited. Springer-Verlag Singapore Pte Ltd. 214 p.
- Kay, M.B., J.S. Daniel, & H. Judith. 2004. Diets containing barley significantly reduce lipids in mildly hypercholesterolemic men and women. Am. J. Clin. Nutr. 80: 1185-1193.
- Kelly, S.A., Hevrilla C.M., Brady T.C., Abramo K.H., & Levin E.D. 1998. Oxydative Stress in Toxicology: Established Mammalian and Emerging Priscine Model Systems. Environ.t Health Perspect. 106: 375-384.
- Kenichi T., S. Nakamura, & T. Oku. 2014. Inaccuracy of AOAC method 2009.01 with amyloglucosidase for measuring non-digestible oligosaccharides and proposal for an improvement of the method. Food Chem. 151: 539-546.
- Kenjale, RD, RK Shah, & SS Sathaye. 2007. Anti-stress and Antioxidant Effect of Roots of *Chlorophytum borivillianum*. Department of Pharmaceutical Sciences, Mumbai University Institute of Chemical Technology, Matunga, Mumbai. India.
- Keshari, A.K. , Ghanendra K., Priya S.K., Monika B., Pranesh K., Atul R., Dinesh K., Anand P., Balaram G., & Sudipta S. 2016. Isolated flavonoids from *Ficus racemosa* stem bark possess antidiabetic, hypolipidemic and protective effects in albino wistar rats. Journal of Ethno-pharmacology 16: S0378-8741.
- Khadambi, T. N. 2007. Extraction of Phenolic Compounds and Quantification of the Total Phenol and Condensed Tannin Content of Bran Fraction of Condensed Tannin and Condensed Tannin Free Sorghum Varieties. Thesis. Department of Food Science, Faculty of Natural and Agricultural Sciences, University of Pretoria.
- Khalaf, N.A., A. Shakiya, A.L-Othman, E.L.-Agbar, & Z.H. Farah. 2008. Antioxidant activity of some common plants. Turk. J. Biol. 32: 51-55.

- Khaled, N., M. Hiba, & C. Asma. 2012. Antioxidant and antifungal activities of *Padina pavonica* and *Sargassum vulgare* from the Lebanese Mediterranean Coast. *Adv. Environ. Biol.* 6 (1): 42-48.
- Khodamoradi, A. & M. Jalili. 2011. Circadian effects on the humoral immune system (IgG, IgA and IgM) and serum cortisol after a strenuous exercise until exhaustion. *Australian J. Basic Appl. Sci.* 5(12): 986-990.
- Khotimah, K., Darius, & B.B. Sasmito. 2013. Aktivitas senyawa aktif alga cokelat (*Sargassum filipendulla*) sebagai antioksidan pada minyak ikan Lemuru (*Sardinella longiceps*). *Jurnal THPi*, 1(1): 10-20.
- Khumaini, A., R.E. Mudawaroch, & D.A. Hanung. 2012. Pengaruh penambahan sari kunyit (*Curcuma domestica* Val) dalam air minum terhadap konsumsi pakan dan konsumsi air minum ayam broiler. *SURYA AGRITAMA* 1 (2): 85-93.
- Kim, D.K., K.W. Lee, H.J. Lee, & C.Y. Lee. 2002. Vitamin C equivalent antioxidant capacity (VCEAC) of phenolic phytochemicals. *J. Agric. Food Chem.* 50: 3713-3717.
- Kim, I.H. & J.H. Lee. 2008. Antimicrobial activities against methicillin resistant *Staphylococcus aureus* from macroalgae. *J Ind Eng Chem.* 14: 568-572.
- Kim, J.A., C.S. Kong, & S.K. Kim. 2010. Effect of *Sargassum thunbergii* on ROS mediated oxidative damage and identification of polyunsaturated fatty acid components. *Food Chem. Toxicol.* 48: 1243-1249.
- Kim, S.M., W. Lee, G.U. Bae, & Y.K. Kim. 2012. Anti-diabetic and hypolipidemic effects of *Sargassum yezoense* in *db/db* mice. *Biochem. Biophysic. Res. Com.* 424: 675-680.
- Kim, M., S.O. Kim, M. Lee, Y. Park, D. Kim, K.H. Cho, S.Y. Kim, & E.H. Lee. 2014. Effects of ginsenoside Rb1 on the stress-induced changes of BDNF and HSP70 expression in rat hippocampus. *Environ. Toxicol. Pharmacol.* 38: 257-262.
- Kindleysides, S., S.Y. Quek, & M.R. Miller. 2012. Inhibition of fish oil oxidation and the radical scavenging activity of New Zealand seaweed extracts. *Food Chem.* 133: 1624-1631.
- Ko, Y.M., T.Y. Wu, Y.C. Wu, F.R. Chang, J.Y. Guh, & L.Y. Chuang. 2011. Annonacin induces cell cycle-dependent growth arrest and apoptosis in estrogen receptor- $\alpha$ -related pathways in MCF-7 cells. *J. Ethnopharmacol.* 137: 1283-1290.
- Koivikko, R. 2008. Brown Algal Phlorotannins Improving and Applying Chemical Methods. Turun Yliopisto, Turku.
- Kovacs, E. 2001. Investigation of Interleukin-6 (IL-6), soluble IL-6 receptor (sIL-6R) and soluble gp130 (sgp130) in sera of cancer patients. *Biomed. Pharmacother.* 55: 391-396.

