

## 5. DAFTAR PUSTAKA

- Abou-El-Wafaa, G. S. E., Shaaban, K. a., El-naGGar, M. E. E., Shaaban, M. (2011). Bioactive constituents and biochemical composition of the egyptian brown alga *Sargassum Subrepandum* (Forsk). *Revista Latinoamericana de Química*, 39(1–2), 62–74. <http://www.scielo.org.mx/pdf/rlq/v39n1-2/v39n1-2a6.pdf>
- Astorga-España, M. S., Rodríguez-Galdón, B., Rodríguez-Rodríguez, E. M., & Díaz-Romero, C. (2016). Amino acid content in seaweeds from the Magellan Straits (Chile). *Journal of Food Composition and Analysis*, 53, 77–84. <https://doi.org/10.1016/j.jfca.2016.09.004>
- Bellisle, F. (1999). Glutamate and the Umami taste: Sensory, metabolic, nutritional and behavioural considerations. A review of the literature published in the last 10 years. *Neuroscience and Biobehavioral Reviews*, 23(3), 423–438. [https://doi.org/10.1016/S0149-7634\(98\)00043-8](https://doi.org/10.1016/S0149-7634(98)00043-8)
- Benjama, O., & Masniyom, P. (2011). Nutritional composition and physicochemical properties of two green seaweeds ( *Ulva pertusa* and *U. intestinalis* ) from the Pattani Bay in Southern Thailand, 33(5), 575–583. <http://rdo.psu.ac.th/sjstweb/journal/33-5/0125-3395-33-5-575-583.pdf>
- Bhuiyan, K. A., Qureshi, S., Hena, A., Kamal, M., Aftabuddin, S., Abdul, M., & Siddique, M. (1873). Proximate Chemical Composition of Sea Grapes *Caulerpa racemosa* ( J . Agardh , 1873 ) Collected from a Sub-Tropical Coast Virology & Mycology, 5(2), 1–6. <https://doi.org/10.4172/2161-0517.1000158>
- Bleakley, S., & Hayes, M. (2017a). Algal Proteins: Extraction, Application, and Challenges Concerning Production. *Foods*, 6(5), 33. <https://doi.org/10.3390/foods6050033>
- Bleakley, S., & Hayes, M. (2017b). Algal Proteins: Extraction, Application, and Challenges Concerning Production Stephen. *Food*, 6(33), 1–34. <https://doi.org/10.3390/foods6050033>
- Bocanegra, A., Bastida, S., Benedí, J., Ródenas, S., & Sánchez-Muniz, F. J. (2009). Characteristics and nutritional and cardiovascular-health properties of seaweeds. *Journal of Medicinal Food*, 12(2), 236–258. <https://doi.org/10.1089/jmf.2008.0151>
- Brahmana, E. M., & Astitiasih, I. A. R. (2017). Pengembangan Bahan Ajar Biokimia Berbasis Hasil Penelitian Identifikasi Kandungan Asam Amino pada Rumput Laut (*Dictyota Patens*) di Pantai Segara Sanur. *Jurnal Pendidikan Biologi Indonesia*, 3(2), 160. <https://doi.org/10.22219/jpbi.v3i2.4036>
- Chan, P. T., & Matanjun, P. (2017). Chemical composition and physicochemical properties of tropical red seaweed, *Gracilaria changii*. *Food Chemistry*, 221, 302–310. <https://doi.org/10.1016/j.foodchem.2016.10.066>
- Chandrashekhar, J., Hoon, M. A., Ryba, N. J. P., & Zuker, C. S. (2006). The receptors and cells for mammalian taste. *Nature*, 444(7117), 288–294.

