

DAFTAR PUSTAKA

- Abid, M., Renard, C. M., Watrelot, A. A., Fendri, I., Attia, H., & Ayadi, M. A. (2016). Yield and composition of pectin extracted from Tunisian pomegranate peel. *International journal of biological macromolecules*, 93, 186-194.
- Adeleke, E. O., Omafuvbe, B. O., Adewale, I. O., & Bakare, M. K. (2012). Purification and characterisation of a cellulase obtained from cocoa (*Theobroma cacao*) pod-degrading *Bacillus coagulans* Co4. *Turkish Journal of Biochemistry/Turk Biyokimya Dergisi*, 37(3).
- Agrawal, K., Bhardwaj, N., Kumar, B., Chaturvedi, V., & Verma, P. (2019). Process optimization, purification and characterization of alkaline stable white laccase from *Myrothecium verrucaria* ITCC-8447 and its application in delignification of agroresidues. *International journal of biological macromolecules*, 125, 1042-1055.
- Aguiar, Sousa E. F., Appel, L. G., Zonetti, P. C., do Couto Fraga, A., Bicudo, A. A., & Fonseca, I. (2014). Some important catalytic challenges in the bioethanol integrated biorefinery. *Catalysis Today*, 234, 13-23.
- Agustini, L., & Efiyanti, L. (2015). Pengaruh perlakuan delignifikasi terhadap hidrolisis selulosa dan produksi etanol dari limbah berlignoselulosa. *Jurnal Penelitian Hasil Hutan*, 33(1), 69-80.
- Ahmadi, F., Zamiri, M. J., Khorvash, M., Ziaee, E., & Polikarpov, I. (2016). Pre-treatment of sugarcane bagasse with a combination of sodium hydroxide and lime for improving the ruminal degradability: optimization of process parameters using response surface methodology. *Journal of Applied Animal Research*, 44(1), 287-296.
- Amanati, L. (2021). Ekstraksi Pektin dari Kulit Durian (*Durio Zibethinus*) untuk Industri Makanan. *Jurnal Teknologi Proses dan Inovasi Industri*, 5(2), 33-36.
- Anugwom, I., Rujana, L., Wärnå, J., Hedenström, M., & Mikkola, J. P. (2016). In quest for the optimal delignification of lignocellulosic biomass using hydrated, SO₂ switched dbu measil switchable ionic liquid. *Chemical Engineering Journal*, 297, 256-264.

- Anupam, K., Swaroop, V., & Lal, P. S. (2018). Antagonistic, synergistic and interaction effects of process parameters during oxygen delignification of *Melia dubia* kraft pulp. *Journal of Cleaner Production*, 199, 420-430.
- Bakti, C. P. (2012). Optimasi Produksi Enzim Selulase Dari *Bacillus* sp. BPPT CC RK2 dengan Variasi pH dan Suhu Menggunakan Response Surface Methodology. [Skripsi]. Depok (ID): Universitas Indonesia.
- Belletante, S., Montastruc, L., Negny, S., & Domenech, S. (2016). Optimal design of an efficient, profitable and sustainable biorefinery producing acetone, butanol and ethanol: Influence of the in-situ separation on the purification structure. *Biochemical Engineering Journal*, 116, 195-209.
- Benali, M., Périn-Levasseur, Z., Savulescu, L., Kouisni, L., Jemaa, N., Kudra, T., & Paleologou, M. (2014). Implementation of lignin-based biorefinery into a Canadian softwood kraft pulp mill: Optimal resources integration and economic viability assessment. *Biomass and Bioenergy*, 67, 473-482.
- Berhanu, H., Kiflie, Z., Neiva, D., Gominho, J., Feleke, S., Yimam, A., & Pereira, H. (2018). Optimization of ethanol-alkali delignification of false banana (*Ensete ventricosum*) fibers for pulp production using response surface methodology. *Industrial Crops and Products*, 126, 426-433.
- Brahim, M., Boussetta, N., Grimi, N., Vorobiev, E., Zieger-Devin, I., & Brosse, N. (2017). Pretreatment optimization from rapeseed straw and lignin characterization. *Industrial Crops and Products*, 95, 643-650.
- Brahim, M., El Kantar, S., Boussetta, N., Grimi, N., Brosse, N., & Vorobiev, E. (2016). Delignification of rapeseed straw using innovative chemo-physical pretreatments. *Biomass and Bioenergy*, 95, 92-98.
- Brahim, M., El Kantar, S., Boussetta, N., Grimi, N., Brosse, N., & Vorobiev, E. (2016). Delignification of rapeseed straw using innovative chemo-physical pretreatments. *Biomass and Bioenergy*, 95, 92-98.
- Cabral, M. G., Viegas, C. A., Teixeira, M. C., & Sa-Correia, I. (2003). Toxicity of chlorinated phenoxyacetic acid herbicides in the experimental eukaryotic model *Saccharomyces cerevisiae*: role of pH and of growth phase and size of the yeast cell population. *Chemosphere*, 51(1), 47-54.

