Yong XU

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Dr. Yong Xu has been a vice dean of College of Chemical Engineering at Nanjing Forestry University since 2011, and he has also severed as deputy director of Jiangsu Key Laboratory of Biomass-based Green Fuels and Chemicals. His research interests are primarily in microbiology and biotechnology of lignocellulose biorefinery, especially on the biomass-based chemicals, fuels and materials from agro-forest biomass resources. He and his research team have recently focused on the novel approach to develop the consolidated bioprocessing of xylan and xylose bioconversion with high efficiency, and built up a commercial xylo-oligosacchride (XOS) plant to produce functional animal feed additives over 15 years. In recent years he has also investigated the construction of xylose platform to produce high-valued chemicals such as xylonic acid (XA), and built up a pilot scale fermentation line.

As principal investigator Dr. Yong Xu has been funded by more than 5 scientific research projects from the State Key Development Program of China, the National Natural Science Foundation of China, and the State Forestry Administration. He won the National Award for Technological Invention of China (ranked 3rd) in 2006 and Forestry Science & Technology Award for Young Talents of China in 2011.

Research Areas

- Bioconversion
- Bioproducts
- Catalysis
- Liquid biofuels

Current projects

Integrated Process of Functional Animal Feed Additives Production from Planted Forest Waste

- 2017 – 2020, as Principal Investigator

Investigation of the Key Inhibitors and its Regulation during Bacterial Cell Catalysis of Lignocellulosic Xylose into Xylonite

- 2014 – 2017, as Principal Investigator

Bacterial Cell Catalysis of Furfural into FDCA

- 2016 – 2018, as Principal Investigator

Recent publications

- Xin Zhou, Xuelian Zhou, Yong Xu, Improvement of fermentation performance of Gluconobacter oxydans by combination of enhanced oxygen mass transfer in compressed-oxygen-supply sealed system and cell-recycle technique. Bioresource Technology, 2017, 244:1137-1141. DOI：10.1016/j.biortech.2017.08.107
- Xuelian Zhou, Xin Zhou, Rou Cao,Yong Xu. Improving the performance of cell biocatalysis and the productivity of acetoin from 2, 3-butanediol using a compressed oxygen supply. Process Biochemistry, 2017(on line). DOI:10.1016/j.procbio.2017.09.027
- Xuelian Zhou, Xin Zhou, Lu Huang, Rou Cao,Yong Xu. Efficient coproduction of gluconic acid and xylonic acid from lignocellulosic hydrolysate by Zn(II)-selective inhibition on whole-cell catalysis by Gluconobacter oxydans. Bioresource Technology, 2017,243: 855-859.DOI: 10.1016/j.biortech.2017.07.023
- Xin Zhou, Lu Huang, Yong Xu, Shiyuan Yu. The two-steps bioprocessing strategy in pentonic acid production from lignocellulosic prehydrolysates. Bioprocess and Biosystems Engineering. 2017, 40(11):1581-1587. DOI: 10.1007/s00449-017-1814-y
- Yuanyuan Miao, Yi Sheng, Yong Xu. Effects of Inhibitors on the Transcriptional Profiling of Gluconobater oxydans NL71 Genes after Biooxidation of Xylose into Xylonate. Frontiers in Microbiology. 2017, 8(716):1-11. DOI: 10.3389/fmicb.2017.00716
- Hongyu Zhang, Yong Xu, Shiyuan Yu. Co-production of functional xylooligosaccharides and fermentable sugars from corncob with effective acetic acid prehydrolysis. Bioresource Technology, 2017, 234:343-349. DOI: 10.1016/j.biortech.2017.02.094.

- Kaixuan Huang, Yong Xu, Wen Lu, Shiyuan Yu. A precise method for processing data to determine the dissociation constants of polyhydroxy carboxylic acids via potentiometric titration. Applied Biochemistry and Biotechnology. May, 2017(on line), DOI: 10.1007/s12010-017-2509-1
- Xuelian Zhou, Xin Zhou, Yong Xu, Rachel Chen. Gluconobacter oxydans (ATCC 621H) catalyzed oxidation of furfural for detoxification of furfural and bioproduction of furoic acid. Journal of Chemical Technology and Biotechnology. 2017, 92:1285-1289. DOI:10.1002/jctb.5122.
- Hongyu Zhang, Xuelian Zhou, Yong Xu, Shiyuan Yu. Production of xylooligosaccharides from waste xylan, obtained from viscose fiber processing, by selective hydrolysis using concentrated acetic acid. Journal of Wood Chemistry and Technology. 2017, 37:1-9. DOI: 10.1080/02773813.2016.1214154.
- Xin Zhou, Xuelian Zhou, Yong Xu, Shiyuan Yu. Improving the production yield and productivity of 1,3-dihydroxyacetone from glycerol fermentation using Gluconobacter oxydans NL71 in a comppressed oxygen supply-sealed and stirred tank reactor(COS-SSTR). Bioprocess and Biosystems Engineering. 2016, 39(8):1315-1318. DOI: 10.1007/s12010-015-1651-x.
- Faxian Jiang, Xin Zhou, Yong Xu, et al. Degradation profiles of non-lignin constituents of corn stover from dilute sulfuric acid pretreatment. Journal of Wood Chemistry and Technology. 2016, 36(39):192-204. DOI: 10.1080/02773813.2015.1112403.
- Xin Zhou, Yong Xu, Shiyuan Yu. Bioconversion of Xylose and Glycerol to Xylonic Acid and 1,3-Dihydroxyacetone from the Mixture of Pre-Hydrolysates and Ethanol-Fermented Waste Liquid by Gluconobacter oxydans. Applied Biochemistry and Biotechnology. 2016, 178(1):1-8. DOI: 10.1007/s12010-015-1853-2.
- Yuanyuan Miao, Xin Zhou, Yong Xu, Shiyuan Yu. Draft Genome Sequence of Gluconobacter oxydans NL71: a Strain That Efficiently Biocatalyzes Xylose to Xylonic Acid at a High Concentration. Genome Announcement. 2015,3(3):1-2. DOI:10.1128/genomeA.00615-15.
- Xin Zhou, Shanshan Lü, Yong Xu, Yixian Mo, Shiyuan Yu. Improving the Performance of Cell Biocatalysis and the Productivity of Xylonic Acid Using a Compressed Oxygen Supply. Biochemical Engineering Journal. 2015, 93:196-199. DOI:10.1016/j.bej.2014.10.014.
- Junjun Zhu,Yayun Rong,Jinlong Yang,Xin Zhou,Yong Xu,Lingling Zhang, Jiahui Chen, Qiang Yong,Shiyuan Yu. Integrated production of xylonic acid and bioethanol from acid-catalyzed stream-explored corn stover. Applied Biochemistry and Biotechnology. 2015, 176:1370-1381. DOI: 10.1007/s12010-015-1651-x.
- Xing Wang, Yong Xu, Zhina Lian, Qiang Yong, Shiyuan Yu. A one-step method for the simultaneous determination of five wood monosaccharides and the corresponding aldonic acid in fermentation broth using high-performance anion-exchange chromatography coupled with a pulsed amperometric detector. Journal of Wood Chemistry and Technology. 2014, 34:67-76. DOI: 10.1016/j.bej.2014.10.014 .