Resume of Liangcai Peng

Basic Information

School:	Life and Health Science
Title:	Professor
Education:	Ph.D. in Biochemistry and Molecular Biology
E-mail：	lpeng@mail.hzau.edu.cn
Interest of research:	Cellulose biosynthesis, Plant cell wall structure & function, Biotechnology & Bioengineering, Biofuels & Nanomaterials.
Email:	lpeng@mail.hzau.edu.cn

Brief Biography

Prof. Liangcai Peng is graduated with a B.Sc. degree (1983) in Agronomy from Huazhong Agricultural University, Wuhan, China, a M. Sc. (1987) in Plant Biochemistry from Chinese Academy of Agricultural Sciences, Beijing, China, and a Ph. D. (1998) in Biochemistry and Molecular Biology from The Australian National University (ANU), Canberra, Australia. He was an IFS Research Fellow at John Curtin School of Medical Research (1992-1993) and ANU Visiting Scholar (1993-1994) at Research School of Biological Research, ANU, Canberra, Australia. He was a postdoctoral Fellow with Dr. Debby Delmer at Section of Plant Biology, University of California Davis, and a Research Scientist at Plant Gene Expression Center, ARS/USDA, University of California Berkeley.

Currently, Prof. Peng is a Distinguished Professor of Biochemistry and Bioengineering and Principal Investigator of Key Laboratory of Fermentation Engineering, Cooperative Innovation Center of Industrial Fermentation, Hubei Key Laboratory of Industrial Microbiology, Hubei University of Technology. He is selected as a National Changjiang Scholar of China in 2006 and his group research include plant cellulose biosynthesis, plant cell wall structure and biochemical function, bioenergy crop genomics and breeding, microorganism engineering for biofuels, biomass pretreatment and green chemistry; plant phytoremediation for heavy metals; biomass nanotechnology for nanomaterials and nanocarbons, etc. He has supervised 42 Ph. D. and 100 M. Sc. graduate students, and published more than 120 SCI articles in major 40 journals of different fields with total cited times at 7500 and h-index 46. He is also invited to give conference lectures for more than 80 times.

Enrollment Information

Master Degree: Biotechnology, Food Science and Engineering, Biology and Medicine
Doctoral Degree: Light Industry Technology and Engineering

Representative Articles

1. Sitosterol β-1,4-glucoside as primer for cellulose synthesis in plants. ***Science***, 2002, 295:147-150.
2. Molecular analysis of cellulose biosynthesis in Arabidopsis. ***Science***, 1998, 279: 717-720.
3. Insights into contrastive cellulose nanofibrils assembly and nanocrystals catalysis from dual regulations of plant cell walls. ***Science Bulletin***, 2024. https://doi.org/10.1016/j.scib.2024.06.013
4. Single-molecular insights into the breakpoint of cellulose nanofibers assembly during saccharification. ***Nature Communications***, 2023, 14: 1100.
5. Intermitten ultrasound retains cellulases unlock for enhanced cellulosic ethanol with high-porosity biochar for dye adsorption using desirable rice mutant straw. ***Bioresource Technology***, 2023, 369: 128437.
6. High density cellulose nanofibril assembly leads to upgraded enzymatic and chemical catalysis of fermentable sugars, cellulose nanocrystals and cellulase production by precisely engineering cellulose synthase complexes. ***Green Chemistry***, 2023, 25:1096.
7. Using Amaranthus green proteins as universal biosurfactant and biosorbent for effective enzymatic degradation of diverse lignocellulose residues and efficient multiple trace metals remediation of farming lands. ***Journal of Hazardous Materials***, 2021, 406:124727.
8. A novel rice fragile culm 24 mutant encodes a UDP-glucose epimerase that affects cell wall properties and photosynthesis. ***Journal of Experimental Botany***, 2020, 71: 2956-2969.
9. Modeling of optimal green liquor pretreatment for enhanced biomass saccharification and delignification by distinct alteration of wall polymer features and biomass porosity in Miscanthus. ***Renewable Energy***, 2020, 159:1128-1138.
10. Altered carbon assimilation and cellulose accessibility to maximize bioethanol yield under low-cost biomass processing in corn brittle stalk. ***Green Chemistry***, 2019, 21: 4388–4399.
11. Mild chemical pretreatments are sufficient for bioethanol production in transgenic rice straws overproducing glucosidase. ***Green Chemistry***, 2018, 20: 2047-2056.
12. AtCSLD3 and GhCSLD3 mediate root growth and cell elongation downstream of the ethylene response pathway in Arabidopsis. ***Journal of Experimental Botany***, 2018, 69:1065-1080.
13. OsCESA9 conserved-site mutation leads to largely enhanced plant lodging resistance and biomass enzymatic saccharification by reducing cellulose DP and crystallinity in rice. ***Plant Biotechnology Journal***, 2017, 15:1093-1104.
14. AtCesA8-driven OsSUS3 expression leads to largely enhanced biomass saccharifcation and lodging resistance by distinctively altering lignocellulose features in rice. ***Biotechnology for Biofuels***, 2017, 10: 221.

15. Biomass saccharification is largely enhanced by altering wall polymer features and reducing silicon accumulation in rice cultivars harvested from nitrogen fertilizer supply. ***Bioresource Technology***, 2017, 243:957-965.
16. Genetic modification of plant cell walls to enhance biomass yield and biofuel production in bioenergy crops. ***Biotechnology Advances***, 2016, 34(5): 997-1017.
17. Tween-80 is effective for enhancing steam-exploded biomass enzymatic saccharification and ethanol production by specifically lessening cellulase absorption with lignin in common reed. ***Applied Energy***, 2016, 175: 82-90.
18. High-level arabinose predominately affects cellulose crystallinity for genetic enhancing both plant lodging resistance and biomass enzymatic digestibility in rice mutants. ***Plant Biotechnology Journal***., 2015, 13: 514-525.
19. Mild alkali-pretreatment effectively extracts guaiacyl-rich lignin for high lignocellulose digestibility coupled with largely diminishing yeast fermentation inhibitors in Miscanthus. ***Bioresource Technology***, 2014, 169: 447-454.
20. Three lignocellulose features that distinctively affect biomass enzymatic digestibility under NaOH and H_2SO_4 pretreatments in *Miscanthus*. ***Bioresource Technology***, 2013 ,130:30-37.
21. Hemicelluloses negatively affect lignocellulose crystallinity for high biomass digestibility under NaOH and H_2SO_4 pretreatments in *Miscanthus*. ***Bioresource Technology***, 2012, 5(1): 58.
22. Genetic engineering of energy crops: A strategy for biofuel production in China. ***Journal of Integrative Plant Biology***, 2011, 53: 143-150.
23. Expression profiling and integrative analysis of the CESA/CSL superfamily in rice. ***BMC Plant Biology***, 2010,10: 282-298.
24. The experimental herbicide CGA 325'615 inhibits synthesis of crystalline cellulose and causes accumulation of non-crystalline β-1,4-glucan associated with CesA protein. ***Plant Physiology***, 2001,126: 981-992.