

DAFTAR PUSTAKA

Abed, A.Q., Abdulaemah, M.A., Hussein, S.F., and Maha, H., 2024, Pharmaceutical and Medical Applications of Fourier Transform Infrared Spectroscopy (FTIR), and Nuclear Magnetic Resonance (NMR),07, 2787–2800.

Airin, C.M., Hana, A., Astuti, P., Husni, A., 2018 Sargassum crasifolium Extract Could Prevent the Decrease in the Thyroxine Hormone and the Body Weight Loss of Javanese Randu Goats during Transportation, *J. Food Drugs*, 8 (3) 335-343

.

Ammerman, N.C., Beier-Sexton, M., and Azad, A.F., 2008, Growth and Maintenance of Vero Cell Lines, *Curr. Protoc. Microbiol.*, 11, A.4E.1-A.4E.7.

Anjana, K. and Arunkumar, K., 2024, Brown algae biomass for fucoxanthin, fucoidan and alginate; update review on structure, biosynthesis, biological activities and extraction valorisation, *Int. J. Biol. Macromol.*, 280, 135632.

Arguelles, E., 2021, Evaluation of Antioxidant Capacity, Tyrosinase Inhibition, and Antibacterial Activities of Brown Seaweed, *Sargassum ilicifolium* (Turner) C. Agardh 1820 for ..., *J. Fish. Environ.*, 45, 64–78.

Atanasov, A., Waltenberger, B., Pferschy-Wenzig, E., Linder, T., Wawrosch, C., Uhrin, P., Temml, V., Wang, L., Schwaiger, S., Heiss, E., Rollinger, J., Schuster, D., Breuss, J., Bochkov, V., Mihovilovic, M., Kopp, B., Bauer, R., Dirsch, V., and Stuppner, H., 2015, Discovery and



resupply of pharmacologically active plant-derived natural products: A review, *Biotechnol. Adv.*,
33,

Azam, M.S., Choi, J., Lee, M., and Kim, H., 2017, Hypopigmenting Effects of Brown Algae-Derived Phytochemicals : A Review on Molecular Mechanisms,

.

Bäsler, K., Bergmann, S., Heisig, M., Naegel, A., Zorn-Kruppa, M., and Brandner, J.M., 2016, The role of tight junctions in skin barrier function and dermal absorption, *J. Control. Release*, 242, 105–118.

Bayan, M.F., Chandrasekaran, B., and Alyami, M.H., 2023, Development and Characterization of Econazole Topical Gel, *Gels*, 9.

Berrouet, C., Dorilas, N., Rejniak, K.A., and Tuncer, N., 2020, Comparison of Drug Inhibitory Effects (IC 50) in Monolayer and Spheroid Cultures, *Bull. Math. Biol.*, 82, .

Bigagli, E., D'Ambrosio, M., Cinci, L., Niccolai, A., Biondi, N., and ..., 2021, A Comparative In Vitro Evaluation of the Anti-Inflammatory Effects of a *Tisochrysis lutea* Extract and Fucoxanthin, *Mar. Drugs*,

Bucar, F., Wube, A., and Schmid, M., 2013, Natural product isolation-how to get from biological material to pure compounds, *Nat. Prod. Rep.*, 30, 525–545.

Cao, L., Lee, S.G., Lim, K.T., and Kim, H.R., 2020, Potential anti-aging substances derived from



Chai, W.-M., Wei, Q.-M., Deng, W.-L., Zheng, Y.-L., Chen, X.-Y., Huang, Q., Ou-Yang, C., and Peng, Y.-Y., 2019, Anti-melanogenesis properties of condensed tannins from *Vigna angularis* seeds with potent antioxidant and DNA damage protection activities., *Food Funct.*, 10, 99–111.

Chandra, D., 2022, Uji Fisikokimia Sediaan Emulsi, Gel, Emulgel Ekstrak Etanol Goji Berry, *Jayapangus Press*, 11, 219–228.

Chang, C.-T., Chang, W.-L., Hsu, J.-C., Shih, Y., and Chou, S.-T., 2013, Chemical composition and tyrosinase inhibitory activity of *Cinnamomum cassia* essential oil, *Bot. Stud.*, 54, 10.

