

项目成果清单

1.项目相关论文发表情况。

发表研究论文 43 篇，其中第一标注的论文 16 篇。

- [1] M. Wang, M.L. Zhou, M. Wang, J.Y. Du, C.L. Liu, Y. Wang, Z.N. Xia, Fabrication of a bifunctional fluorescent chiral composite based on magnetic Fe₃O₄/chiral carbon dots@hierarchical porous metal-organic framework, *Talanta* 266 (2024) 125113. 第一标注
- [2] C. Liu, J. Du, Y. Wang, X. Qian, B. Ji, M. Wang, Z. Xia, Protein recognition based on temperature-stimulated multiparameter response virtual array sensing strategy, *Anal Chem* 95(46) (2023) 16996-17002. 第一标注
- [3] X.Y. Fu, X. Wang, Z.N. Xia, Y.K. Huang, Preparation of dummy molecularly imprinted polymers for selective extraction of aromatic amine genotoxic impurities, *J Chromatogr A* 1685 (2022) 463617. 第一标注
- [4] Y. Tian, C.H. Li, F.Y. Zeng, C. Yu, Z.N. Xia, Y.K. Huang, Study the interactions between multiple flavonoids and bovine serum albumin by the developed equilibrium dialysis, *J Chromatogr B* 1212 (2022) 123515. 第一标注
- [5] M. Wang, C.H. Li, M.L. Zhou, Z.N. Xia, Y.K. Huang, Natural deep eutectic solvent assisted synthesis and applications of chiral carbon dots, *Green Chem* 24(17) (2022) 6696-6706. 第一标注
- [6] M. Wang, Y. Liu, Y. Liu, Z.N. Xia, MOFs and PDA-supported immobilization of BSA in open tubular affinity capillary electrochromatography: Prediction and study on drug-protein interactions, *Talanta* 237 (2022) 122959. 第一标注
- [7] Y. Liu, X.X. Luo, M. Wang, Z.N. Xia, Y.K. Huang, Microorganisms as Bio-SPE materials for extraction of pharmaceutical drugs: mechanism of extraction, *Anal Chem* 93(21) (2021) 7665-7672. 第一标注
- [8] X.W. Yin, M. Wang, Z.N. Xia, In vitro evaluation of intestinal absorption of tiliroside from *Edgeworthia gardneri* (Wall.) Meisn., *Xenobiotica* 51(6) (2021) 728-736. 第一标注
- [9] X.X. Luo, D.D. Wang, M. Wang, S.Y. Deng, Y.K. Huang, Z.N. Xia, Development

of phospholipid complex loaded self-microemulsifying drug delivery system to improve the oral bioavailability of resveratrol, *Nanomedicine-Uk* 16(9) (2021) 721-740.

第一标注

[10] F.Y. Zeng, D.D. Wang, Y. Tian, M. Wang, R. Liu, Z.N. Xia, Y.K. Huang, Nanoemulsion for improving the oral bioavailability of hesperetin: formulation optimization and absorption mechanism, *J Pharm Sci-Uk* 110(6) (2021) 2555-2561. 第一标注

[11] L.Y. Lu, G.C. Zheng, M. Wang, D.D. Wang, Z.N. Xia, Microwave-prepared mesoporous graphene as adsorbent and matrix of surface-assisted laser desorption/ionization mass spectrometry for the enrichment and rapid detection of polyphenols in biological samples, *Talanta* 222 (2021) 121365. 第一标注

[12] S.Y. Deng, J.M. Pan, M. Wang, Y.K. Huang, Z.N. Xia, Study on improvement of chiral separation of capillary electrophoresis based on cyclodextrin by deep eutectic solvents, *Talanta* 220 (2020) 121419. 第一标注

[13] D.D. Wang, X.X. Luo, M. Wang, K. Zhou, Z.N. Xia, Selective separation and purification of polydatin by molecularly imprinted polymers from the extract of *Polygoni Cuspidati Rhizoma et Radix*, rats' plasma and urine, *J Chromatogr B* 1156 (2020) 122307. 第一标注

