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南京农业大学，资源与环境科学学院

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从事专业:

污染生态学、修复生态学

研究方向:

1. 污染土壤微生物群落装配机制与原位靶向修复技术；
2. 逆境胁迫对噬菌体-宿主生存策略影响与解毒调控；
3. 蚯蚓肠道菌群分子毒理组学指纹表征与代谢调控。

教育经历:

2008/09-2013/09, 中国科学院南京土壤研究所, 生态学, 博士 (硕博连读)

2004/09-2008/06, 南京师范大学, 生科院, 生物科学 (国家理科基地班), 学士

工作经历:

2020/12-至今, 南京农业大学, 资环学院, 教授

2015/12-2020/12, 南京农业大学, 资环学院, 副教授

2015/12-2017/01, 美国Texas A & M University, 土壤与作物系, 博士后

2013/07-2015/12, 南京农业大学, 资环学院, 讲师

学术任职与服务:

1. JCR一区SCI期刊《Journal of Environmental Management》副主编
2. JCR一区SCI期刊《Journal of Hazardous Materials》首届青年编委
3. JCR二区SCI期刊《Applied Soil Ecology》编委
4. 中国土壤学会, 土壤生态专业委员会委员
5. 江苏省土壤学会, 教育专业委员会委员
6. 江苏省土壤学会, 青年专业委员会委员

获奖及荣誉:

1. 2021, 中国农林高校微课比赛 一等奖
2. 2020, 中国土壤学会 优秀青年学者奖
3. 2020, 江苏省高等院校微课比赛 三等奖
4. 2020, 资环学院“我最喜爱的老师”荣誉
5. 2020, “江苏省大学生在行动暨千乡万村环保科普行动”优秀指导老师
6. 2019, 南京农业大学青年教师授课比赛 二等奖
7. 2018, 中国科学技术协会 青年人才托举工程
8. 2018, 南京农业大学钟山学术新秀

主持科研项目:

1. 中国科协青年人才托举工程, 蚓粪资源中抗生素-重金属共抗性耦合作用机制及生态风险管控, 2018-2020, 2018QNRC001. **主持**
2. 国家自然科学基金面上项目, 生物质炭负载噬菌体对土壤中抗生素耐药菌 (*Pseudomonas aeruginosa*) 迁移阻控及靶向裂解的协同机制, 2021-2024, 42077106, **主持**
3. 国家自然科学基金面上项目, 反硝化作用与槐糖脂协同强化土壤抗生素-抗性基因厌氧消减的耦合机制, 2018-2021, 41771350. **主持**
4. 国家重点研发计划子课题, 水旱轮作关键因子及培肥耕作调控途径, 2016-2020, 2016YFD0300908. **主持**

5. 中央高校基本科研业务费重点项目, 环糊精强化土壤多环芳烃微生物消减的限制因子研究, 2017-2019, KJQN201517. **主持**
6. 中央高校基本科研业务费重点项目, 蚓粪中抗性基因的扩散风险及生物管控技术, 2017-2019, KYZ01715. **主持**
7. 国家自然科学基金青年基金, 甲基 β 环糊精强化土壤PAHs反硝化厌氧降解及微生物群落响应机制, 2014-2017, 41401347. **主持**
8. 江苏省自然科学基金, 环糊精强化土壤PAHs厌氧消减机制, 2014-2017, BK20140723. **主持**
9. 生态环境部南京环境科学研究所, 纳米零价铁强化修复氯苯类地下水及群落响应机制, 2019-2021, **主持**
10. 中国科学院土壤环境与污染修复重点实验室基金, 土壤多环芳烃厌氧反硝化降解机制, 2014-2017, SEPR2014-01. **主持**
11. 国家级大学生创新船业训练计划项目: 生物质炭负载纳米零价铁对地下水中VOCs类农药去除机制研究, 2019-2020, **主持**
12. 省级SRT: 抗生素胁迫蚯蚓肠道细菌生态功能多样性研究, 2021-2022, **主持**

主要发表论文:

1. Wang X, Xia R, **Sun MM***, Hu F. Metagenomic sequencing reveals detoxifying and tolerant functional genes in predominant bacteria assist *Metaphire guillelmi* adapt to soil vanadium exposure. J. Hazard. Mater. 2021, 415, 125666.
2. Chao HZ, Zheng XX, Xia R, **Sun MM***, Hu F. Incubation trial indicated the earthworm intestinal bacteria as promising biodigestor for mitigating tetracycline resistance risk in anthropogenic disturbed forest soil. Sci. Total Environ. 2021, 798, 149337.
3. **Sun MM***, Chao HZ, Zheng XX, Deng SP, Ye M, Hu F. Ecological role of earthworm intestinal bacteria in terrestrial environments: A review. Sci. Total Environ. 2020, 740, 140008.
4. Chao HZ, **Sun MM***, Ye M, Zheng XX, Hu F. World within world: Intestinal bacterial combining physiological parameters to investigate the response of

