

DAFTAR PUSTAKA

- Adriana, (2011). *Polimer Nanokomposit Berbasis Plastik Poliolefin dan Serat Nanoselulosa Tandan Kosong Kelapa Sawit Menggunakan Aditif Antistatik Untuk Bahan Teknik*. Medan: Universitas Sumatera Utara (USU).
- Ahola, S. (2008). *Properties and Interfacial Behavior of Cellulose Nanofibrils*. Helsinki University of Technology.
- Achor, M., Oyeniyi, Y. J., & Yahaya, A. (2014). Extraction and characterization of microcrystalline cellulose obtained from the back of the fruit of Lageriana siceraria (water gourd). *Journal of Applied Pharmaceutical Science*, 4(1), 59.
- Akhdiya, A. (2003). *Isolasi Bakteri Penghasil Enzim Protease Alkalin Termostabil*. Buletin Plasma Nutfah, 9(2).
- Andersen, N., Stenby, E.H., & Michelsen, M.L. (2007). *Enzymatic Hydrolysis of Cellulose: Experimental and Modelling Studies*. (Disertasi). Technical University of Denmark.
- Ariyani SB, Asmawit, & Utomo PP. (2014). Optimasi waktu inkubasi produksi enzim selulase oleh Aspergillus niger menggunakan fermentasi substrat padat. *Biopropal Industri*, 5(2), 61-67.
- Aulia, F., Marpongahtun., & Gea, S. (2013). Studi Penyediaan Nanokristal Selulosa dari Tandan Kosong Sawit (TKS). *Jurnal Saintia Kimia*, 1(2), 2-3.
- Azubuike, C. P and Okhamafe, A. O. (2012). Physicochemical, Spectroscopic and Thermal Properties of Microcrystalline Cellulose Derived From Corn Cobs. *International Journal of Recycling of Organic Waste in Agriculture*, 1(9): 1-6.
- Anonim. (2009). *British Pharmacopoeia*. London: British Pharmacopoeia Commission.
- 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): 1.
- Borges, K.B.; Borges, W.S.; Patron R.D.; Pupo, M.T.; Bonato, P.S.; Collado, I.G. (2009). Stereoselective biotransformations using fungi as biocatalysts. *Tetrahedron: Asymmetry*, 20, 385-397.
- British Pharmacopoeia. British Pharmacopoeial Commission office, London, U.K. 2002.

British Pharmacopoeia. British Pharmacopoeial Commission office, London, U.K. 2009.

Chio, W., L. & Riegelman, S. (1971). Pharmaceutical Applications of Solid Dispersion System. *Journal of Pharmaceutical Sciences*, 60 (9), 1281-1302.

Ciolacu, D., Ciocanu, F., & Popa, V. I. (2010). Amorphous cellulose – structure and characterization. *Cellulose chemistry and technology*, 1-9.

Cowd, M, A. (1991). *Kimia Polimer*. Bandung: ITB.

Day, R. A. dan Underwood, A. L. (1999). *Analisis Kimia Kuantitatif*. Penerjemah: Pudjaatmaka, A. H. Edisi kelima. Jakarta: Erlangga

Dachriyanus. (2004). *Analisis Struktur Senyawa Organik Secara Spektroskopi*. Andalas University Press. 26 – 37.

Druzhinina, I, R., Kopchinskiy, A, G., & Druzhinina, I, S. (2006). The First 100 Trichoderma Characterized by Molecular Data. *Myoscience*. 47(2), 55-64.

Djamaan A, Marjoni, R, Mhd., & Friardi, I (2015a). The mechanical pretreatment to increase biomass and bioethanol production from rice straw. *Journal of Chemical and Pharmaceutical Research*, 7(12), 570-575.

Djamaan A., & D. Lufian, (2016). *Rice Straw as a raw material for production of microcrystalline cellulose*. (un-published results).

Edison, D., Neswati., & Rahmi, I. D. (2015). Pengaruh Konsentrasi HCl dalam Proses Hidrolisis A-Selulosa dari Ampas Tebu (*Saccharum officinarum*, L.) Terhadap Karakteristik Mikrokristalin. *Jurnal Fakultas Agriculture of Technology*, Andalas University Padang. 4, 1-2.

Ejikeme, P.M., 2007, Investigation of the physicochemical properties of microcrystalline cellulose from agricultural wastes I: orange mesocarp, Cellulose. 15:141-147

Gandjar, I. G. & Rohman, A. (2007). *Kimia Farmasi Analisis*. Yogyakarta: Pustaka Pelajar.