Chao, H.C., Najjaa, H., Villareal, M.O., Ksouri, R., Han, J., Neffati, M., and Isoda, H., 2013, *Arthrophytum scoparium* inhibits melanogenesis through the down-regulation of tyrosinase and melanogenic gene expressions in B16 melanoma cells, *Exp. Dermatol.*, 22, 131–136.

Chellappan, D.K., Chellian, J., Leong, J.Q., and Liaw, Y.Y., 2020, Biological and therapeutic potential of the edible brown marine seaweed *Padina australis* and their pharmacological mechanisms, *J. Trop. Biol. Conserv.*, 17, 251–271.

Chen, Siang-Jyun, Hseu, Y.-C., Gowrisankar, Y.V., Chung, Y.-T., Zhang, Y.-Z., Way, T.-D., and Yang, H.-L., 2021, The anti-melanogenic effects of 3-O-ethyl ascorbic acid via Nrf2-



mediated α -MSH inhibition in UVA-irradiated keratinocytes and autophagy induction in melanocytes., *Free Radic. Biol. Med.*, 173, 151–169.

Chen, Shiu-Jau, Lin, T.-B., Peng, hsien-yu, Liu, H.-J., Lee, A.-S., Cheng-Hsien, L., and Tseng, K.-W., 2021, Cytoprotective Potential of Fucoxanthin in Oxidative Stress-Induced Age-Related Macular Degeneration and Retinal Pigment Epithelial Cell Senescence In Vivo and In Vitro, *Mar. Drugs*, 19, 114.

Chen, W.C., Tseng, T.S., Hsiao, N.W., Lin, Y.L., Wen, Z.H., Tsai, C.C., Lee, Y.C., Lin, H.H., and Tsai, K.C., 2015, Discovery of highly potent tyrosinase inhibitor, T1, with significant anti-melanogenesis ability by zebrafish in vivo assay and computational molecular modeling, *Sci. Rep.*, 5, 1–9.

Cheng, M.C., Lee, T.H., Chu, Y.T., Syu, L.L., Hsu, S.J., Cheng, C.H., Wu, J., and Lee, C.K., 2018, Melanogenesis inhibitors from the rhizoma of ligusticum sinense in B16-f10 melanoma cells in vitro and zebrafish in vivo, *Int. J. Mol. Sci.*, 19, 1–18.

Cordenonsi, L.M., Santer, A., Martins Sponchiado, R., Steppe, M., Raffin, R.P., Eva, E., and Schapoval, S., 2017, Characterization and Analysis of Fucoxanthin and its Isomers, *J Pharm Sci Biosci. Res.* 2017, 7, 322–334.

D’Orazio, N., Gemello, E., Gammone, M.A., De Girolamo, M., Ficoneri, C., and Riccioni, G., 2012, Fucoxantin: A treasure from the sea, *Mar. Drugs*, 10, 604–616.

Deviyani Zakaria, A., Basah, K., and Bahtiar, A., 2018, Cytotoxic activity of extract and active fraction of turbinaria decurrens bory on colon cancer cell line HCT-116, *Int. J. Morphol.*, 36, 979–983.

Duraisamy*, R. Method Development And Validation Of Ricinoleic Acid By High Performance Thin Layer Chromatography at SSRN 4635966,.

Dutra, E.A., Da Costa E Oliveira, D.A.G., Kedor-Hackmann, E.R.M., and Miritello Santoro, M.I.R., 2004, Determination of sun protection factor (SPF) of sunscreens by ultraviolet spectrophotometry, *Rev. Bras. Ciencias Farm. J. Pharm. Sci.*, 40, 381–385.

Dzhussoeva, E. V., Gorkun, A.A., Zurina, I.M., Kosheleva, N. V., Kolokol'tsova, T.D., and Saburina, I.N., 2020, Influence of Fucoxanthin on Proliferative Activity of Human Melanocyte Culture, *Bull. Exp. Biol. Med.*, 169, 596–599.

Franklin R. Kemenangan,¹ Gaspar D. Manu,² Fransine B. Manginsela, 2, 2017, Pertumbuhan Alga Coklat Padina australis di Perairan Pesisir Desa, *J. Ilm. Platax*, 5, 243–253.

Freitas, R., Martins, A., Silva, J., Alves, C., Pinteus, S., Alves, J., and ..., 2020, Highlighting the biological potential of the brown seaweed *Fucus spiralis* for skin applications, *Antioxidants*,

.