- Cardona, C. A., Quintero, J. A., & Paz, I. C. (2010). Production of bioethanol from sugarcane bagasse: status and perspectives. *Bioresource technology*, *101*(13), 4754-4766.
- Celiktas, M. S., Kirsch, C., & Smirnova, I. (2014). Cascade processing of wheat bran through a biorefinery approach. *Energy conversion and management*, *84*, 633-639.
- Chan, S. Y., & Choo, W. S. (2013). Effect of extraction conditions on the yield and chemical properties of pectin from cocoa husks. *Food chemistry*, *141*(4), 3752-3758.
- Chang, J. J., Ho, C. Y., Mao, C. T., Barham, N., Huang, Y. R., Ho, F. J., ... & Huang, C. C. (2014). A thermo-and toxin-tolerant kefir yeast for biorefinery and biofuel production. *Applied energy*, *132*, 465-474.
- Chen, M., & Lahaye, M. (2021). Natural deep eutectic solvents pretreatment as an aid for pectin extraction from apple pomace. *Food Hydrocolloids*, *115*, 106601.
- Chen, Y., Zhang, J. G., Sun, H. J., & Wei, Z. J. (2014). Pectin from *Abelmoschus esculentus*: Optimization of extraction and rheological properties. *International Journal of Biological Macromolecules*, *70*, 498-505.
- Cheng, N., Koda, K., Tamai, Y., Yamamoto, Y., Takasuka, T. E., & Uraki, Y. (2017). Optimization of simultaneous saccharification and fermentation conditions with amphipathic lignin derivatives for concentrated bioethanol production. *Bioresource technology*, *232*, 126-132.
- Choi, W. I., Park, J. Y., Lee, J. P., Oh, Y. K., Park, Y. C., Kim, J. S., ... & Lee, J. S. (2013). Optimization of NaOH-catalyzed steam pretreatment of empty fruit bunch. *Biotechnology for biofuels*, *6*(1), 1-8.
- Colodel, C., Vriesmann, L. C., Teófilo, R. F., & de Oliveira Petkowicz, C. L. (2018). Extraction of pectin from ponkan (*Citrus reticulata* Blanco cv. Ponkan) peel: Optimization and structural characterization. *International journal of biological macromolecules*, *117*, 385-391.
- Colodel, C., Vriesmann, L. C., Teófilo, R. F., & de Oliveira Petkowicz, C. L. (2020). Optimization of acid-extraction of pectic fraction from grape (*Vitis vinifera* cv.

- Chardonnay) pomace, a Winery Waste. *International Journal of Biological Macromolecules*, 161, 204-213.
- Curto, M., Valledor, L., Navarrete, C., Gutiérrez, D., Sychrova, H., Ramos, J., & Jorin, J. (2010). 2-DE based proteomic analysis of *Saccharomyces cerevisiae* wild and K⁺ transport-affected mutant (*trk1, 2*) strains at the growth exponential and stationary phases. *Journal of proteomics*, 73(12), 2316-2335.
- Cybulska, I., Brudecki, G. P., Zembrzuska, J., Schmidt, J. E., Lopez, C. G. B., & Thomsen, M. H. (2017). Organosolv delignification of agricultural residues (date palm fronds, *Phoenix dactylifera* L.) of the United Arab Emirates. *Applied Energy*, 185, 1040-1050.
- Dagnino, E. P., Felissia, F. E., Chamorro, E., & Area, M. C. (2017). Optimization of the soda-ethanol delignification stage for a rice husk biorefinery. *Industrial Crops and Products*, 97, 156-165.
- Daud, Z., Kassim, A. S. Mohd., Aripin, A. Mohd., Awang, H. Mohd., Hatta, Z. Mohd. (2013). Chemical composition and morphological of cocoa pod husk and cassava peels for pulp and paper production. *Australian Journal of Basic and Applied Sciences*, 7(9), 406-411.
- David, A. N., Sewsynker-Sukai, Y., Sithole, B., & Kana, E. G. (2020). Development of a green liquor dregs pretreatment for enhanced glucose recovery from corn cobs and kinetic assessment on various bioethanol fermentation types. *Fuel*, 274, 117797.
- Demichelis, F., Laghezza, M., Chiappero, M., & Fiore, S. (2020). Technical, economic and environmental assesment of bioethanol biorefinery from waste biomass. *Journal of Cleaner Production*, 277, 124111.
- Desniorita, Nazir, N., Novelina, & Sayuti, K. (2019). Sustainable Design of Biorefinery Processes on Cocoa Pod: Optimization of Pectin Extraction Process with Variations of pH, Temperature, and Time. *International Journal on Advanced Science, Engineering and Information Technology*, 9(6), 2104–2113.
- Djide, M. N., & Duma, N. (2012). Pemanfaatan Limbah Kulit Buah Kakao sebagai Sumber Bahan Aktif untuk Sediaan Farmasi. Balai Latihan Industri Hasil Perkebunan. Akreditasi LIPI No. 339/AUI/P2MBI/04.

