

Xiangyang Li

Title: Professor

Degree: Ph.D.

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Research Interests: Environmental microbiology, Microbiome data mining



Li Xiangyang, born on Oct. 1984, is a Professor at the School of Life and Health Science, Kaili University, and heads the Biological Engineering major there. He received his PhD degree in Microbiology from Huazhong Agricultural University in 2013. From 2014 to 2020, he did his post-doctoral research at Fudan University. His research focuses on the impacts of heavy metals on bacterial drug resistance, microbiome data mining, and the development of bioinformatics analysis tools. He has led 2 national-level projects, 3 provincial or ministerial-level projects, and 3 prefecture or department-level projects, securing a total research funding exceeding RMB 2.38 million. He has published a total of 24 academic papers.

In 2014, he received the Second Prize for the 5th Guizhou Provincial Excellent Natural Science Academic Paper, ranking first, awarded by the Guizhou Provincial Association for Science and Technology. In 2017, he was recognized as a High-level Innovative Talent (Thousand-level) in Guizhou Province. In 2018, He is included in the expert database for communication review of the National Natural Science Foundation of China. Additionally, he served as an adjunct Master's supervisor at Hangzhou Normal University from 2016/10 to 2019/10. He serves as a reviewer for multiple SCI-indexed journals, such as *Environment International* (IF = 11.8, a leading journal in the field of environment and health), *Environmental Science & Technology Letters* (IF=10.9), and *Applied Microbiology and Biotechnology*, among others.

Education

2008/09-2013/12 Ph.D. Microbiology, College of Life Science and Technology, Huazhong Agricultural University, (Advisor: Prof. Gejiao Wang)

2004/09-2008/06 B.S. Biological Sciences, College of Life Science and Technology, Huazhong Agricultural University

Experience

2021/03-Present: Full Professor of School of Life and Health Science, Kaili University

2014/12-2020/07: Postdoctoral Fellow of Department of Environmental Science and Engineering, Fudan University

2014/04-2021/02: Associate Professor of School of Life and Health Science, Kaili University

Research grants

1. 2020/01-2023/12, Investigating the bacterial communities diversity and its drug-resistances in response to long-term silver exposure on soil, National Natural Science Foundation of China (21966015). Principal Investigator, RMB 645,000.
2. 2016/01-2018/12, Mechanism of Formation and Diffusion of Drug-Resistant Bacteria Induced by Sublethal Doses of Heavy Metals in the Environment, National Natural Science Foundation of China (21507012), Principal Investigator, RMB 200,000.
3. 2015/05-2016/12, Mechanism of Low-Dose Heavy Metals in the Environment Promoting the Diffusion of Bacterial Drug Resistance, China Postdoctoral Science Foundation (First-Class Funding) (2015M570329). Principal Investigator, RMB 80,000.
4. 2017/05-2019/05, Comparative Genomics Analysis of the Evolution and Adaptation Mechanisms of *Pseudomonas stutzeri*, Joint foundation of GuiZhou Province Science and Technology Commission of China (QKHLH [2017]7176), Principal Investigator, RMB 60,000.

5. 2019/01-2021/12, Research on Pathogenic Microbial Community Structure and Related Drug Resistance Mechanisms in Atmospheric Particulate Matter in Southeast Guizhou Province, Science and Technology Foundation of Guizhou Province (QKHJC [2019]1287), Principal Investigator, RMB 175,000.
6. 2020/10-2023/10, Research on the Co-Distribution Characteristics of Bacterial Heavy Metal Resistance Genes and Drug Resistance Genes Based on Bacterial Genome Sequence Big Data, Natural Science Foundation of Guizhou Provincial Department of Education of China (Top Talent Project) (QJHKY[2020]043), Principal Investigator, RMB 300,000.
7. 2015/11-2018/11, Study on the Impact of Sublethal Concentrations of Heavy Metals on Bacterial Antibiotic Resistance and Its Molecular Mechanisms, Natural Science Foundation of Guizhou Provincial Department of Education of China (Key Project) (QJHKY[2015]395), Principal Investigator, RMB 100,000.
8. 2017/01-2019/12, Mechanism of the Impact of Toxic Components of Atmospheric Fine Particulate Matter on the Drug Resistance of Respiratory Pathogenic Bacteria, Training Program of the Major Research Plan of the National Natural Science Foundation of China (91643106), Participant.
9. 2012/01-2014/12, Molecular Mechanism of Arsenic Replacement of Phosphorus in Arsenic-Oxidizing Bacteria that are Arsenic-philic, National Natural Science Foundation of China (31170106), Participant.
10. 2011/01-2013/12, Molecular Mechanism of Arsenic Sensing and Expression Regulation in Chemoheterotrophic and Autotrophic Arsenite-Oxidizing Bacteria, International (Regional) Cooperation and Exchange (ICE) Projects of the National Natural Science Foundation (31010103903), Participant.
11. 2010-2012/12, Mechanism of Arsenite Sensing and Signal Transduction in Arsenite-Oxidizing Bacteria, National Natural Science Foundation of China (30970075), Participant.

Representative publications

1. Li X, April Z. Gu, Zhang Y, Xie B, Li D, Chen J. Sub-lethal Concentrations of Heavy Metals Induce Antibiotic Resistance via Mutagenesis. *Journal of Hazardous Materials* 2019, 369:9-16. (SCI, IF=9.038)
2. Li X*, Chen F, Chen Y. Gcluster: a simple-to-use tool for visualizing and comparing genome contexts for numerous genomes. *Bioinformatics*, 2020, 36(12):3871–3873. *First Author & Corresponding Author (SCI, IF=6.937)
3. Li X*, Yang Z, Wang Z, Li W, Zhang G, Yan H. Comparative Genomics of *Pseudomonas stutzeri* Complex: Taxonomic Assignments and Genetic Diversity. *Frontiers in Microbiology* 2022, DOI: 10.3389/fmicb.2021.755874. *First Author & Corresponding Author (SCI, IF=5.200).
4. Li X*, Yang Z, Zhang G, Si S, Wu X, Cai L*. Plasmid Genomes Reveal the Distribution, Abundance, and Organization of Mercury-Related Genes and Their Co-Distribution with Antibiotic Resistant Genes in Gammaproteobacteria. *Genes* 2022, 13(11):2149, <https://doi.org/10.3390/genes13112149>. (SCI, IF=3.500). *First Author & Corresponding Author
5. Li X, Hu Y, Gong J, Zhang L, Wang G. Comparative genome characterization of *Achromobacter* members reveals potential genetic determinants facilitating the adaptation to a pathogenic lifestyle. *Applied Microbiology and Biotechnology*, 2013, 97(14):6413-6425. (SCI, IF=3.81)
6. Li X, Zhang L, Wang G. Genomic Evidence Reveals the Extreme Diversity and Wide Distribution of the Arsenic-Related Genes in Burkholderiales. *PLoS ONE* 2014, 9(3): e92236. (SCI, IF=3.23)
7. Li X, Gong J, Hu Y, Cai L, Laurel Johnstone, Gregor Grass, Christopher Rensing, Wang G. Genome Sequence of the Moderately Halotolerant, Arsenite-Oxidizing Bacterium *Pseudomonas stutzeri* TS44. *Journal of bacteriology* 2012, 194(16):4473-4. (SCI, IF=3.177)
8. Li X, Hu Y, Gong G, Lin Y, Laurel Johnstone, Christopher Rensing, Wang G. Genome sequence of the highly efficient arsenite-oxidizing bacterium *Achromobacter arsenitoxydans* SY8. *Journal of bacteriology* 2012, 194(5):1243-4. (SCI, IF=3.177)