Galant, N., Nicos, M., Khalavka, M., Krzyżanowska, N., Chmielewska, I., Kuźnar-Kamińska,



B., Krawczyk, P., Sroka-Bartnicka, A., and Depciuch, J., 2025, Application of Fourier transform infrared (FTIR) spectroscopy in liquid biopsy to predict the response to the first-line immunotherapy in non-small-cell lung cancer (NSCLC) patients, *Biochem. Biophys. Res. Commun.*, 771, .

Gibbons, S., 2012, An introduction to planar chromatography and its application to natural products isolation,.

Greco, M., Chiappetta, A., Bruno, L., and Bitonti, M.B., 2012, In *Posidonia oceanica* cadmium induces changes in DNA methylation and chromatin patterning, *J. Exp. Bot.*, 63, 695–709.

Guvatova, Z., Dalina, A., Marusich, E., Pudova, E., Snezhkina, A., Krasnov, G., Kudryavtseva, A., Leonov, S., and Moskalev, A., 2020, Protective effects of carotenoid fucoxanthin in fibroblasts cellular senescence, *Mech. Ageing Dev.*, 189, 111260.

Hoang, T. Van, Alshiekheid, M.A., and K, P., 2024, A study on anticancer and antioxidant ability of selected brown algae biomass yielded polysaccharide and their chemical and structural properties analysis by FT-IR and NMR analyses, *Environ. Res.*, 260, 119567.

Hsu, J.-Y., Lin, H.-H., Li, T.-S., Tseng, C.-Y., Wong, Y., and Chen, J.-H., 2020, Anti-Melanogenesis Effects of Lotus Seedpod In Vitro and In Vivo., *Nutrients*, 12,

Huang, C., Zhang, Z., and Cui, W., 2019, Marine-derived natural compounds for the treatment of



Parkinson's disease, *Mar. Drugs*,

.

Ishihara, A., Ide, Y., Bito, T., Ube, N., Endo, N., Sotome, K., Maekawa, N., Ueno, K., and Nakagiri, A., 2018, Novel tyrosinase inhibitors from liquid culture of *Neolentinus lepideus*, *Biosci. Biotechnol. Biochem.*, 82, 1–9.

Jeengar, M.K., Rompicharla, S.V.K., Shrivastava, S., Chella, N., Shastri, N.R., Naidu, V.G.M., and Sistla, R., 2016, Emu oil based nano-emulgel for topical delivery of curcumin, *Int. J. Pharm.*, 506, 222–236.

Jeon, H.J., Kim, K., Kim, Y.D., and Lee, S.E., 2019, Antimelanogenic activities of piperlongumine derived from *Piper longum* on murine B16F10 melanoma cells in vitro and zebrafish embryos in vivo: its molecular mode of depigmenting action, *Appl. Biol. Chem.*, 62, .

Junopia, A.C., Natsir, H., and Dali, S., 2020, Effectiveness of Brown Algae (*Padina australis*) Extract as Antioxidant Agent, *J. Phys. Conf. Ser.*, 1463, 1–6.

Kadi, A., 2017, Interaksi Makroalgae dan Lingkungan Perairan Teluk Carita Pandeglang, *Biosfera*, 34, 32

.

Kawano, M., Matsuyama, K., Miyamae, Y., Shinmoto, H., Kchouk, M.E., Morio, T., Shigemori, H., and Isoda, H., 2007, Antimelanogenesis effect of Tunisian herb *Thymelaea hirsuta* extract on B16 murine melanoma cells, *Exp. Dermatol.*, 16, 977–984

Kim, H.S., Kim, T.J., and Yoo, Y.M., 2014, Melatonin combined with endoplasmic reticulum stress induces cell death via the PI3K/Akt/mTOR pathway in B16F10 melanoma cells, *PLoS One*, 9, 1–11.

Kim, M., Kim, D.S., Yoon, H., Lee, W.J., Lee, N.H., and Hyun, C., 2014, Melanogenesis inhibitory activity of Korean *Undaria pinnatifida* in mouse B16 melanoma cells, 7, 89–92.

Krewski, D., Andersen, M.E., Tyshenko, M.G., Krishnan, K., Hartung, T., Boekelheide, K., Wambaugh, J.F., Jones, D., Whelan, M., Thomas, R., Yauk, C., Barton-Maclaren, T., and Cote, I., 2020, Toxicity testing in the 21st century: progress in the past decade and future perspectives, Springer Berlin Heidelberg.