- Kumar, C.S., P. Ganesan, P.V. Suresh, & N. Bhaskar. 2008. Seaweeds as a source of nutritionally beneficial compounds-a review. *Journal Food Science and Technology*. 45: 1-13.
- Kumari, P., M. Kumar, V. Gupta, C.R.K. Reddy, & B. Jha. 2010. Tropical marine macroalgae as potential sources of nutritionally important PUFAs. *Food Chemistry*, 120: 749-757.
- Kuperman, Y., M. Weiss, J. Dine, J.M. Deussing, M. Eder, & A. Chen. 2016. CRFR1 in AgRP neurons modulates sympathetic nervous system activity to adapt to cold stress and fasting. *Cell Metabolism*. 23: 1185-1199.
- Kusnandar, S. 2010. *Kimia Pangan: Komponen Makro*. Dian Rakyat. Jakarta.
- Kusrahman, A. 2012. Isolasi, Karakterisasi Senyawa Aktif dan Uji Farmaka Ekstrak Biji Kebul pada Mencit (*Mus musculus*) serta Penerapannya dalam Pembelajaran Kimia di SMAN 1 Bengkulu Selatan. Tesis. Fakultas Keguruan dan Ilmu Pendidikan Universitas Bengkulu. Bengkulu.
- Kyrou, I & C. Tsigos. 2009. Stress hormones: physiological stress and regulation of metabolism. *Curr. Opin. Pharmacol*. 9(6): 787-793.
- Lailatussifa, R. 2014. Pengaruh Penggunaan Ekstrak Etanolik *Sargassum polycystum* terhadap Profil Biokimia Darah Tikus Wistar Stres. Fakultas Pertanian, Universitas Gadjah Mada.
- Lailatussifa, R., A. Husni, & A.E. Nugroho. 2016. Anti-stress activity of *Sargassum polycystum* extracts using a cold restraint stress model. *Food Science and Biotechnology*. 25 (2): 1-6.
- Lann, K.L., C. Ferret, E. VanMee, C. Spagnol, M. Lhuillery, C. Payri, *et al.* 2012. Total phenolic, size-fractionated phenolics and fucoxanthin content of tropical Sargassaceae (fucales, phaeophyceae) from the South Pacific Ocean: spatial and specific variability. *Phycological Research*. 60: 37-50.
- Lannuzel, A., G.U. Hoglinger, P. Champy, P.P. Michael, E.C. Hirsch, & M. Ruberg. 2006. Is a typical Parkinsonism in the Carribean caused by the consumption of Annonaceae? *J. Neural Transm*. 70: 153-157.
- Lee, S.H., B.H. Jung, S.Y. Kim, E.H. Lee, & B.C. Chung. 2006. The antistress effect of ginseng total saponin and ginsenoside Rg3 and Rb1 evaluated by brain polyamine level under immobilization stress. *Pharmacol. Res*. 54(1): 46-49.
- Lee, J.F. 2007. *Pedoman Pemeriksaan Laboratorium dan Diagnostik*. Dialihbahasakan oleh: Sari Kurnianingsih. EGC. Jakarta.
- Lee, J.S., J.H. Song, N.W. Sohn, & J.W. Shin. 2013. Inhibitory effects of ginsenoside Rb1 on neuroinflammation following systemic lipopolysaccharide treatment in mice. *Phytother. Res*. 27(9): 1270-1276.
- Lehninger, A.L. 1982. *Principle of Biochemistry*. Diterjemahkan oleh Maggy Thenawidjaya. *Dasar-dasar Biokimia*. Jilid 3. Erlangga. Jakarta.

- Lei Liu, Michael Heinrich, Stephen Myers, & Symon A. Dworjany. 2012. Towards a better understanding of medicinal uses of the brown seaweed sargassum in traditional chinese medicine: a phytochemical and pharmacological review. *Journal of Ethnopharmacology*. Australia.
- Leiter, L.A., J Genest, S B Harris, G Lewis, R McPherson, G Steiner, W Woo, & C N Lank. 2006. Dyslipidemia in adults with diabetes. *Canadian Journal of Diabetes* 30(3): 230-240.
- Lenny, S. 2006. Senyawa Flavonoida, Fenil Propanoida, dan Alkaloida. Karya Ilmiah. Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Sumatera Utara. Medan.
- Lima, C.B., M. Sakai, A.O. Lattore, R.L.M. Moreau, & J. Palermo-Neto. 2010. Effects of different doses and schedules of diazepam treatment on lymphocyte parameters in rats. *Int. Immunopharmacol.* 10: 1335-1343.
- Lindmark-Manson, H. & B. Akesson. 2000. Antioxidative factors in milk. *British J. Nutr.* 84(1): 103-110.
- Linskens, H.F. & J.F. Jackson. 1999. *Modern Methods of Plant Analysis of Plant Waste Materials*. Springer Verlag Berlin Heidelberg. Germany. Vol. 20.
- Lipton, S.A. 1999. Neuronal Protection and Destruction by NO. *Cell Death Differ.* 6: 943-951.
- Liudong, F., Z. Feng, S. Daoxing, Q. Xiufang, F. Xiaolong, & L. Haipeng. 2011. Evaluation of antioxidant properties and anti-fatigue effect of green tea polyphenols. *Sci. Res. Essays* 6(13): 2624-2629.
- Liu, J.W., Y.L. Ren, X.L. Liu, H.L. Xia, H.L. Zhang, S.H. Jin, Q.X. Dai, & J.L. Wang. 2013. Effect of ginsenoside Rb1 on cerebral infarction volume and IL-1 beta in the brain tissue and sera of focal cerebral ischemia/reperfusion injury model rats. *Zhongguo Zhong Xi Yi Jie He Za Zhi* 33(12): 1696-1700.
- Liu, C.M., J.Q. Ma, S.S. Liu, Z.J. Feng, & A.M. Wang. 2016. Puerarin protects mouse liver against nickel-induced oxidative stress and inflammation associated with the TLR4/p38/CREB pathway. *Chem. Biol. Interact.* 243: 29-34.
- Lkhagvasuren, B., T. Oka, Y. Nakamura, H. Hayashi, N. Sudo, & K. Nakamura. 2014. Distribution of Fos-immunoreactive cells in rat forebrain and midbrain following social defeat stress and diazepam treatment. *Neuroscience*. 272: 34-57.
- Lundberg, A.M. & G.K. Hansson. 2010. Innate immune signals in atherosclerosis. *Clin. Immunol.* 134: 5-24.
- Luo, H.Y., B. Wang, C.G. Yu, Y.I. Qu, & G.I. Su. 2010. Evaluation of antioxidant activities of five selected brown seaweeds from China. *Journal of Medicinal Plants Research*. 4: 2557-2565.

