

DAFTAR PUSTAKA

- Amalia, Nadilah. 2018. Pengaruh Konsentrasi HCl Terhadap Delignifikasi Serbuk Pelepah Kelapa Sawit. Skripsi. Fakultas Farmasi, Universitas Sumatra Utara, Medan.
- Anggadireja, J Zatnika, Purwoto H, Istini S. 2006. Rumpuk Laut. Jakarta: Penebar Swadaya. hal. 39-47.
- Ansharullah, A., Saenuddin, N. M. A., Faradilla, R. F., Asranudin, A., Asniar, A., & Nurdin, M. 2020. Production of Micro Crystalline Cellulose from Tapioca Solid Waste: Effect of Acid Concentration on its Physico-chemical Properties. Jurnal Kimia Sains dan Aplikasi, 23(5), 147-151
- Aprilyanti, Selvia Suryani. Faizah., Pratiwi, Irnanda. 2019. Optimasi Waktu Hidrolisis dan Volume Enzim pada Proses Hidrolisis Enzimatis Selulosa Jerami Padi, Prosiding Seminar Nasional II Hasil Litbangyasa Industri. ISSN 2654-8550
- Arnata I. W, Suprihatin S, Fahma F, Richana N, Sunarti T. C. 2019. Cellulose Production from Sago Frond with Alkaline Delignification and Bleaching on Various Types of Bleach Agents. Orient J Chem ;35(Special Issue 1 Spectroscopy March 2019
- Amarasekara, A. S., & Ebede, C. C. 2009. Zinc chloride mediated degradation of cellulose at 200°C and identification of the products. Bioresource Technology, 100(21), 5301–5304.
- Association of Official Analytical Chemistry (AOAC). 1995. Official Method of Analysis of the Association of Official Analytical Chemistry. Washington DS (US): AOAC International.
- Azubuike CP, Okhamafe AO. 2012. Physicochemical, spectroscopic, and thermal properties of microcrystalline cellulose derived from corn cobs. International Journal of Recycling of Organic Waste in Agriculture. 1: 1-9.

- Badan Pusat Statistik. 2019. "Statistik Perdagangan Luar Negeri Impor 2017," Badan Pusat Statistik, Jakarta, 2019
- Basmal, J., Widanarto, A., Kusumawati, R., dan Utomo, Bagus Sediadi, B. 2014. Pemanfaatan Limbah Ekstraksi Alginat dan Silase Ikan sebagai Bahan Pupuk Organik. JPB Perikanan Vol. 9 No. 2 Tahun 2014: 109–120
- Bala, R., Khanna, S. and Pawar, P. K. 2013. Formulation and optimization of fast dissolving intraoral drug delivery system for clobazam using response surface methodology., Journal of advanced pharmaceutical technology & research, 4(3), pp. 151–9. doi: 10.4103/22314040.116785.
- Bhimte, N. A., dan Tayade, P. T. 2007. Evaluation of Microcrystalline Cellulose Prepared from Sisal Fibers as A Tablet Excipient: A Technical Note. AAPS PharmSciTech. 8(1): E1-E2.
- Belali, Nagina & Chaerunisaa, Anis & Rusdiana, Taofik. 2019. Isolation and Characterization of Microcrystalline Cellulose Derived from Plants as Excipient in Tablet: A Review. Indonesian Journal of Pharmaceutics. 1(2)
- Bi, Z., Lai, B., Zhao, Y., & Yan, L. 2018. Fast Disassembly of Lignocellulosic Biomass to Lignin and Sugars by Molten Salt Hydrate at Low Temperature for Overall Biorefinery. ACS Omega, 3(3), 2984–2993.
- British Pharmacopoeia. 2009. Pharmaceutical Excipients Ed ke-6. London (UK): Pharmaceutical Press.
- Bolhuis, G. K. and Anthony Armstrong, N. 2006 'Excipients for Direct Compaction—an Update', Pharmaceutical Development and Technology, 11(1), pp. 111–124. doi: 10.1080/10837450500464255.
- Carlin, B. 2008. DirectCompression and The Role of Filler-Binders. Dalam: Augsburg, L.L., Hoag, S.W. (Eds.). Pharmaceutical Dosage Forms: Tablets', Informa, pp. 173–216.
- Castanet, E., Li, Q., Dumée, L.F., Garvey, C., Rajkhowa, R., Zhang, J., Rolfe, B., Magniez, K. 2016. Structure-property relationships of elementary bamboo fibers. Cellulose 23:3521–3534.