Kulkeaw, K., Ishitani, T., Kanemaru, T., Ivanovski, O., Nakagawa, M., Mizuochi, C., Horio, Y., and Sugiyama, D., 2011, Cold exposure down-regulates zebrafish pigmentation, *Genes to Cells*, 16, 358–367.

Kurniawati, Y., Adi, S., Achadiyani, A., Suwarsa, O., Erlangga, D., and Putri, T., 2015, Kultur Primer Fibroblas: Penelitian Pendahuluan, *Maj. Kedokt. Andalas*, 38, 33.

Landa-Cansigno, C., Serviere-Zaragoza, E., Morales-Martínez, T.K., Ascacio-Valdes, J.A., Morreeuw, Z.P., Gauyat, C., Stiger-Pouvreau, V., and Reyes, A.G., 2023, The antioxidant and anti-elastase activity of the brown seaweed *Sargassum horridum* (Fucales, Phaeophyceae) and

their early phenolics and saponins profiling for green cosmetic applications, *Algal Res.*, 75,

Leong, Y.K., Chen, C.Y., Varjani, S., and Chang, J.S., 2022, Producing fucoxanthin from algae – Recent advances in cultivation strategies and downstream processing, *Bioresour. Technol.*, 344, 126170

Lephart, E.D., 2016, Skin aging and oxidative stress: Equol's anti-aging effects via biochemical and molecular mechanisms, *Ageing Res. Rev.*, 31, 36–54.

Lin, V.C.H., Ding, H.Y., Kuo, S.Y., Chin, L.W., Wu, J.Y., and Chang, T.S., 2011, Evaluation of in vitro and in vivo depigmenting activity of raspberry ketone from *Rheum officinale*, *Int. J. Mol. Sci.*, 12, 4819–4835.

Liu, M., Li, W., Chen, Y., Wan, X., and Wang, J., 2020, Fucoxanthin: A promising compound for human inflammation-related diseases, *Life Sci.*, 255,

Lourenço-Lopes, C., Fraga-Corral, M., Jimenez-Lopez, C., and ..., 2020, Metabolites from macroalgae and its applications in the cosmetic industry: A circular economy approach, *Resources*,

Lourenço-Lopes, C., Fraga-Corral, M., Jimenez-Lopez, C., Carpena, M., Pereira, A.G., Garcia-Oliveira, P., Prieto, M.A., and Simal-Gandara, J., 2021, Biological action mechanisms of fucoxanthin extracted from algae for application in food and cosmetic industries, *Trends Food*



Maeda, H., 2018, Anti-oxidant and fucoxanthin contents of brown alga ishimozuku (*Sphaerotrichia divaricata*) from the west coast of aomori, Japan, *Mar. Drugs*, 16, .

Maeda, H., Fukuda, S., Izumi, H., and Saga, N., 2018, Anti-oxidant and fucoxanthin contents of brown alga ishimozuku (*Sphaerotrichia divaricata*) from the west coast of aomori, Japan, *Mar. Drugs*, 16, 1–10.

Maeda, H., Hosokawa, M., Sashima, T., Funayama, K., and Miyashita, K., 2005, Fucoxanthin from edible seaweed, *Undaria pinnatifida*, shows antiobesity effect through UCP1 expression in white adipose tissues, *Biochem. Biophys. Res. Commun.*, 332, 392–397.

Male_, _eljan, Mornar, A., Medi_-_ari_, M., and Jasprica, I., 2008, Application of TLC in the Isolation and Analysis of Flavonoids, 405–424.

Marques, R., Guillaumin, A., Abdelwahab, A., Salwinski, A., Gotfredsen, C., Bourgaud, F., Enemark-Rasmussen, K., Miguel, S., and Simonsen, H., 2021, Collagenase and Tyrosinase Inhibitory Effect of Isolated Constituents from the Moss *Polytrichum formosum*, *Plants*, 10, 1271.

Matsuura, R., Ukeda, H., and Sawamura, M., 2006, Tyrosinase inhibitory activity of citrus essential oils, *J. Agric. Food Chem.*, 54, 2309–2313.