<https://doi.org/10.1038/nature05401>

Choudhury, S., & Sarkar, N. Sen. (2017). Plant Science Today Algae as Source of Natural Flavour Enhancers - A Mini Review. *Plant Science Today*, 4(4), 172–176. <https://doi.org/10.14719/pst.2017.4.4.338>

Cian, R. E., Drago, S. R., De Medina, F. S., & Martínez-Augustin, O. (2015). Proteins and carbohydrates from red seaweeds: Evidence for beneficial effects on gut function and microbiota. *Marine Drugs*, 13(8), 5358–5383. <https://doi.org/10.3390/md13085358>

Da Costa, J. F., Merdekawati, W., & Otu, F. R. (2015). Analisis proksimat, aktivitas antioksidan dan komposisi pigmen Ulva lactuca dari Perairan Pantai Kukup , Kabupaten Gunung Kidul , Yogyakarta. *Bioteknologi*, 12(2), 34–45. <https://doi.org/10.13057/biotek/c120202>

Daud, R. (2013). Pengaruh Masa Tanam terhadap Kualitas Rumput Laut , Kappaphycus Alvarezii. *Media Akuakultur*, 8(2), 135–138. <http://dx.doi.org/10.15578/ma.8.2.2013.135-138>

Faoziyah, A. R. (2014). Pembuatan glutamate alami menggunakan ikan tenggiri sebagai alternatif bumbu penyedap rasa non msg. *Jurnal Kesehatan Al\_Irsyad (JKA)*, V(1), 9–14. <http://jka.stikesalirsyadclp.ac.id/index.php/jka/article/view/2>

Farid, W., Ibrahim, R., Dewi, E. N., Susanto, E., Amalia, U., Farid Ma 'ruf, W., ... Semarang, T. (2013). Profil Rumput Laut Caulerpa racemosa dan Gracilaria verrucosa Sebagai Edible Food. *Jurnal Saintek Perikanan*, 9(1), 68–74. <https://ejournal.undip.ac.id/index.php/saintek/article/view/8114/6659>

Handayani, T. (2006). Protein Pada Rumput Laut. *Oseana*, XXXI(4), 23–30. [http://oseanografi.lipi.go.id/dokumen/oseana\\_xxsi\(4\)23-30.pdf](http://oseanografi.lipi.go.id/dokumen/oseana_xxsi(4)23-30.pdf)

Handayani, T., & Setyawan, A. D. (2004). Analisis Komposisi Nutrisi Rumput Laut Sargassum crassifolium J. Agardh. *Biofarmasi*, 2(2), 45–52. <https://doi.org/10.1693-2242> <https://core.ac.uk/download/pdf/12345759.pdf>

Heiba, H. I., Al-Nagdy, S. A., Rizk, A. M., & Durgham, M. M. (1993). The amino acid composition of some common marine algae of Qatar Arabian Gulf. *Qatar Univ. Sci. J.*, 13, 219–225. Retrieved from <http://qspace.qu.edu.qa/handle/10576/9607>

Ikeda, K. (2002). New Seasonings. *Chemical Senses*, 27(9), 847–849. <https://doi.org/10.1093/chemse/27.9.847>

Ishakani, A. H., Vadher, K. H., Kadri, R. M., & Patel, M. R. (2017). Amino Acid and Fatty Acid Composition of Seaweeds ( Ulva reticulata and Sargassum cinctum ): A Novel Natural Source of Nutrition. *Int. J. Pure App. Biosci.*, 5(5), 1210–1216. [https://www.researchgate.net/publication/335911032\\_Amino\\_Acid\\_and\\_Fatty\\_Acid\\_Composition\\_of\\_Seaweeds\\_Ulva\\_reticulata\\_and\\_Sargassum\\_cinctum\\_A\\_Novel\\_Natural\\_Source\\_of\\_Nutrition](https://www.researchgate.net/publication/335911032_Amino_Acid_and_Fatty_Acid_Composition_of_Seaweeds_Ulva_reticulata_and_Sargassum_cinctum_A_Novel_Natural_Source_of_Nutrition)