[14] D.D. Wang, X.X. Luo, Y.K. Huang, M. Wang, Z.N. Xia, Combined magnetic molecularly imprinted polymers with a ternary deep eutectic solvent to purify baicalein from the *Scutellaria baicalensis* Georgi by magnetic separation, *Microchem J* 157 (2020) 105109. 第一标注

[15] S. Huang, Y.K. Huang, X.W. Yin, D.D. Wang, W. Xiang, M. Wang, Z.N. Xia, Development of Ussing model coupled with artificial membrane for predicting intestinal absorption mechanisms of drugs, *Int J Pharmaceut* 579 (2020) 119170. 第一标注

[16] 钱鑫, 田晏, 罗欣欣, 潘静苗, 邓苏雅, 黄一可, 付琦峰, 夏之宁, 毛细管电泳药物筛选方法与技术, *色谱* 38(10) (2020) 1170-1178. 第一标注

[17] Y. Qiu, L. Xia, R. Shi, L. Yuan, Y.H. Zhang, A.Q. Chen, K. Zhou, H.L. Wu, K.L. Zhang, Z.N. Xia, Q.F. Fu. Cost-efficient and ultrasensitive hydrogel-based visual point-

of-care sensor integrated with surface patterning and strongly emissive carbon dots directly from *Prunus mume* Carbonisatus, *Sensor Actuat B-Chem*, 401 (2024) 134958.

第二标注

[18] T. Hu, Q.H. Zhao, M. Wang, K. Zhou, Z.N. Xia, Y.K. Huang, Improved selectivity of molecularly imprinted polymers based on the synergistic action of hydrogen bond and electrostatic interaction, *J Mol Recognit* 36(7) (2023) e3024. 第二标注

[19] M.J. Wan, Y.C. Zheng, X.M. Dai, H.L. Yang, J.Q. Zhou, J. Ou, Y.X. Yang, M.F. Liao, Z.N. Xia, L.J. Wang, Click Chemistry for the preparation of β -Cyclodextrin grafting uniform spherical covalent organic framework materials for chiral separation, *Chemistry of Materials* 35(2) (2023) 609-616. 第二标注

[20] Y.K. Huang, Y.G. Xu, M. Wang, X.Y. Fu, Y. Chen, T. Hu, G. Feng, C. Yu, Z.N. Xia, Strategy of choosing templates in molecular imprinting to expand the recognition width for family-selectivity, *Anal Chem* 95(29) (2023) 11070-11077. 第二标注

[21] L. Xia, L. Yuan, K. Zhou, J. Zeng, K.L. Zhang, G.C. Zheng, Q. Fu, Z.N. Xia, Q.F. Fu, Mixed-solvent-mediated strategy for enhancing light absorption of polydopamine and adhesion persistence of dopamine solutions, *Acs Appl Mater Inter* 15(18) (2023) 22493-22505. 第二标注

[22] T. Quan, D.D. Wang, L.J. Yang, S.C. Liu, Y.Q. Tao, J.J. Wang, L.L. Deng, X. Kang, K.L. Zhang, Z.N. Xia, D. Gao, Effective extraction methods based on hydrophobic deep eutectic solvent coupled with functional molecularly imprinted polymers: application on quercetagenin extraction from natural medicine and blood, *Microchem J* 174 (2022) 107076. 第二标注

[23] M.J. Wan, J.Q. Zhou, H.L. Yang, X.M. Dai, Y.C. Zheng, Z.N. Xia, L.J. Wang, Covalently n-doped mxene quantum dots for highly stable fluorescent Cu^{2+} ion sensor, *Acs Appl Nano Mater* 5(8) (2022) 11715-11722. 第二标注

[24] Y.C. Zheng, M.J. Wan, J.Q. Zhou, X.M. Dai, H.L. Yang, Z.N. Xia, L.J. Wang, One-pot method for the synthesis of beta-cyclodextrin and covalent organic framework functionalized chiral stationary phase with mixed-mode retention mechanism, *J Chromatogr A* 1662 (2022) 462731. 第二标注

[25] L.J. Yang, L.M. Zeng, Y.Q. Tao, D.D. Wang, K.L. Zhang, M. Tian, Z.N. Xia, D.