Gabbott, P. (2008). *Principles and Applications of Thermal Analysis*. Singapore: Markono print media

George, J., Ramana K. V., Bawa A. S., Siddaramaiah. 2010. Bacterial cellulose nanocrystal exhibiting high thermal stability and their polymer nanocomposites. *International Journal of Biological Macromolecules*, 48(1): 50-57.

- Georgopoulos, S. T., Tarantili, P. A., Argerinos, E., Andreopoulos, A. G & Koukios, E. G. (2005). Thermoplastic Polymers Reinforced with Fibrous Agricultural Residues Polymer Degradation and Stability, 90(2), 303 – 312.
- Giri, A.; Dhingra, V.; Giri, C.C.; Singh, A.; Ward, O.P.; Narasu, L.M. (2001). Biotransformations using plant cells, organ cultures and enzyme systems: current trends and future prospects. Biotechnol. Adv, 19, 175-199.
- Gupta, Chetna, Jain, P., Kumar, D., Dixit, A. K. & Jain, R. K. (2015). Production of Cellulase Enzyme from Isolated Fungus and it's Application as Efficient Refining Aid for Production of Security Paper. *IJAMBR*, 3, 11-19.
- Gusrianto, P. Zulharmita. & Rivai, H. (2011) Preparation dan Karakterisasi Mikrokristalin Selulosa dari limbah serbuk kayu penggergajian. *J. Sains Tek Far*, 16 (2), 180-188.
- Goldstein, J. I., Newdury, D. E., Echlin, P., Joy, D. C., Jr. A. D. R., Lyman, C. E., Fiori, C., & Lifshin, E. (1992). *Scanning Electron Microscopy and X-ray Microanalysis*. (2nd ed), New York: Plenum press.
- Hairani, N. (2014). *Optimasi Hidrolisis Selulosa Dari Tandan Kosong Kelapa Sawit Menjadi Selulosa Mikrokristal Dan Aplikasi Sebagai Pengisi Pada Komposit Polimer Termoplastik Pati Singkong*. Tesis Magister Teknik Kimia Fakultas Teknik Universitas Sumatera Utara.
- Halim, A. (2002). Pembuatan Mikrokristalin Selulosa dari Jerami Padi (*Oryza sativa* Linn) dengan Variasi Waktu Hidrolisis. *J. Sains Tek. Far*, 7(2), 80-87.
- Haafiz, M. K. M., Hassan, A., Zakaria, Z., & Inuwa, I. M. (2013). Properties of polylactic acid composites reinforced with oil palm biomass microcrystalline cellulose. *Jurnal Carbohydrate Polymers*, 98, 139-141.
- Han, Ye Jun & Chen, H. Z. (2007). Synergism between Corn Stover Protein and Cellulose. *Enzyme and microbial technology*, 41, 638-645.
- Handayani, P., Juanita., dan Karsono. (2012). Pengaruh Selulosa Mikrokristal Kulit Buah Kapuk Terhadap Laju Disolusi Tablet Furosemida. *Journal of Pharmaceutics and Pharmacology*. 1 (1): 55-62
- Haque, C, A. A., Rana, A. A., Masum, S. M., Ferdous, T., Rashid, M., Sarker & Karim, M. M. (2015). Synthesis of Microcrystalline Cellulose from Pretreated Cotton Obtained from *Bamboo ceiba* L, and its Characterization. *Bangladesh J. Sci. Ind. Res*, 50(3), 199-204.