- Istiqamah, A., Lioe, H. N., & Adawiyah, D. R. (2019). Umami compounds present in low molecular umami fractions of asam sunti – A fermented fruit of *Averrhoa bilimbi* L. *Food Chemistry*, 270(January 2018), 338–343. <https://doi.org/10.1016/j.foodchem.2018.06.131>
- Jinap, S., & Hajeb, P. (2010). Glutamate. Its applications in food and contribution to health. *Appetite*, 55(1), 1–10. <https://doi.org/10.1016/j.appet.2010.05.002>
- Js, G., Palacios, V., & Roldán, A. (2016). Nutritional Potential of Four Seaweed Species Collected in the Barbate Estuary (Gulf of Cadiz, Spain), 6(3). <https://doi.org/10.4172/2155-9600.1000505>
- Juita, N., Lovadi, I., & Linda, R. (2015). Pemanfaatan Tumbuhan Sebagai Penyedap Rasa Alami Pada Masyarakat Suku Dayak Jangkang Tanjung Dan Melayu Di Kabupaten Sanggau. *Jurnal Protobiont*, 4(3), 74–80. <http://jurnal.untan.ac.id/index.php/jprb/article/view/13315/12002>
- K.H. Wong; Peter C.K. Cheung. (2002). Nutritional evaluation of some subtropical red and green seaweeds Part I - proximate composition, amino acid profiles and some physico-chemical properties. *Science Translational Medicine*, 4(125). <https://doi.org/10.1126/scitranslmed.3003979>
- Kadam, S. U., Alvarez, C., Tiwari, B. K., & Donnell, C. P. O. (2016). Extraction and characterization of protein from Irish brown seaweed *Ascophyllum nodosum*. *FRIN*. <https://doi.org/10.1016/j.foodres.2016.07.018>
- Kadi, A. (2004). Potensi Rumput Laut Dibeberapa Perairan Pantai Indonesia. *Oseana*, XXIX(4), 25–36. <https://doi.org/0216-1877>
- Khairy, H. M., & El-Shafay, S. M. (2013). Seasonal variations in the biochemical composition of some common seaweed species from the coast of Abu Qir Bay, Alexandria, Egypt. *Oceanologia*, 55(2), 435–452. <https://doi.org/10.5697/oc.55-2.435>
- Kolb, N., Vallorani, L., Milanovi, N., Stocchi, V., Urbino, S., & Urbino, I.-. (2004). Evaluation of Marine Algae Wakame (*Undaria pinnatifida*) and Kombu (*Laminaria digitata japonica*) as Food Supplements, 42(1), 57–61. [https://www.researchgate.net/publication/228743102\\_Evaluation\\_of\\_Marine\\_Alga\\_e\\_Wakame\\_Undaria\\_pinnatifida\\_and\\_Kombu\\_Laminaria\\_digitata\\_japonica\\_as\\_Food\\_Supplements](https://www.researchgate.net/publication/228743102_Evaluation_of_Marine_Alga_e_Wakame_Undaria_pinnatifida_and_Kombu_Laminaria_digitata_japonica_as_Food_Supplements)
- Kurihara, K. (2015). Umami the Fifth Basic Taste: History of Studies on Receptor Mechanisms and Role as a Food Flavor, 2015. <https://doi.org/10.1155/2015/189402>
- Loupatty, voulda d. (1992). Nori Nutrient Analysis from Seaweed of *Porphyra marcossii* in Maluku Ocean. *Eksakta*, 14(2), 34–48. <https://doi.org/10.20885/eksakta.vol14.iss2.art4>
- Lumbessy, S. Y., Andayani, S., Nursyam, H., & Firdaus, M. (2019). Biochemical study

of amino acid profile of *Kappaphycus alvarezii* and *Gracilaria salicornia* seaweeds from Gerupuk Waters , West Nusa Tenggara ( NTB ). *EurAsian Journal of BioSciences*, 13, 303–307. <http://www.ejobios.org/article/biochemical-study-of-amino-acid-profile-of-kappaphycus-alvarezii-and-gracilaria-salicornia-seaweeds-6207>

Marinho, G. S., Holdt, S. L., & Angelidaki, I. (2015). Seasonal variations in the amino acid profile and protein nutritional value of *Saccharina latissima* cultivated in a commercial IMTA system. *Journal of Applied Phycology*, 27(5), 1991–2000. <https://doi.org/10.1007/s10811-015-0546-0>

Masduqi, A. F., Izzati, M., & Prihastanti, E. (2014). Efek Metode Pengeringan Terhadap Kandungan Bahan Kimia Dalam Rumput Laut *Sargassum polycystum*. *Media Informasi Biologi Struktur Dan Fungsi Sellula*, 22(1), 1–9. <https://doi.org/10.14710/baf.v22i1.7804>

