

DAFTAR PUSTAKA

- Arantes, V., & Saddler, J. N. (2011). Cellulose Accessibility Limits The Effectiveness Of Minimum Cellulase Loading On The Efficient Hydrolysis Of Pretreated Lignocellulosic Substrates. *Biotechnology For Biofuels*, 4. <https://doi.org/10.1186/1754-6834-4-3>
- Ayu, I., & Pramushinta, K. (2018). Pembuatan Pupuk Organik Cair Limbah Kulit Nanas Dengan Enceng Gondok Pada Tanaman Tomat (*Lycopersicon Esculentum* L.) Dan Tanaman Cabai (*Capsicum Annuum* L.) Aureus. *Journal Of Pharmacy And Science*, 3(2).
- Aziz, Husin, M., & Mokhtar, A. (2002). Preparation Of Cellulose From Oil Palm Empty Fruit Bunches Via Ethanol Digestion: Effect Of Acid And Alkali Catalysts. *Journal Of Oil Palm Research*, 14(1), 9–14.
- Bhat, M. K., & Bhat, S. (1997). Cellulose Degrading Enzymes And Their Potential Industrial Applications. *Biotechnology Advances*, 15(3–4), 583–620. [https://doi.org/10.1016/S0734-9750\(97\)00006-2](https://doi.org/10.1016/S0734-9750(97)00006-2)
- Cheng, J. J., & Timilsina, G. R. (2011). Status And Barriers Of Advanced Biofuel Technologies: A Review. *Renewable Energy*, 36(12), 3541–3549. <https://doi.org/10.1016/j.renene.2011.04.031>
- Dai, H., Zhang, H., & Chen, Y. (2021). *Co-Stabilization And Properties Regulation Of Pickering Emulsions By Cellulose Nanocrystals And Nanofibrils From Lemon Seeds*.
- Dilahari, W., Laconi, E. B., Hariyadi, P., & Rukmiasih. (2019). *Kualitas Nutrien Kulit Nanas (Ananas comosus (L) Merr) Hasil Pembasaan Alkali Serta Pengaruhnya Terhadap Performa Dan Organ Dalam Pada Ayam Broiler*.
- Dwi Veptiyan, E., Apriani, M., & Eka Mayangsari, N. (2019). *Pengaruh Waktu Delignifikasi Terhadap Karakteristik Selulosa Dari Daun Nanas Dan Jerami*.
- Eka Triastuti, W., Surono, A., Zayyan Difa Fadhillah, M., Syahra Ramadhan, R., Rahma Cahyaning Tyas, S., & Fauziyah Zahrah, H. (2023). Effect Of Steam Delignification And Bleaching Process On Pineapple Leaf Fiber

- As Textile Raw Material. In *The Journal Of Engineering* (Vol. 9, Issue 2).
- Fachry, A. R., & Fatimah. (2013). Pembuatan Bioetanol Dari Limbah Tongkol Jagung Dengan Variasi Konsentrasi Asam Klorida Dan Waktu Fermentasi. *Jurnal Teknik Kimia*.
- Faulon, J., & Carlson, G. (2014). *A Three-Dimensional Model For Lignocellulose From Gymnospermous Wood*.
- Fengel, D., & Wegener, G. (1995). *Kayu: Kimia, Ultrastruktur, Reaksi-Reaksi* (Terjemahan). Gajah Mada University Press.
- Ferdinda, E., Maharani, P. A., Agustina, M., Redjeki, S., Muljani, S., & Pujiastuti, C. (2025). Kinetika Reaksi Hidrolisis Enzimatis Selulosa Menjadi Glukosa Dari Kulit Durian (*Durio Zibethinus Rumph*) Menggunakan Enzim Selulase. In *Jurnal Teknik Kimia* (Vol. 19, Issue 2).
- Firdaus, M. M. (2020). *Pengembangan Bahan Ajar Kimia "E-Chemerbook" Berbasis Android Untuk Menumbuhkan Life Skill Peserta Didik*. Universitas Muhamadiyah Semarang.
- Gerhartz, W. (1990). *Enzymes In Industry : Production And Applications*.
- 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* (Vol. 34).
- Hames, P. D., & Hooper, N. M. (2000). *Biochemistry : The Instant Notes*.
- Kang, K., E, J., & Park, D. (2012). Pretreatment Of Rapessed Straw By Sodium Hydroxide. *Bioprocess And Biosystems Eng*, 35(5), 705–713.
- Karmakar, M., & Ray, R. R. (2011). Current Trends In Research And Application Of Microbial Cellulases. *Research Journal Of Microbiology*, 6, 41–53.
- Kartawiria, I. S., Serafin, L., & Abimanyu, H. (2019). Effect Of The Substrate Concentration And The Stirring Rate On The Enzymatic Hydrolysis Of Cellulose From Pre-Treated Corn Cob. Derivation Of A Kinetic Model. In *Journal Of Chemical Technology And Metallurgy* (Vol. 54).