- Ma, Y.H., F.W. Ma, J.K. Zhang, M.J. Li, Y.H. Wang, & D. Liang. 2008. Effects of high temperature on activities and gene expression of enzymes involved in ascorbate-glutathione cycle in apple leaves. *Plant Sci.* 175: 761-766.
- Ma, J.Q., J. Ding, Z.H. Xiao, & C.M. Liu. 2014. Puerarin ameliorates carbon tetrachloride-induced oxidative DNA damage and inflammation in mouse kidney through ERK/Nrf2/ARE pathway. *Food Chem. Toxicol.* 71: 264-271.
- MacArtain, P., C.I.R. Gill, M. Brooks, R. Campbell, & I.R. Rowland. 2007. Nutritional value of edible seaweeds. *Nutrition Reviews* 65 (12).
- Makfoeld, D. 2002. *Kamus Istilah Pangan dan Gizi*. Kanisius. Yogyakarta.
- Makkar, H.P.S., G. Tran, V. Heuze, S. Giger-Reverdin, M. Lessire, F. Lebas, & P. Ankers. 2016. Seaweeds for livestock diets: A review. *Animal Feed Science and Technology*. 212: 1-17.
- Malole, M.B.M. & C.S. Pramono. 1989. *Penggunaan Hewan-hewan Percobaan Laboratorium*. Departemen Pendidikan dan Kebudayaan. Direktorat Jendral Pendidikan Tinggi Pusat Antar Universitas Bioteknologi. Institut Pertanian Bogor. Bogor.
- Manayi, A., S.M. Nabavi, M. Daglia, & S. Jafari. 2016. Natural terpenoids as a promising source for modulation of GABAergic system and treatment of neurological diseases. *Pharm. Reports* 68: 671-679.
- Marin, A., M. Casas-Valdez, S. Carrillo, H. Hernandez, A. Monroy, L. Sangines, & F. Perez-Gill. 2009. The marine algae *Sargassum* spp. (Sargassaceae) as feed for sheep in tropical and subtropical regions. *Rev. Biol. Trop.* 57: 1271-1281.
- Marinho-Soriano, E., P.C. Fonseca, M.A.A. Carneiro, & W.S.C. Moreira. 2006. Seasonal variation in the chemical composition of two tropical seaweeds. *Bioresour Technol.* 97: 2402-2406.
- Marinova, D., F. Ribarova, & M. Atanassova. 2005. Total phenolics and total flavonoids in Bulgarian fruits and vegetables. *Journal of the University of Chemical Technology and Metallurgy*. 40 (3): 255-260.
- Marliana, S.D., V. Suryanti, & Suyono. 2005. Skrining fitokimia dan analisis kromatografi lapis tipis komponen kimia buah labu siam (*Sechium edule* Jacq. Swartz.) dalam ekstrak etanol. *Biofarmasi* 2(1): 26-31.
- Marliana, E. 2007. Analisis senyawa metabolit sekunder dari batang *Spatholobus ferrugineus* (Zoll & Moritzi) Benth yang berfungsi sebagai antioksidan. *Jurnal Penelitian MIPA* 1(1): 23-29.
- Massoco, C.O. & N.J. Palemo. 1999. Diazepam effect of peritoneal macrophage activity and corticosterone serum levels in Balb/c mice. *Life Sci.* 65(20): 2157-2165.
- Matsushige, A., Y. Kotake, K. Matsunami, H. Otsuka, A. Ohta, & Y. Takeda. 2012. Annonamine, a new aphorphine alkaloid from the leaves of *Annona muricata*. *Chem. Pharm. Bull.* 60: 257-259.

- Mattei, G. & A. Ahluwalia. 2016. Sample, testing, and analysis variables affecting liver mechanical properties: a review. *Acta Biomaterialia*. 45: 60-71.
- Mattio, L., R.J. Anderson, & J.J. Bolton. 2015. A revision of the genus *Sargassum* (Fucales, Phaeophyceae) in South Africa. *South African Journal of Botany*. 98: 95-107.
- Maurao, P.A.S. 2004. Used of sulfated fucans as anticoagulant and antithrombotic agents: future perspectives. *Curr. Pharm. Des.* 10(9): 967-981.
- Maurya, P.K., C. Noto, L.B. Rizzo, A.C. Rios, S.O.V. Nunes, D.S.Barbosa, S. Sethi, M. Zeni, R.B. Mansur, M. Maes, & E. Brietzke. 2016. The role of oxidative and nitrosative stress in accelerated aging and major depressive disorder. *Progress in Neuropharmacology & Biological Psychiatry*. 65: 134-144.
- Mayes, P.A. 1996. Lipid transport and storage. Dalam: Murry R.K., D.K. Granner., P.A. Mayes., & V.W. Rodwell (eds). *Harper's Biochemistry*. Prentice-Hall International Inc., London.
- Maynard, L.A., K. Loosli, H.F. Hintz, & R.G. Warner. 1979. *Animal Nutrition*. 7<sup>th</sup> edit. Mc Graw Hill Publishing Company, Inc. New Delhi.
- McBride, J. & W.J. Kraemer. 1999. Free radicals, exercise and antioxidants. *Journal of Strength and Conditioning Research*. 13(2): 175-183.
- Mishra, K., H. Ojha, & N.K. Chaudury. 2012. Estimation of antiradical properties of antioxidants using DPPH assay: A critical review and results. *Food Chem.* 130: 1036-1043.
- Mislan, P., A.E. Derocher, V.L. St. Louis, E. Richardson, N.J. Lunn, & D.M. Janz. 2016. Assessing stress in Western Hudson Bay polar bears using hair cortisol concentration as a biomarker. *Ecol. Indicator*. 71: 47-54.
- Mohamed, S., S.N. Hashim, & H.A. Rahman. 2012. Seaweeds: A sustainable functional food for complementary and alternative therapy. *Trends Food Sci. Technol.* 23: 83-96.
- Mokgope, L.B. 2006. Cowpea Seed Coats and Their Extracts: Phenolic Composition and Use as Antioxidants in Sunflower Oil. Department of Food Science. Faculty of Natural and Agricultural Science. University of Pretoria. South Africa.
- Moller, D. 2004. New drug targets for type 2 diabetes and the metabolic syndrome: a review. *Nature*. 414: 821-827.
- Molyneux, P. 2004. The use of the stable free radical diphenylpicrylhydrazyl (DPPH) for estimating antioxidant activity. *Songklanakarin J. Sci. Technol.* 26(2): 212.
- Mossa, A.T.H., E.S. Swelam, & S.M.M. Mohafrash. 2015. Sub-chronic exposure to fipronil induced oxidative stress, biochemical, and histopathological changes in the liver and kidney of male albino rats. *Toxicology Reports* 2: 775-784.

- Motshakeri, M., M. Ebrahimi, Y.M. Goh, P. Matanjun, & S. Mohamed. 2013. *Sargassum polycystum* reduces hyperglycemia, dyslipidemia and oxidative stress via increasing insulin sensitivity in a rat model of type 2 diabetes. J. Sci. Food Agric. 93: 1772-1778.
- Moubayed, N.M.S., H.J.A. Hourri, M.M.A. Khulaifi, & D.A.A. Farraj. 2016. Antimicrobial, antioxidant properties and chemical composition of seaweeds collected from Saudi Arabia (Red Sea and Arabian Gulf). Saudi Journal of Biological Sciences. xxx: xxx-xxx.
- Mourao, P.A.S. 2004. Use of sulfated fucans as anticoagulant and antithrombotic agents: Future perspectives. Current Pharmaceutical Design. 10: 967-981.
- Muceniece, R., K. Saleniece, J. Rumaks, L. Krigere, Z. Dzirkale, & R. Mezhapuke *et al.* 2008. Betulin binds to  $\gamma$ -aminobutyric acid receptors and exerts anticonvulsant action in mice. Pharmacol. Biochem. Behav. 90: 712-716.
- Mulia, R. M. 2005. Pengantar Kesehatan Lingkungan. Edisi pertama. Graha Ilmu. Yogyakarta.
- Murata, M. & J. Nakazoe. 2001. Production and use of marine algae in Japan. Japan Agr Res Q. 35: 281-290.
- Murphy, A.N., G. Fiskum, & M.F. Beal. 1999. Mitochondria in Neurodegeneration: Bioenergetic Function in Cell Life and Death. Journal Cerebral Blood Flow Metabolism. 19: 231-245.
- Murray, R.K., D.K. Granner, P.A. Mayes, & Rodwell. 2003. Harper's Illustrated Biochemistry. 26<sup>th</sup> ed. Appleton & Lange. USA.
- Murray, K.F. 2008. Drug related hepatotoxicity and acute liver failure. Journal of Pediatric Gastroenterology and Nutrition. 47: 395-405.
- Nadjib, A. 2010. Hijau-hijauan Tannin. PT Gramedia Pustaka Utama. Jakarta.
- Namvar, F., R. Mohamad, J. Baharara, S. Zafar-Balanejad, F. Fargahi, & H.S. Rahman. 2013. Antioxidant, antiproliferative, and antiangiogenesis effects of polyphenol-rich seaweed (*Sargassum muticum*). BioMed Res. Intern. 2013: 1-9.
- Nasu, T., Y. Fukuda, K. Nagahira, H. Kawashima, C. Noguchi, & T. Nakanishi. 1997. Fucoidin, a potent inhibitor of L-selectin function, reduces contact hypersensitivity reaction in mice. Immunol. Lett. 59: 47-51.
- Nasution, I.K. 2007. Stress pada Remaja. Publikasi Program Studi Psikologi Universitas Sumatera Utara. Medan.
- Nayantara, A.K., H.S. Nagaraja, K. Ramaswamy, B.R. Bhat, & K.M.D. Gowda. 2009. Effect of chronic unpredictable stressors on some selected lipid parameters and biochemical parameters in Wistar rats. J. Chinese Clin. Med. 4(2): 92-96.