- Cebrián-Lloret, Vera & Metz, Mandy & Martínez - Abad, Antonio & Knutsen, Svein & Ballance, Simon & López-Rubio, Amparo & Martinez-Sanz, Marta. 2022. Valorization of alginate-extracted seaweed biomass for the development of cellulose-based packaging films. *Algal Research*. 61. doi:102576. 10.1016/j.algal.2021.102576.
- Chu, S., Yang, L., Guo, X., Dong, L., Chen, X., Li, Y., & Mu, X. 2018. The influence of pore structure and Si/Al ratio of HZSM-5 zeolites on the product distributions of α -cellulose hydrolysis. *Molecular Catalysis*, 445, 240–247.
- Costa C. S. D., Cardoso S. L., Nishikawa E., Vieira M. G. A., da Silva M. G. C., 2016, Characterization of the residue from double alginate extraction from *sargassum filipendula* seaweed, *Chemical Engineering Transactions*, 52, 133-138
- Dareda, Christina & Suryanto, Edi & Lidya, Ignatia. 2020. Karakterisasi dan Aktivitas Antioksidan Serat Pangan dari Daging Buah Pala (*Myristica fragrans Houtt*). *Chemistry Progress*. 13.
- Diharningrum I M and Husni A. 2018. Metode Ekstraksi Jalur Asam Dan Kalsium Alginat Berpengaruh Pada Mutu Alginat Rumput Laut Cokelat *Sargassum hystrix* J. Agardh. *J Pengolah Has Perikan Indonesia* 21(3).
- Edison, D., Neswati dan Rahmi, ID. 2015. Pengaruh konsentrasi HCl dalam proses hidrolisis α -selulosa dari ampas tebu (*Saccharum officinarum, L.*) terhadap karakteristik mikrokrystalin. Padang (ID): Fakultas Teknologi Pertanian, Universitas Andalas.
- Edison, Diharmi A, Sari ED. 2019. Karakteristik selulosa mikrokrystalin dari rumput laut merah *Eucheuma cottonii*. *Jurnal Pengolahan Hasil Perikanan Indonesia*. 22(3): 483-489
- Effendi F., Rina Elvia, Hermansyah Amir. 2018. Preparasi dan Karakterisasi Mikrokrystalin Selulosa (MCC) Berbahan Baku Tandan Kosong Kelapa Sawit (TKKS). *Jurnal Pendidikan dan Ilmu Kimia*, 2(1):52–57

- El-Sakhawy M, Hassan ML. 2007. Physical and Mechanical properties of microcrystalline cellulose prepared from agricultural residues. *Carbohydrate Polymers.*;67:1-10
- Fatriasari, W., Masruchin, N dan Hermiati, E. 2019. *Selulosa: Karakteristik dan Pemanfaatannya*. LIPI Press. Jakarta. 15 p
- FAO. 2021. Global seaweeds and microalgae production, 1950–2019. *World Aquaculture Performance Indicators (WAPI) factsheet*. 172 pp.
- Feng, X., Meng, X., Zhao, J., Miao, M., Shi, L., Zhang, S., & Fang, J. 2015. Extraction and preparation of cellulose nanocrystals from dealginate kelp residue: structures and morphological characterization. *Cellulose*, 22(3), 1763–1772. doi:10.1007/s10570-015-0617-z
- Fengel, D., & Wegener, G. 1995. Kayu: Kimia, Ultrastruktur, reaksi-reaksi. In S. Prawirohatmojo (Ed.), *Wood Chemistry, Ultrastructure, Reactions* (H. Sastroamijoyo, Trans.). Yogyakarta: Gadjah Mada University Press.
- Ferrari, F. 1996. Investigation on bonding and disintegration properties of pharmaceutical materials', *International Journal of Pharmaceutics*, 136(1–2), pp. 71–79.
- Fuadi, K.H. dan Adisetiawan. 2015. Pengaruh Suhu dan PH Terhadap Banyaknya Yield (Kadar Glukosa) yang Dihasilkan Pada Proses Hidrolisis Enzimatis dari Limbah Kertas. *Simposium Nasional RAPI XIV*. ISSN: 1412-9612. Hal. 179-180.
- Galiwango, E., Abdel Rahman, N. S., Al-Marzouqi, A. H., Abu-Omar, M. M., & Khaleel, A. A. 2019. Isolation and characterization of cellulose and α -cellulose from date palm biomass waste. *Heliyon*; 5(12).
- Gaonkar SM, Kulkarni PR. 1987. Improved method for the preparation of microcrystalline cellulose from water hyacinth. *Textile Dyer and Printer*. ;20(26):19-22
- Gaonkar SM, Kulkarni PR. 1989. Microcrystalline cellulose from coconut shells. *Acta Polymer*. 40:292-293

- George, J.; Ramana, K. V.; Bawa, A.S.; Siddaramaiah., 2010. Bacterial cellulose nanocrystals exhibiting high thermal stability and their polymer nanocomposites. *International Journal of Biological Macromolecules*, 48: 50–57
- Gilligan, J. J. 1974. *The Organic Chemicals Industries*. dalam J.L. Pyle. *Chemistry and the Technological Backlash*, in. New Jersey: Prentice-Hall, Inc.
- Gunam, I.B.W., N.S, Antara. 1999. Study on Sodium Hydroxide Treatment of Corn Stalk to Increase Its Cellulose Saccharification Enzymatically by Using Culture Filtrate of *Trichoderma reesei*. *Gitayana (Agric. Technol. J.)*. 5 (1): 34-38.
- Gunam, I. B., Wartini, N. M., Anggreni, A. A., & Suparyana, P. M. 2011. Delignifikasi Ampas Tebu Dengan Larutan Natrium Hidroksida Sebelum Sakarifikasi Secara Enzimatis Menggunakan Enzim Selulase Kasar Dari *Aspergillus Niger* FNU 6018. *Teknologi Indonesia LIPI Press*, 34 (Edisi Khusus 2011): 24--32
- Hamisan, A. F. 2009 *Delignification of oil palm empty fruit bunch using chemical and microbial pretreatment methods.pdf*, *International Journal of Agricultural Research*, pp. 250–256.
- Håkansson, H. and Ahlgren, P. 2005. Acid hydrolysis of some industrial pulps: Effect of hydrolysis conditions and raw material, *Cellulose*, 12(2): 177–183.
- Harianja, J.W., Idiawati, N., dan Rudiyanasyah. (2015). Optimasi Jenis Dan Konsentrasi Asam Pada Hidrolisis Selulosa Dalam Tongkol Jagung. *JKK*. 4(4): 66-71.
- Holtzapple, M. T. 2003. Hemicelluloses. In *Encyclopedia of Food Sciences and Nutrition* (Hal. 3060-3071). Academic Press
- Husni A, Subaryono, Pranoto Y, Tazwir, Ustadi. 2012. Pengembangan metode ekstraksi alginat dari rumput laut *Sargassum sp.* sebagai bahan pengental. *Agritech* 32(1): 1–8.
- Htun, U Soe & Kyawt Wai, Mya & Pa, Soe & Kyaw, Soe & Tun, Myo & Oo, Hsu. 2012. The morphotaxonomy and phytogeographical distribution of the species of *Sargassum* section *Polycystae* (Fucales, Phaeophyta) from Myanmar:

Sargassum polycystum C. Agardh and *S. plagiophyllum* C. Agardh.
Mawlamyine University Research Journal. 4.

Hwang, R.-C., Peck, G. 2001 'A Systematic Evaluation of The Compression and Tablet Characteristics of Various Types of Microcrystalline Cellulose', Pharm. Technol. 112–132.

Ibrahim M.M., W.K. El-Zawawy., Y. Jüttke., A. Koschella., T. Heinze. 2013. Cellulose and microcrystalline cellulose from rice straw and banana plant waste: preparation and characterization, Cellulose 20 (5): 2403–2416.

Iwaki, Y. O., Escalona, M. H., Briones, J. R., & Pawlicka, A. 2012. Sodium Alginate-Based Ionic Conducting Membranes. Molecular Crystals and Liquid Crystals. 554(1):221–231.

Jensen, Claus & Rodriguez Guerrero, Julie & Karatzos, Sergios & Olofsson, Göran & Iversen, Steen. 2017. Fundamentals of Hydrofaction™: Renewable crude oil from woody biomass. Biomass Conversion and Biorefinery. 7(4): 495-509

Jayanudin., A.Z. Lestari, dan Nurbayanti, F. 2014. Pengaruh Suhu dan Rasio Pelarut Ekstraksi terhadap Rendemen dan Viskositas Natrium Alginat dari Rumput Laut Cokelat (*Sargassum sp.*). Jurnal Integrasi Proses.5(1):51-55.

Johar N, Ahmad I, Dufresne A. 2012. Extraction, preparation and characterization of cellulose fibres and nanocrystals from rice husk. Journal of Industrial Crops and Products. 37: 93–99

Kadi, A. 2005. Beberapa Catatan Kehadiran Marga *Sargassum* di Perairan Indonesia. Oseana.30 (4):19-29

Kale, R. D., Bansal, P. S. & Gorade, V. G. 2018. Extraction of Microcrystalline Cellulose from Cotton Sliver and Its Comparison with Commercial Microcrystalline Cellulose. Journal of Polymers and the Environment, 26, 355-364.

Karbelani, L., dan Purnamasari, Y. D. 2014. Naskah Pendadaran Prarancangan Pabrik microcrystalline cellulose Kapasitas 5000 Ton/Tahun. Jurnal Teknik Kimia Fakultas Teknik, Universitas Gadjah Mada.

- Kian, L. K., Jawaid, M., Ariffin, H. & Alothman, O. Y. 2017. Isolation and Characterization of Microcrystalline Cellulose from Roselle Fibers. *International Journal of Biological Macromolecules*, 103, 931-940
- Kumar, V, M Medina dan D Yang. 2002. Preparation, characterization, and tableting properties of a new cellulose-based pharmaceutical aid. *International Journal of Pharmaceutics*. 235: 129–140.
- Landín, M., Martínez-Pacheco, R., Gómez-Amoza, J. L., Souto, C., Concheiro, A., & Rowe, R. C.1993. Effect of batch variation and source of pulp on the properties of microcrystalline cellulose. *International Journal of Pharmaceutics*, 91(2-3), 133–141.
- Lanz M. 2006. Pharmaceutical powder technology: Toward a science based understanding of the behavior of powder systems. Disertasi. Basel University. Basel (CH)
- Lourenço, A., & Pereira, H. 2018. Compositional Variability of Lignin in Biomass. *Lignin - Trends and Applications*. Page :66-98
- Liu, Y., Liu, A., Ibrahim, S.A., Yang, H., Huang, W. 2018. Isolation and characterization of microcrystalline cellulose from pomelo peel. *International Journal of Biological Macromolecules*. 111: 717–721.
- Li, Xing-Hua & Yang, Hua-Jun & Roy, Bhaskar & Wang, Dan & Yue, Wan-Fu & Jiang, Li-Jun & Park, Enoch & Miao, Yun-Gen. 2009. The most stirring technology in future: Cellulase enzyme and biomass utilization. *African Journal of Biotechnology*. 8. 2418-2422.
- Lu, H., Lin, X., He, B., & Zhao, L. 2020. Enhanced separation of cellulose from bamboo with a combined process of steam explosion pretreatment and alkaline-oxidative cooking. *Nordic Pulp & Paper Research Journal*, 35(3), 386–399.
- Mancera, Camilo & Mansouri, Nour-Eddine & Vilaseca, F. & Ferrando, Francesc & Salvadó, Joan. 2011. The effect of lignin as a natural adhesive on the physico-mechanical properties of vitis vinifera fiberboards. *Bioresources*. 6 (3): 2851-2860.

