

DAFTAR PUSTAKA

- Abdullah, S. R., M. E. Fachr, M. Y. N. Indar & A Tuwo. 2017. Mekanisme penyaluran dan pemanfaatan dana penguatan modal (DPM) untuk meningkatkan pendapatan pembudidaya rumput laut di Kabupaten Takalar. *Jurnal Rumput Laut Indonesia*, 1 (1): 19-25.
- Almatsier, S. 2005. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama, Jakarta.
- Anggadiredja, J. T., Ahmad Zalnika, Heri Purwanto Dan Sri Istini. 2006. Rumput Laut. Penerbit Swadaya. Jakarta.
- Anonim. (2016). World Register of Marine Species. Tersedia (Online). <http://www.marinespecies.org> Diakses tanggal 23 februari 2022.
- AOAC. 2012. Official Method of Analysis of The Association of Official Analytical Chemists of Arlington. The association of official analytical chemists Inc.
- AOAC. 2019. Official Methods of Analysis of AOAC International, 21th ed. Washington D.C. (USA)..
- Arifianti AE, Anwar E, Nurjanah N. 2017. Penghambat tyrosinase dan aktifitas antioksidan bubuk rumput laut segar dan kering *Sargasum plagyophyllum*. *Jurnal Pengolahan Hasil Perikanan Indonesia*. 2(3): 488-493.
- Astorga-España, M. S., Galdón, B. R., Rodríguez, E. R., & Romero, C. D. (2015). Mineral and trace element concentrations in seaweeds from the sub-Antarctic ecoregion of Magallanes (Chile). *Journal of Food Composition and Analysis*, 39, 69-76.
- Astorga-España, M. S., Rodríguez-Galdón, B., Rodríguez-Rodríguez, E. M., & DíazRomero, 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>
- Badan Penelitian dan Pengembangan Pertanian. 2017. Menuju Pertanian Modern Berkelanjutan. Jakarta : laard Press.
- Badan Standar Nasional (BSN), 1992. SNI 01-2891-1992. Cara uji makanan dan minuman. Standar Nasional Indonesia.
- Basir, A., Tarman, K., Desniar, D. 2017. Aktifitas antioksidan dan antibakteri alga hijau *Halimeda gracilis* dari Kepulauan Seribu. *Jurnal Pengolahan Hasil Perikanan Indonesia*. 20(2): 211-118.
- Balasubramanian, B., Shanmugam, S., Park, S., Recharla, N., Koo, J, S., Andretta, I., Kim, I, H. 2021. Supplemental impact of marine redseaweed (*Halymenia palmata*) on the growth performance, total tract nutrient digestibility, blood profiles, intestine histomorphology, meat quality, fecal gas emission, and microbial counts in broilers. *Animals*. Vol. 11:1244

- BSN (Badan Standardisasi Nasional). (1992). SNI 01- 2891-1992 : Cara Uji Makanan dan Minuman. Jakarta.
- Burtin, P. 2003. Nutritional value of seaweeds. *J. of Environmental, Agriculture Food Chemis.*, Vol. 2(4):498-503.
- Cater, N. B. and Denke, M. A. 2001. Behenic acid is a cholesterol-raising saturated fatty acid in humans. *The American journal of clinical nutrition*, vol. 73(1): 41-44.
- D'Alessandro, E. B., & Antoniosi Filho, N. R. (2016). Concepts and studies on lipid and pigments of microalgae: A review. *Renewable and Sustainable Energy Reviews*, 58(12), 832–841. <https://doi.org/10.1016/j.rser.2015.12.162>
- Damayanti, D., Yusup, D. S., dan Rusdi, I. 2018. Pengaruh pemberian pakan beberapa alga makro (*Ulva* sp., *Gracilari* sp., *Halymenia* sp.) terhadap pertumbuhan abalaon *Haliotis squamata*. *Jurnal Metamorfosa*. Vol. (2): 189-197. <http://ojs.unud.ac.ad/index.php/metamorfosa>
- Daud, R. 2013. Pengaruh masa tanam terhadap kualitas rumput Laut. *Jurnal Media Akuakultur*, Vol. 8(2): 135-138
- Dawczynski, C., R. Schubert, & G. Jahreis. 2007. Amino acids, fatty acids, and dietary fibre in edible seaweed products. *Food Chemistry*, 103(3): 891–899. <https://doi.org/10.1016/j.foodchem.2006.09.041>.
- Desiana, E dan T. Y. Hendrawati. 2015. Pembuatan karaginan dari *Eucheuma cottoni* dengan ekstraksi KOH menggunakan variabel waktu ekstraksi. *Jurnal Fakultas Teknik Universitas Muhammadiyah Jakarta*. (7):1-7
- Dewi, A.P.W.K., dan Saraswati, S.A. 2016. Kajian pengembangan usaha budidaya rumput laut di pantai Kutuh, Badung, Provinsi Bali. *Journal of Marine and Aquatic Sciences*. (2): 1–5.
- Dharmananda. S. 2002. The Nutritional and Medicinal Value of Seaweeds Used in Chinese Medicine. <http://www.itmonline.org/arts/seaweed.htm>. (12 maret 2022).
- DKP 2010. Profil Kelautan dan Perikanan Kabupaten Takalar. Dinas Kelautan dan Perikanan Takalar. Takalar
- Dwiyitno. 2011. Rumput laut sebagai sumber serat pangan potensial. *Squalen*. 6(1): 9-17.
- Erniati, Zakaria FR, Prangdimurti E, Adawiyah DR. 2016. Seaweed potential: bioactive compounds studies and its utilization as a functional food product. *Aquatic Sciences Journal*. 3(1): 12-17.
- Fadilah, S & Pratiwi, D.A. 2020. Peningkatan pertumbuhan rumput laut *Halymenia* sp. melalui penentuan jarak tanam rumpun. *Jurnal Perikanan Universitas Gadjah Mada*. Vol. 22 (1), 37-42.
- Fellows. (2017). *Properties of Food and Principles of Processing*. Elsevier Ltd.