Gao, Galli gigerii endothelium corneum derived fluorescent carbon dots and their application as sensing platform for nitroimidazoles and cell imaging, *Microchem J* 174 (2022) 107089. 第二标注

[26] L.L. Deng, X. Kang, T. Quan, L.J. Yang, S.C. Liu, K.L. Zhang, M.J. Gao, Z.N. Xia, D. Gao, Highly crystalline covalent organic frameworks act as a dual-functional fluorescent-sensing platform for myricetin and water, and adsorbents for myricetin, *Acs Appl Mater Inter* 13(28) (2021) 33449-33463. 第二标注

[27] M.J. Gao, D.D. Wang, L.L. Deng, S.C. Liu, K.L. Zhang, T. Quan, L.J. Yang, X. Kang, Z.N. Xia, D. Gao, High-crystallinity covalent organic framework synthesized in deep eutectic solvent: potentially effective adsorbents alternative to macroporous resin for flavonoids, *Chem Mater* 33(20) (2021) 8036-8051. 第二标注

[28] L.L. Deng, X. Kang, K.L. Zhang, M.J. Gao, Q.F. Fu, Z.N. Xia, D. Gao, Fabrication of covalent organic frameworks and its selective extraction of fluoronitrobenzenes from environmental samples, *J Chromatogr A* 1635 (2021) 461704. 第二标注

[29] L.J. Yang, J. Zeng, T. Quan, S.C. Liu, L.L. Deng, X. Kang, Z.N. Xia, D. Gao, Liquid-liquid extraction and purification of oil red O derived nitrogen-doped highly photoluminescent carbon dots and their application as multi-functional sensing platform for Cu^{2+} and tetracycline antibiotics, *Microchem J* 168 (2021) 106391. 第二标注

[30] M. Wang, X. Kang, L.L. Deng, M. Wang, Z.N. Xia, D. Gao, Deep eutectic solvent assisted synthesis of carbon dots using *Sophora flavescens* Aiton modified with polyethyleneimine: Application in myricetin sensing and cell imaging, *Food Chem* 345 (2021) 128817. 第二标注

[31] Q. Yan, D. Gao, H.G. Yin, K.L. Zhang, J. Zeng, L.J. Wang, L. Xia, K. Zhou, Z.N. Xia, Q.F. Fu, Facile, green and energy-efficient preparation of fluorescent carbon dots from processed traditional Chinese medicine and their applications for on-site semi-quantitative visual detection of Cr(VI), *Sensor Actuat B-Chem* 1324 (2020) 128722. 第二标注

[32] Y.H. Zhang, Y. Qiu, K. Zhou, K.L. Zhang, L.J. Wang, J. Zeng, B.A. Ji, D. Gao, Z.N. Xia, Q.F. Fu, Self-exothermic redox reaction-driven green synthesis of fluorescent

poly (dopamine) nanoparticles for rapid and visual detection of Fe^{3+} , *Dyes and Pigments* 183 (2020) 108692. 第二标注

[33] G.Y. Yi, J.X. He, B.A. Ji, D. Gao, K.L. Zhang, L.J. Wang, J. Zeng, Z.N. Xia, Q.F. Fu, Solvothermal-assisted in situ rapid growth of octadecylamine functionalized polydopamine-based permanent coating as stationary phase for open-tubular capillary electrochromatography, *J Chromatogr A* 1628 (2020) 461436. 第二标注

[34] Y.K. Huang, G.Y. Yi, B.A. Ji, D. Gao, Y.T. Bai, Y. Liu, L.J. Wang, Z.N. Xia, Q.F. Fu, In situ one-pot synthesis of polydopamine/octadecylamine co-deposited coating in capillary for open-tubular capillary electrochromatography, *J Chromatogr A* 1610 (2020) 460559. 第二标注

[35] 闫美婷, 龙文雯, 陶雪平, 王丹, 夏之宁, 付琦峰, 金属有机骨架材料在色谱固定相构建及应用中的研究进展, *色谱* 41(10) (2023) 879-890. 第二标注