- Ibrahim, M. M., El-Zawawy, W.K., Jüttke, Y., Koschella, A. and Heinze, T., 2013. Cellulose and microcrystalline cellulose from rice straw and banana plant waste: preparation and characterization. *Cellulose*, 20(5): 2403-2416.
- Immanuel, G. Bhagavath, C. Iyappa, Raj, P. Esakkiraj, P., & Palavesam, A (2006). *Production and Partial Purification of Cellulase by Aspergillus niger and A. fumigatus Fermented in Coir waste and Sawdust. The Internet Journal of Microbiology*, 3(1).
- Ikram-ul-haq, M, M, J., Tehmina S, K., & Zafar S., (2005). Cotton SaccharifyingActivity of Cellulase Produced by co-culture of *Aspergillus niger* and *Trichodarma viridi*, *Res. J. Agri Environ. Microbial*, 61(3). 241-245.
- Ilindra, A., & Dhake, J.D. (2008). Microcysrtalline Cellulosa from Bagasse and Rice Straw. *Indian Journal of Chemical Technology*, 15,497-499.
- Jay MI. (2014). *Uji aktivitas enzim selulase pada kapang dari perairan Pulau Pari Kepulauan Seribu*. [skripsi]. Bogor: Institut Pertanian Bogor.
- Julsing, M.K.; Koulman, A.; Woerdenbag, H.J.; Quax, W.J.; Kayser, O, (2006). Commercial scale biocatalysis: myths and realities. *Biomol. Eng.*, , 23, 265-279.
- Kalia, S., Du fresne, A., Cherian, B. M., Kaith, B. S., Averous, L., Njuguna, J & Nasciopoulos, E. (2011). Cellulose – based Bio and Nanocomposite A review Article. *International Journal of Polymer Science*.
- Kalita, R. D, Nath, Y., Ochubiojo, M. E., & Buragohain, A. K. (2013). Extraction and characterization of microcrystalline cellulose from fodder grass; *Setaria glauca* (L) P. Beauv, and its potential as a drug delivery vehicle for isoniazid, a first line antituberculosis drug. *Colloids and Surf. B Biointerfaces*, 108, 85-89.
- Kalyani, P., Ashwini, P., Mohini, W. & Sangita, C. (2015). Labscale Production and Purification of Cellulase Enzyme from *Aspergillusniger*. *Research Journal of Recent Sciences*, 40, 124-124.
- Khopkar, S.M. (1990). *Konsep Dasar Kimia Analitik*. Jakarta: Universitas Indonesia.
- Kulkarni, S.P.K., & Dixit, ASingh, U.B. (2012). Evaluation of Bacterial Cellulose Produced Form *Acetobacter cylindrum* as Pharmaceutical Excipient. *American Journal of Drug Discovery and Development*, 2(2), 72-86.
- Liemiago, V. O. (2016). *Pengaruh Leaching Pada Produk Film Lateks Karet Alam Berpengisi Mikrokristal Selulosa Avicel Dengan Penambahan*

Penyerasi Alkanolamida. Skripsi. Jurusan Teknik Kimia Fakultas Teknik Universitas Sumatera Utara.

Li, Xing-Hua, Yang, H.J., Roy, B., Park, E. Y., Jiang, L.J., Wang, D. & Miao, Y. G. (2009). Enhanced Cellolase Production of The *Trichoderma viride* Mutated by Microwave and Ultraviolet. *Microbiological Researc*, 165, 190-198.

Madison. (2001). *Introduction to fourier transform infrared spectrometry*. New York: Thermo Nicolet Corporation.

Musfiroh, I. dan Budiman, A.N.H., 2013, *The Optimization of Sodium Carboxymethyl Cellulose (NA-CMC) Synthesized from Water Hyacinth (Eichhornia crassipes (Mart.) Solm) Cellulose*, RJPBCS, 4(4): 1092-1099

Narasimha G., Sridevi A., Buddolla Viswanath, Subhosh Chandra M., & Rajasekar Reddy B., (2006). Nutrient effects on production of cellulolytic enzymes by *Aspergillus niger*. *African Journal of Biotechnology*, 5(5), 472-476.

Ngozi, U.O., Chizoba, N.A. & Ifeachyichokwu, O.S. (2014). Phsycochemical Properties of Microcrystalline Cellulose derived from Indian Bamboo (*Bambusa vulgaris*). *Int. J. Pharm. Sci. Rev. Res*, 29(2), 5-9.

Nugraha, Roni. (2006) d. *Produksi Enzim Selulase oleh Penicillium nalgiovense S240 pada Substrat Tandan Sawit*. (Skripsi). Program Studi Biokimia.

Nuringtyas, T.R. (2010). *Karbohidrat*. Yokyakarta: UGM Press.

Nosya, M. A. (2016). *Pembuatan Mikrokristal Selulosa dari Tandan Kosong Kelapa Sawit*. Skripsi. Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Lampung.

Ohwoavworhua, F. O., dan Adelakun, T. A. (2005). Phosphoric Acid-Mediated Depolymerization And Decrystallization of A-Cellulose ObtainedFrom Corn Cob: Preparation of Low Crystallinity Cellulose And Some Physicochemical Properties. *Tropical Journal of Pharmaceutical Research*. 4(2): 503.

Ohwoavworhua, F.O., Adelakun, T.A., Okhamafe, A.O. (2009). Processing pharmaceutical grade microcrystalline cellulose from groundnut husk: Extraction methods and characterization. *International Journal of Green Pharmacy*, 97-104.