- Garcia, J.S., Palacios, V., and Roldán, A. 2016. Nutritional potential of four seaweed species collected in the Barbate Estuary (Gulf of Cadiz, Sp.ain), J Nutr Food Sci Volume:6 Issue 3.
- Ghazali, M., dan Nurhayati, N. 2018. Peluang dan Tantangan Pengembangan Makroalga Non Budidaya Sebagai Bahan Pangan di Pulau Lombok. Jurnal Agrotek Ummat. Vol. 5(2).
- Guiry, M.D. & Guiry, G.M. (2011). AlgaeBase. World-wide electronic publication, National University of Ireland, Galway. <http://www.algaebase.org>;
- Handayani, T. 2006. Protein pada Rumput Laut. Jurnal Oseanografi LIPI. Vol. 31(4), 23-30.
- Handayani, T., Sutarno, dan Setyawan, A. D. (2004). Analisis Komposisi Nutrisi Rumput Laut *Sargassum crassifolium* J. Agardh. Biofarmasi, 2, 45.
- Hardjani, K.D, Suantika, G, Aditiawati, P. 2017. Nutritional profile of red seaweed *Kappaphycus alvarezii* after fermentation using *Saccharomyces Cerevisiae* as a feed supplement for white shrimp *litopenaeus vannamei* nutritional profile of fermented red seaweed. *Journal of Pure and Applied Microbiology*, 11 (4) : 1637-1645
- Hernandez, F., P. Melgarejo, J. M. Olias, and F. Artes. 2003. Fatty Acid Composition and Lipid Content of Seed Oil from Three Commercial Pomegranate Cultivars. *Ciencas-Opciones Mediterrannenes*
- Holdts, S.L and Kraan, S. 2011. Bioactive compounds in seaweed: functional food application and legislation. *J Appl Phycol* DOI 10.1007/s10811-010-9632-5.
- Kantún, J, J, H., Sherwood, A, R., Rodriguez, R, R., Huisman, J, M., Clerk, O, D. 2012. Branched *Halymenia* species (Halymeniaceae, Rhodophyta) in the Indo-Pacific Region, including descriptions of *Halymenia hawaiana* sp. nov. and *H. tondoana* sp. nov. *European Journal of Phycology*. 47(4): 421-432.
- Kasmiati, K., Nurunnisa, A, T., Amran, A., Resya, M, I., Rahmi, M, H. 2022. Antibacteril activity and toxicity of *Halymenia durvillei* seaweed from Kayangan Island, South Sulawesi, Indonesia. *Journal of Fisheries and Aquatic Sciences*, 25(8): 417-428.
- Kementrian Kelautan dan Perikanan. 2016. Produksi Perikanan Nasional. Jakarta: Kkp Press.
- Kementrian Kelautan dan Perikanan (KKP). 2018. Direktorat Jendral Perikanan Budaya. Artikel 3128 KKP : <https://kkp.go.id/djpb/artikel/3128-kkp-pacupengembangan-daya-saing-rumput-laut-nasional>. Diakses pada tanggal 12 Januari 2022.
- Khamdiyah, N., 2010, Pembuatan Etanol dari Alga Merah (*Euchema* sp.inosum) dengan Sakarifikasi dan tanpa Sakarifikasi pada Variasi Lama Fermentasi, Universitas Islam Negeri Maulana Malik Ibrahim, Malang.

- Khatulistiani, T S., Noviendari, D., Munifah ,I., and Melani, S. 2020. *Bioactivities of Red Seaweed Extracts from Banten, Indonesia. IOP Conference Series: Earth and Environmental Science 404 (2020), 012065. doi: 10.1088/1755-1315/404/1/012065.*
- KKP. 2016. Rumput Laut dan Pemanfaatannya. Jakarta
- Kumar M, Gupta V, Kumari P, Reddy CRK, Jha B. 2011. Assesment of nutrien composition and antioxidant pontential of Caulerpaceae seaweeds. *Journal of Food Composition and Analysis*.24: 270-278.
- Kumari, P., Kumar, M., Gupta, V., Reddy, C. R. K., and Jha, B., 2010. Tropical marine macroalgae as potential sources of nutritionally important PUFAs. *Food Chemistry*, 120 (3): 749–757.
- Lailani, T. S.,Munifah, I., & Hermanto, H. 2020. Ekstraksi dan bioaktivitas antioksidan pigmen fikoeitrin dari rumput laut merah *Halymenia* sp.. *Jurnal Pascapanen dan Bioteknologi*. Vol. 15(2).
- Langoy, M, L, D., Saroyo., Dapas, F, N, J., Katili, Deidy, Y., Hamsir, S, B. 2011. Deskripsi alga makro di taman wisata alam Batuputih, Kota Bitung. *Jurnal Ilmiah Sains*, 11(2).
- Lantah, P. L. Montololu L. A. D. Y, dan Reo R. A. 2017. Kandungan fitokimia dan aktivitas antioksidan ekstrak metanol rumput laut *KappaphycusAlvarezii*. *Jurnal Media Teknologi Hasil Perikanan*,Vol. 5(3).
- Leandro, A., Pacheco, D., Cotas, J., Marques, J. C., Pereira, L., Goncalves, A. M. M. 2020. Seaweed's ioactive Candidate Compounds to Food Industry and Global Food Security. *Life*, vol. 10(8): 1-37.
- Magdugo, R. (2020). Marine seaweeds with economic importance in the philippines: Valuation of six sp.ecie *Caulerpa racemosa* (Forsskål), *Ulva fasciata* (Delile), *Sargassum polycystum* (C. Agardh), *Sargassum ilicifolium* (Turner) C. Agardh, *Halymenia durvillei* (Bory de Saint-Vincent), and *Halymenia dilatata* (Zanardini) from the Philippines (Doctoral dissertation, Université de Bretagne Sud).
- Ma'ruf, W.F., R. Ibrahim, E.N. Dewi, E. Susanto, & U. Amalia. 2013. Profil rumput laut *Caulerpa racemosa* dan *Gracilaria verrucosa* sebagai edible food. *J. Saintek Perikanan*, 9(1): 68– 74
- Manam, V.K.,& Subbaiah, M. 2020. Biochemical investigation of marine seaweeds *Colpomenia sinuosa* and *Halymenia porphyroides* collected along Southeast Coast of Tamilnadu, India. *European Journal of Biomedical and Pharmaceutical Sciences*. Vol. 7(3): 414-417
- Manam, V.K.,& Subbaiah, M. 2020. Phytochemical, amino acid, fatty acid and vitamin investigation of marine seaweeds *Colpomenia sinuosa* and *Halymenia porphyroides* collected along Southeast Coast of Tamilnadu, India. *World Journal of Pharmaceutical Research*. Vol. 9(4): 1088-1102.