Miyashita, K., Nishikawa, S., Beppu, F., Tsukui, T., Abe, M., and Hosokawa, M., 2011, The allenic carotenoid fucoxanthin, a novel marine nutraceutical from brown seaweeds, *J. Sci. Food Agric.*, 91, 1166–1174.

Morais, T., Cotas, J., Pacheco, D., and Pereira, L., 2021, Seaweeds Compounds: An Ecosustainable Source of Cosmetic Ingredients?, *Cosmetics.*,

Mugiyanto, E., Cahyanta, A., Made, I., Putra, A., Setyahadi, S., and Simanjuntak, P., 2019, Identifying active compounds of soursop ethanolic fraction as α -glucosidase inhibitor, *Pharmaciana*, 9, 191–200.

Mukherjee, P., Maity, N., Nema, N., and Sarkar, B., 2011, Bioactive compounds from natural resources against skin aging, *Phytomedicine*, 19, 64–73.

Namjooyan, F., Farasat, M., Alishahi, M., Jahangiri, A., and Mousavi, H., 2019, The anti-melanogenesis activities of some selected brown macroalgae from northern coasts of the persian gulf, *Brazilian Arch. Biol. Technol.*, 62, 383–390.

NASER, W., 2021, The Cosmetics Effects Of Various Natural Biofunctional Ingredients Aganinst Skin Aging:A Review, *Int. J. Appl. Pharm.*,

Nazarudin, M.F., Paramisparam, A., Khalid, N.A., and ..., 2020, Metabolic variations in

seaweed, *Sargassum polycystum* samples subjected to different drying methods Via ¹H NMR-based metabolomics and their bioactivity ..., *Arab. J.*

Neumann, U., Derwenskus, F., Flister, V.F., Schmid-Staiger, U., Hirth, T., and Bischoff, S.C., 2019, Fucoxanthin, a carotenoid derived from *Phaeodactylum tricornutum* exerts antiproliferative and antioxidant activities in vitro, *Antioxidants*, 8, 1–11.

Ni-Ni-Win, Hanyuda, T., Draisma, S.G.A., Lim, P.-E., Phang, S.-M., and Kawai, H., 2013, Taxonomy of the genus *Padina* (Dictyotales, Phaeophyceae) based on morphological and molecular evidences, with key to species identification, *Taxon. Southeast Asian Seaweeds*, 7, 119–174.

Nur, S., Baitanu, J.A., and Gani, S.A., 2019, Pengaruh Tempat Tumbuh dan Lama Penyulingan secara Hidrodestilasi terhadap Rendemen dan Profil Kandungan Kimia Minyak Atsiri Daun Kemangi (*Ocimum canum* Sims L.), *J. Fitofarmaka Indones.*, 6, 363–367.

Nurjanah, Suwandi, R., Anwar, E., Maharany, F., and Hidayat, T., 2019, Characterization and formulation of sunscreen from seaweed *Padina australis* and *Euchema cottonii* slurry, *IOP Conf. Ser. Earth Environ. Sci.*, 404,

Nurrochmad, A., Wirasti, W., Dirman, A., Lukitaningsih, E., Rahmawati, A., and Fakhruddin, N., 2018, Effects of Antioxidant, Anti-Collagenase, Anti-Elastase, Anti-Tyrosinase of The Extract and Fraction From *Turbinaria decurrens* Bory., *Indones. J. Pharm.*, 29, 188.

Nursid, M., Wikanta, T., and Susilowati, R., 2013, Kandungan fukosantin ekstrak rumput laut coklat dari pantai Binuangeun , Banten, *JPB Kelaut. dan Perikan.*, 8, 73–84.

Pangestuti, R., Shin, K.H., and Kim, S.K., 2021, Anti-photoaging and potential skin health benefits of seaweeds, *Mar. Drugs.*,

Park, S., Yang, M.-J., Ha, S.-N., and Lee, J.-S., 2014, Effective Anti-aging Strategies in an Era of Super-aging, *J. menopausal Med.*, 20, 85–89.