- Domínguez, E., Nóvoa, T., Pablo, G., Garrote, G., & Romaní, A. (2020). Sequential two-stage autohydrolysis biorefinery for the production of bioethanol from fast-growing Paulownia biomass. *Energy Conversion and Management*, 226, 113517.
- Duhan, J. S., Kumar, A., & Tanwar, S. K. (2013). Bioethanol production from starchy part of tuberous plant (potato) using *Saccharomyces cerevisiae* MTCC-170. *African Journal of Microbiology Research*, 7(46), 5253-5260.
- Dutta, S. K., Halder, G., & Mandal, M. K. (2014). Modeling and optimization of bi-directional delignification of rice straw for production of bio-fuel feedstock using central composite design approach. *Energy*, 71, 579-587.
- Ekman, A., Campos, M., Lindahl, S., Co, M., Börjesson, P., Karlsson, E. N., & Turner, C. (2013). Bioresource utilisation by sustainable technologies in new value-added biorefinery concepts—two case studies from food and forest industry. *Journal of Cleaner Production*, 57, 46-58.
- Elna, K., Z, M., M, S., J, M., & K, A. (2010). *Budidaya dan Pasca Panen Kakao*. Bogor: Pusat Penelitian dan Pengembangan Perkebunan.
- Faizal, A., Sembada, A. A., & Priharto, N. (2021). Production of bioethanol from four species of duckweeds (*Landoltia punctata*, *Lemna aquinoctialis*, *Spirodela polyrrhiza*, and *Wolffia arrhiza*) through optimization of saccharification process and fermentation with *Saccharomyces cerevisiae*. *Saudi Journal of Biological Sciences*, 28(1), 294-301.
- Fang, T., Yan, H., Li, G., Chen, W., Liu, J., & Jiang, L. (2020). Chromatin remodeling complexes are involved in the regulation of ethanol production during static fermentation in budding yeast. *Genomics*, 112(2), 1674-1679.
- Farida, I., Syamsu, K., & Rahayuningsih, M. (2015). Direct ethanol production from breadfruit starch (*Artocarpus communis* Forst.) by Engineered simultaneous saccharification and fermentation (ESSF) using Microbes Consortium. *International Journal of Renewable Energy Development*, 4(1), 25.
- Fauzi, A. R., Haryadi, D., Priyanto, S. (2012). Pengaruh Waktu Fermentasi Dan Efektivitas Adsorben Dalam Pembuatan Bioetanol Fuel Grade Dari Limbah

- Pod Kakao (*Theobroma Cacao*). *Jurnal Teknologi Kimia dan Industri*, 1(1), 179-185.
- Febriyanti, Y., Razak, A. R., & Sumarni, N. K. (2018). Ekstraksi dan Karakterisasi Pektin dari Kulit Buah Kluwih (*Artocarpus camansi Blanco*). *KOVALEN: Jurnal Riset Kimia*, 4(1), 60-73.
- García, A., Alriols, M. G., & Labidi, J. (2014). Evaluation of different lignocellulosic raw materials as potential alternative feedstocks in biorefinery processes. *Industrial Crops and Products*, 53, 102-110.
- García, R.J. M., Niño, L., Martínez-Patiño, C., Álvarez, C., Castro, E., & Negro, M. J. (2014). Biorefinery based on olive biomass. State of the art and future trends. *Bioresource Technology*, 159, 421-432.
- Georgelis, N., Fencil, K., & Richael, C. M. (2018). Validation of a rapid and sensitive HPLC/MS method for measuring sucrose, fructose and glucose in plant tissues. *Food chemistry*, 262, 191-198.
- Ghoshal, G., & Negi, P. (2020). Isolation of pectin from kinnow peels and its characterization. *Food and Bioproducts Processing*, 124, 342-353.
- Gill, M. K., Kocher, G. S., & Panesar, A. S. (2021). Optimization of acid-mediated delignification of corn stover, an agriculture residue carbohydrate polymer for improved ethanol production. *Carbohydrate Polymer Technologies and Applications*, 2, 100029.
- Gomes, F. J., Santos, F. A., Colodette, J. L., Demuner, I. F., & Batalha, L. A. (2014). Literature review on biorefinery processes integrated to the pulp industry. *Natural Resources*, 2014.
- González, L. E., Díaz, G. C., Aranda, D. A. G., Cruz, Y. R., & Fortes, M. M. (2015). Biodiesel production based in microalgae: a biorefinery approach. *Natural Science*, 7(07), 358.
- Gunam, I. B. W., Wartini, N. M., Anggreni, A. A. M. D., & Suparyana, P. M. (2011). Delignifikasi ampas tebu dengan larutan natrium hidroksida sebelum proses sakaraifikasi secara enzimatis menggunakan enzim selulase kasar dari *Aspergillus niger* Fnu 6018. *Jurnal teknologi indonesia*, 34(3), 24-32.

- Hermiati, E., Mangunwidjaja, D., Sunarti, T. C., Suparno, O., & Prasetya, B. (2010). Pemanfaatan biomassa lignoselulosa ampas tebu untuk produksi bioetanol. *Jurnal Litbang Pertanian*, 29(4), 121-130.
- Hernandez, E.M., Campbell, G. M., & Sadhukhan, J. (2014). Economic and environmental impact marginal analysis of biorefinery products for policy targets. *Journal of cleaner production*, 74, 74-85.
- Indriany, D., Mappiratu, M., & Nurhaeni, N. (2013). Pemanfaatan limbah tongkol jagung (*Zea Mays*) untuk produksi bioetanol menggunakan sel ragi amobil secara berulang. *Natural Science: Journal of Science and Technology*, 2(3), 54-65.
- Inggrid, H. M., Wong, R., & Santoso, H. (2016). Pretreatment Bonggol Jagung dengan Alkali Peroksida dan Hidrolisis Enzim. In *Seminar Nasional Teknik Kimia Kejuangan* (p. 12).
- Isroi, Millati, R., Syamsiah, S., Niklasson, C., Cahyanto, M. N., Ludquist, K., & Taherzadeh, M. J. (2011). Biological Pretreatment Of Lignocelluloses With White-Rot Fungi And Its Applications: A Review. *BioResources*, 6(4), 5224-5259.
- Jayus, J., & Hanifa, A. S. (2019). Degradasi Komponen Selulosa, Hemiselulosa, dan Pati Tepung Kulit Ubi Kayu Menjadi Gula Reduksi Oleh *Aspergillus niger*, *Trichoderma viride*, dan *Acremonium sp.* IMI 383068. *Jurnal Agroteknologi*, 13(01), 34-41.
- Kamalini, A., Muthusamy, S., Ramapriya, R., Muthusamy, B., & Pugazhendhi, A. (2018). Optimization of sugar recovery efficiency using microwave assisted alkaline pretreatment of cassava stem using response surface methodology and its structural characterization. *Journal of Molecular Liquids*, 254, 55-63.
- Kamalini, A., Muthusamy, S., Ramapriya, R., Muthusamy, B., & Pugazhendhi, A. (2018). Optimization of sugar recovery efficiency using microwave assisted alkaline pretreatment of cassava stem using response surface methodology and its structural characterization. *Journal of Molecular Liquids*, 254, 55-63.
- Kamzon, M. A., Abderafi, S., & Bounahmidi, T. (2016). Promising bioethanol processes for developing a biorefinery in the Moroccan sugar industry. *international journal of hydrogen energy*, 41(45), 20880-20896.