- Neelima, N., M. Sudhakar, & B.V.S. Lakshmi. 2014. Adaptogenic Activity of Ethanolic Extract of Emblica Officinalis Fruits. *Interna J Advan Pharm Sci*, 5: 1859-1865.
- Nicholls, D.G., & S.L. Budd. 2000. Mitochondria and Neuronal Survival. *Physiology Revolution*. 80: 315-360.
- Nomura, T. & Y. Tajima. 1982. *Defined Laboratory Animals, Advances in Pharmacology and Therapeutics II*. Oxford Pergamon Press. Oxford.
- Nuraini, Iqbal, & Sabhan. 2015. Analisis logam berat dalam air minum isi ulang (AMIU) dengan menggunakan spektrofotometri serapan atom (SSA). *Gravitasi* 14(1): 36-43.
- Nuringtyas, T.R. 2010. *Karbohidrat*. Gadjah Mada University Press. Yogyakarta.
- Nurjanah, L. Izzati, & A. Abdullah. 2011. Aktivitas antioksidan dan komponen bioaktif kerang pisau (*Solen spp.*). *Ilmu Kelautan* 16(3): 119-124.
- Nwosu, F., J. Morris, V.A. Lund, D. Stewars, H.A. Ross, & G.J. McDougall. 2011. Anti-proliferative and potential anti-diabetic effects of phenolic-rich extract from edible marine algae. *Food Chem*. 126: 1006-1012.
- Oleszek, W.A. 2002. Chromatographic determination of plant saponins. *J. Chromatogr. A* 967: 147-162.
- Orzelska, J., S. Talarek, J. Listos, & S. Fidecka. 2015. Divergent effects of L-arginine-NO pathway modulators on diazepam and flunitrazepam responses in NOR task performance. *Behavioural Brain Research*. 284: 179-186.
- Oudhia, P. 2001. Problems perceived by Safed Moosli (*Chlorophytum borivilianum*) growers of Chhattisgarh (India) region: A study. *J. Med. Aromat. Plant Sci*. 22: 396-399.
- Paradis, M.E., P. Couture, & B. Lamarche. 2011. A randomised crossover placebo-controlled trial investigating the effect of brown seaweed (*Ascophyllum nodosum* and *Fucus vesiculosus*) on post-challenge plasma glucose and insulin levels in men and women. *Appl. Physiol. Nutr. Metab*. 36: 913-919.
- Peckett, AJ, DC Wright, & MC Riddell. 2011. The effects of glucocorticoids on adipose tissue lipid metabolism. *Metabolism* 60: 1500–1510.
- Pei Teng Chan, P Matanjun, SM Yasir, & TS Tan. 2015. Histopathological studies on liver, kidney, and heart of normal and dietary induced hyperlipidaemic rats fed with tropical red seaweed *Gracilaria changii*. *Journal of Functional Foods* 17: 202-213.
- Perez, M.P., J. Palacio, M.C. Acena, C. Chacon, H. Calvo, P. Zaragoza, J.A. Beltran, & S. Garacia-Belenguer. 2002. Effect of transport time on welfare and meat quality in pigs. *Meat Sci*. 61: 425-433.
- Perez-Jimenez, J., V. Neveu, F. Vos, & A. Scalbert. 2010. Identification of the 100 richest dietary sources of polyphenols: an application of the phenol-explorer database. *Eur. J. Clin. Nutr*. 64: S112-S120.

- Pifarre, P., M. Simo, J.D. Gispert, P. Plaza, A. Fernandez, & J. Pujol. 2015. Diazepam and Jacobson's progressive relaxation show similar attenuating short-term effects on stress-related brain glucose consumption. *Eur. Psychiat.* 30: 187-192.
- Pilliang, W.G. & S.D.A. Haj. 2006. *Fisiologi Nutrisi*. Volume 1. IPB Press. Bogor.
- Pirez, V.S., T.C. Taketa, G. Gosmann, & E.P. Schenkel. 2002. Saponins and sapogenins from *Brachiaria decumbens* stapf. *J. Braz. Chem. Soc.* 13: 135-139.
- Plaza, M., M. Amigo-Benavent, M.D. del Castilo, E. Ibanez, & M. Herrero. 2010. Facts about the formation of new antioxidants in natural samples after subcritical water extraction. *Food Research International*. 43: 2341-2348.
- Pokorny, J., N. Yanishlieva, & M. Gordon. 2001. *Antioxidant in Food*. Woodhead Publishing Ltd. England.
- Pradeep, A.R., S. Raj, G. Aruna, & S. Chowdhry. 2009. Gingival cervicular fluid and plasma levels of neuropeptide substance-P in periodontal health, disease and after nonsurgical therapy. *J. Periodontal Res.* 44: 232-237.
- Pradini, W.U., A.C.N. Marchianti, & R. Riyanti. 2017. Efektivitas nasi merah untuk menurunkan kadar kolesterol total pasien DM tipe 2. *J. Agromed. Med. Sci.* 3(1): 7-12.
- Pratiwi, T. 2013. Uji Aktivitas Ekstrak Metanolik *S. hystrix* dan *Eucheuma denticulatum* dalam Menghambat  $\alpha$ -Amilase dan  $\alpha$ -Glukosidase. Universitas Gadjah Mada. Yogyakarta.
- Prawiro, A.A. 1987. Catatan Kuliah Patologi Umum. Buku Kedokteran EGC. Jakarta. Hal. 18-19, 39-40.
- Purba, M. & P.P. Ketaren. 2010. Performa itik MA jantan umur enam minggu dengan suplementasi santoquin dan vitamin E dalam pakan. Seminar Nasional Teknologi Peternakan dan Veteriner, 696-706.
- Putri, D.D., D.E. Nurmagustina, & A.A. Chandra. 2014. Kandungan total fenol dan aktivitas antibakteri kelopak buah rosela merah dan ungu sebagai kandidat feed additive alami pada Broiler. *Jurnal Penelitian Pertanian Terapan*. 14 (3): 174-180.
- Radak, Z., H.Y. Chung, & S. Goto. 2008. Systemic adaptation to oxidative challenge induced by regular exercise. *Free Radical Biology & Medicine*. 44: 153-159.
- Raju, J., J.M.R. Patlolla, M.V. Swamy, & C.V. Rao. 2004. Diosgenin, a steroid saponin of *Trigonella foenum-graecum* (Fenugreek), inhibits azoxymethane-induced aberrant crypt foci formation in F344 rats and induces apoptosis in HT-29 human colon cancer cells. *Cancer Epidemiol* 13(8): 1392-1398.
- Rasyid, A. 2003. Algae Coklat (Phaeophyta) Sebagai Sumber Alginat. *Oseana* 28 (1): 33-38.

