

## Ma Lijuan (Fatimah), Ph.D



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Dr. Ma Lijuan earned her Bachelor of Science degree in Biological Sciences from Minzu University of China in 2015. She subsequently obtained her Master of Science (Chinese Medicinal Science, 2018) and Doctor of Philosophy (Biomedical Sciences, 2023) degrees from the University of Macau. Following her PhD, she continued her research as a postdoctoral fellow at the Institute of Chinese Medical Sciences, University of Macau, from January 2023 to August 2024. In 2025, Dr. Ma joined the State Key Laboratory of Quality Research in Chinese Medicine at Macau University of Science and Technology as an Assistant Professor.

Dr. Ma's research focuses on the application of innovative technologies and methodologies in the quality assessment of traditional Chinese medicine (TCM) and the study of plant chemical defense mechanisms. Her work centers on the biotransformation of ginsenosides in *Panax* species, the regulatory role of  $\beta$ -glucosidase in plant chemical defense, and the development of extraction and analytical techniques for active components in TCM. To date, she has published over ten research articles in prestigious journals such as *Nature Communications* and *Food Chemistry* and holds three authorized Chinese patents.

**Teaching Modules:** Pending

**Research Interest:** Quality evaluation of TCM, Plant chemical defense mechanisms

### Education

2018.1-2023.1	Ph.D., University of Macau, Macao, China
2015.8-2018.1	MSc., University of Macau, Macao, China
2011.8-2015.7	BSc., Minzu University of China, Beijing, China

### Working Experience

2025.1-Present	Assistant Professor, State Key Laboratory of Quality Research in Chinese Medicine, Macau University of Science and Technology
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2023.1-2024.8

Postdoctoral Research Fellow, State Key Laboratory of Quality Research in Chinese Medicine, Institute of Chinese Medical Sciences, University of Macau

**Publications:**

1. **L.J. Ma**, J.Y. Liu, W.Y. Fu, H.C. Bi, Y. Ding, J.B. Wan\*.  $\beta$ -glucosidase mediates ginsenoside hydrolysis in the leaves of *Panax* species. *Industrial Crops and Products*, 2025, 226, 120636
2. **L.J. Ma**, X. Liu, L.W. Guo, Y. Luo, B.B. Zhang, X.X. Cui, K. Yang, J. Cai, F. Liu, N. Ma, X.H. He\*, S.P. Shi\*, J.B. Wan\*, Discovery of plant chemical defense mediated by a two-component system involving  $\beta$ -glucosidase in *Panax* species. *Nature Communications*, 2024, 15:602
3. J.Y. Liu, **L.J. Ma (co-first)**, R.J. Yang, Y. Liu, Z. Shu, Y.Q. Cai, Q.W. Zhang, F.Q. Yang\*, J.B. Wan\*, Preparation of Rare dehydrated protopanaxadiol ginsenosides from *Panax notoginseng* leaves by confined microwave-driven transformation. *Journal of Agricultural and Food Chemistry*, 2024, 73(1), 678-692.
4. **L.J. Ma**, N. Ma, J.L. Cao, J.B. Wan\*, Characterizing the influence of different drying methods on chemical components of *Panax notoginseng* leaves by heart-cutting two-dimensional liquid chromatography coupled to orbitrap high resolution mass spectrometry. *Food Chemistry*, 2022, 369: 130965.
5. **L.J. Ma**, J.L. Cao, F.C. Meng, S.P. Wang, Y. Deng, Y.T. Wang, P. Li\*, J.B. Wan\*, Quantitative characterization of ginsenoside biotransformation in *Panax notoginseng* inflorescences and leaves by online two-dimensional liquid chromatography coupled to mass spectrometry. *Journal of Agricultural and Food Chemistry*, 2020, 68: 5327-5338.
6. J.L. Cao, **L.J. Ma (co-first)**, S.P. Wang, Y. Deng, Y.T. Wang, P. Li\*, J.B. Wan\*, Comprehensively qualitative and quantitative analysis of ginsenosides in *Panax notoginseng* leaves by online two-dimensional liquid chromatography coupled to hybrid linear ion trap Orbitrap mass spectrometry with deeply optimized dilution and modulation system. *Analytica Chimica Acta*, 2019, 1079: 237-251.
7. **L.J. Ma**, N. Ma, B.Y. Wang, K. Yang, X.H. He\*, J.B. Wan\*, Ginsenoside distribution in different architectural components of *Panax notoginseng* inflorescence and infructescence. *Journal of Pharmaceutical and Biomedical Analysis*, 2021, 203: 114221.
8. H.M. Sun, **L.J. Ma (co-first)**, J.B. Wan\*, S.Q. Tong\*, Preparative separation of gypenoside XVII, ginsenoside Rd2, notoginsenosides Fe and Fd from *Panax*

*notoginseng* leaves by counter-current chromatography and orthogonality evaluation for the separation of four saponins. *Journal of Separation Science*, 2021, 44: 2996-3003.

9. **L.J. Ma**, F. Liu, Z.F. Zhong, J.B. Wan\*, Comparative study on chemical components and anti-inflammatory effects of *Panax notoginseng* flower extracted by water and methanol. *Journal of Separation Science*, 2017, 40: 4730-4739.
10. **L.J. Ma**, R.H. Gu, L. Tang, Z.E. Chen, R. Di, C.L. Long\*, Important poisonous plants in Tibetan ethnomedicine. *Toxins*, 2015, 7:138-155.
11. M. Wang, **L.J. Ma**, Y. Yang, Z.Y. Xiao, J.B. Wan\*, n-3 Polyunsaturated fatty acids for the management of alcoholic liver disease: A critical review. *Critical Reviews in Food Science and Nutrition*, 2018, 59:1-14.
12. R.B. Feng, **L.J. Ma**, M. Wang, C.L. Liu, R.J. Yang, H.X. Su, Y. Yang, J.B. Wan\*, Oxidation of fish oil exacerbates alcoholic liver disease by enhancing intestinal dysbiosis in mice. *Communications Biology*, 2020, 3: 481.
13. M. Wang, X.J. Zhang, **L.J. Ma**, R.B. Feng, C.Y. Yan, H.X. Su, C.W. He, J.B. Wan\*, Omega-3 polyunsaturated fatty acids ameliorate ethanol-induced adipose hyperlipolysis: A mechanism for hepatoprotective effect against alcoholic liver disease. *Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease*, 2017, 1863: 3190-3201.

#### **Patents:**

1. J.B. Wan, X.H. He, L.J. Ma. Application of notoginsenoside Fe and/or notoginsenoside Fd in the preparation of botanical fungicides and the control of agricultural fungal diseases, CN Patent, CN115669673A.
2. J.B. Wan, L.J. Ma, J. Cai, Y.T. Wang. Extraction method for increasing the content of ginsenoside Rb3 in *Panax notoginseng* leaf and/or flower extracts, CN Patent, CN111214523A.
3. J.B. Wan, J.Y. Liu, L.J. Ma. Preparation method for dehydrated ginsenosides Rk2 and Rh3, CN Patent, CN 118206609 A