- 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. *Bioresource Technology*, 97(18): 2402–2406
- Matanjun, P., Mohamed, S., Mustapha, N. M., & Muhammad, K. 2009. Nutrient content of tropical edible seaweeds, 60 *Euclima cottonii*, *Caulerpa lentillifera* and *Sargassum polycystum*. *Jurnal of Applied Phycology*, 21, 75.
- Maxwell, S., and T. Frankenberger. 1992. Household food security: Concepts, indicators, measurements. International Fund for Agricultural Development. Rome.
- Merdekawati W, Susanto AB. 2009. Kandungan dan komposisi pigmen rumput laut serta potensinya untuk kesehatan. *Squalen*. 4(2): 41 -47.
- Mohamed, S., Hashim, S. N., & Rahman, H. A. (2012). Seaweeds: A Sustainable Functional Food for Complementary and Alternative Therapy. *Trends in Food Science & Technology*, 23, 83.
- Nielsen, S. S. (2006). *Proximate Assays in Food*. West Lafayette, USA: John Wiley & Sons, Ltd.
- Nollet, L.M.L. (1996). *Handbook of Food Analysis: Physical Characterization and Nutrient Analysis*. Marcell Dekker Inc, New York
- Norziah, M.H., & Ching, C.Y. 2000. Nutritional Composition of Edible Seaweed *Gracilaria changgi*. *Food Chemistry*. Vol. 68(1):69-76.
- Nurjanah, Jacoeb AM, Nurakhmatunnisa, Pujianti D. 2013. Kandungan asam amino, taurin, mineral makro-mikro dan vitamin B12 ubur-ubur (*Aurelia aurita*) segar dan kering. *Jurnal Pengolahan Hasil Perikanan Indonesia*. 16(2): 95-107.
- Nurjanah., Jacoch, A. M., Hidayat, T., & Chrystiawan, R. 2018. Perubahan komponen serat rumput laut *cauerpa* sp. (dari Tual, Maluku) Akbiat Proses Perebusan. *Jurnal Ilmu dan Teknologi Kelautan Tropis*. Vol. 10(1): 35-48.
- Okolie, C. L., Mason, B., & Critchley, A. T. (2018). Seaweeds as a source of proteins for use in pharmaceuticals and high-value applications. *Novel Proteins for Food, Pharmaceuticals, and Agriculture: Sources, Applications, and Advances*, 217.
- Ortiz, J., N. Romero, P. Robert, J. Araya, H.J. Lopez, C. Bozzo, E. Navarrete, A. Osorio, and A. Rios. 2006. Dietary fiber, amino acid, fatty acid and tocopherol contents of the edible seaweeds *Ulva lactuca* and *Durvillaea antarctica*. *Food Chemistry*, 99: 98-104.
- Parenrengi, A., Rachmansyah & E. Suryati. 2011. *Budidaya Rumput Laut penghasil karaginan (karaginoFit)*, Edisi revisi. Badan Penelitian dan Pengembangan Kelautan dan Perikanan, Kementriann Kelautan dan Perikanan.
- Parnata, A, 2010. *Meningkatkan Hasil Panen Dengan Pupuk Organik*. Agromedia Pustaka. Cet. I . Jakarta.