- Kumar, P., Barrett, D. M., Delwiche, M. J., & Stroeve, P. (2009). Methods For Pretreatment Of Lignocellulosic Biomass For Efficient Hydrolysis And Biofuel Production. *Industrial & Engineering Chemistry Research*.
- Kurniati, Y., Khasanah, I. E., & Firdaus, K. (2021). Jurnal Teknik Kimia-Usu Study On Making Bioethanol From Pineapple Peel Waste (Ananas Comosus. L). *Jurnal Teknik Kimia Usu*, 10(2), 95–101. <https://talenta.usu.ac.id/jtk>
- Lestari, I., Permana, E., Hidayat, D. S. B., & Wijaya, D. E. (2023). Preparation Of Cellulose Pineapple (Ananas Comosus) Peel As Adsorbent Of Remazol Yellow Dye. *Walisongo Journal Of Chemistry*, 6(2), 118–126. <https://doi.org/10.21580/Wjc.V6i2.14540>
- Levenspiel, Octave. (1999). *Chemical Reaction Engineering*. Wiley.
- Madureira, A. R., Atatoprak, T., Çabuk, D., Sousa, F., Pullar, R. C., & Pintado, M. (2018). Extraction And Characterisation Of Cellulose Nanocrystals From Pineapple Peel. *International Journal Of Food Studies*, 7(1), 24–33. <https://doi.org/10.7455/ijfs/7.1.2018.A3>
- Mandasari, W., Sitorus, B., & Kimia, J. (2023). Adsorpsi Logam Cd Menggunakan A-Selulosa Dari Kulit Buah Nanas. In *Jurnal Teknologi Lingkungan Lahan Basah* (Vol. 11, Issue 2).
- Maryam, B., Qadir, A., Zameer, M., Ahmad, S. R., Nelofer, R., Jamil, N., Arzoo, S., & Afzaal, R. (2018). Production Of Cellulases By *Bacillus Cellulosilyticus* Using Lignocellulosic Material. *Polish Journal Of Environmental Studies*, 27(6), 2659–2668. <https://doi.org/10.15244/pjoes/80867>
- Mayangsari, N. E., Ramadani, T. A., & Astuti, U. P. (2025). Synthesis Of A Cellulose/Pva Adsorbent Composite From Pineapple Leaves Waste (Ananas Comosus) For The Degradation Of Methylene Blue In Aqueous Solution. *Ijca (Indonesian Journal Of Chemical Analysis)*, 8(1), 62–73. <https://doi.org/10.20885/ijca.Vol8.Iss1.Art6>
- Mosier, N., Wyman, C., Dale, B., Elander, R., Lee, Y. Y., Holtzapple, M., & Ladisch, M. (2005). Features Of Promising Technologies For Pretreatment Of

- Lignocellulosic Biomass. *Bioresource Technology*, 96(6), 673–686.
<https://doi.org/10.1016/j.biortech.2004.06.025>
- Muley, P. D., & Boldor, D. (2017). *Advances In Biomass Pretreatment And Cellulosic Bioethanol Production Using Microwave Heating*.
- Nenci. (2012). *Isolasi Dan Karakterisasi Selulose Dari Trichoderma Viride Strain To51 Dengan Substrat Jerami*. Universitas Indonesia.
- Nirmal, N. P., Khanashyam, A. C., Mundanat, A. S., Shah, K., Babu, K. S., Thorakkattu, P., Al-Asmari, F., & Pandiselvam, R. (2023). Valorization Of Fruit Waste For Bioactive Compounds And Their Applications In The Food Industry. In *Foods* (Vol. 12, Issue 3). Mdpi.
<https://doi.org/10.3390/Foods12030556>
- Nulhakim, L., Pratiwi, A. D., Azizah, N., Guntama, D., Dewi, N., Mochamad, D., & Qurrohman, T. (2024). *Kinetika Hidrolisis Limbah Kulit Nanas (Ananas Comosus L.) Oleh Enzim α -Amilase Dan Enzim Gluko Amilase*.
- Nuri Fawzya, Y., Latifa, A., & Nita Noriko. (2014). *Pemanfaatan Limbah Pengolahan Agar Sebagai Komponen Medium Produksi Selulase Dari Mikroba*.
- Okonkwo, I. F. (2014). Effect Of Substrate Concentration On The Activity Of Cellulase Produced By Aspergillus Flavus. In *Journal Of Applied Research*. www.ijagbio.com
- Olimpia Nahul, M. (2023). *Penentuan Ph Dan Suhu Optimum Dari Enzim Selulase Yang Dihasilkan Trichoderma Reesei Pada Media Sekam Padi*.
- Simanjuntak, M. R., Devi, S., & Dahliaty A. (2013). Optimalisasi Suhu Dan Waktu Produksi Enzim Selulase Dari Bakteri Selulolitik Strain Lokal S-16. *Karya Ilmiah Universitas Riau*.
- Sina, N. W. F., Sukmaria, A. A., & Redjeki, S. (2020). Studi Kinetika Reaksi Fermentasi Selulosa Tongkol Jagung Menggunakan Enzim Selulase Pada Reaktor Batch. In *Journal Of Chemical And Process Engineering Chempro Journal* (Vol. 1, Issue 02). www.chempro.upnjatim.ac.id