Oktavianus, F., Sigiro, R.M. & Bustan, M.D. (2013). Pembuatan Bioetanol dari Batang Jarak Menggunakan Metode Hidrolisis dengan Katalis Asam Sulfat. *Jurnal Teknik Kimia*.19(2), 27-32.

- Pachuau L., Vanlalfakawma, D. C., Tripathi S. K., & Lalhlenmawia, H. (2014). Muli Bamboo (*Melocanna baccifera*) as a new source of microcrystalline Cellulose. *Journal of Applied Pharmaceutical Science.* 4(11): 87-94.
- Palmer, T. (1995). *Understanding Enzymes* (4th ed). London: Princeton Hall.
- Pajon, C.M.; Galan, R.H.; Collado, I.G. (2003). Biotransformations by *Coleotrichum* species. *Tetrahedron: Asymmetry*, 14, 1229-1239.
- Park, J., Kim, P., Jang, J., Wang, Z., Hwang, B., & Devries, K., (2008). Interfacial evaluation and durability of modified Jute fibers/polypropylene (PP) composites using micromechanical test and acoustic emission. *Compos. Part B Eng.* 39, 1042-1061.
- Patil, P., M. & Gaikwan, J., N. (2011). Characterization of Gliclazide-polyethylene glycol solid dispersion and its effect on dissolution. *BJPS*, 47(1), 161-166.
- Perez, J., Munoz, J., Dorado, T., Rubia, D., I & Martinez, J. (2002). Biodegradation and Biological Treatments of Cellulose, Hemicellulose and Lignin: An Overview. *Int Microbiolog.* 5, 53-63.
- Rai P., Tiwari S., & Gaur R. (2012). Optimization of process parameters for cellulase production by novel thermotolerant yeast. *Bioresources.* 7(4), 5401-5414.
- Rivai H., & Djamaan A (2016). Optimization of production and characterization of homolog vivacel from rice straw. *Der Pharmacie Lettre*, 8(19), 388-394.
- Rivai, H., Djamaan, A., & Ramdani. (2017). Up-Scale of Production and Characterization of Homolog Vivacel fro m Rice Straw. *International Journal of Pharmaceutical Sciences and Medicine (IJPSM)*, 2(11), 1-7
- Rowe, R. C., Sheskey, P. J. & Quinn, M. E. (2009). *Handbook of Pharmaceutical Excipient* 6th. ed. London: Pharmaceutical Press.
- Rozzell, J.D. Commercial scale biocatalysis: myths and realities. *Bioorg. Med. Chem.*, 1999, 7, 2253-2261.
- Sain, M., & Panthapulakkal, S., (2006) Bioprocess preparation of wheat straw fibres andtheir characterisation. *Ind Crops Products* 23:1–8
- Shanmugam, N., R.D. Nagarkar., dan Manisha K. (2014). Microcrystalline Cellulose Powder From Banana Pseudostem Fibres Using Bio-Chemical Route. *Indian Journal of Natural Products and Resources.* 6(1): 42-50.

- Sinaga, M. Z. E. (2011). Perbandingan Sifat Matriks Komposit Polimer Selulosa Asetat Sintetis dan Selulosa Asetat Komersial yang Divariasikan Dengan Polipropilena sebagai Bahan Kemasan. Tesis. FMIPA USU.
- Sirait, S. (2014). Pembuatan Selulosa Mikrokristal pelelah Pinang (Areca catechu L) Sebagai Bahan Tambahan Tablet Ekstrak Etanol Kulit Batang Sikkam. Skripsi. Jurusan Farmasi, Fakultas Farmasi. Universitas Sumatera Utara.
- Soenaryo, E., Damardjati, D., S. & Syam, M. (1991). *Padi buku 3*. Bogor : Badan Penelitian dan Pengembangan Penelitian. Pusat Penelitian dan Pengembangan Tanaman Pangan.
- Sumaiyah., Wirjosentono, B., and Karsono. (2016). Utilization of Microcrystalline Cellulose of Sugar Palm Bunches (*Arenga pinnata* (Wurm) Merr.) as Excipients Tablet Direct Compression. *International Journal of PharmTech Research*. 9 (7): 130-139.
- Suryadi., Herman., Sutriyo., Sari, H.R. & Rosikhoh, D. (2017). Preparation of Microcrystalline Cellulose from Water Hyacinth Powder by Enzymatic Hydrolysis Using Cellulase of Local Isolate. *Journal. Young Pharm*. 9, S19-S23.
- Stevens, M. P. 2001. Kimia Polimer. Cetakan Pertama, Pradnya Paramita. Jakarta. 177. 597
- Taherzadeh, M. J. (2007). Acid-Based Hydrolysis Processes for Ethanol from Lignocellulosic Materials. A Review. *Bioresources*. 2(3): 472-499
- Thoorens, Gregory, Krier, F., Leclercq, B., Carlin, B. & Evrard, B. (2014). Microcrystalline Cellulose, a Direct Compression Binder in a Quality by Design Environment - a Review. *International Journal of Pharmaceutics*. 473, 64-72.
- Tjitrosoepomo, G., (2004). *Taxonomi Tumbuhan (Spermatophyta)*. Yogyakarta: Gadjah Mada University Press.
- Troy, D. B., Remington, J. P., & Beringer, P. (2006). *Remington: The Science and Practice of Pharmacy*. Philadelphia : Lippincott Williams & Wilkins.
- Van de Velde, K and Kiekens, P. 2001. Thermoplastics Pultrussion of Natural Fiber Reinforced Composite, Composite Structure. Vol. 54, No. 2 – 3.355 – 360.
- Venisetty R.K.; Ciddi V. (2003). Application of microbial biotransformation for the new drug discovery using natural drugs as substrates. *Curr. Pharm. Biotech-nol.* 4, 153-167.