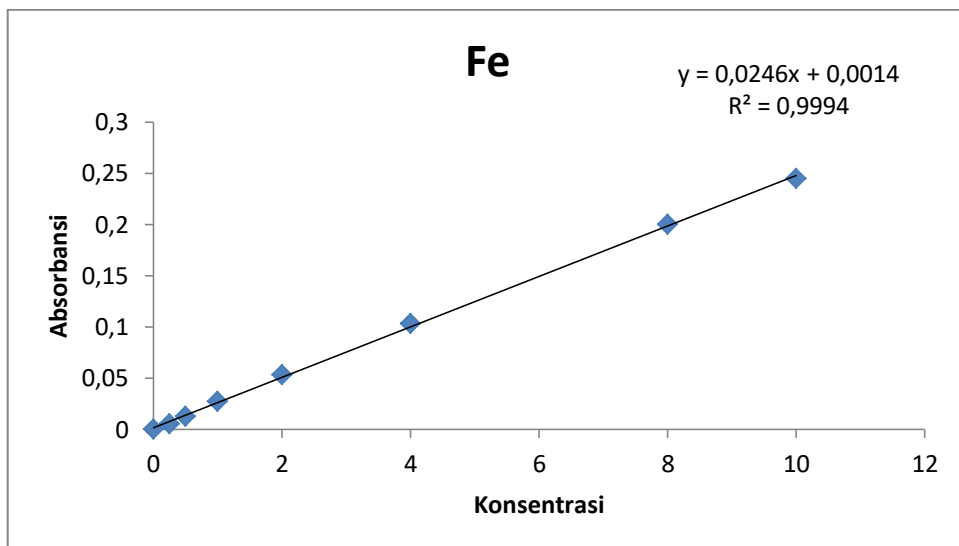
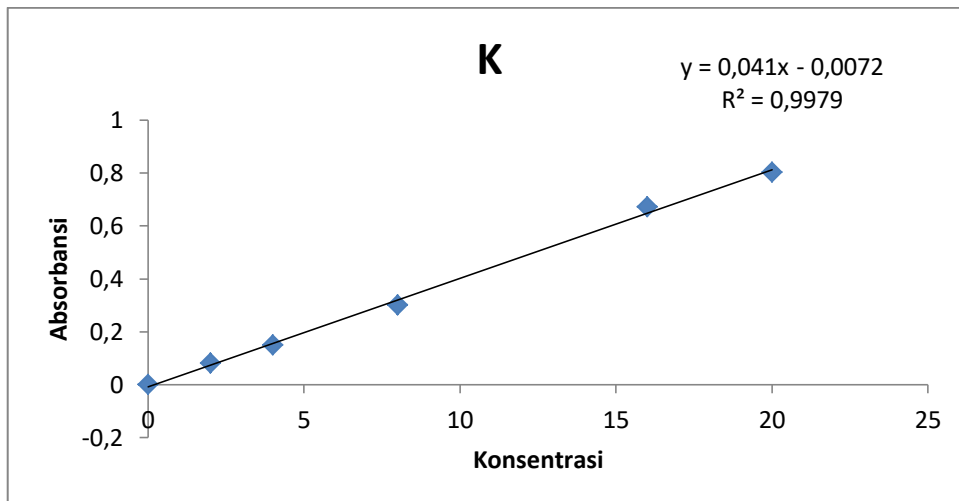
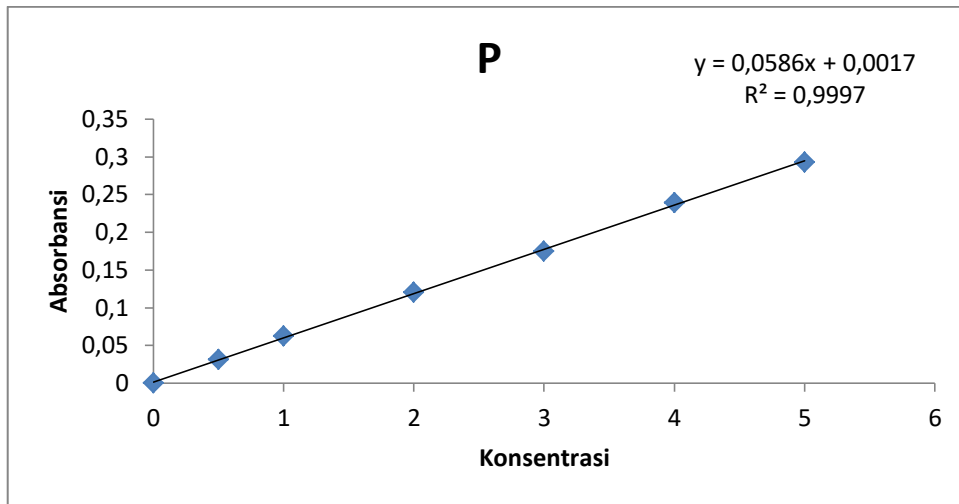
- Pelegrin, Y. F., J. A. Azamar and A. D Robledo. 2011. Preliminary characterization of carrageenan from red seaweed *Halymenia floresii*. *Journal Aquatic Food Product Technology*. 20: 73-83.
- Polat, S., & Y. Ozogul. 2013. Seasonal proximate and fatty acid variations of some seaweeds from the Northeastern Mediterranean Coast. *Oceanologia*, 55(2): 375–391.
- Pontoh, F, W., Sanger, G., Kaseger, B, E., Wongo, D., Motolalu, R, I., Damongilala, L, J., & Makapedua, D. 2019. Kandungan fitokimia, kadar total fenol dan aktivitas aktioksidan ekstrak rumput laut *Halymenia durvillae*. *Jurnal Media Teknologi Hasil Perikanan*. 7(3).
- Raksakantong, P., Meeso, N., Kubola, J., & Siriamornpun, S. 2010. Fatty Acids and Proximate Composition of Eight Thai Edible Terrestrial Insects. *Food Research International*. 350-355.
- Ratana-arporn, P & Chirapart A. 2006. Nutritional evaluation of tropical green seaweeds *Caulerpa lentilifera* and *Ulva reticulata*. *Kasetsart Journal*. 40: 75-83
- Renhoran, M., Noviendri, D., & Setyaningsih I, Uju. 2017. Ekstraksi dan purifikasi fukosantin dari *Sargassum sp.* sebagai anti-acne. *Jurnal Pengolahan Hasil Perikanan Indonesia*. 20(2): 370-379.
- Ristanti, E. Y., Suprpti, S., & Anggraeni, D. (2016). Karakteristik komposisi asam lemak pada biji kakao dari 12 daerah di Sulawesi Selatan. *Jurnal Industri Hasil Perkebunan*, 11(1), 15-22.
- Robledo, D & Y. Freile-Pelegrin, 2010. Prospects for the cultivation of economically important carrageenophytes in Southeast Mexico. *J Appl phycol* DOI 10.1007. Springer.
- Rodríguez-Prieto, C., De Clerck, O., Huisman, J. M., & Lin, S. M. (2018). Systematics of the red algal genus *Halymenia* (*Halymeniaceae*, *Rhodophyta*): characterization of the genotype *H. floresii* and description of *Neofolia rosea* gen. et sp. nov. *European Journal of Phycology*, 53(4), 520-536.
- Salam, M. R. B. dan D. Larasati. 2014. Pemanfaatan material rumput laut melalui ekstraksi karageenan untuk desain kemasan edible. *Jurnal Tingkat Sarjana Seni Rupa dan Desain*. 1(1) : 1-9
- Salehi, B., Sharifi-Rad, J., Seca, A. M., Pinto, D. C., Michalak, I., Trincone, A., Mishara, A. P., Nigam, M., Zam, W., dan Martins, N. 2019. Current Trends on Seaweeds: Looking at Chemical Composition, Phytopharmacology, and Cosmetic Applications. *Molecules*. 24(22): 4182.
- Salosso, Y., S. Aisiah, L.N.L. Toruan, & W. Pasaribu. 2020. Nutrient content, active compound, and antibacterial activity of *Padina australis* against *Aeromonas hydrophilla*. *Pharmacognosy J.*, 12(4): 771–776