- Metaphire guillelmi* to tetracycline stress. Environ. Pollut. 2020, 261-114174.
5. **Sun MM**, Ye M, Zhang Z, Zhang S, Zhao YC, Deng S, Kong L, Ying R, Xia B, Jiao WT, Cheng JQ, Feng YF, Liu MQ, Hu F*. Biochar combined with polyvalent phage therapy to mitigate antibiotic resistance pathogenic bacteria vertical transfer risk in an undisturbed soil column system. J. Hazard. Mater. 2019, 365: 1-8.
 6. **Sun MM**, Ye M, Jiao WJ, Feng YF, Yu PF, Liu MQ, Jiao JG, He XJ, Liu K, Zhao YC, Wu J, Jiang X, Hu F*. Changes in tetracycline partitioning and bacteria/ phage mediated ARGs in microplastic contaminated greenhouse soil facilitated by sphorolipid. J. Hazard. Mater. 2018, 345: 131-139.
 7. Chao H, Kong L, Zhang H, **Sun MM***, et al. *Metaphire guillelmi* gut as hospitable micro-environment for the potential transmission of antibiotic resistance genes. Sci. Total Environ. 2019, 353-361.
 8. Liu K, **Sun MM***, Ye M, Chao H, Zhao YC, Xia B, Jiao WT, Feng YF, Zheng XX, Liu MQ, Jiao JG, Hu F. Coexistence and association between heavy metals, tetracycline and corresponding resistance genes in vermicomposts originating from different substrates. Environ. Pollut. 2019, 244:28-37.
 9. Zhao YC, Ye M, Zhang XT, **Sun MM ***, Zhang ZY, Chao HZ, Huang D, Wan JZ, Zhang ST, Jiang X, Sun DW, Yuan YL, Hu F. Comparing polyvalent bacteriophage and bacteriophage cocktails for controlling antibiotic-resistant bacteria in soil-plant system. Sci. Total Environ. 2019, 657: 918-925.
 10. **Sun MM**, Liu K, Zhao YC, Tian D, Ye M, Liu MQ, Jiao JG, Jiang X*. Effect of bacterial-feeding nematodes grazing and tea saponin addition on the enhanced bioremediation of pyrene-contaminated soil using *Sphingobium* sp. PHE9. Pedosphere 2017, 27: 1062-1072.
 11. **Sun MM**, et al. Dynamic interplay between microbial denitrification and antibiotic resistance under enhanced anoxic denitrification condition in soil. Environ. Pollut. 2017, 222: 538-591.
 12. **Sun MM**, et al. Human migration activities drive the fluctuation of ARGs: Case study of landfills in Nanjing, eastern China. J. Hazard. Mater. 2016, 315: 93-101.
 13. **Sun MM**, et al. Response surface methodology and Tenax TA extraction to explore

the function of nitrate and tea saponin application rates in anaerobic polycyclic aromatic hydrocarbon dissipation in paddy soil. *CLEAN - Soil, Air, Water* 2016, 44: 667-676.

14. **Sun MM**, Liu K, Zhao YC, Tian D, Ye M, Liu MQ, Jiao JG, Jiang X. Effects of bacterial-feeding nematode grazing and tea saponin addition on the enhanced bioremediation of pyrene-contaminated soil using polycyclic aromatic hydrocarbon-degrading bacterial strain. *Pedosphere*. 2017, 27: 2061-1072.
15. **Sun MM**, et al., Positive relationship detected between soil bioaccessible organic pollutants and antibiotic resistance genes at dairy farms in Nanjing, Eastern China. *Environ. Pollut.* 2015, 206: 421-428.
16. **Sun MM**, et al. Impact of bioaccessible pyrene on the abundance of antibiotic resistance genes during *Sphingobium* sp.- and sophorolipid-enhanced bioremediation in soil. *J. Hazard. Mater.* 2015, 300: 121-128.
17. **Sun MM**, et al. Tenax extraction for exploring rate-limiting factors in methyl- β -cyclodextrin enhanced anaerobic biodegradation of PAHs under denitrifying conditions in a red paddy soil. *J. Hazard. Mater.* 2014, 264: 505-513.
18. **Sun MM**, et al. Response surface methodology to understand the anaerobic biodegradation of organochlorine pesticides (OCPs) in contaminated soil-significance of nitrate concentration and bioaccessibility. *J. Soils Sediments* 14:1537-1548.
19. **Sun MM**, et al. Tenax TA extraction to understand the rate-limiting factors in methyl- β -cyclodextrin enhanced bioremediation of PAH contaminated soil. *Biodegradation* 2013, 24: 365-375.
20. **Sun MM**, et al. Remediation of polycyclic aromatic hydrocarbon and metal-contaminated soil by successive methyl- β -cyclodextrin enhanced soil washing-microbial augmentation: a laboratory evaluation. *Environ. Sci. Pollut. Res.* 2013, 20: 976-986.
21. **Sun MM**, et al. Methyl- β -cyclodextrin enhanced biodegradation of polycyclic aromatic hydrocarbons and associated microbial activity in contaminated soil. *J. Environ. Sci.* 2012, 24: 926-933.