Matanjun, P., Mohamed, S., Mustapha, N. M., & Muhammad, K. (2009). Nutrient content of tropical edible seaweeds, *Eucheuma cottonii*, *Caulerpa lentillifera* and *Sargassum polycystum*. *Journal of Applied Phycology*, 21(1), 75–80. <https://doi.org/10.1007/s10811-008-9326-4>

Merdekawati, W., & Susanto, A. B. (2009). Kandungan dan komposisi pigmen rumput laut serta potensinya untuk kesehatan. *Squalen*, 4(2), 41–47. <http://dx.doi.org/10.15578/squalen.v4i2.147>

Methven, L. (2012). *Natural food and beverage flavour enhancers. Natural food additives, ingredients and flavourings*. Woodhead Publishing Limited. <https://doi.org/10.1533/9780857095725.1.76>

Mouritsen, O. G., Williams, L., Bjerregaard, R., & Duelund, L. (2012). Seaweeds for umami flavour in the New Nordic Cuisine. *Flavour*, 1(1), 4. <https://doi.org/10.1186/2044-7248-1-4>

Ninomiya, K. (2007). Umami: a universal taste, (June 2012), 37–41. <https://doi.org/10.1081/FRI-120003415>

Norziah, M. H., & Ching, C. Y. (2000). Nutritional composition of edible seaweed *Gracilaria changgi*. *Food Chemistry*, 68(1), 69–76. [https://doi.org/10.1016/S0308-8146\(99\)00161-2](https://doi.org/10.1016/S0308-8146(99)00161-2)

Nufus, C., Nurjanah, & Abdullah, A. (2017). Karakteristik Rumput Laut Hijau dari Perairan Kepulauan Seribu dan Sekotong Nusa Tenggara Barat sebagai Antioksidan. *Jphpi*, 20(3). <https://pdfs.semanticscholar.org/ad3f/b3b71f7b62820c18d60de52fae7ac387888c.pdf>

Peña-rodríguez, A., Mawhinney, T. P., Ricque-marie, D., & Cruz-suárez, L. E. (2011). Chemical composition of cultivated seaweed *Ulva clathrata* ( Roth ) C . Agardh. *Food Chemistry*, 129, 491–498. <https://doi.org/10.1016/j.foodchem.2011.04.104>

- Pereira, L. (2014). *A review of the nutrient composition of selected edible seaweeds.* [https://www.researchgate.net/publication/235767788\\_A\\_review\\_of\\_the\\_nutrient\\_composition\\_of\\_selected\\_edible\\_seaweeds](https://www.researchgate.net/publication/235767788_A_review_of_the_nutrient_composition_of_selected_edible_seaweeds)
- Polat, S., & Ozogul, Y. (2013). Seasonal proximate and fatty acid variations of some seaweeds from the northeastern Mediterranean coast. *Oceanologia*, 55(2), 375–391. <https://doi.org/10.5697/oc.55-2.375>
- Rasyid, A., Ardiansyah, A., & Pangestuti, R. (2019). Nutrient Composition of Dried Seaweed Gracilaria gracilis. *ILMU KELAUTAN: Indonesian Journal of Marine Sciences*, 24(1), 1. <https://doi.org/10.14710/ik.ijms.24.1.1-6>
- Ratana-Arporn, P., & Chirapart, A. (2014). Nutritional Evaluation of Tropical Green Seaweeds Caulerpa lentillifera and Ulva reticulata. *Kasetsart J (Nat. Sci)*, 40(January 2006), 75–83. Retrieved from [https://www.researchgate.net/publication/267256016\\_Nutritional\\_Evaluation\\_of\\_Tropical\\_Green\\_Seaweeds\\_Caulerpa\\_lentillifera\\_and\\_Ulva\\_reticulata](https://www.researchgate.net/publication/267256016_Nutritional_Evaluation_of_Tropical_Green_Seaweeds_Caulerpa_lentillifera_and_Ulva_reticulata)
- Rohani-Ghadikolaei, K., Abdulalian, E., & Ng, W. K. (2012). Evaluation of the proximate, fatty acid and mineral composition of representative green, brown and red seaweeds from the Persian Gulf of Iran as potential food and feed resources. *Journal of Food Science and Technology*, 49(6), 774–780. <https://doi.org/10.1007/s13197-010-0220-0>
- Rotzoll, N., Dunkel, A., & Hofmann, T. (2006). Quantitative Studies , Taste Reconstitution , and Omission Experiments on the Key Taste Compounds in Morel Mushrooms ( Morchella deliciosa Fr .). *J. Agric. Food Chem*, 54, 2705–2711. <https://doi.org/10.1021/jf053131y>
- Schiffman, S. S. (2000). The Use and Utility of Glutamates as Flavoring Agents in Foods Intensification of Sensory Properties of Foods for the Elderly. *The Journal of Nutrition*, 927–930. <https://doi.org/10.1093/jn/130.4.927S>
- Setyiasi, M., Ardiningsih, P., & Nofiani, R. (2013). Analisis Organoleptik Produk Bubuk Penyedap Rasa Alami dari Ekstrak Daun Sansakng ( Pycnarrhena Cauliflora Diels ). *Jkk*, 2(1), 65–69. <http://jurnal.untan.ac.id/index.php/jkkmipa/article/view/1767/1710>
- Shareef, K. M., Sridharan, M. C., & Nazar, A. Y. (2012). Research Article Amino acids and fatty acids in Hypnea musciformis. *Journal of Chemical and Pharmaceutical Research*, 4(12), 5089–5092. <http://www.jocpr.com/articles/amino-acids-and-fatty-acids-in-hypnea-musciformis.pdf>
- Sharma, S., Neves, L., Funderud, J., Mydland, L. T., Øverland, M., & Horn, S. J. (2018). Seasonal and depth variations in the chemical composition of cultivated Saccharina latissima. *Algal Research*, 32(March), 107–112. <https://doi.org/10.1016/j.algal.2018.03.012>
- Shuuluka, D., Bolton, J. J., & Anderson, R. J. (2013). Protein content, amino acid