- Manteu SH, Nurjanah, Nurhayati T. 2018. Karakteristik rumput laut cokelat (*Sargassum polycystum* dan *Padina minor*) dari perairan Pohuwato Provinsi Gorontalo. Jurnal Pengolahan Hasil Perikanan Indonesia. 21(3): 396-405.
- Manurung, M. 2011. Sakarifikasi dan Fermentasi Simultan (SFS) dari Limbah Ekstraksi Alginat untuk Pembuatan Bioetanol. (Skripsi). Departemen Teknologi Hasil Perairan, Fakultas Perikanan dan Ilmu Kelautan, Institut Pertanian Bogor, Bogor.
- Mardina, P., Talalangi, A.I., Sitingjak, J.F.M., Nugroho, A., dan Fahrizal, M. R. 2013. Pengaruh Proses Delignifikasi Pada Produksi Glukosa Dari Tongkol Jagung Dengan Hidrolisis Asam Encer. Konversi. 2 (2): 17-23.
- Martinez O, Salmer J, Guilden MD, Cases C. 2007. Textural and physicochemical changes in salmon (*salmon salar*) treated with commercial liquid smoke flavourings. Food Chemistry. 100:498-503
- Matanjun, P. 2008. Chemical Composition, Antioxidative and Cholesterol Lowering Properties of Selected Malaysia Seaweeds. University Putra Malaysia.
- Matsuno, T. 2001. Aquatic animal carotenoids. Article Fisheries Science. 67: 771-783.
- Maulana S, Fadil A & Drastiniwati. 2017. Kinetika Reaksi Demineralisasi Isolasi Kitin dari Cangkang Ebi. JOM FTEKNIK. Vol. 4, No.2
- Meilgaard, M., Civile, G.V. & Carr, B.T. 2007. Sensory Evaluation Techniques 4th Edition. Florida, USA: CRC Press. 1-464
- Mirza, M., Ridlo, A. & Pramesti, R. 2013. Pengaruh Perendaman Larutan KOH dan NaOH Terhadap Kualitas Alginat Rumput Laut *Sargassum polycystum* C.A. Agardh. Journal of Marine Research, 2(1):41-47.
- Mustakin, Fatmawati & Tahir, Mulyati. 2019. Analisis Kandungan Glikogen Pada Hati, Otot, dan Otak Hewan. Canrea Journal: Food Technology, Nutritions, and Culinary Journal. 75-80.

- Nawangsari, Desy. 2019. Pengaruh Bahan Pengisi Terhadap Massa Cetak Tablet Vitamin C Viva Medika: Jurnal Kesehatan, Kebidanan, dan Keperawatan, 11 (02) :37
- Nawangsari, Desy. Chaerunisaa, Anis. Abdassah, Marline. Sriwidodo, Rusdiana. Taofik & Apriyanti, Linda. 2018. Isolasi dan Karakterisasi Fisikokimia Selulosa Mikrokrystal dari Tanaman Rami (*Boehmeria nivea L. Gaud*) dengan Kualitas Pharmaceutical Grade. Indonesian Journal of Pharmaceutical Science and Technology.
- Nosya, M. A. 2016. Pembuatan Mikrokrystal Selulosa dari Tandan Kosong Kelapa Sawit. Skripsi. Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Lampung.
- Nugrahini, P.F., Sitompul, H., and Donny, R.P. 2016. Pengaruh Waktu dan Konsentrasi Enzim Selulase pada Proses Hidrolisis Tandan Kosong Sawit menjadi Glukosa', Analytical and Environmental Chemistry, 1(1), pp. 2540-8267
- Nuringtyas, Tri R. 2010. Karbohidrat. Gajah Mada University Peess, Yogyakarta
- Nurkhanifah, Sovia Indah. 2018. Pengaruh Rasio Na_2CO_3 dalam Ekstraksi terhadap Mutu Alginat dari *Sargassum muticum*. Skripsi. Fakultas Pertanian. Universitas Gadjah Mada
- Nurkhanifah, Sovia Indah & Husni, Amir. 2020. Rasio Natrium Karbonat dalam Ekstraksi Berpengaruh pada Mutu Natrium Alginat *Sargassum Muticum*. Jurnal Tekno Sains. 10 (1), 10-18
- Octaviana, Margiana. 2017. Optimasi Preparasi Mikrokrystalin Selulosa dari Sekam Padi Menggunakan H_2O_2 dan NaOCl untuk Sintesis CMC (Carboxymethyl Cellulose), Skripsi, Universitas Negeri Semarang
- Ohwoavworhwa, F. and Adelakun, T. 2005 'Some Physical Characteristics of Microcrystalline Cellulose Obtained from Raw Cotton of *Cochlospermum planchonii*', Tropical Journal of Pharmaceutical Research, 4(2), pp. 501–507.
- Owolabia A, Haafiza M, Hossain M, Hussin H, Fazita N. 2017. Influence of alkaline hydrogen peroxide pre-hydrolysis on the isolation of microcrystalline

cellulose from oil palm fronds. International Journal of Biological Macromolecules.;95:1228-1234

Park, Eun-Young & Kim, Yong-Jin & Jeong, Seung-Mi & Lee, Dong. 2014. Characteristics of Enzymatic Hydrolysis of Microcrystalline Cellulose *Laminaria japonica*. Journal of Korea Society of Waste Management. 31. 820-832.