[36] 易高圯, 纪柏安, 夏之宁, 付琦峰, 聚多巴胺表面修饰毛细管电色谱的研究进展, *色谱* 38(9) (2020) 1057-1068. 第二标注

[37] Y.H. Zhang, Y. Qiu, L. Xia, L. Yuan, H.L. Wu, R. Shi, A.Q. Chen, K. Zhou, M.X. Zhou, K.L. Zhang, C.X. Zhang, Z.N. Xia, Q.F. Fu, Surface patterning enhanced visualization for ultrasensitive naked-eye detection and RGB-based high-density information storage, *Advanced Optical Materials* 11(14) (2023) 2300010. 第三标注

[38] Y.Q. Gui, J. Zeng, L.J. Wang, W.W. Long, M.Y. You, X.P. Tao, Y.K. Huang, Z.N. Xia, L. Rao, Q.F. Fu, Homomesoporous metal-organic framework for high-performance electrochromatographic separation, *Anal Chem* 94(48) (2022) 16720-16727. 第三标注

[39] R. Liu, G.Y. Yi, B.A. Ji, X.Q. Liu, Y.Q. Gui, Z.N. Xia, Q.F. Fu, Metal-organic frameworks-based immobilized enzyme microreactors integrated with capillary electrochromatography for high-efficiency enzyme assay, *Anal Chem* 94(17) (2022) 6540-6547. 第三标注

[40] B.A. Ji, G.Y. Yi, Y.Q. Gui, J.L. Zhang, W.W. Long, M.Y. You, Z.N. Xia, Q.F. Fu, High-efficiency and versatile approach to fabricate diverse metal-organic framework coatings on a support surface as stationary phases for electrochromatographic

separation, Acs Appl Mater Inter 13(34) (2021) 41075-41083. 第三标注

[41] G.Y. Yi, B.A. Ji, J.J. Du, J.H. Zhou, Z.Y. Chen, Y. Mao, Y.W. Wei, Z.N. Xia, Q.F. Fu, Enhanced enantioseparation performance in cyclodextrin-electrokinetic chromatography using quinine modified polydopamine coated capillary column, Microchem J 167 (2021) 106315. 第三标注

[42] Y.H. Zhang, K. Zhou, Y. Qiu, L. Xia, Z.N. Xia, K.L. Zhang, Q.F. Fu, Strongly emissive formamide-derived N-doped carbon dots embedded Eu (III)-based metal-organic frameworks as a ratiometric fluorescent probe for ultrasensitive and visual quantitative detection of Ag, Sensor Actuat B-Chem 339 (2021) 129922. 第三标注

[43] B.A. Ji, G.Y. Yi, K.L. Zhang, Y.H. Zhang, Y.Q. Gui, D. Gao, J. Zeng, L.J. Wang, Z.N. Xia, Q.F. Fu, Nanoscale hierarchically micro- and mesoporous metal-organic frameworks for high-resolution and high-efficiency capillary electrochromatographic separation, Analytical Chemistry 92(23) (2020) 15655-15662. 第三标注

2.项目成果转化及应用情况。

项目相关技术成果申请专利 4 项。

[1] 夏之宁, 纪柏安, 钱鑫, 周楷, 黄一可, 郑国灿, 曾静。一种多孔毛细管无鞘流 CE-MS 连接器。申请号: 2023225959394

[2] 夏之宁, 周美伶, 王敏, 钱鑫, 饶历, 付琦峰。一种基于毛细管电泳的馏分采集系统。申请号: 2023225099294

[3] 夏之宁, 钱鑫, 周楷, 周美伶, 饶历, 纪柏安。一种液相进样阀。申请号: 2023226641124

[4] 夏之宁, 王敏, 黄一可, 郑国灿, 王敏, 付琦峰, 王丹丹。DNA 编码化合物的电泳筛选及其在线荧光定量 PCR 系统、方法。申请号: 2023112742302

3.人才培养情况

项目开展期间，共培养硕博生 31 名。其中，已毕业博士研究生 6 名，硕士研究生 11 名。