- Rae, M.G., J. Hilton, & J. Sharkey. 2012. Putative TRP channel antagonists, SKF 96365, flufenamic acid and 2-APB, are non-competitive antagonists at recombinant human  $\alpha_1\beta_2\gamma_2$  GABA<sub>A</sub> receptors. *Neurochem. Int.* 60: 543-554.
- Redondo-Cuenca, A., M.J. Villanueva-Suarez, M.D. Rodriguez-Sevilla, & I. Mateos-Aparicio. 2006. Chemical composition and dietary fibre of yellow and green commercial soybeans (*Glycine max*). *Food Chem.* 101: 1216-1222.
- Resstel, L.B.M., S.R.L. Joca, F.A. Moreira, F.M.A. Correa, & F.S. Guimaraes. 2006. Effects of cannabidiol and diazepam on behavioral and cardiovascular responses induced by contextual conditioned fear in rats. *Behav. Brain Res.* 172: 294-298.
- Rice, Philip L. 1992. *Stress and Health*. 2<sup>nd</sup> edition. Brooks/Cole Publishing Company. California.
- Ridla, M. 2014. *Pengenalan Bahan Makanan Ternak*. IPB Press. Bogor. Hal. 8.
- Robertson, R.P., J. Harmon, P.O. Tran & V. Poitout. 2004.  $\beta$ -Cell Glucose Toxicity, Lipotoxicity, and Chronic Oxidative Stress in Type 2 Diabetes. *Diabetes* 53: S119- S124.
- Robinson, T. 1995. *Kandungan Organik Tumbuhan Tinggi*. Edisi keenam. Terjemahan Kokasih Padmawinata. FMIPA ITB. Bandung.
- Rohit, S., S.T. Gulab, S.S. Bhagwan, P. Mukeshwar, & S.B. Prakash. 2012. Saponin: a wonder drug from *Chlorophytum* species. *Global J. Res. Med. Plants & Indigen. Med.* 1(10): 503-515.
- Rukmono. 1998. *Kumpulan Kuliah Patologi*. FKUI. Jakarta. Hal. 226-251.
- Rustaman, M. Abdurahman, & A.T. Hidayat. 2006. *Analisis Fitokimia Tumbuhan di Kawasan Gunung Simpang sebagai Penelaahan Keanekaragaman Hayati*. Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Padjajaran. Bandung.
- Rutter, G.A., & Rizzuto R. 2000. Regulation of Mitochondrial Metabolism by  $\text{Ca}^{2+}$  release: an Intimate Connection. *Trends Biochemistry Science.* 25: 215-221.
- Sabella, Rifdah. 2010. *Libas diabetes dengan terapi herbal, buah, dan sayuran*. Galmas Publisher. Klaten.
- Sadikin, M. 2002. *Biokimia Enzim*. Widya Medika. Jakarta.
- Said, M.M. & Y.A. Zeinab. 2009. Free radical scavenging capacity and inhibition of lipid peroxidation activity of some plants and natural herbs. *Egypt. J. Biomed. Sci.* 29: 138-149.
- Samuel, A.J., S. Mohan, D.K. Chellappan, A. Kalusalingam, & S. Ariamuthu. 2012. *Hibiscus vitifolius* (Linn.) root extracts shows potent protective action against anti-tubercular drug induced hepatotoxicity. *J. Ethnopharmacol.* 141 (1): 396-402.

- Sandoval, L., G. Ettiene, & M. Fuenmayor. 2014. HPLC determination of flavonoids in fruits of soursop (*Annona muricata* L.) from different plants. *Rev. Fac. Agron.* 1: 785-800.
- Sani, R.N., F.C. Nisa, R.D. Andriani, & J.M. Maligan. 2014. Analisis rendemen dan skrining fitokimia ekstrak etanol mikroalga laut *Tetraselmis chuii*. *Jurnal Pangan dan Agroindustri* 2(2): 121-126.
- Santoso, M. & T. Setiawan. 2005. Penyakit Jantung Koroner. *Cermin Dunia Kedokteran.* 147: 5-9.
- Scalbert, A., C. Manach, C. Morand, C. Remesy, & L. Jimenez. 2005. Dietary polyphenols and the prevention of diseases. *Crit. Rev. Food Sci. Nutr.* 45: 287-306.
- Schaich, K.M., X. Tian, & J. Xie. 2015. Reprint of "Hurdles and pitfalls in measuring antioxidant efficacy: A critical evaluation of ABTS, DPPH, and ORAC assays. *Journal of Functional Foods.* 18: 782-796.
- Schmid, M., F. Guiheneuf, & D.B. Stengel. 2014. Fatty acid contents and profiles of 16 macroalgae collected from the Irish coast at two seasons. *J. Appl. Phycol.* 26: 451-463.
- Senevirathne, M., S.H. Kim, N. Siriwardhana, J.H. Ha, K.W. Lee, & Y.J. Jeon. 2006. Antioxidant potential of *Ecklonia cava* on reactive oxygen species scavenging, metal chelating, reducing power and lipid peroxidation inhibition. *Food Science and Technology International.* 12: 27-38.
- Setzer, W.N. 2008. Non-intercalative triterpenoid inhibitors of topoisomerase ii: a molecular docking study. *Compounds J.* 1: 13-17.
- Shamsabadi, F.T., A. Khoddami, S.G. Fard, R. Abdullah, H.H. Othman, & S. Mohamed. 2013. Comparison of tamoxifen with edible seaweed (*Euclima cottoni* L.) extract in suppressing breast tumor. *Nutrition and Cancer* 65(2): 255-262.
- Sharifuddin, Y., Y.X. Chin, P.E. Lim, & S.M. Phang. 2015. Potential bioactive compounds from seaweed for diabetes management. *Mar. Drugs* 13: 5447-5491.
- Shibata, T., K. Nagayama, R. Tanaka, K. Yamaguchi, & T. Nakamura. 2003. Inhibitory effects of brown algal phlorotannins on secretory phospholipase A<sub>2S</sub>, lipoxygenases and cyclooxygenases. *J. Appl. Phycol.* 15: 61-66.
- Shibata, T., S. Kawaguchi, Y. Hama, M. Inagaki, K. Yamaguchi, & T. Nakamura. 2013. Local and chemical distribution of phlorotannins in brown algae. *Journal of Applied Phycology.* 16: 291-296.
- Shiu, C.T. & T.M. Lee. 2005. Ultraviolet-B-induced oxidative stress and responses of the ascorbate-glutathione cycle in a marine macroalga *Ulva fasciata*. *J Exp Bot.* 56: 2851-2865.