Pasanada, Octavianus S.R., Azis, A. dan Gala, S. 2018. Pemanfaatan Limbah Alginat Melalui Sakarifikasi dan Fermentasi Simultan Menghasilkan Bioetanol. Prosiding Semnas PPM Vol 1 (1): 845-859.

Pawar, P. D. 2015. Review on Pharmaceutical Excipients. American Journal of Pharmacy & Health Research

Paweka, Yoice Martina. 2017. Analisis Natrium dalam Air Laut Di Sekitar Pesisir Pantai Papua dengan Metode Spektroskopi Serapan Atom. IJAS. Vol. 7, No. 2

Poliing, C., 1982, Ilmu Kimia Karbon, Erlangga, Jakarta

Pramana, A., Chayanto. M. N, Adhianta, H., Zalfatari Y. 2020. Karakteristik Fisik Lignin pada Serat Tandan Kosong Kelapa Sawit PT. Tunggal Perkasa Plantations Provinsi Riau Menggunakan Metode Organosolv. Jurnal Pengendalian Pencemaran Lingkungan (JPPL). Vol.2 No.01.

Prasetia, I G. N. Jemmy A., Deviana, S., Damayanti, T., Cahyadi, A dan Wirasuta, I.M.A. Agus. 2018. Pengaruh Konsentrasi NaOH Pada Proses Delignifikasi Terhadap Selulosa Mikrokrystal Dari Alga Hijau (*Cladophora Sp.*) Sebagai Produk Bahari Terbarukan, Jurnal Farmasi Sains dan Komunitas :15(2):68-71.

Prasetyo S S., Juliani OI dan Sugih A. K.S .2017. Isolasi Alginat Rumpun Laut Coklat (*Sargassum sp.*) menggunakan Jalur Kalsium Alginat. Prosiding Seminar

Nasional Teknik Kimia “Kejuangan” Pengembangan Teknologi Kimia untuk
Pengolahan Sumber Daya Alam Indonesia

- Purkan, H., H. Purnama, & S. Sumarsih. 2015. Produksi enzim selulase dari *Aspergillus niger* menggunakan sekam padi dan ampas tebu sebagai induser. Jurnal Ilmu Dasar. 16(2): 95- 102.
- Purwanti, Ani.2013. Optimasi Kondisi Proses Pengambilan Asam Alginat dari Alga Coklat. Jurnal Teknologi Technoscientia, Vol. 5 No. 2.
- Purwita, Chandra & Sulaeman, Aminudin & Setiyanto, Henry. 2020. Analisis Holoselulosa: Tinjauan Metode Analisis Kimia Konvensional. Jurnal Selulosa. 10(2): 101-110.
- Putri, Citra & S, Sutriyo & Suryadi, Herman. 2019. Effect of Beta Glucosidase Inhibitor from Lichen Extract in Microcrystalline Cellulose Preparation from Water Hyacinth (*Eichhornia crassipes*). Pharmacognosy Journal. 11: 1199-1203.
- Puspita, M., Setyawidati, N. A. R., Stiger-Pouvreau, V., Vandanjon, L., Widowati, I., Radjasa, O. K., Bourgougnon, N. 2020. Indonesian *Sargassum* species bioprospecting: potential applications of bioactive compounds and challenge for sustainable development. Advances in Botanical
- Rachmat, R. 1999. Kandungan dan Karakteristik Fisiko Kimia Alginat dari *Sargassum* sp. yang Dikumpulkan dari Perairan Indonesia. Lanoratorium Produk Alam Laut, Puslitbang Oseanologi LIPI. Jakarta: 9.
- Rasyid, A. 2005. Beberapa Catatan Tentang Alginat. Oseana 30(1), pp.9-14.
- Rivai, Harizul., Ramdani, R., Regina, A., Fithriani, A., Akmal, D. 2019. Preparation and characterization of microcrystalline cellulose from rice straw using chemical and enzymatic techniques. International Research Journal Pharmacy :10(7):27-32
- Riwayati, I Hartati, L Kurniasari, and R D Ratnani. 1990. “Bonggol Jagung Melalui Proses *Trichordema Reesei*,” 1–5.