Pereira, A.G., Fraga-Corral, M., Garcia-Oliveira, P., and ..., 2021, The Use of Invasive Algae Species as a Source of Secondary Metabolites and Biological Activities: Spain as Case-Study, *Mar. Drugs.*,

Pereira, L., 2018, Seaweeds as source of bioactive substances and skin care therapy—Cosmeceuticals, algotherapy, and thalassotherapy, *Cosmetics.*,

Di Petrillo, A., González-Paramás, A.M., Era, B., Medda, R., Pintus, F., Santos-Buelga, C., and Fais, A., 2016, Tyrosinase inhibition and antioxidant properties of *Asphodelus microcarpus* extracts, *BMC Complement. Altern. Med.*, 16, 1–9.

Pintus, F., Spanò, D., Corona, A., and Medda, R., 2015, Antityrosinase activity of *Euphorbia characias* extracts, *PeerJ*, 2015, .

Purwanti, R.A., Farida, Y., and Taurhesia, S., 2022, Formulasi Sediaan Serum Anti Aging dengan Kombinasi dari Ekstrak Buah Tomat (*Lycopersicum esculentum* L.) dan Ekstrak Kulit Buah Semangka (*Citrullus lanatus* Thunb.), *J. Fitofarmaka Indones.*, 9, 19–24.

Rachmawati, N.F., Nuryanti, I.F., and Adharani, N., 2021, Phytochemicals and Antioxidant of Seaweed Tea *Padina Australis*, *Int. J. Mar. Eng. Innov. Res.*, 6, 255–258.

Rafi, M., Meitary, N., Septaningsih, D.A., and Bintang, M., 2020, Phytochemical profile and antioxidant activity of *guazuma ulmifolia* leaves extracts using different solvent extraction, *Indones. J. Pharm.*, 31, 171–180.

Resende, D.I.S.P., Ferreira, M., Magalhães, C., Sousa Lobo, J.M., Sousa, E., and Almeida, I.F., 2021, Trends in the use of marine ingredients in anti-aging cosmetics, *Algal Res.*, 55,

Rinnerthaler, M., Bischof, J., Streubel, M.K., Trost, A., and Richter, K., 2015, Oxidative stress in aging human skin, *Biomolecules*, 5, 545–589.

Rizzi, V., Gubitosa, J., Fini, P., and Cosma, P., 2021, Neurocosmetics in skincare-the fascinating world of skin-brain connection: A review to explore ingredients, commercial products for skin aging, and cosmetic regulation, *Cosmetics*, 8, .

Robert, L., Labat-Robert, J., and Robert, A.-M., 2012, Physiology of Skin Aging, *Clin. Plast.*



Robinson K June, Wayne Jeffre D, Mary MD, Martini , Brittney A, Hultgren, Kimberly, Mallet, T., 2018, Early Detection of New Melanomas by Patients With Melanoma and Their Partners Using a Structured Skin Self-examination Skills Training Intervention, *Physiol. Behav.*, 176, 139–148.

Safitri D.D, Melani W.R, S. and A., 2020, Karakteristik Habitat Padina Australis Di Perairan Pulau Karas Kecamatan Galang Kota Batam Provinsi Kepulauan Riau, *J. Marit. Manaj. Ris. dan Teknol. Univ. karimun*, 2, 10–20.

Seth, K., Kumar, A., Rastogi, R.P., Meena, M., Vinayak, V., and Harish, 2021, Bioprospecting of fucoxanthin from diatoms — Challenges and perspectives, *Algal Res.*, 60, 102475.

Shi, Y., Ren, J., Zhao, B., Zhu, T., and Qi, H., 2022, Photoprotective Mechanism of Fucoxanthin in Ultraviolet B Irradiation-Induced Retinal Müller Cells Based on Lipidomics Analysis, *J. Agric. Food Chem.*, 70, 3181–3193.

Shimoda, H., Tanaka, J., Shan, S.J., and Maoka, T., 2010, Anti-pigmentary activity of fucoxanthin and its influence on skin mRNA expression of melanogenic molecules, *J. Pharm. Pharmacol.*, 62, 1137–1145.

Shokrzadeh, M. and Modanloo, M., 2017, An overview of the most common methods for



assessing cell viability, *J. Res. Med. Dent. Sci.*, 5, 33.

Soradech, S., 2016, Radical scavenging, antioxidant and melanogenesis stimulating activities of diiferent species of rice (*Oryza sativa* L.) extracts, *Thai J. Pharm. Sci.*, 40, .