- Siadi, K. 2012. Ekstrak bungkil biji jarak pagar (*Jatropha curcas*) sebagai biopestisida yang efektif dengan penambahan larutan NaCl. Jurnal MIPA 35(1): 77-83.
- Sigal, J.R., G.P. Kenny, D.H. Wasserman, & S.C. Castaneda. 2004. Physical activity/exercise and type 2 diabetes. ADA Statements. Diabetes Care. 27(10): 2518-2539.
- Singh, Anand Kumar, Sunil, Dhamanigi, & Mohammed Assad. 2011. Anti-stress Activity of Hydro-alcoholic Extract of *Eugenia caryophyllus* Buds (Clove). Kurpanidhi College of Pharmacy, Sarjapur Road, Koramangala. Bangalore. India.
- Singh, B. & R.A. Sharma. 2015. Plant terpenes: defense responses, phylogenetic analysis, regulation and clinical applications. 3 Biotech. 5: 129-151.
- Singleton, V.L. & J.A. Rossi. 1965. Colorimetry of total phenolic with phosphomolibdic-phosphotungstic acid reagent. American Journal of Enology and Viticulture. 16: 147.
- Sirait, M. 2007. Penuntun Fitokimia dalam Farmasi. Institut Teknologi Bandung. Bandung.
- Skoog, D.A. 2004. Fundamentals of Analytical Chemistry Eight Edition. Brooks/Cole. Kanada.
- Smaili, S.S., Hus Y.T., Youle R.J., & Russell J.T. 2000. Mitochondria in  $Ca^{2+}$  Signaling and Apoptosis. Journal Bioenergetic Biomembran. 32: 35-46.
- Smeltzer, S.C., Bare, Brunner, & Suddarth. 2002. Keperawatan Medikal Bedah (terjemahan) Edisi 8, volume 2. Alih bahasa: H.Y. Kuncara, A. Hartono, M. Ester, & Y. Asih. EGC. Jakarta.
- Smith, J.B. & S. Mangkoewidjojo. 1988. Pemeliharaan, Pembiakan dan Penggunaan Hewan Percobaan di Daerah Tropis. Universitas Indonesia Press. Jakarta.
- Soegondo, S., P. Soewondo, & I. Subekti. 2009. Penatalaksanaan Diabetes Melitus Terpadu. Panduan Penatalaksanaan Diabetes Melitus bagi Dokter dan Edukator. Balai Penerbit FKUI. Jakarta.
- Soehardi, S. 2004. Memelihara Kesehatan Jasmani melalui Makanan. Penerbit Institut Teknologi Bandung, Bandung.
- Sokolova, E.V., L.N. Bogdanovich, T.B. Ivanova, A.O. Byankina, S.P. Krizhanovskiy, & I.M. Yermak. 2014. Effect of carrageenan food supplement on patients with cardiovascular disease results in normalization of lipid profile and moderate modulation of immunity system markers. Pharm. Nutr. 2: 33-37.
- Solarin B. B., D. A. Bolaji, O. S. Fakayode & R.O. Akinigbagbe. 2014. Impacts of an invasive seaweed *S. hystrix* var. *fluitans* (Børgesen 1914) on the fisheries and other economic implications for the Nigerian coastal waters. IOSR Journal of Agriculture and Veterinary Science. 7 (1).

- Stengel, D.B., S. Connan, & Z.A. Popper. 2011. Algal chemodiversity and bioactivity: Sources of natural variability and implications for commercial application. *Biotechnol. Adv.* 29: 483-501.
- Stevens, J.R., K.T. Chung, W.F. Lin, & C.I. Wei. *et al.* 1993. Growth inhibition of selected food-borne bacteria by tannic acid, propyl gallate and related compounds. *Letters in App. Microbiol.* 17: 29-32.
- Suarsana, I.N., T. Wresdiyati, & A. Suprayogi. 2013. Respon stres oksidatif dan pemberian isoflavon terhadap aktivitas enzim superoksida dismutase dan peroksidasi lipid pada hati tikus. *JITV*, 18(2): 146-152.
- Subarnas A, Tadano T, Nakahata N, Arai Y, Kinemuchi H, Oshima Y, Kisara K & Ohizumi Y. 1993. A Possible Mechanism of Antidepressant Activity of Beta-Amyrin Palmitate Isolated from *Lobelia Inflata* Leaves in the Forced Swimming Test. *Life Sciences*. 52: 289-296.
- Sudarmadji, S., B. Haryono, & Suhardi, 1997. *Prosedur Analisa Untuk Bahan Makanan dan Pertanian*. Liberty. Yogyakarta.
- Sukarni, Maftuch, & H. Nursyam. 2012. Kajian penggunaan ciprofloxacin terhadap histologi insang dan hati ikan Botia (*Botia macracanthus*, Bleeker) yang diinfeksi bakteri *Aeromonas hydrophila*. *J. Exp. Life Sci.* 2(1): 6-12.
- Sulchan, M. & N.W. Endang. 2007. Nilai gizi dan komposisi asam amino tempe gembus serta pengaruhnya terhadap pertumbuhan tikus. *Maj. Kedokt. Indon.* 57(3): 80-85.
- Sumardjo, D. 2006. *Pengantar Kimia: Buku Panduan Kuliah Mahasiswa Kedokteran dan Program Strata I Fakultas Bioeksakta*. EGC. Jakarta.
- Suresh, V., N. Senthilkumar, R. Thangam, M. Rajkumar, C. Anbazhagan, R. Rengasamy, P. Gunasekaran, S. Kannan, & P. Palani. 2013. Separation, purification, and preliminary characterization of sulfated polysaccharides from *Sargassum plagiophyllum* and its in vitro anticancer and antioxidant activity. *Process Biochem.* 48: 364-373.
- Svehla. 1990. *Vogel Buku Teks Analisis Anorganik Kualitatif Makro dan Semimikro*. Kalman Media Pustaka. Jakarta.
- Takahashi, M. S. Tokuyama, & H. Kancto. 1992. Anti-stress effect of ginseng on the inhibition of the development of morphine tolerance in stressed mice. *Japan J. Pharmacol.* 59: 399-404.
- Tambayong, J. 2001. *Anatomi dan Fisiologi untuk Keperawatan*. Cetakan I. EGC. Jakarta.
- Tatipamula, V.B., K.N. Killari, A. Ketha, & G.S. Vedula. 2017. *Taxithelium napalense* acts against free radicals and diabetes mellitus. *Bangladesh J. Pharmacol.* 12: 197-203.