- Rosalita, Rosalita & Syam, Husain & Fadilah, Ratnawaty. 2018. Terhadap Kualitas Organoleptik Puding Rumput Laut (*Eucheuma cottonii*). Jurnal Pendidikan Teknologi Pertanian. 4: 92-103
- Rowe, R., Sheskey, P. and Quinn, M. 2009. 'Handbook of Pharmaceutical Excipients', Handbook of pharmaceutical excipients, Sixth edition, pp. 549–553.
- Ruperez P. 2002. Mineral content of edible marine seaweeds. Food Chemistry. 79(1): 23-26.
- Safaria, S., N, Idiawati., dan T.A, Zaharah. 2013. Efektivitas Campuran Enzim Selulase dari *Aspergillus niger* dan *Trichoderma reesei* Dalam Menghidrolisis Substrat Sabut Kelapa. JKK, 2(1): 46-51.
- Sanjaya. 2001. Pengaruh Anhidridasetat Terhadap Struktur Molekuler Kayu Dalam Stabilisasi Dimensi Kayu Pinus Merkusii, JMS, 6(1), : 21–32
- Santiyoga. I Komang W, Suhendra. L & Wartini Ni Made. 2020. Karakteristik Ekstrak Alga Coklat (*Sargassum polycystum*) sebagai Antioksidan pada Perlakuan Perbandingan Pelarut Aseton dan Etilasetat. Jurnal Rekayasa dan Manajemen Agroindustri. 8 (1): 91-104
- Saputra.Dion Ragil, Ali Ridlo, Ita Widowati. 2012. Kajian Rumput Laut *Sargassum duplicatum* J. G. Agardh sebagai Penghasil Bioetanol dengan Proses Hidrolisis Asam dan Fermentasi. Journal Of Marine Research. Volume 1, Nomor 2, Halaman 145-151
- Sari, Laesah. 2017. Pengaruh Konsentrasi Asam Klorida terhadap Karakteristik Mikrokrystalin Selulosa dari Limbah Padat Industri Agar-Agar. Skripsi. IPB
- Satriawan MB dan Ilmiati Illing .2017. Uji Ftir Bioplastik dari Limbah Ampas Sagu dengan Penambahan Variasi Konsentrasi Gelatin. Jurnal Dinamika, Vol. 08. No.2, halaman 1-13.
- Santawee, N., Treesubsuntorn, C., & Thiravetyan, P. (2018). Lignin and holocellulose from coir pith involved in trimethylamine (fishy odor) adsorption. Journal of Environmental Sciences. Vol.79, Hal.43-53

- Schuh, V., Allard, K., Herrmann, K., Gibis, M., Kohlus, R., & Weiss, J. 2013. Impact of carboxymethyl cellulose (CMC) and microcrystalline cellulose (MCC) on functional characteristics of emulsified sausages. *Meat Science*, 93(2), 240–247.
- Shlieout, G., Arnold, K. and Müller, G. 2002. Powder and mechanical properties of microcrystalline cellulose with different degrees of polymerization, *AAPS PharmSciTech*, 3(2), pp. 45–54.
- Setyorini, Indah. 2015. Analisis Pengaruh Konsentrasi H₂so₄ Pada Proses Hidrolisis Terhadap Kandungan Lignoselulosa Dan Gula Pereduksi Alga Coklat (*Sargassum Polycystum*) Sebagai Bahan Baku Bioetanol. Sarjana thesis, Universitas Brawijaya.
- Siddhanta, A. K., Chhatbar, M. U., Mehta, G. K., Sanandiya, N. D., Kumar, S., Oza, M. D., Meena, R. 2010. The cellulose contents of Indian seaweeds. *Journal of Applied Phycology*, 23(5), 919–923. doi:10.1007/s10811-010-9599-2
- Silalahi K, dan Husni P. 2018. Review: Aplikasi Mikrokrystalin Selulosa Dalam Farmasetik. *Jurnal Farmaka. Suplemen Volume 16 Nomor 1*
- Singh, Sandip & Matsagar, Babasaheb & Dhepe, Paresh. 2021. Determination of Alpha-, Beta- and Gamma- Cellulose in Bagasse and Wheat Straw: Lignin Recovery, Characterization and Depolymerization.
- Singleton, P., D. Sainsbury. 2001. *Dictionary of Biology and Molecular Biology*. 3th Edition. John Wiley & Sons Ltd. Baffins Lane. Chicaster West Sussex. UK.
- Sinurat E, Marliani R. 2017. Karakteristik Na-alginat dari rumput laut cokelat *Sargassum crassifolium* dengan perbedaan alat penyaring. *Jurnal Pengolahan Hasil Perikanan Indonesia*. 20(2): 351-361.
- Sinurat, Hotmaida Lestari. 2018. Karakterisasi Selulosa Mikrokrystal dari Pelepah Kelapa Sawit dan Tandan Kosong Kelapa Sawit. Skripsi. Universitas Sumatera Utara.
- Sjostrom, E., 1998, *Kimia Kayu: Proses Dasar dan Penggunaannya*, diterjemahkan oleh Hardjono Sastrohamidjono, Yogyakarta: Gajah Mada University Press.

- Stephen, M. 1995. "Food Polysaccharide and Their Applications", Departement of Chemistry, University of Cape Town Rondebosch, South Africa.
- Steven, Mardiyati, Suratman R. 2014. Pembuatan mikrokrystalin selulosa rotan manau (*Salamus manan sp.*) serta karakterisasinya. Jurnal Selulosa. 4(2): 89- 96.
- Santos A.A.D dan Wahyuningtyas Dewi. Karakterisasi Mikrokrystalin Selulosa dari Daun Jambu Biji (*Psidium Guajava L*) Sebagai Eksiipien Tablet Obat Diare (Variasi Penambahan Serbuk Daun Jambu Biji. Jurnal Inovasi Proses, Vol 4. No. 1
- Santoso R. Jafar G., & Hayati U.E 2020. Effect of Microcrystalline Cellulose in the Extrusion Spheronisation Process of Microparticulate-Making Technology: A Systematic Review. The 2st National Conference on Education, Social Science, and Humaniora Proceeding. 2 (1). 6-12.
- Sumada, K., Puspita Erka Tamara, Fiqih Alqani.2011. Kajian Proses Isolasi α – Selulosa Dari Limbah Batang Tanaman *Manihot Esculenta* Crantz yang Efisien, Jurnal Teknik Kimia, 2:5(2):434-438.
- Sun, Y. 2002. Enzymatic Hydrolysis of Rye Straw and Bermudagrass for Ethanol Production, Ph. D. Thesis. NC State University, Raleigh, NC.
- Sunardi, Amelia L, Ahmad BJ, Wiwin T I. 2019. Isolasi Mikrokrystal Selulosa dari Kayu Medang (*Neolitsea latifolia*). Konversi, 8 (2): 7 – 14.
- Sulisetijono. 2009. Bahan Serahan Alga. Malang: UIN Malang.
- Suryadi H, Sutriyo, Sari HR, Rosikhoh D. 2017.Preparation of Microcrystalline Cellulose from Water Hyacinth Powder by Enzymatic Hydrolysis using Cellulase of Local Isolate. J Young Pharm. ;9(1): s19-23
- Suryadi. H, Sutriyo, Monica. A, Mitayani W.M. 2018. P Characterization of Microcrystalline Cellulose Obtained from Enzymatic Hydrolysis of Alpha-Cellulose and its Application J Young Pharm.; 10(12):87-92
- Suryadi H, Yulianti.Pratiwi IL, Mirajunnisa & Yanuar. A.2019. Potential of Cellulase of Chaetomium Globosum for Preparation and Characterization of

