DAFTAR PUSTAKA

Adesioye, F.A., T. P. Makhalanyane, S. Vikram, B. T. Sewell, W. Schubert. D. A. Cowan. 2018. Structural chacarterization and directed evolution of a novel acetyl xylan esterase reveals thermostability determinants of the carbohydrate esterease 7 family. Applied and Environmental Microbiology 84: 1 – 16.

Aizawa, Shin-Ichi. 2014. The Flagellar World: Electron Microscopic Images of Bacterial Flagella and related Surface Structures. Elsevier, Amsterdam.

Barbe, V., S. Cruveiller, F. Kunst, P. Lenoble, G. Meurice, A. Sekowska, D. Vallenet, T. Wang, I. Mosze, C. Medigue, A. Danchin. 2009. From a consortion sequence to a unified sequence: the *Bacillus subtilis* 168 reference genome a decade later. Microbiology 155: 1758 – 1775.

Betts, M.J., and R. B. Russell. 2003. Amino acid properties and consequences of subtitutions. Bioinformatics for Genetics: 289 – 316.

Biely, P. 2012. Microbial carbydrate esterases deacetylating plant polysaccharides. Biotechnology Advances 30: 1575 – 1588.

Burger, M., and J. Chory. 2018. Structural and chemical biology of deacetylases carbohydrates, proteins, small molecules and histones. Communication Biology: 1 – 11.

Darnell, J. E., H. Lodish, A. Berk, L. Zipursky, P. Matsudaira,D. Baltimore. 2000. Molecular Cell Biology. Garland Sciene, United States.

Degrassi, G., M. Kojic, G. Ljubijankic, V. Venturi. 2000. The acetyl xylan esterase of *Bacillus pumilus* belongs to a family of esterases wth broad substrate specificity. Microbiology 146: 1585 – 1591.

Duong-Ly, K.C., and S. B. Gabelli. 2014. Troubleshooting recombinant protein expression. Methods in Enxymology 541: 209 – 229.

Ebringerovia, A., and T. Heinze. 2000. Naturally occurring xylans structures, isolation procedures and properties. Macromolecular Rapid Communications 21: 542 – 556.

El-Helow, E.R. 2001. Identification and molecular characterization of a novel *Bacillus* strain capable of degrading Tween-80. FEMS Microbiology Letters 196: 119 – 122.

Errington, J. 2003. Regulation of endospore formation in *Bacillus subtilis*. Microbiology 1: 117 – 127.

Esposti, M.D., M. Crimi, and G. Venturolli. 1990. A critical evaluation of the hydrophathy profile of membrane proteins. European Journal of Biochemistry 190: 207 – 219.

Gasteiger, W., C. Hoogland, A. Gattiker, S. Duvaud, M.R. Wilkins, R.D. Appel, A. Bairoch. 2005. Protein identification and analysis tools on the ExPASy Server. The Proteomics Protocols Handbook: 571 – 607.

Hakulinen, N., M. Tenkanen, and J. Rouvinen. 2000. Three-dimensional structure of the catalytic core of acetyl xylan esterase from *Trichoderma reesei*: insights into the deacetylation mechanism. Journal of Structural Biology 132: 180 – 190.

Heravi, K.M., F. Eftekhar, B. Yakhchali, F. tebandeh. 2008. Isolation and identification of a lipase producing *Bacillus* sp. from soil. Pakistan Journal of Biological Science 11: 740 – 745.

Jacob, J., H. Duclohei, D.S. Caflso. 1999. The role of proline and glycine in determining the backbone flexibility of a channel-forming peptide. Biophysical Journal 76: 1367 – 1376.

Kameshwar, A. K. S., and W. Qin. 2018. Understanding the structural and functional properties of carbohydrate esterases with a special focus on hemicellulose deacetylating acetyl xylan esterase. Micology 9: 273 – 295.

Krieger, F., A. Moglich, T. Klefhaber. 2005. Effect of proline and glycine residues on dynamics and barriers of loop formation in polypeptide chains. Journal of the American Chemical Society 127: 3346 – 3352.

Kunst, F., N. Ogasawara, I. Mosze, A.M. Albertini, G. Alloni, V. Azevedo, M. G. Beryero, P. Bassieres, A. Bolotin, S. Boschert. 1997. The complete genome sequence of the Gram-positive bacterium *Bacillus subtilis*. Nature 390: 249 – 256.

Lessard, J.C. 2013. Methods in Enzymology. Elsivier, Amsterdam.

Levisson, M., G. W. Han, M.C. Deller, Q. Xu, P. Biely, S. Hendrick, L.F.T. Eyck, C. Flensburg, P. Roversi, M. D. Miller, D. McMullan, F. von Delft, A. Kreusch, A.M. Deacon, J. van der Oost, S. A. Lesley, M. Esliger, S.W.M Kengen, I.A. Wilson. 2012. Fuctional and structural characterization of a thermostable acetyl esterase from *Thermotoga maritima*. Proteins: 1 – 15.