- Terra, R., S.A.G. Silva, V.S. Pinto, & P.M.L. Dutra. 2012. Effect of exercise on the immune system: response, adaptation and cell signaling. *Rev. Bras. Med. Esporte*. 18(3): 208-214.
- Teruya, T., T. Konishi, S. Uechi, H. Tamaki, & M. Tako. 2007. Anti-proliferative activity of oversulfated fucoidan from commercially cultured *Cladosiphon okmuranus* TOKIDA in U937 cells. *Int. J. Biol. Macromol.* 41: 221-226.
- Thirunavukkarasu, P., L. Ramkumar, & T. Ramanathan. 2009. Anti-ulcer activity of *Excoecaria agallocha* bark on NSAID-induced gastric ulcer in Albino rats. *Global J. Pharmacol.* 3(3): 123-126.
- Thomas, R. & M.B. Ahsan. 2001. Preventive strategies in chronic liver disease. *American Family Physician*. 64: 1555-1560.
- Thomas, N.N. & S.K. Kim. 2011. Potential pharmacological applications of polyphenolic derivatives from marine brown algae. *Environmental Toxicology and Pharmacology*. 32: 325-335.
- Tillman, A., D. Hartadi, S. Reksohadiprodjo, & S. Lebdosoekojo. 1989. Ilmu Makanan Ternak Dasar. Universitas Gadjah Mada Press. Yogyakarta.
- Tipoe, G.L., T.M. Leung, E.C. Liong, T.Y. Lau, M.L. Fung, & A.A. Nanji. 2010. Epigallocatechin-3-gallate (EGCG) reduces liver inflammation, oxidative stress, and fibrosis in carbon tetrachloride (CCl<sub>4</sub>)-induced liver injury in mice. *Toxicol.* 273: 45-52.
- Tirzitis, G. & G. Bartosz. 2010. Determination of antiradical and antioxidant activity: basic principles and new insights. *Acta Biochimica Polonica*, 57 (1): 139-142.
- Tjokropawiro, A. 2006. Hidup Sehat dan Bahagia bersama Diabetes Melitus. Gramedia Pustaka Utama. Jakarta.
- Tuo, K., S. Beourou, A.O. Toure, K. Ouattara, S. Meite, A.A.B. Ako, S.S. Yao, D. Koffi, B. Coulibay, A. Coulibaly, & A.J. Djaman. 2015. Antioxidant activities and estimation of the phenols and flavonoids content in the extracts of medicinal plants used to treat malaria in Ivory Coast. *Int. J. Curr. Microbiol. App. Sci.* 4(1): 862-874.
- Upadhyay, S., U.J. Phukan, S. Mishra, & R.K. Shukla. 2014. De novo leaf and root transcriptome analysis identified novel genes involved in steroidal sapogenin biosynthesis in *Asparagus racemosus*. *BMC Genomics* 15 (746): 1-13.
- Usov, A.I. & M.I. Bilan. 2009. Fucoidans-sulfated polysaccharides of brown algae. *Russian Chemical Reviews*. 78: 785-799.
- Valko, M., D. Leibfritz, J. Moncol, M.T.D. Cronin, M. Mazur, & J. Telser. 2007. Review: free radicals and antioxidants in normal physiological functions and human disease. *Inter J. Biochem. Cell Biol.* 39: 44-84.
- Varady, K.A. & M.K. Hellerstein. 2007. Alternate-day fasting and chronic disease prevention: a review of human and animal trials. *American Journal of Clinical Nutrition*. 86: 7-13.

- Vermerris, W. & R. Nicholson. 2006. Phenolic Compound Biochemistry. Springer, Dordrecht.
- Wagner, H. & S. Bland. 1996. Plant Drug Analysis: A Thin Layer Chromatography Atlas. 2<sup>nd</sup> edition. Springer. Berlin Heidelberg.
- Wahyuni, E.T., N. Hadipranoto, I. Tahir, & B.H.G. Tamtama. 2004. Effect of Cr (VI) ions on the effectiveness of chlorophenol photodegradation. Inonesian J. Chem. 4(3): 156-160.
- Walker, J. 2002. Teens in Distress Series Adolescent Stress and Depression. Minnesota University. Viewed 27 Mei 2017. Available from: <http://www.extension.umn.edu/distribution/youthdevelopment/DA3083.html>.
- Wattoo, F.H., S.M. Muhammad, N.M. Allah, H.S.W. Muhammad, A.T. Syed, & I. Jawed. 2007. Effect of stress on serum lipid levels in lady health visitors and housewives. Rawal Med. J. 32: 41-44.
- Waynforth, H.B. & P.A. Flecknell. 1992. In Experimental and Surgical Technique in the Rat (eds H.B. Waynforth & P.A. Flecknell). Academic Press. London. Pp. 1-67.
- Weickert, M.O. & A.F. Pfeiffer. 2008. Metabolic effects of dietary fibre consumption and prevention of diabetes. J. Nutr. 138: 439-442.
- Wells, B.G., J.T. DiPiro, T.L. Schwinghammer & C.V. DiPiro. 2009. Pharmacotherapy Handbook. Seventh Edition, The McGraw-Hill Companies. United States.
- Weerakkody, P., J. Jobling, M.M.V. Infante, & G. Rogers. 2010. The effect of maturity, sunburn and the application of sunscreens on the internal and external qualities of pomegranate fruit grown in Australia. Scientia Horticulturae 124: 57-61.
- Wenhui Z., K. Qian, J. Xiong, K. Ma, A. Wang, & Y. Zou. 2016. Curcumin alleviates lipopolysaccharide induced sepsis and liver failure by suppression of oxidative stress-related inflammation via PI3K/AKT and NF- $\kappa$ B related signaling. Biomed. Pharmacother. 83: 302-313.
- WHO. 2003. Definition, Diagnosis and Classification of Diabetes Mellitus and its Complications : Report of a WHO Consultation. Part 1, Diagnosis and Classification of Diabetes Mellitus. World Health Organization. Deparment. of Noncommunicable Disease Surveillance.
- Widjanti, A. & B.T. Ratulangi. 2003. Pemeriksaan Laboratorium Penderita Diabetes Mellitus. Medika vol. 3: 9-166.
- Widowati, L., Y. Astuti, & M.W. Winarno. 2012. Efek pemberian air embun terhadap gambaran hematologi dan biokimia darah. Jurnal Kefarmasian Indonesia 2: 68-82.