- Karman, J. (2012). *Teknologi dan Proses Pengolahan Biomasa*. Bandung: Alfabeta.
- Kim, J. S., Lee, Y. Y., & Kim, T. H. (2016). A review on alkaline pretreatment technology for bioconversion of lignocellulosic biomass. *Bioresource technology*, 199, 42-48.
- Kohli, K., Katuwal, S., Biswas, A., & Sharma, B. K. (2020). Effective delignification of lignocellulosic biomass by microwave assisted deep eutectic solvents. *Bioresource technology*, 303, 122897.
- Kumar, M., Tomar, M., Potkule, J., Verma, R., Punia, S., Mahapatra, A., Belwal, T., Dahuja, A., Joshi, S., Berwal, M.K., Satankar, V., Bhoite, A.G., Amarowicz, R., Kaur, C., Kennedy, J.F. (2021). Advances in the plant protein extraction: Mechanism and recommendations. *Food Hydrocolloids*, 115, 106595.
- Lainioti, G. C., Kapalos, J., Koliadima, A., & Karaiskakis, G. (2010). New separation methodologies for the distinction of the growth phases of *Saccharomyces cerevisiae* cell cycle. *Journal of Chromatography A*, 1217(11), 1813-1820.
- Lee, J. M., Venditti, R. A., Jameel, H., & Kenealy, W. R. (2011). Detoxification of woody hydrolyzates with activated carbon for bioconversion to ethanol by the thermophilic anaerobic bacterium *Thermo anaero bacterium saccharolyticum*. *Biomass and bioenergy*, 35(1), 626-636.
- Li, C., Xiao, Q., Tang, Y., & Li, L. (2016). A method integrating Taguchi, RSM and MOPSO to CNC machining parameters optimization for energy saving. *Journal of Cleaner Production*, 135, 263-275.
- Liew, S. Q., Ngoh, G. C., Yusoff, R., & Teoh, W. H. (2018). Acid and Deep Eutectic Solvent (DES) extraction of pectin from pomelo (*Citrus grandis* (L.) Osbeck) peels. *Biocatalysis and agricultural biotechnology*, 13, 1-11.
- Liew, S. Q., Teoh, W. H., Tan, C. K., Yusoff, R., & Ngoh, G. C. (2018). Subcritical water extraction of low methoxyl pectin from pomelo (*Citrus grandis* (L.) Osbeck) peels. *International journal of biological macromolecules*, 116, 128-135.
- Limayem, A., & Ricke, S. C. (2012). Lignocellulosic biomass for bioethanol production: current perspectives, potential issues and future prospects. *Progress in energy and combustion science*, 38(4), 449-467.

- Lisin, N., Hutomo, G. S., & Syahraeni, K. (2015). Hidrolisis Selulosa Dari pod husk kakao hydrolysis of cellulose from cocoa pod husk using sulfuric acid. *J. Agrotekbis*, 3, 482-490.
- Long, N. V. D., Kim, S., & Lee, M. (2016). Design and optimization of intensified biorefinery process for furfural production through a systematic procedure. *Biochemical engineering journal*, 116, 166-175.
- Long, Y. C., Quitain, A. T., Yusup, S., Uemura, Y., Sasaki, M., & Kida, T. (2017). Choline chloride (ChCl) and monosodium glutamate (MSG)-based green solvents from optimized cactus malic acid for biomass delignification. *Bioresource technology*, 244, 941-948.
- Lu, J., Li, J., Jin, R., Li, S., Yi, J., & Huang, J. (2019). Extraction and characterization of pectin from *Premna microphylla* Turcz leaves. *International journal of biological macromolecules*, 131, 323-328.
- Ma, C. Y., Wang, H. M., Wen, J. L., Shi, Q., Wang, S. F., Yuan, T. Q., & Sun, R. C. (2020). Structural elucidation of lignin macromolecule from abaca during alkaline hydrogen peroxide delignification. *International journal of biological macromolecules*, 144, 596-602.
- Ma, E., Cervera, Q., & Sánchez, G. M. M. (1993). Integrated utilization of orange peel. *Bioresource technology*, 44(1), 61-63.
- Malik, K., Salama, E. S., El-Dalatony, M. M., Jalalah, M., Harraz, F. A., Al-Assiri, M. S., ... & Li, X. (2021). Co-fermentation of immobilized yeasts boosted bioethanol production from pretreated cotton stalk lignocellulosic biomass: Long-term investigation. *Industrial Crops and Products*, 159, 113122.
- Mann, M. A., Frisch, L. M., Vogel, R. F., & Niessen, L. (2021). Influence of fermentation conditions on the secretion of seripauperin 5 (PAU5) by industrial sparkling wine strains of *Saccharomyces cerevisiae*. *Food Research International*, 139, 109912.
- Mansur, D., Tago, T., Masuda, T., & Abimanyu, H. (2014). Conversion of cacao pod husks by pyrolysis and catalytic reaction to produce useful chemicals. *Biomass and Bioenergy*, 66, 275-285.