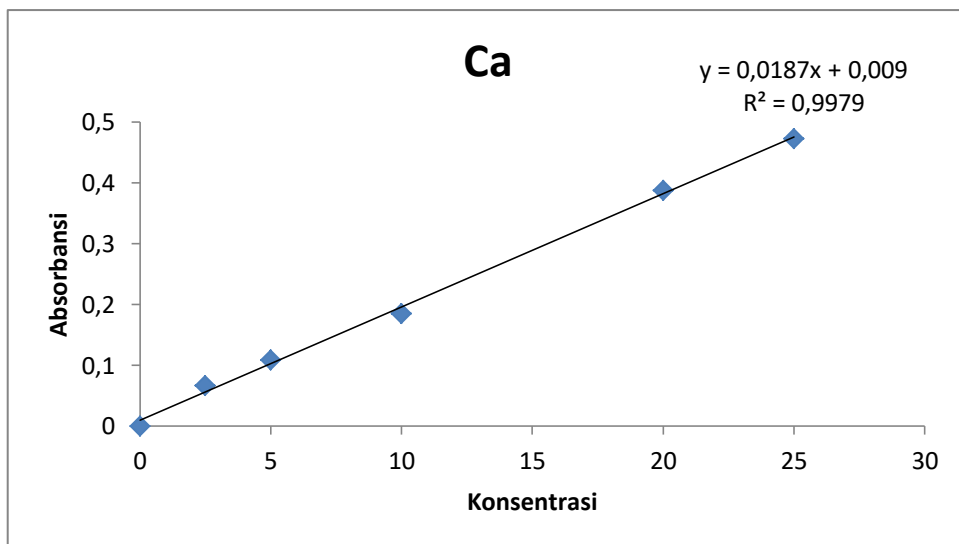
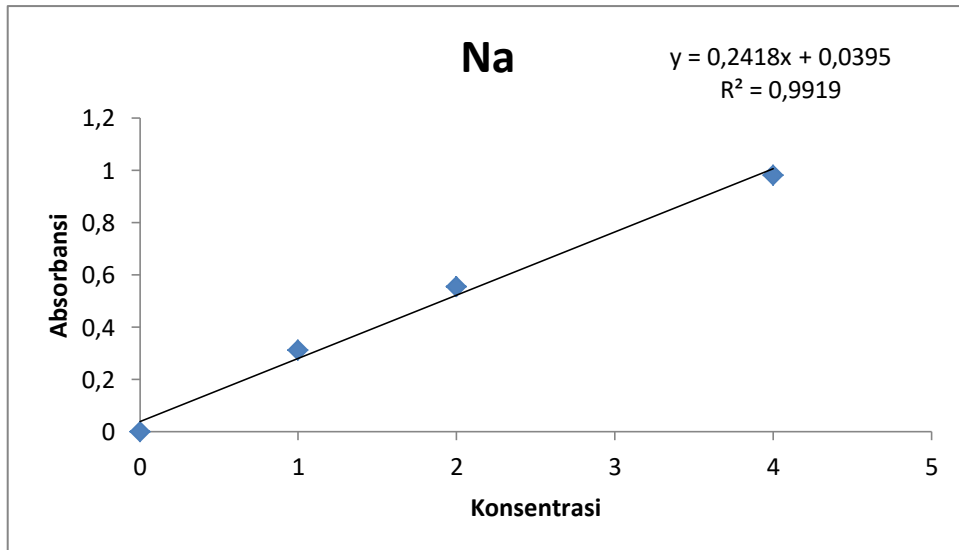
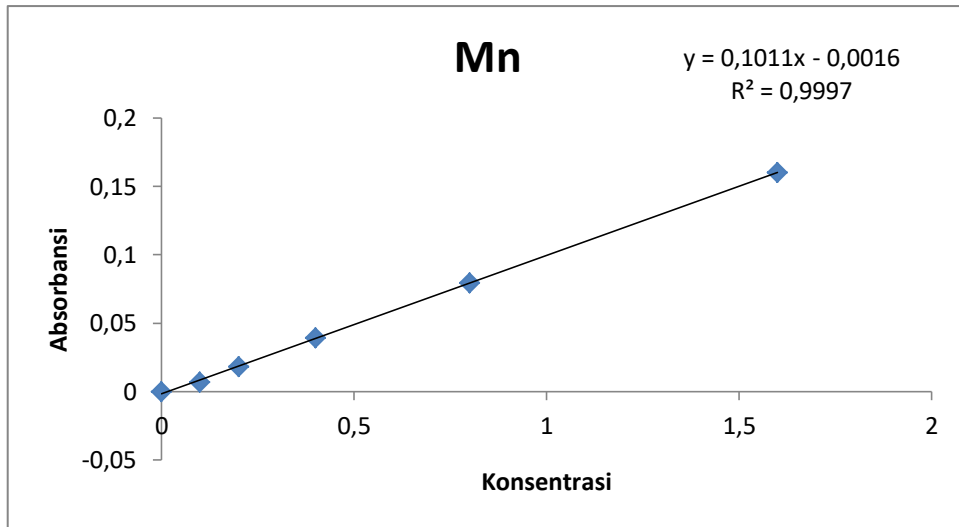
- Sanches-Machado, D.J., Lopez-Cervantes., Lopez-Hernandez, J., & Paseiro-Losada, P. 2004. Fatty Acids, Total Lipid, Protein and Ash Contents of Processed Edible Seaweed. *Food Chemistry* (85): 439-444.
- Sanger G, Kaseger B. E., Rarung L. K., Damongilala L. 2018. Potensi Beberapa Jenis Rumput Laut Sebagai Bahan Pangan Fungsional, Sumber Pigmen dan Antioksidan Alami. *Jurnal Pengolahan Hasil Perikanan Indonesia*. 21(2): 208-218.
- Santi, R. A., Sunarti, T.C., Santoso, D., & Triwisari, D.A. 2012. Komposisi kimia dan profil polisakarida rumput laut hijau. *Jurnal Akuatika*. Vol. 3(2), 105-114).
- Santoso, J., Yoshie, Y., & Suzuki, T. 2004. Komposisi mineral, asam lemak dan serat pada beberapa jenis rumput laut Indonesia. Reprint: *Jurnal Ilmu-Ilmu Perairan dan Perikanan Indonesia*. Jilid 11. No. 1 (45-51)
- Sedioetama, A.D. 2000. Ilmu Gizi Untuk Mahasiswa dan Profesi. Jilid 1. Jakarta: Dian Rakyat.
- Setiasih, I. S., Santoso, M. B., Hanidah, I., & Marta, H. 2017. Pengembangan kapasitas masyarakat dalam menggunakan hanjeli sebagai alternatif pengganti beras sebagai Pangan pokok Dan produk olahan. *Prosiding Penelitian dan Pengabdian kepada Masyarakat*, 4(2). <https://doi.org/10.24198/jppm.v4i2.14230>
- Shanab, S.M.M. 2007. Antioxidant and Antibiotic Activities of Some Seaweeds (Egyptian isolates). *International Journal of Agriculture & Biology*. 1560-8530/2007/09-2-22-285. <http://www.fspublishers.org>
- Soamole H., Sanger G., Harikedua S., Dotulong V., Mewengkang H., Montolalu R. 2018. Kandungan fitokimia ekstrak etanol rumput laut segar (*Turbinaria sp.*, *Gracilaria sp.*, dan *Halimeda macroloba*). *Jurnal Media Teknologi Hasil Perikanan*. Vol. 6, No. 3, Agustus 2018
- Sumczynski, D., Bubelova, Z., Sneyd, J., Erb-Weber, S., & Mlcek, J. (2015). Total phenolics, flavonoids, antioxidant activity, crude fibre and digestibility in non-traditional wheat flakes and muesli. *Food Chemistry*, 174, 319.
- Suryaningrum, D. Th., Wikanta, T., & Kristiana, H. 2006. Uji aktivitas senyawa antioksidan dari rumput laut *Halymenia harveyana* dan *Euचेuma cottoni*. *Jurnal Pascapanen dan Boiteknologi Kelautan dan Perikanan*. Vol. 1(1)
- Syah, M., Putri, R.M.S., Pratama, G. 2019. Karakteristik vitamin dan mineral brunok (*Paracaudina australis*) dari Pantai Pelawan dan Tanjung Melolo Kabupaten Karimun Kepulauan Riau. *Jurnal Marinande*, 2(1):39-52 e-ISSN:2654-4415.
- Torres, M. D., Kraan, S., Domínguez, H. 2019. Seaweed biorefinery. *Reviews in Environmental Science and Biotechnology*, vol. 18(2): 335-388
- Tzachor, A., Richards, C. E., & Holt, L. 2021. Future Foods for Risk Resilient Diets. *Nature Food*, 2. <https://doi.org/10.1038/s43016-0121-00269-x>.