Microcrystalline Cellulose From Water Hyacinth (*Eichhornia Crassipes*).
International Journal of Applied Pharmacy, 11(4): 140-146

Suryati, 2008, Pembuatan Selulosa Asetat dari Limbah Serbuk Gergaji Kayu dan Identifikasinya, Institut Teknologi Bandung, Program Pascasarjana Bandung (Tesis)

Syukri, Yandi. 2018. Teknologi Sediaan Obat dalam Bentuk Solid, Universitas Islam Indonesia, Yogyakarta

Suvachittanont S, Ratanapan P. 2013. Optimization of microcrystalline cellulose production from corn cob for pharmaceutical industry investment. Journal of Chemistry and Chemical Engineering.7:1136-1141

Syamsuni, 2006, Farmasetika Dasar dan Hitungan Farmasi, Penerbit Buku Kedokteran EGC, Jakarta.29-31

Syazwanee. M, Shaziera. A, Izzati. M, Azwady. A & Mustafa, Muskhazli. 2018. Improvement of Delignification, Desilication and Cellulosic Content Availability in Paddy Straw via Physico-chemical Pretreatments. Annual Research & Review in Biology. 26. 1-11.

Tamaheang, T., Makapedua, Daisy, M & Berhimpon, S. 2017. Kualitas Rumput Laut Merah (*Kappaphycus alvarezii*) dengan Metode Pengeringan Sinar Matahari dlataran Cabinet Dryer, Serta Rendemen Semi-Refined Carrageenan (Src)

Tambunan, Ayu Putrison Malona, Rudiansyah & Harlia. 2013. Pengaruh Konsentrasi Na_2CO_3 terhadap Rendemen Natrium Alginat dari *Sargassum cristaefolium* Asal Perairan Lemukutan. JKK, 2(2): 112- 117

Tarchoun, A. F., Trache, D., & Klapötke, T. M. 2019. Microcrystalline cellulose from *Posidonia oceanica* brown algae: Extraction and characterization. International Journal of Biological Macromolecules. International Journal of Biological Macromolecules Vol. 138: 837-845

Tarjoko, Suyono & Anjasari L. (2019). Penerapan Dapur Sehat dan Penggunaan Laru Alami untuk Meningkatkan Kualitas Gula Kelapa. Jurnal Solma, 08(1), 39-46

- Thoorens, G., Krier, F., Leclercq, B., Carlin, B., and Evrard, B. 2014. Microcrystalline cellulose, a direct compression binder in a quality by design environment—A review, *International Journal of Pharmaceutics* 473(1-2), 64-72.
- Trache, D., Hussin, M. H., Hui Chuin, C. T., Sabar, S., Fazita, M. R. N., Taiwo, O. F. A., Haafiz, M. K. M. 2016. Microcrystalline cellulose: Isolation, characterization and bio-composites application—A review. *International Journal of Biological Macromolecules*, 93, 789–804.
- Trirakhmadi A dan Nainggolan EA .2018. Perlakuan Pendahuluan Limbah Padat Tapioka Menggunakan Natrium Karbonat untuk Pembuatan Bioetanol melalui Fermentasi *Saccharomyces cerevisiae*. Seminar Nasional Teknik Kimia Ecosmart. Hal. 136-142
- Uesu NY, Pineda EA, Hechenleitner AA. 2000. Microcrystalline cellulose from soybean husk: Effects of solvent treatments on its properties as acetylsalicylic acid carrier. *International Journal of Pharmaceutics*. ;206 :85-96
- Ul-Haq, I., Javed, M. M., Khan, T. S., and Siddiq, Z., 2005, Cotton Saccharifying Activity of Cellulases Produced by Co-culture of *Aspergillus Niger* and *Trichoderma Viride*, *Research Journal of Agriculture and Biological Sciences*, 1(3): 241-245.
- USP. 2007. United States Pharmacopeia 30 NF 25. Edisi XXX. Rockville: United States Pharmacopeial Convention Inc. Hal. 680 dan 1094.
- Uyigue, L., dan Okwonna, O. O. 2013. Conversion of Post-Consumer (Or Waste) Printers Paper Grades into Microcrystalline Cellulose Powder. *Journal of Emerging Trends in Engineering and Applied Sciences (JETEAS)*. 4(1): 128.
- Vanhatalo, K. M., & Dahl, O. P. 2014. Effect of Mild Acid Hydrolysis Parameters on Properties of Microcrystalline Cellulose. *BioResources*, 9(3), 4729-4740.
- Vijay K, Balasundari S, Jeyashakila R, Velayathum P, Masilan K, Reshma R. 2017. Proximate and mineral composition of brown seaweed from Gulf of Mannar. *International Journal of Fisheries and Aquatic Studies*. 5(5): 106-112.