- Mardina, P., Talalangi, A. I., Sitinjak, J. F., Nugroho, A., & Fahrizal, M. R. (2013). Pengaruh proses delignifikasi pada produksi glukosa dari tongkol jagung dengan hidrolisis asam encer. *Konversi*, 2(2), 17-23.
- Mariano, A. P. B., Unpaprom, Y., & Ramaraj, R. (2020). Hydrothermal pretreatment and acid hydrolysis of coconut pulp residue for fermentable sugar production. *Food and Bioproducts Processing*, 122, 31-40.
- Maryani, 2007. Pembuatan Etanol dari Ubi Kayu (Cassava) secara Fermentasi. Politeknik Negeri Sriwijaya. Palembang.
- Meena, S., Navatha, S., Devi, B. P., Prasad, R. B. N., Pandey, A., & Sukumaran, R. K. (2015). Evaluation of Amberlyst15 for hydrolysis of alkali pretreated rice straw and fermentation to ethanol. *Biochemical Engineering Journal*, 102, 49-53.
- Megawati, M., & Ulinuha, A. Y. (2014). Ekstraksi pektin kulit buah naga (Dragon fruit) dan aplikasinya sebagai edible film. *Jurnal Bahan Alam Terbarukan*, 3(1), 16-23.
- Methacanon, P., Krongsin, J., & Gamonpilas, C. (2014). Pomelo (*Citrus maxima*) pectin: Effects of extraction parameters and its properties. *Food Hydrocolloids*, 35, 383-391.
- Mierczyńska, J., Cybulska, J., & Zdunek, A. (2017). Rheological and chemical properties of pectin enriched fractions from different sources extracted with citric acid. *Carbohydrate polymers*, 156, 443-451.
- Minmunin, J., Limpitpanich, P., & Promwungkwa, A. (2015). Delignification of elephant grass for production of cellulosic intermediate. *Energy Procedia*, 79, 220-225.
- Moe, S. T., Janga, K. K., Hertzberg, T., Hägg, M. B., Øyaas, K., & Dyrset, N. (2012). Saccharification of lignocellulosic biomass for biofuel and biorefinery applications—a renaissance for the concentrated acid hydrolysis. *Energy Procedia*, 20, 50-58.
- Mollea, C., Chiampo, F., & Conti, R. (2008). Extraction and characterization of pectins from cocoa husks: A preliminary study. *Food Chemistry*, 107(3), 1353-1356.

- Mollea, C., Chiampo, F., & Conti, R. (2008). Extraction and characterization of pectins from cocoa husks: A preliminary study. *Food Chemistry*, *107*(3), 1353-1356.
- Monir, M. U., Abd Aziz, A., Yousuf, A., & Alam, M. Z. (2020). Hydrogen-rich syngas fermentation for bioethanol production using *Sacharomyces cerevisiea*. *International Journal of Hydrogen Energy*, *45*(36), 18241-18249.
- Moorthy, I. G., Maran, J. P., Muneeswari, S., Naganyashree, S., & Shivamathi, C. S. (2015). Response surface optimization of ultrasound assisted extraction of pectin from pomegranate peel. *International journal of biological macromolecules*, *72*, 1323-1328.
- Morales, A., Gullón, B., Dávila, I., Eibes, G., Labidi, J., & Gullón, P. (2018). Optimization of alkaline pretreatment for the co-production of biopolymer lignin and bioethanol from chestnut shells following a biorefinery approach. *Industrial crops and products*, *124*, 582-592.
- Muchtadi, D. (2012). *Pangan Fungsional dan Senyawa Bioaktif*. Bandung: Alfabeta.
- Mukherjee, A., Banerjee, S., & Halder, G. (2018). Parametric optimization of delignification of rice straw through central composite design approach towards application in grafting. *Journal of advanced research*, *14*, 11-23.
- Müller-Maatsch, J., Bencivenni, M, Caligiani, A, Tedeschi, T., Bruggeman, G., Bosch, M., Petrusan, J., Bart Van Droogenbroeck, Elst, K., Sforza, S. (2016). Pectin content and composition from different food waste streams. *Food Chemistry*, *201*, 37-45.
- Mupondwa, E., Li, X., Tabil, L., Sokhansanj, S., & Adapa, P. (2017). Status of Canada's lignocellulosic ethanol: Part II: Hydrolysis and fermentation technologies. *Renewable and Sustainable Energy Reviews*, *79*, 1535-1555.
- Mussatto, S. I., & Teixeira, J. A. (2010). Lignocellulose as raw material in fermentation processes. *Formatex Research Center*, 897-907.
- Mustafa, A. (2015). Analisis proses pembuatan pati ubi kayu (tapioka) berbasis neraca massa. *Agrointek*, *9*(2), 118-124.
- Muthusamy, S., Manickam, L. P., Murugesan, V., Muthukumaran, C., & Pugazhendhi, A. (2019). Pectin extraction from *Helianthus annuus* (sunflower) heads using

RSM and ANN modelling by a genetic algorithm approach. *International journal of biological macromolecules*, 124, 750-758.

Nagula, K. N., & Pandit, A. B. (2016). Process intensification of delignification and enzymatic hydrolysis of delignified cellulosic biomass using various process intensification techniques including cavitation. *Bioresource technology*, 213, 162-168.