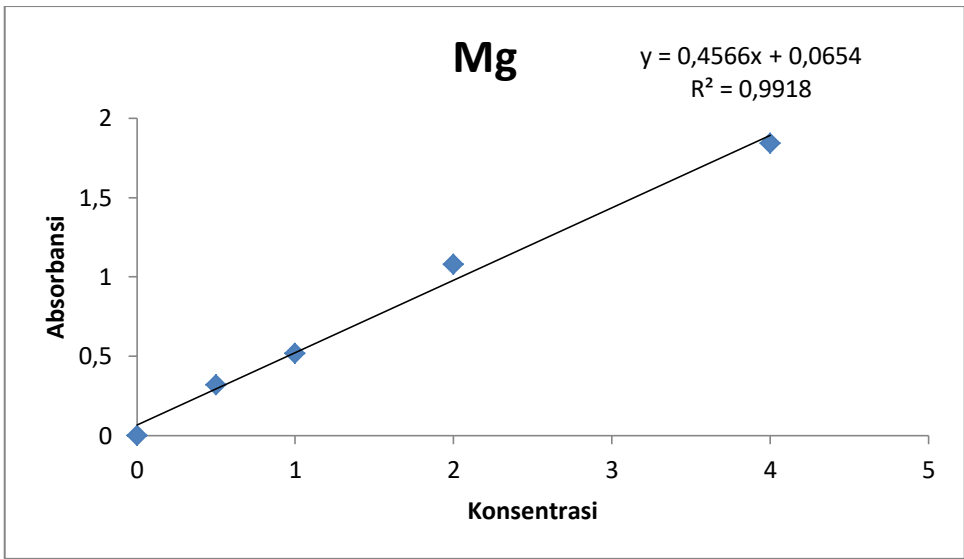
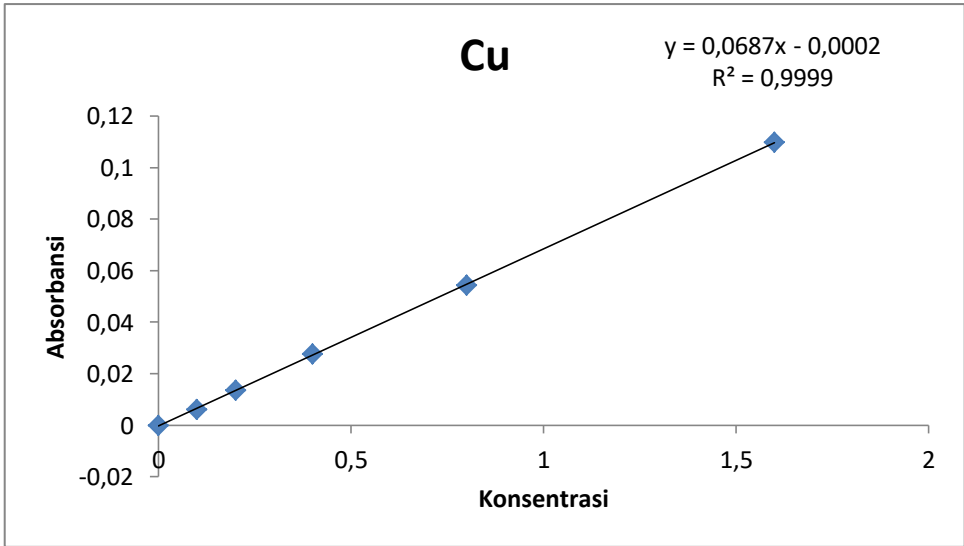
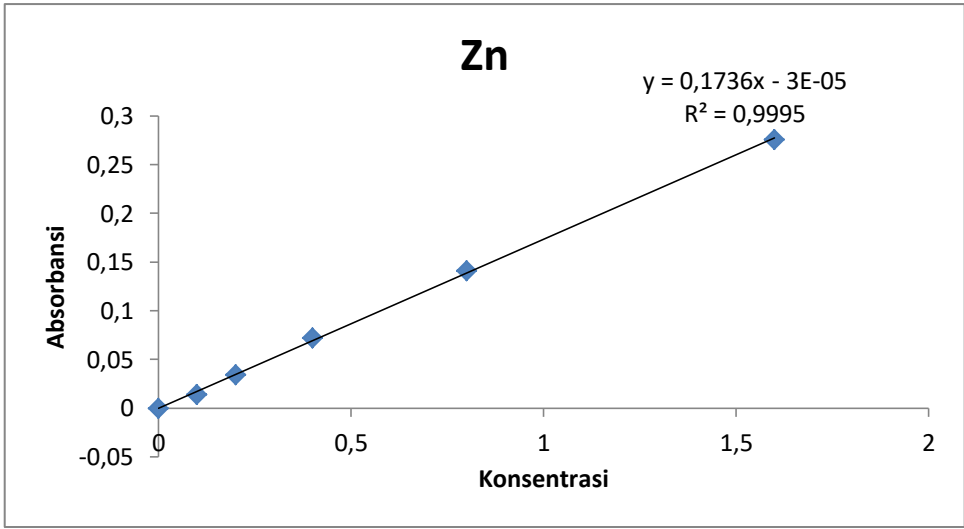
- Utami, P., Lestari, S., & Lestari, S. D. 2016. Pengaruh metode pemasakan terhadap komposisi kimia dan asam amino Ikan Seluang (*Rasbora argyrotaenia*). *Jurnal Teknologi Hasil Perikanan*. Vol.5(1): 73-84.
- Venugopal, S. 2010. Food and Nutrition Departement, Faculty of family and Community
- Vieira, E. F., Soares, C., Machado, S., Correia, M., Ramalhosa, M. J., Oliva-Teles, M. T., Carhalvo, A. P., Domingues, V. F., Antunes, F., Oliveira, T. A. C., Morais, S., and Delerue-Matos, C. 2018. Seaweeds from the Portuguese coast as a source of proteinaceous material: Total and free amino acid composition profile. *Food Chemistry*, vol. 269: 264-275
- Wahyu, F. (2017). Analisis hubungan tingkat produksi dengan tingkat pendapatan petani rumput laut di desa Punaga Kecamatan Mangarabombang Kabupaten Takalar. *Jurnal Balik Diwa*, 8(1), 41-48.
- Winarno FG. 1990. Teknologi Pengolahan Rumput Laut. Jakarta (ID): Pustaka Sinar Harapan.