composition and nitrogen-to-protein conversion factors of *Ulva rigida* and *Ulva capensis* from natural populations and *Ulva lactuca* from an aquaculture system, in South Africa. *Journal of Applied Phycology*, 25(2), 677–685. <https://doi.org/10.1007/s10811-012-9902-5>

Siddique, M. A. M., Khan, M. S. K., & Bhuiyan, M. K. A. (2013). Nutritional composition and amino acid profile of a sub-tropical red seaweed *Gelidium pusillum* collected from St. Martin's Island, Bangladesh. *International Food Research Journal*, 20(5), 2287–2292. <https://pdfs.semanticscholar.org/a1d3/0727ed067a4d077b4804c201f2f68f4e3aa9.pdf>

Suess, B., Festring, D., & Hofmann, T. (2015). Umami compounds and taste enhancers 15. <https://doi.org/10.1016/B978-1-78242-103-0.00015-1>

Suparmi, & Sahri, A. (2009). Mengenal Potensi Rumput Laut : Kajian Pemanfaatan Sumber Daya Rumput Laut dari Aspek Industri dan Kesehatan, 95–116. <http://jurnal.unissula.ac.id/index.php/majalahilmiahultaganung/article/view/252>

Vieiraa, E. F., Soaresa, C., Machadoa, S., Correiaa, M., Ramalhosaa, M. J., Oliva-telesa, M. T., ... Delerue-Matosa, C. (2018). Seaweeds from the Portuguese coast as a source of proteinaceous material : Total and free amino acid composition profile. *Food Chemistry*, 269(April), 264–275. <https://doi.org/10.1016/j.foodchem.2018.06.145>

Widyastuti, N., Tjokrokusumo, D., & Giarni, R. (2012). Potensi Beberapa Jamur Basidiomycota Sebagai Bumbu Penyedap Alternatif Masa Depan. *Biologi*, 15(2), 2–3. [http://tip.trunojoyo.ac.id/semas/wp-content/uploads/52-60-Netty-Widyastuti\\_PBT-BPPT-Tangerang.pdf](http://tip.trunojoyo.ac.id/semas/wp-content/uploads/52-60-Netty-Widyastuti_PBT-BPPT-Tangerang.pdf)

William, J. (2019). *Laminaria digitata* and *palmaria palmata* seaweeds as natural source of catalysts for the cycloaddition of CO<sub>2</sub> to Epoxides. <https://doi.org/10.3390/molecules24020269>