Nazir, N., Juita, E., Amelia, C., & Fatli, R. (2016). Optimization of pre-treatment process of cocoa pod husk using various chemical solvents. *International Journal on Advanced Science, Engineering and Information Technology*, 6(3), 403-409.

Nurhayati, N., Maryanto, M., & Tafrikhah, R. (2016). Ekstraksi pektin dari kulit dan tandan pisang dengan variasi suhu dan metode. *agriTECH*, 36(3), 327-334.

Nurmaya M.U, Sunaryo S, Irhamah. 2013. Optimasi Multirespon dengan Menggunakan Metode Hybrid Fuzzy Goal Programming dan Genetic Algorithm. *Prosiding Seminar Nasional Manajemen Teknologi XVIII Program Studi MMT-ITS*, Surabaya.

Nurmila, N., Nurhaeni, N., & Ridhay, A. (2019). Ekstraksi dan Karakterisasi Pektin dari Kulit Buah Mangga Harumanis (*Mangifera Indica L.*) Berdasarkan Variasi Suhu dan Waktu. *KOVALEN: Jurnal Riset Kimia*, 5(1), 58-67.

Nuryanti, D. H., & Djati, H. (2008). Metode permukaan respon dan aplikasinya pada optimasi eksperimen kimia. *Risalah Lokakarya Komputasi Dalam Sains Dan Teknologi Nuklir*, 373-391.

Ong, V. Z., Wu, T. Y., Chu, K. K. L., Sun, W. Y., & Shak, K. P. Y. (2021). A combined pretreatment with ultrasound-assisted alkaline solution and aqueous deep eutectic solvent for enhancing delignification and enzymatic hydrolysis from oil palm fronds. *Industrial Crops and Products*, 160, 112974.

Pereira, P. H. F., Oliveira, T. Í. S., Rosa, M. F., Cavalcante, F. L., Moates, G. K., Wellner, N., ... & Azeredo, H. M. (2016). Pectin extraction from pomegranate peels with citric acid. *International journal of biological macromolecules*, 88, 373-379.

- Pérez, J., Munoz-Dorado, J., De la Rubia, T. D. L. R., & Martinez, J. (2002). Biodegradation and biological treatments of cellulose, hemicellulose and lignin: an overview. *International microbiology*, 5(2), 53-63.
- Pertiwi, D. S. (2013). Konsep dan Tantangan Pengembangan Biorefinery. *JURNAL ITENAS REKAYASA*, 17(1), 51-61.
- Priyangini, F., Walde, S. G., & Chidambaram, R. (2018). Extraction optimization of pectin from cocoa pod husks (*Theobroma cacao* L.) with ascorbic acid using response surface methodology. *Carbohydrate polymers*, 202, 497-503.
- Putra, A. F. R., Wardenaar, E., & Husni, H. (2018). Analisa komponen kimia kayu sengon (*Albizia falcataria* (L.) Fosberg) berdasarkan posisi ketinggian batang. *Jurnal Hutan Lestari*, 6(1), 83-89.
- Qian, M., Lei, H., Villota, E., Mateo, W., Zhao, Y., Huo, E., ... & Huang, Z. (2019). Optimization of delignification from Douglas fir sawdust by alkaline pretreatment with sodium hydroxide and its effect on structural and chemical properties of lignin and pyrolysis products. *Bioresource Technology Reports*, 8, 100339.
- Qiao, Y., Zhai, C., Liu, F., Chen, L., Na, H., Chen, J., & Zhu, J. (2020). Highly efficient microwave driven assisted hydrolysis of cellulose to sugar with the utilization of ZrO₂ to inhibit recrystallization of cellulose. *Carbohydrate polymers*, 228, 115358.
- Qing, Q., Zhou, L., Guo, Q., Huang, M., He, Y., Wang, L., & Zhang, Y. (2016). A combined sodium phosphate and sodium sulfide pretreatment for enhanced enzymatic digestibility and delignification of corn stover. *Bioresource technology*, 218, 209-216.
- Rabelo, S. C., Fonseca, N. A., Andrade, R. R., Maciel Filho, R., & Costa, A. C. (2011). Ethanol production from enzymatic hydrolysis of sugarcane bagasse pretreated with lime and alkaline hydrogen peroxide. *Biomass and bioenergy*, 35(7), 2600-2607.
- Radojković, M., Zeković, Z., Jokić, S., Vidović, S., Lepojević, Ž., & Milošević, S. (2012). Optimization of solid-liquid extraction of antioxidants from black mulberry leaves by response surface methodology. *Food Technology and Biotechnology*, 50(2), 167-176.