- Wijayani, A., K. Ummah, & S. Tjahjani. 2005. Characterization of carboxy methyl cellulose (CMC) from *Eichornia crassipes* (Mart) Solms. Indo. J. Chem. 5(3): 228-231.
- Wijesekara, I., S.K. Kim, Y. Li, & Y.X. Li. 2011. Phlorotannins as bioactive agents from brown algae. Process Biochemistry. 46: 2219-2224.
- Wilmore, J.H., D.L. Costill, & W.L. Kenney. 2008. Physiology of Sport and Exercise. Fourth edition. Human Kinetics. Champaign.
- Wina, E., S. Muetzel, E. Hoffmann, H.P.S. Makkar, & K. Becker. 2005. Saponins containing methanol extract of *Sapindus rarak* effect microbial fermentation, microbial activity and microbial community structure in vitro. Animal Feed Science and Technology 121: 159-174.
- Winarno, F.G. 2008. Kimia Pangan dan Gizi. PT Gramedia Pustaka Utama. Jakarta.
- Winarsi, H. 2007. Antioksidan Alami dan Radikal Bebas. Kanisius. Yogyakarta. Hal. 189-190.
- Winarti, S. 2006. Minuman Kesehatan. Trubus Agrisarana. Surabaya.
- Wresdiyati, T. 2003. Immunohistochemical study of oxygen-free radical scavenger superoxide dismutase (Cu, Zn-SOD) in the liver of rats under stress condition. Biota 8(3): 107-112.
- Xiao H., W. Li, D. Huang, & X. Yang. 2016. Polyphenols from hawthorn peels and flashes differently mitigate dyslipidemia, inflammation, and oxidative stress in association with modulation of liver injury in high fructose diet-fed mice. Chem-Biol. Interact. 257: 132-140.
- Xu B. & Chang S.K.C. 2007. A comparative study on phenolic profiles and antioxidant activities of legumes as affected by extraction solvents. Journal of Food Science. 72: S159-S166.
- Yang, J.Y., J.H. Koo, H.Y. Yoon, J.H. Lee, B.H. Park, J.S. Kim, M.S. Chi, & J.W. Park. 2007. Effect of scopoletin on lipoprotein lipase activity in 3T3-L1 adipocytes. Int. J. Mol. Med. 20(4): 527-531.
- Yang, Haihua, Yiqiang Ge, Yujing Sun, Donghong Liu, Xingqian Ye, & Dan Wu. 2011. Identification and Characterisation of Low-Molecular-Weight Phenolic Compounds in Bayberry (*Myrica rubra* Sieb. et Zucc.) Leaves by HPLC-DAD and HPLC-UV-ESIMS. Food Chem, 128: 1128-1135.
- Yanpallewar, S.U., S. Rai, M. Kumar, & S.B. Acharya. 2004. Evaluation of antioxidant and neuroprotective effect of *Ocimum sanctum* on transient cerebral ischemia and long-term cerebral hypoperfusion. Pharm. Biochem. Behav. 79: 155-164.
- Ye H., K. Wang, C. Zhou, J. Liu, & X. Zeng. 2008. Purification, antitumor and antioxidant activities in vitro of polysaccharides from the brown seaweed *Sargassum pallidum*. Food Chem. 111: 428-432.

- Yokota, T., M. Nagashima, M. Ghazizadeh, & O. Kawanami. 2009. Increased effect of fucoidan on lipoprotein lipase secretion in adipocytes. *Life Sci.* 84: 523-529.
- Yong-Xin Li, I. Wijesekara, Y. Li, & S.K. Kim. 2011. Phlorotannins as bioactive agents from brown algae. *Process Biochem.* 46: 2219-2224.
- Yoshi, L.A. & I.N. Widiassa. 2016. Sistem Desalinasi Membran Reverse Osmosis (RO) untuk Penyediaan Air Bersih. Prosiding Seminar Nasional Teknik Kimia “Kejuangan” Pengembangan Teknologi Kimia untuk Pengolahan Sumber Daya Alam Indonesia. ISSN 1693-4393, G6 1-7.
- Yu, B., Z.X. Lu, X.M. Bie, F.X. Lu, & X.Q. Huang. 2008. Scavenging and anti-fatigue activity of fermented defatted soybean peptides. *Eur. Food Res. Technol.* 226: 415-421.
- Yun-Xi Liu, Mei-Mei Si, Wei Lu, Li-Xia Zhang, Chang-Xin Zhou, Shu-Li Deng, & Hao-Shu Wu. 2015. Effects and molecular mechanisms of the antidiabetic fraction of *Acorus calamus L.* on GLP-1 expression and secretion in vivo and in vitro. *Journal of Ethnopharmacology.* 166: 168-175.
- Zabri, H., C. Kodjo, A. Benie, J.M. Bekro, & Y.A. Bekro. 2008. Phytochemical screening and determination of flavonoids in *Secamone afzelii* (Asclepiadaceae) extracts. *Afr. J. Pure Appl. Chem.* 2(8): 80-82.
- Zahra, R., M. Mehrnaz, V. Farzaneh, & S. Kohzad. 2007. Antioxidant activity of extract from a brown alga, *Sargassum boveanum*. *Afr. J. Biotechnol.* 6(24): 2740-2745.
- Zhang, J., C. Tiller, J. Shen, C. Wang, G.S. Girouard, D. Dennis, C.J. Barrow, M. Miao, & H.S. Ewart. 2007. Antidiabetic properties of polysaccharide- and polyphenolic-enriched fractions from the brown seaweed *Ascophyllum nodosum*. *Can. J. Physiol. Pharmacol.* 85: 1116-1123.
- Zhang, B.B., G. Zhou, & C. Li. 2009. AMPK: An emerging drug target for diabetes and the metabolic syndrome. *Cell Metabolism* 9: 407-416.
- Zhao, G., T.D. Etherton, K.R. Martin, S.G. West, P.J. Gillies, & P.M.K. Etherton. 2004. Dietary linoleic acid reduces inflammatory and lipid cardiovascular risk factors in hypercholesterolemic men and women. *J. Nutr.* 134(11): 2991-2997.
- Zhu, J., Y. Jiang, L. Wu, T. Lu, G. Xu, & X. Liu. 2012. Suppression of local inflammation contributes to the neuroprotective effect of ginsenoside Rb1 in rats with cerebral ischemia. *Neurosci.* 202: 342-351.
- Zubia, M., D. Robledo, & Y. Freile-Pelegrin. 2008. Antioxidant Activities in Tropical Marine Macroalgae from Yucatan Peninsula, Mexico. *J App Phycol*, 19 : 449-458.