Sreekala, K.G., Sathuvan, M., and Anand, J., 2019, Microalgal Pigments as Natural Color: Scope and Applications, *from Med. Plants.*,

Srisuksomwong, P., Kaenhin, L., and Mungmai, L., 2023, Collagenase and Tyrosinase Inhibitory Activities and Stability of Facial Cream Formulation Containing Cashew Leaf Extract, *Cosmetics*, 10, 17.

Srivastava, N., Patel, D.K., Rai, V.K., Pal, A., and Yadav, N.P., 2018, Development of emulgel formulation for vaginal candidiasis: Pharmaceutical characterization, in vitro and in vivo evaluation, *J. Drug Deliv. Sci. Technol.*, 48, 490–498.

Stranska-Zachariasova, M., Kurniatanty, I., Gbelcova, H., Jiru, M., Rubert, J., Nindhia, T.G.T., D'Acunto, C.W., Sumarsono, S.H., Tan, M.I., Hajslova, J., and Ruml, T., 2017, Bioprospecting of *Turbinaria* Macroalgae as a Potential Source of Health Protective Compounds, *Chem. Biodivers.*, 14, .

Sun, J., Zhou, C., Cheng, P., Zhu, J., Hou, Y., Li, Y., Zhang, J., and Yan, X., 2022, A simple and efficient strategy for fucoxanthin extraction from the microalga *Phaeodactylum tricornutum*,



Susanto, E., Fahmi, A.S., Abe, M., Hosokawa, M., and Miyashita, K., 2016, Lipids, Fatty Acids, and Fucoxanthin Content from Temperate and Tropical Brown Seaweeds, *Aquat. Procedia*, 7, 66–75.

Takaichi, S., 2011, Carotenoids in algae: Distributions, biosyntheses and functions, *Mar. Drugs*, 9, 1101–1118.

Tamaz, Z. and Nino, Z., 2021, Population Aging – a Global Challenge, *Ecoforum*, 10, 0–0.

Thiyagarasaiyar, K, Mahendra, C.K., Goh, B.H., Gew, L.T., and ..., 2021, UVB Radiation Protective Effect of Brown Alga Padina australis: A Potential Cosmeceutical Application of Malaysian Seaweed, *Cosmetics*,.

Thiyagarasaiyar, Krishnapriya, Mahendra, C.K., Goh, B.H., Gew, L.T., and Yow, Y.Y., 2021, UVB radiation protective effect of brown alga padina australis: A potential cosmeceutical application of Malaysian seaweed, *Cosmetics*, 8,

.

Tzaphlidou, M., 2004, The role of collagen and elastin in aged skin: An image processing approach, *Micron*, 35, 173–177.

Wang, L., Jayawardena, T.U., Yang, H.-W., Lee, H.-G., and Jeon, Y.-J., 2020, The Potential of



Sulfated Polysaccharides Isolated from the Brown Seaweed *Ecklonia maxima* in Cosmetics: Antioxidant, Anti-melanogenesis, and Photoprotective Activities, *Antioxidants*, 9, 724.

Wang, L., Lee, W.W., Cui, Y.R., Ahn, G., and Jeon, Y.J., 2019, Protective effect of green tea catechin against urban fine dust particle-induced skin aging by regulation of NF- κ B, AP-1, and MAPKs signaling pathways, *Environ. Pollut.*,

Wang, L., Oh, J.Y., Kim, Y.S., Lee, H.G., Lee, J.S., and Jeon, Y.J., 2020, Anti-photoaging and anti-melanogenesis effects of fucoïdan isolated from *Hizikia fusiforme* and its underlying mechanisms, *Mar. Drugs*, 18, 1–12.

Warren, F.J., Gidley, M.J., and Flanagan, B.M., 2016, Infrared spectroscopy as a tool to characterise starch ordered structure - A joint FTIR-ATR, NMR, XRD and DSC study, *Carbohydr. Polym.*, 139, 35–42.

Waznah, U., Vandian, A., Mugiyanto, E., and Fajriyah, N.N., 2022, Comparative Study of FT-IR Profiles Preparation of Nano-Hydrogel Combination of Soursop Extract and Zinc, *Urecol* 15, 286–292.

Wen, P., Hu, T.G., Linhardt, R.J., Liao, S.T., Wu, H., and Zou, Y.X., 2019, Mulberry: A review of bioactive compounds and advanced processing technology, *Trends Food Sci. Technol.*, 83, 138–158.