- Wei, S, V Kumar dan GS Banker. 1996. Phosphoric acid mediated depolymerization and decrystallization of cellulose: preparation of low crystallinity cellulose – a new pharmaceutical excipient. *International Journal of Pharmaceutics*. 142: 175–181.
- Westermarck, S. 2000 Use of Mercury Porosimetry and Nitrogen Adsorption in Characterisation of the Pore Structure of Mannitol and Microcrystalline Cellulose Powders, Granules and Tablets. *Pharmaceutical Technology Division*. Finland: Department of Pharmacy University of Helsinki.
- Widia I dan Wathoni N. 2017. Riview Artikel Selulosa Mikrokrystal: Isolasi, Karakterisasi, Dan Aplikasi Dalam Bidang Farmasetik. *Farmaka Suplemen Volume 15 Nomor 2*
- Widyartini, D.S., Insan, A.I., & Sulistyani. 2015. Kandungan Alginat *Sargassum polycystum* pada Metode Budidaya dan Umur Tanam Berbeda. *Biosfera*, 32(2): 119-125.
- Winarno, FG. 1996 *Teknologi Pengolahan Rumput Laut*. Penerbit Pustaka Sinar Harapan, Jakarta.
- Xiao, L. P., Z. Lin, W.X. Peng, T.Q. Yuan, F. Xu, N.C. Li, Q.S. Tao, H. Xiang, & R.C. Sun. 2014. Unraveling the structural characteristics of lignin in hydrothermal pretreated fibers and manufactured binderless boards from *Eucalyptus grandis*. *Sustainable Chemical Processes*: 2: 9.
- Yamanae, C., dan O. 1999 *Proceedings International Conference on Advance Fiber Material*, in. Jepang: Ueda, pp. 62 –65
- Yohana Chaerunisaa, A., Sriwidodo, S., & Abdassah, M. (2020). Microcrystalline Cellulose as Pharmaceutical Excipient. *Pharmaceutical Formulation Design - Recent Practices*. doi:10.5772/intechopen.88092
- Yugatama, A., Laksmi Maharani, Hening Pratiwi, Lingga Ikaditya, 2015. Uji Karakteristik Mikrokrystalin Selulosa Dari Nata De Soya Sebagai Eksipien Tablet, *Farmasains*, 2(6): 269-274

- Yulianto, K. 2007. Penelitian Isolasi Alginat Alga Laut Coklat dan Prospek Menuju Industri. Prosiding Seminar Riptek Kelautan Nasional.
- Yunizal. 2004. Teknologi Ekstraksi Alginat dari Rumput Laut Coklat (*Phaeophyceae*). Instalasi Penelitian Perikanan Laut Slipi, Balai Penelitian Perikanan Laut, Pusat Penelitian dan Pengembangan Perikanan. Jakarta.
- Yuniarifin, H, Bintoro VP, Suwarastuti A. 2006. Pengaruh Berbagai Konsentrasi Asam Fosfat pada Proses Perendaman Tulang Sapi terhadap Rendemen, Kadar Abu dan Viskositas Gelatin. *Journal Indon Trop Anim Agric*. 31(1): 55-61
- Zaman, N & Sopyan, I. 2020. Tablet Manufacturing Process Method and Defect of Tablets. *Majalah Farmasetika*. 5 (2) :82-93
- Zhang, X. Z. And H. P. Zhang. 2013. *Cellulases: Characteristic, Sources, Production and Applications*. John Willey & Sons, Inc. Published, New York.
- Zhang, H., Fu, S., & Chen, Y. 2020. Basic understanding of the color distinction of lignin and the proper selection of lignin in color-depended utilizations. *International Journal of Biological Macromolecules*. 147 :607-605
- Zhou, Q., Shi, L., Chatteraj, S., & Sun, C. C. 2012. Preparation and Characterization of Surface-Engineered Coarse Microcrystalline Cellulose Through Dry Coating with Silica Nanoparticles. *Journal of Pharmaceutical Sciences*, 101(11), 4258–4266.
- Zely, D.F. 2016. Pengaruh Waktu dan Kadar *Saccharomyces cerevisiae* Terhadap Produksi Etanol dari Serabut Kelapa Pada Proses Sakarifikasi dan Fermentasi Simultan dengan Enzim Selulase. Skripsi. Bengkulu: Universitas Bengkulu.
- Zugenmaier, P. 2008. *Cristalline Cellulose and Derivatives*. Heidelberg: Springer-Verlag. Hal. 2,7-8
- Zulferiyenni, Hidayati S. 2016. Sifat Kimia Limbah Padat Rumput Laut Hasil Pemurnian Menggunakan H_2O_2 dan NaOH. Prosiding Seminar Nasional Pengembangan Teknologi Pertanian Politeknik Negeri Lampung. 141-148.

Zulharmita, Siska Nola Dewi, Mahyuddin, 2012. Pembuatan Mikrokrystalin Selulosa dari Ampas Tebu (*Saccharum officinarum* L.) Sekolah Tinggi Ilmu Farmasi (STIFARM) Padang', 17(2).