Longo, M.A., and D. Combes. 1997. Influence of surface hydrophilic/hydrophobic balance on enzyme properties. Journal of Biotechnology 58: 21 – 32.

Martinez-Martinez, I., S. Montoro-Garcia, J. D. Lozada-Ramirez, A. Sanchez-Ferrer, F. Garcia-Carmona. 2007. A colorimetric assay for the determination of acetyl xylan esterase or cephalosporin C acetyl esterase activities using 7-aminocephalosporanic acid. Cephalosporin C, or acety;ated xylan as substrate. Analytical Biochemistry 369: 210 – 217.

Moclaro, A.V., A.E. Aquino, R. F. Faria, C.A.O Ricart, S.M. Freitas, G.E.O. Midorikawa, R.N.G. Miller, M. Michelin, M.L.T.M, Polizeli, E. X. F. Filho. 2016. Characterization of multiple xylanase forms from *Aspergillus tamarii* resistant to phenolic compounds. Mycosphere 7: 1554 – 1567.

Montoro-Garcia, S., F. Gil-Ortiz, F. Garcia-Carmona, L.M. Polo, V. Rubio, A. Sanchez-Ferrer. 2011. The crystal structure of the cephalosporin deacetylating enzyme acetyl xylan estererase bound to paraoxon explains the low sensitivity of this serine hydrolase to organophosphate inactivation. Biochemical Journal 436: 321 – 330.

Motta, F. L., C.C. P. Andrade, and M.H. A. Santana. 2013. A Review of xylanase production by the fermentation of xylan: classification, characterization, and application. Sustainable Degradation of Lignocellulosic Biomass: 251 – 275.

Nakamura, A.M., A. S. Nascimento, I. Polikarpov. 2017. Structural diversity of carbohydrate esterases. Biotechnology Research and Innovation 1: 35 – 51.

Park, S., W. Yoo, C. W. Lee, C. S> Jeong, S.C. Shin, H. W. Kim, H. Park, K.K. Kim, T.D. Kim, J.H. Lee. 2018. Crystal structure and functional characterization of a cold-active acetyl xylan esterase (*Pb*AcE) from psychropilic soil microbe *Paenibacillus* sp. PLOS One 13: 1 – 18.

Selig, M.J., W.S. Adney, M. E> Himmel, S.R. Decker. 2008. The impact of cell wall acetylation on corn stover hydrolysis by cellulolytic and xylanolytic enzymes. Cellulose 16: 711 – 722.

Singh, M.K., and N. Manoj. 2016. Crystal structure of *Thermotoga maritima* acetyl esterase complex with a substrate analog: insights into the distinctive substrate specificity in the CE7 carbohydrate esterase family. Biochemical and Biophysical Research Communications 476: 63 – 68.

Sokalingam, S., G. Raghunathan, N. Soundrarajan, S. Lee. 2012. A study on the effect of surface lysine to arginine mutagenesis on protein stability and structure using green fluorescent protein. PLOS One 7: 1 – 12.

Sokalingam, S., G. Raghunathan, N. Soundrarajan, S. Lee. 2013. In silico study on the effect of surface lysine and arginines on the electrostatic interactions and protein stability. Biotechnology and Bioprocess Engineering 18: 18 – 26.

Tao, W., Q. Xu, H. Huang, S. Li. 2015. Efficient production of peracetic acid in aqueous solution with cephalosporin-deacetylating acetyl xylan esterase from *Bacillus subtilis*. Process Biochemistry 50: 2121 – 2127.

Teese, M.G., amd D. Langosch. 2015. Role of GxxxG motifs in transmembrane domain interactions. Biochemistry: 1 – 11.

Tian, Q., P. Song, L. Jiang, S. Li, H. Huang. 2013. A novel cephalosporin deacetylating acetyl xylan esterase from *Bacillus subtilis* with highly activity toward cephalosporin C and 7-aminocephalosporanic acid. Applied Microbiology and Biotechnology: 1 – 9.

Vincent, F., S. J. Charnock, K.H.G. Verschueren, J.P. Turkenburg, D.J. Scott, W.A. Offen, S. Roberst, G. Pell, H. J. Gillbert, G. J. Davies, J. A. Branningan. 2003. Multifunctional xylooligosaccharide/cephalosporin C deasetylase revealed by the hexamerix structure of the *Bacillus subtilis* enzyme at 1.9 Å resolution. Journal of Molecular Biology 330: 593 – 605.

Yap, B. K., C. Lee, S.B. Choi, E. E. Kamarulzaman, M. Hariono, H.A. Wahab. 2018. In Silico Identification of novel inhibitors. Encyclopedia of Bioinformatics and Computational Biology: 1 – 19.

Zhang, J., M. Siika-aho, M. Tenkanen, L. Viikari. 2011. The role of acetyl xylan esterase in solubilization of xylan and enzymatic hydrolysis of wheat straw and giant rees. Biotechnology for Biofuels 4: 1 – 9.