- Wang, D., Ai, P., Yu, L., Tan, Z.& Zhang, Y. (2015). Comparing the Hydrolysis and Biogas Production Performance of Alkali and Acid Pretreatments of Rice Straw Using Two-Stage Anaerobic Fermentation. *Biosystems Engineering*. 132, 47-55.
- Whalley, W. B., & Langway, C. C. (1979). Scanning electron microscope examination of subglacial quartz grains from camp century core. *Journal of Galciology*, 25(91), 125-131.
- Wang, Yi-bo., & Williams, R. O. (2012). Powders. In L. Felton, L. A. *Remington Essentials of Pharmaceutics* (1st ed) (pp.411-417). Department of Pharmaceutical Sciences.United States of Amerika: Pharmaceutical Press
- Watson, D.G. (2009). *Analisis Farmasi*. (Edisi 2). Penerjemah: Winny R. Syarie. Jakarta: Penerbit Buku Kedokteran EGC
- Wismogroho, Agus Sukarto dan Wahyu Bambang Widayatno. Pengembangan Alat *Differential Thermal Analysis* untuk Analisa Termal Material Ca(OH)2. 2012. Pusat Penelitian Fisika LIPI : Banten.
- Yang, Dai, Ding & Wyman. (2011). Enzymatic Hydrolisis of Cellulosic Biomass. *Biofuels*. 2 (4), 421-450.
- Yanuar, A., Rosmalasari, E., Anwar, E. (2003). Preparasi dan Karakterisasi Selulosa Mikrokristal dari nata decoco untuk Bahan Pembantu Pembuatan Tablet. *Istecs Journal Science and Technology Policy*, IV, 71-78.
- Yakubu, A; Tanko, M. U. S., Mohammed, S. D. (2011). Chemical Modification of Microcrystalline Cellulose: Improvement of Barrier Surface Properties to Enhance Surface Interactions with Some Synthetic Polymers for Biodegradable Packaging Material Processing and Application in Textile, Food, and Pharmaceutical Industry. *Pelagia Research Library. Advances in Applied Science Research*. 2(6): 532-540
- Yu, B.Y. (2007). Studies on the bio-combinatorial chemistry as the new method for finding higher bioactive or lower toxicity leading compound. Chin. J. Nat. Med, 15, 169-173.
- Yugatama, A., Laksmi Maharani, Hening Pratiwi, Lingga Ikaditya. (2015). Uji Karakteristik Mikrokristalin Selulosa Dari Nata De Soya Sebagai Eksipien Tablet, Farmsains: 2(6): 269-274.
- Yuliasmi, S., Pardede, T. R., Nerdy., dan Syahputra, H. (2016). Comparison of Microcrystalline Characterization Results From Oil Palm Midrib Alpha Cellulose Using Different Delignification Method. *Journal of Materials Science and Engineering*. 180:1-4

Zaferopoulos, N. E. (2011). Interface Engineering of Natural Fiber Composites for Maximum Performance; Woodhead Publishing: Philadelphia.

Zulharmita., Dewi S.N. & Mahyudin. (2012). Pembuatan Mikrokristalin Selulosa dari Ampas Tebu (*Saccharum officinarum L.*). *Jurnal. Sains Teknologi. Farmasi.* 17 (2), 158-163.