- Srinivasan, B. (2022). A Guide To The Michaelis–Menten Equation: Steady State And Beyond. In *Febs Journal* (Vol. 289, Issue 20, Pp. 6086–6098). John Wiley And Sons Inc. <https://doi.org/10.1111/Febs.16124>
- Sukumaran, R. K., Singhania, R. R., Mathew, G. M., & Pandey, A. (2009). Cellulase Production Using Biomass Feed Stock And Its Application In Lignocellulose Saccharification For Bio-Ethanol Production. *Renewable Energy*, 34(2), 421–424. <https://doi.org/10.1016/j.renene.2008.05.008>
- Sulartini, N. W. S., Isnaini, I., Khaifa, L., Aini, U. I., Firdaus, M. R., Solehah, S. S. B., & Hafizah, G. T. R. (2022). Pengolahan Sampah Rumah Tangga Yang Mudah Dan Murah Sebagai Pupuk Organik Untuk Pelestarian Lingkungan Melalui Metode Takakura. *Jurnal Gema Ngabdi*, 4(1), 77–84. <https://doi.org/10.29303/Jgn.V4i1.174>
- Sutarno, R. J., Zaharah, T. A., & Idiawati, N. (2021). *Hidrolisis Enzimatis Selulosa Dari Ampas Sagu Menggunakan Campuran Selulase Dari Trichoderma Reesei Dan Aspergillus Niger*. 2(1), 52–57.
- Tareen, A. K., Punsuvon, V., Sultan, I. N., Khan, M. W., & Parakulsuksatid, P. (2021). Cellulase Addition And Pre-Hydrolysis Effect Of High Solid Fed-Batch Simultaneous Saccharification And Ethanol Fermentation From A Combined Pretreated Oil Palm Trunk. *Acs Omega*, 6(40), 26119–26129. <https://doi.org/10.1021/acsomega.1c03111>
- Tri, H., Saragih, M., Sembiring, J. H., & Ginting, E. (2023). Conversion Of Pineapple Peel Glucose Into Bioethanol Using Simultaneous Saccharification And Fermentation (Ssf) Method And Separate Hydrolysis And Fermentation (Shf) Method. In *Jurnal Kimia Riset* (Vol. 8, Issue 2).
- Verma, V., Alpika, V., & Akhilesh, K. (2012). *Isolation & Production Of Cellulase Enzyme From Bacteria Isolated From Agricultural Fields In District Hardoi*. 3(1), 171–174.
- Widodo, L., Ketut, S., & Caccilia, P. (2013). Pemisahan Alpha- Selulosa Dari Limbah Batang Ubi Kayu Menggunakan Natrium Hidroksida. *Jurnal Teknik Kimia*.

- Yulianti, E., & Rakhmawati, A. (2017). Pengaruh Suhu Dan Ph Terhadap Aktivitas Enzim Fosfatase Bakteri Termofilik Sungai Gendol Pasca Erupsi Merapi. In *Jurnal Prodi Biologi* (Vol. 6).
- Zhang, Y. H. P., & Lynd, L. R. (2004). Toward An Aggregated Understanding Of Enzymatic Hydrolysis Of Cellulose: Noncomplexed Cellulase Systems. In *Biotechnology And Bioengineering* (Vol. 88, Issue 7, Pp. 797–824). <https://doi.org/10.1002/bit.20282>