Widyaningtyas, Y., 2010, Optimasi formula emulgel Sunscreen Ekstrak Etil Asetat Isoflavon Tempe Dengan Carbopol 940 Sebagai Gelling Agent Dan VCO Sebagai Fase Minyak: Aplikasi Desain Faktorial, *Sci. Rep.*,

Wirasti, W., 2016, Uji Aktivitas Antioksidan Dan Anti Penuaan Dini Rumput Laut Coklat (*Turbinaria decurrens* Bory),.

Xia, S., Wang, K., Wan, L., Li, A., Hu, Q., and Zhang, C., 2013, Production, characterization, and antioxidant activity of fucoxanthin from the marine diatom *odontella aurita*, *Mar. Drugs*, 11, 2667–2681.

Yadav, S.K., Mishra, M.K., Tiwari, A., and Shukla, A., 2016, Emulgel: a New Approach for Enhanced Topical Drug Delivery, *Int. J. Curr. Pharm. Res.*, 9, 15.

Yang, H.-L., Lin, C.-P., Gowrisankar, Y.V., Huang, P.-J., Chang, W.-L., Shrestha, S., and Hseu, Y.-C., 2021, The anti-melanogenic effects of ellagic acid through induction of autophagy in melanocytes and suppression of UVA-activated α -MSH pathways via Nrf2 activation in keratinocytes., *Biochem. Pharmacol.*, 185, 114454.

Yang, S.I., Liu, S., Brooks, G.J., Lanctot, Y., and Gruber, J. V., 2018, Reliable and simple spectrophotometric determination of sun protection factor: A case study using organic UV filter-based sunscreen products, *J. Cosmet. Dermatol.*, 17, 518–522.



Yip, W.H., Lim, S.J., Mustapha, W.A.W., Maskat, M.Y., and Said, M., 2014, Characterisation and stability of pigments extracted from *Sargassum binderi* obtained from Semporna, Sabah, *Sains Malaysiana*, 43, 1345–1354.

Yulyana, A., Amin, C., Simanjuntak, P., Abdillah, S., Rohman, A., and Mugiyanto, E., 2023, Assessing the Antimetabolite Activity of Anthocyanins in Cantigi Fruits from Two Conservation Sites in Indonesia, *Indones. J. Pharm.*, 34, 450–459.

Zailanie, K. and Purnomo, H., 2011, Studi kandungan dan Identifikasi Fukosantin dari Tiga Jenis Rumput Laut Cokelat (*Sargassum cinereum*, *Sargassum echinocarpum* dan *Sargassum filipendula*) dari Padike Talogo Sumenep Madura, *Hayati Ed. Khusus*, 7, 143–147.

Zárate, R., Portillo, E., Teixidó, S., Carvalho, M.A.A., and ..., 2020, Pharmacological and Cosmeceutical Potential of Seaweed Beach-Casts of Macaronesia, *Appl. Sci.*,

Zhang, Q.W., Lin, L.G., and Ye, W.C., 2018, Techniques for extraction and isolation of natural products: A comprehensive review, *Chinese Med. (United Kingdom)*, 13, 1–26.

Zhang, Y., Fu, Y., Zhou, S., Kang, L., and Li, C., 2013, A straightforward ninhydrin-based method for collagenase activity and inhibitor screening of collagenase using spectrophotometry, *Anal. Biochem.*, 437, .

Zhang, Y., Xu, M., and Aðalbjörnsson, B.V., 2021, Sugaring-out: a novel sample preparation



method for determination of fucoxanthin in Icelandic edible seaweeds, *J. Appl. Phycol.*, 33, 515–521.

Zhao, D., Kwon, S.H., Chun, Y.S., Gu, M.Y., and Yang, H.O., 2017, Anti-Neuroinflammatory Effects of Fucoxanthin via Inhibition of Akt/NF- κ B and MAPKs/AP-1 Pathways and Activation of PKA/CREB Pathway in Lipopolysaccharide-Activated BV-2 Microglial Cells, *Neurochem. Res.*, 42, 667–677.

Zhao, L., Chen, J., Bai, B., Song, G., Zhang, J., Yu, H., Huang, S., Wang, Z., and Lu, G., 2023, Topical drug delivery strategies for enhancing drug effectiveness by skin barriers, drug delivery systems and individualized dosing, *Front. Pharmacol.*, 14, 1–29.