LAMPIRAN

Lampiran 1. Kurva standar uji mineral *Halymenia* sp.

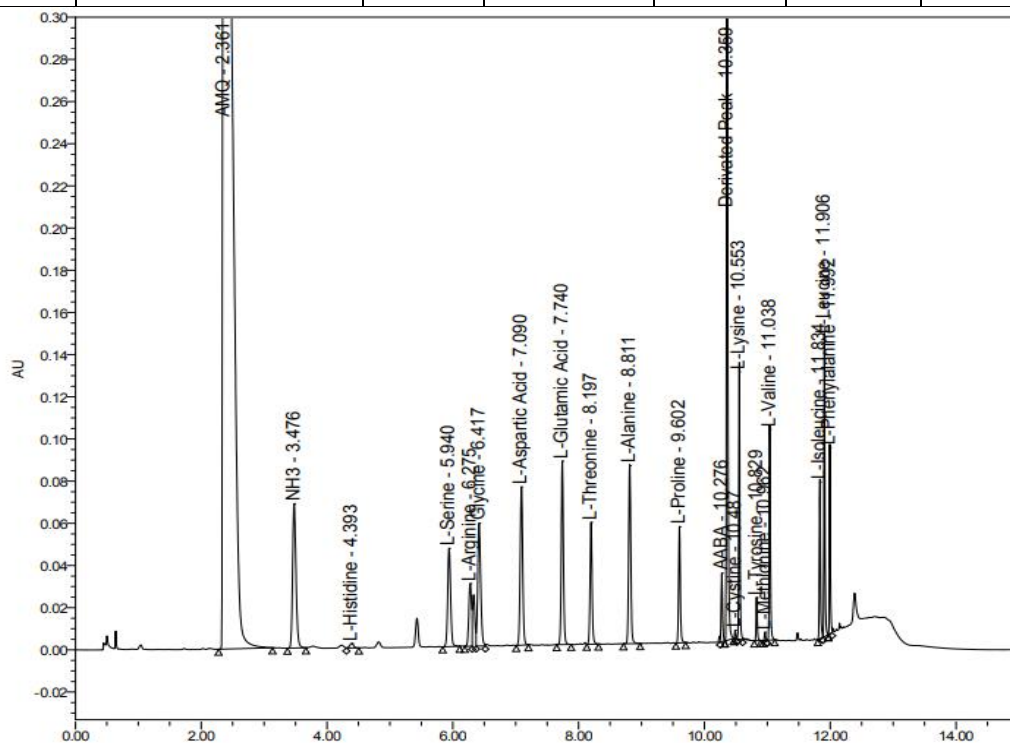






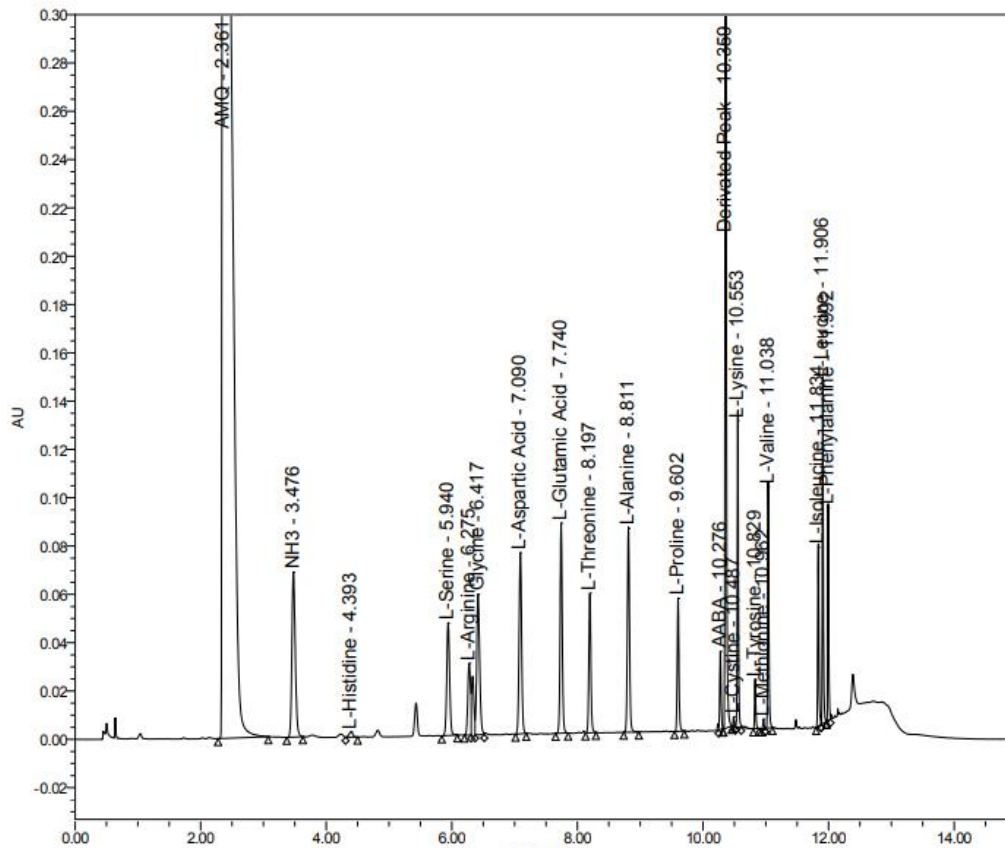
Lampiran 2. Hasil analisa asam amino *Halymenia* sp.