- Raji, Z., Khodaiyan, F., Rezaei, K., Kiani, H., & Hosseini, S. S. (2017). Extraction optimization and physicochemical properties of pectin from melon peel. *International journal of biological macromolecules*, 98, 709-716.
- Rambat, R., Aprilita, N. H., & Rusdiarso, B. (2015). Aplikasi limbah kulit buah kakao sebagai media fermentasi asam laktat untuk bahan baku bioplastik. *Jurnal Kimia dan Kemasan*, 37(2), 111-122.
- Ramli, N., & Asmawati (2011). Effect of ammonium oxalate and acetic acid at several extraction time and pH on some physicochemical properties of pectin from cocoa husks (*Theobroma cacao*). *African Journal of Food Science*, 5(15), 790-798.
- Ramos-Aguilar, O. P., de Jesús Ornelas-Paz, J., Ruiz-Cruz, S., Zamudio-Flores, P. B., Cervantes-Paz, B., Gardea-Béjar, A. A., ... & Reyes-Hernández, J. (2015). Effect of ripening and heat processing on the physicochemical and rheological properties of pepper pectins. *Carbohydrate polymers*, 115, 112-121.
- Rego, A. S., Valim, I. C., Vieira, A. A., Vilani, C., & Santos, B. F. (2018). Optimization of sugarcane bagasse pretreatment using alkaline hydrogen peroxide through ANN and ANFIS modelling. *Bioresource technology*, 267, 634-641.
- Reichembach, L. H., & de Oliveira Petkowicz, C. L. (2020). Extraction and characterization of a pectin from coffee (*Coffea arabica* L.) pulp with gelling properties. *Carbohydrate Polymers*, 245, 116473.
- Retnoningtyas, E. S., Antaresti, A., & Aylilianawati, A. (2013). Aplikasi Crude Enzim Selulase dari Tongkol Jagung (*Zea mays* L) pada produksi Etanol dengan Metode Simultaneous Saccharification and Fermentation (SSF). *Reaktor*, 14(4), 272-276.
- Richana, N. (2011). *Bioetanol : Bahan Baku, Teknologi, Produksi, dan Pengendalian Mutu*. Bandung: Nuansa Cendekia.
- Rodrigues, C. I. S., Jackson, J. J., & Montross, M. D. (2016). A molar basis comparison of calcium hydroxide, sodium hydroxide, and potassium hydroxide on the pretreatment of switchgrass and miscanthus under high solids conditions. *Industrial Crops and Products*, 92, 165-173.

- Roukas, T., & Kotzekidou, P. (2020). Rotary biofilm reactor: A new tool for long-term bioethanol production from non-sterilized beet molasses by *Saccharomyces cerevisiae* in repeated-batch fermentation. *Journal of Cleaner Production*, 257, 120519.
- Sahare, P., Singh, R., Laxman, R. S., & Rao, M. (2012). Effect of alkali pretreatment on the structural properties and enzymatic hydrolysis of corn cob. *Applied biochemistry and biotechnology*, 168(7), 1806-1819.
- Samah, O. A., Sias, S., Hua, Y. G., & Hussin, N. N. (2011). Production of Ethanol from Cocoa Pod Hydrolysate. *ITB Journal of Science*, (2).
- Sandén, B. A., & Pettersson, K. (2013). *Systems Perspectives on Biorefineries 2013*. Göteborg: Chalmers University of Technology.
- Sartini, D., Natsir, M., & Duma, N. (2012). Pemanfaatan Limbah Kulit Buah Kakao Sebagai Sumber Bahan Aktif Untuk Sediaan Farmasi. *Balai Latihan Industri Hasil Perkebunan*, 7(2), 69–73.
- Setiarto, R. H. B. (2013). Prospek dan potensi pemanfaatan lignoselulosa jerami padi menjadi kompos, silase dan biogas melalui fermentasi mikroba. *Jurnal Selulosa*, 3(2), 51-66.
- Sharma, B., Larroche, C., & Dussap, C. G. (2020). Comprehensive assessment of 2G bioethanol production. *Bioresource technology*, 313, 123630.
- Shatalov, A. A., & Pereira, H. (2013). High-grade sulfur-free cellulose fibers by pre-hydrolysis and ethanol-alkali delignification of giant reed (*Arundo donax* L.) stems. *Industrial Crops and Products*, 43, 623-630.
- Sherpa, K. C., Ghangrekar, M. M., & Banerjee, R. (2018). A green and sustainable approach on statistical optimization of laccase mediated delignification of sugarcane tops for enhanced saccharification. *Journal of environmental management*, 217, 700-709.
- Shet, V. B., Bhat, M., Naik, M., Mascarenhas, L. N., Goveas, L. C., Rao, C. V., ... & Aparna, A. (2018). Acid hydrolysis optimization of cocoa pod shell using response surface methodology approach toward ethanol production. *Agriculture and Natural Resources*, 52(6), 581-587.

- Silalertruksa, T., Pongpat, P., & Gheewala, S. H. (2017). Life cycle assessment for enhancing environmental sustainability of sugarcane biorefinery in Thailand. *Journal of Cleaner Production*, *140*, 906-913.
- Singh, R., Shukla, A., Tiwari, S., & Srivastava, M. (2014). A review on delignification of lignocellulosic biomass for enhancement of ethanol production potential. *Renewable and Sustainable Energy Reviews*, *32*, 713-728.
- Smith, W. (2007). Literature Review: State of the Art in Biorefinery Development. *Tamutech Consultancy: National Non Food Crop Centre*.
- Spigno, G., Marinoni, L., & Garrido, G. D. (2017). State of the art in grape processing by-products. In *Handbook of Grape Processing By-Products* (pp. 1-27). Academic Press.
- Subagyono, K. (2021). Statistik Perkebunan Unggulan Nasional 2019-2021 (D. Gartina & R. L. L. Sukriya, Eds.). Jakarta: Sekretariat Direktorat Jenderal Perkebunan.
- Suhartini, S., Padaga, C. M., & Hidayat, N. (2006). Mikrobiologi Industri. *Penerbit Andi, Yogyakarta*.
- Sum Ng, D. K. (2010). Automated targeting for the synthesis of an integrated biorefinery. *Chemical Engineering Journal*, *162*(1), 67-74.
- Sun, Y., & Cheng, J. (2002). Hydrolysis of lignocellulosic materials for ethanol production: a review. *Bioresource technology*, *83*(1), 1-11.
- Sundarraj, A. A., Vasudevan, R. T., & Sriramulu, G. (2018). Optimized extraction and characterization of pectin from jackfruit (*Artocarpus integer*) wastes using response surface methodology. *International journal of biological macromolecules*, *106*, 698-703.
- Susilowati, S., Munandar, Edahwati, L., & Harsini, T. (2013). Ekstraksi Pektin dari Kulit Buah Coklat dengan Pelarut Asam Sitrat. *Eksergi*, *11*(1), 27-30.
- Taherzadeh, M. J., & Karimi, K. (2007). Acid-based hydrolysis processes for ethanol from lignocellulosic materials: a review. *BioResources*, *2*(3), 472-499.

- Talebnia, F., Karakashev, D., & Angelidaki, I. (2010). Production of bioethanol from wheat straw: an overview on pretreatment, hydrolysis and fermentation. *Bioresource technology*, 101(13), 4744-4753.
- Talkad M., Chethan, C., Kavya, S., Qudsiya, S. S., & Aamir, J. (2014). Induced mutational studies on *Saccharomyces cerevisiae* for bioethanol production from fruit waste. *Int J Res Eng Technol*, 3(3), 274-279.
- Tezcan, E., & Atıcı, O. G. (2017). A new method for recovery of cellulose from lignocellulosic bio-waste: Pile processing. *Waste Management*, 70, 181-188.
- Trzcinski, A. P., & Stuckey, D. C. (2015). Contribution of acetic acid to the hydrolysis of lignocellulosic biomass under abiotic conditions. *Bioresource technology*, 185, 441-444.
- Valles, A., Álvarez-Hornos, F. J., Martínez-Soria, V., Marzal, P., & Gabaldón, C. (2020). Comparison of simultaneous saccharification and fermentation and separate hydrolysis and fermentation processes for butanol production from rice straw. *Fuel*, 282, 118831.
- Vriesmann, L. C., Teófilo, R. F., & de Oliveira Petkowicz, C. L. (2012). Extraction and characterization of pectin from cacao pod husks (*Theobroma cacao* L.) with citric acid. *LWT*, 49(1), 108-116.
- Vriesmann, L. C., Teófilo, R. F., & de Oliveira Petkowicz, C. L. (2011). Optimization of nitric acid-mediated extraction of pectin from cacao pod husks (*Theobroma cacao* L.) using response surface methodology. *Carbohydrate Polymers*, 84(4), 1230-1236.
- Wang, W., Chen, W., Zou, M., Lv, R., Wang, D., Hou, F., ... & Liu, D. (2018). Applications of power ultrasound in oriented modification and degradation of pectin: A review. *Journal of Food Engineering*, 234, 98-107.
- Wardani, A. K., & Pertiwi, F. N. E. (2013). Produksi etanol dari tetes tebu oleh *Saccharomyces Cerevisiae* pembentuk flok (Nrrl–Y 265). *Agritech*, 33(2).
- Yeni, G. 2015. Reayasa Proses Nano enkapsulasi Konsentrat Gambir (*Uncaria gambir* Roxb.) sebagai Antioksidan. [Disertasi]. Bogor: Fakultas Teknologi Pertanian, IPB. Bogor.

- Yu, K. L., Chen, W. H., Sheen, H. K., Chang, J. S., Lin, C. S., Ong, H. C., ... & Ling, T. C. (2020). Production of microalgal biochar and reducing sugar using wet torrefaction with microwave-assisted heating and acid hydrolysis pretreatment. *Renewable Energy*, *156*, 349-360.
- Yuan, T., Zeng, J., Wang, B., Cheng, Z., & Chen, K. (2021). Lignin containing cellulose nanofibers (LCNFs): Lignin content-morphology-rheology relationships. *Carbohydrate Polymers*, *254*, 117441.
- Zabed, H., Sahu, J. N., Boyce, A. N., & Faruq, G. (2016). Fuel ethanol production from lignocellulosic biomass: an overview on feedstocks and technological approaches. *Renewable and Sustainable Energy Reviews*, *66*, 751-774.
- Zhai, X., Zhu, C., Li, Y., Zhang, Y., Duan, Z., & Yang, X. (2018). Optimization for pectinase-assisted extraction of polysaccharides from pomegranate peel with chemical composition and antioxidant activity. *International journal of biological macromolecules*, *109*, 244-253.
- Zhang, X., Zhang, Y., & Li, H. (2020). Regulation of trehalose, a typical stress protectant, on central metabolisms, cell growth and division of *Saccharomyces cerevisiae* CEN. PK113-7D. *Food microbiology*, *89*, 103459.
- Zhao, X., Wen, J., Chen, H., & Liu, D. (2018). The fate of lignin during atmospheric acetic acid pretreatment of sugarcane bagasse and the impacts on cellulose enzymatic hydrolyzability for bioethanol production. *Renewable Energy*, *128*, 200-209.
- Zheng, J., Zeng, R., Kan, J., & Zhang, F. (2018). Effects of ultrasonic treatment on gel rheological properties and gel formation of high-methoxyl pectin. *Journal of Food Engineering*, *231*, 83-90.
- Zuidar, A. S., Hidayati, S., & Pulungan, R. J. A. (2014). Kajian Delignifikasi Pulp Formacell Dari Tandan Kosong Kelapa Sawit Menggunakan Hidrogen Peroksida (H₂O₂) Dalam Media Asam Asetat. *Jurnal Teknologi & Industri Hasil Pertanian*, *19*(2), 194-204.