No	Peak Name	RT	Area	%Area	Height	Amount
1	L-Histidine	4.393	9235.11	0.11	2161	12.689
2	L-Serine	5.940	150191.38	1.79	46712	205.345
3	L-Arginine	6.275	87071.18	1.04	29735	120.878
4	Glycine	6.417	192074.11	2.29	58295	264.588
5	L-Asp.artic Aci	7.090	208918.15	2.49	75080	288.425
6	L-Gluyamic Acid	7.740	205271.67	2.44	87061	284.901
7	L-Threonine	8.197	130291.04	1.55	57764	174.263
8	L-Alanine	8.811	197787.43	2.35	85053	264.988
9	L-Proline	9.602	103108.42	1.23	55311	147.469
10	AABA	10.276	48277.38	0.57	32507	62.059
11	L-Cystine	10.487	5198.37	0.06	4114	4.150
12	L-Lysine	10.553	157593.93	1.87	131785	123.919
13	L-Tyrosine	10.829	26166.36	0.31	20699	34.192
14	L-Methionine	10.962	5252.46	0.06	3932	6.889
15	L-Valine	11.038	136285.46	1.62	102390	176.209
16	L-Isoleucine	11.834	98551.34	1.17	75844	131.085
17	L-Leucine	11.906	162599.92	1.93	143924	217.186
18	L-Phenylalanine	11.992	92346.98	1.10	90374	123.917
Sum			2022858.81			



Pengujian simplo

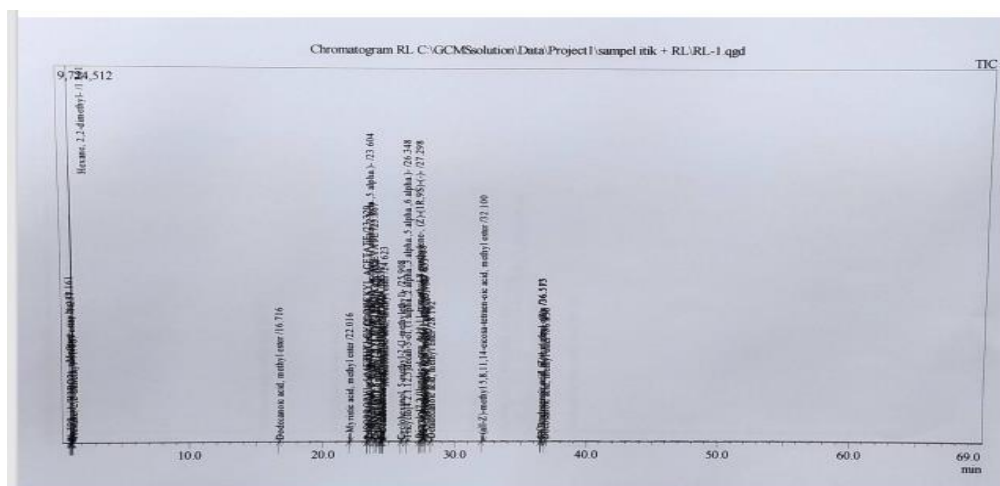
No	Peak Name	RT	Area	%Area	Height	Amount
1	L-Histidine	4.393	9139.10	0.11	2153	12.557
2	L-Serine	5.940	149006.72	1.78	46651	203.725
3	L-Arginine	6.275	86807.61	1.03	29691	120.512
4	Glycine	6.417	191355.76	2.28	58220	263.598
5	L-Asp.artic Aci	7.090	208199.98	2.48	75015	287.433
6	L-Gluyamic Acid	7.740	204660.09	2.44	87020	284.052
7	L-Threonine	8.197	129826.34	1.55	57728	173.641
8	L-Alanine	8.811	197142.84	2.35	84998	264.124
9	L-Proline	9.602	103108.42	1.23	55311	147.469
10	AABA	10.276	47613.83	0.57	32367	61.206
11	L-Cystine	10.487	5138.10	0.06	4098	4.101
12	L-Lysine	10.553	157160.51	1.87	131712	123.578
13	L-Tyrosine	10.829	25987.42	0.31	20657	33.958
14	L-Methionine	10.962	5175.79	0.06	3913	6.788
15	L-Valine	11.038	135819.30	1.62	102329	175.607
16	L-Isoleucine	11.834	98128.84	1.17	75772	130.523
17	L-Leucine	11.906	161313.78	1.92	143694	215.468
18	L-Phenylalanine	11.992	91536.02	1.09	90095	122.829
Sum			2007120.45			



Pengujian Duplo

Lampiran 3. Hasil analisa asam lemak *Halymenia* sp.

No	Komponen asam lemak	kons. std	Area std	Bobot molekul (BM) (g/mol)		Area sampel	Hasil b/b % terhadap sampel
		(CRM)		FAME	Fatty Acid (FA)		
	%b/v						
	Bobot Sampel (mg)						31,1
1	caproic acid, C6:0	0,0405	658081	130,19	116,19	103026	0,1886
2	Capric acid, C10:0	0,0405	2240142	186,29	172,29	262153	0,1461
3	Lauric Acid, C12:0	0,0405	2249554	214,34	200,34	102700	0,0576
4	Myristic Acid, C14:0	0,0404	2203707	242,40	228,40	2781301	1,6015
5	Pentadecanoic Acid, C15:0	0,0202	1066847	256,43	242,43	161980	0,0967
6	Palmitic Acid, C16:0	0,0612	3194593	270,50	256,50	634606	0,3843
7	Palmitoleic Acid, C16:1	0,0204	270882	268,43	254,43	106536	0,2535
8	Heptadecanoic Acid, C17:0	0,0101	436256	284,48	270,48	199854	0,1466
9	Stearic Acid, C18:0	0,0408	2045652	298,51	284,51	3411336	2,1616
10	Elaidic Acid, C18:1n9t	0,0202	309256	296,49	282,49	240522	0,4990
11	Oleic Acid, C18:1n9c	0,0407	940558	296,50	282,50	923841	1,2696
12	Linolelaidic Acid, C18:2n9t	0,0202	240989	294,47	280,47	218000	0,5801
13	Linoleic Acid, C18:2n6c	0,0203	367431	294,47	280,47	121820	0,2137
14	Arachidic Acid, C20:0	0,0408	1734816	326,56	312,56	2410731	1,8089
15	v-Linolenic Acid, C18:3n6	0,0202	264238	292,46	278,46	404262	0,9808
16	Behenic Acid, C22:0	0,0405	1440305	354,61	340,61	2928524	2,6365
17	Tricosanoic Acid, C23:0	0,0165	402750	368,64	354,64	454534	0,5971
18	Arachidonic Acid, C20:4n6	0,0202	169506	318,50	304,50	258439	0,9815
19	Lignoceric Acid, C24:0	0,0405	821497	382,66	368,66	556447	0,8810
Total							15,4847



Lampiran 4. Pengerinan sampel *Halymenia* sp.