22. **Sun MM**, et al. In situ phytoremediation of PAH-contaminated soil by intercropping alfalfa (*Medicago sativa* L.) with tall fesc (*Festuca arundinacea* Schreb.) and associated soil microbial activity. *J. Soils Sediments* 2011, 11: 980-989.
23. Ye M, **Sun MM**, Zhao YC, Jiao WT, Xia B, Liu MQ, Feng YF, Zhang ZY, Huang D, Huang R, Wan JZ, Du RJ, Jiang X*, Hu F. Targeted inactivation of antibiotic-resistant *Escherichia coli* and *Pseudomonas aeruginosa* in a soil-lettuce system by combined polyvalent bacteriophage and biochar treatments. *Environ. Pollut.* 2018, 241: 978-987.
24. Ye M, **Sun MM**, Chen X, Feng Y, Wan J, Liu K, Tian D, Liu M, Wu J, Schwab AP, Jiang X*. Feasibility of sulfate-calcined eggshells for removing pathogenic bacteria and antibiotic resistance genes from landfill leachates. *Waste Manage.* 2017, 63: 275-283.
25. Ye M, **Sun MM**, Xie SN, Liu K, Feng YF, Zhao Y, Wan JZ, Hu F, Li HX, Zong LG, Jiang X*. Feasibility of tea saponin-enhanced soil washing in a soybean oil-water solvent system to extract PAHs/Cd/Ni efficiently from a coking plant sites. *Pedosphere* 2017, 27: 452-464.
26. Ye M, **Sun MM**, Feng Y, Li X, Schwab AP, Wan J, Liu M, Tian D, Liu K, Wu J, Jiang X*. Calcined eggshell waste for mitigating soil antibiotic resistant bacteria/gene dissemination and accumulation in bell pepper. *J. Agri. Food Chem.* 2016, 64: 5446-5453.
27. Ye M, **Sun MM**, Feng Y, Wan J, Xie S, Tian D, Zhao Y, Wu J, Hu F, Li H, Jiang X*. Effect of biochar amendment on the control of soil sulfonamides, antibiotic-resistant bacteria, and gene enrichment in lettuce tissues. *J. Hazard. Mater.* 2016, 309: 219-227.
28. Ye M, **Sun MM**, Wan JZ, Zhao Y, Xie SN, Tian D, Hu F, Li HX, Zong LG, Fredrick OK, Jiang X*. Feasibility of an enhanced washing process to extract PBDEs/heavy metals/antibiotics from antibiotic resistance gene-affected soil with aqueous DNA followed by microbial augmentation. *J. Soil. Sediment.* 2016, 16: 954-965.
29. Ye M, **Sun MM**, Wan J, Feng Y, Zhao Y, Tian D, Hu F, Jiang X*. Feasibility of

- lettuce cultivation in sophorolipid-enhanced washed soil originally polluted with Cd, antibiotics, and antibiotic-resistant genes. *Ecotox. Environ. Safe.* 2016, 124: 344-350.
30. Li G, **Sun MM**, Wu J*, Ye M, Ge X, Wei W, Li H, Hu F. Identification and biochemical characterization of a novel endo-type β -agarase AgaW from *Cohnella* sp. strain LGH. *Appl. Microbiol. Biot.* 2015, 99: 10019-10029.
 31. Ye M, **Sun MM**, Wan JZ, Fang GD, Li HX, Hu F, Jiang X*, Fredrick OK. Evaluation of enhanced soil washing process with tea saponin in a peanut oil–water solvent system for the extraction of PBDEs/PCBs/PAHs and heavy metals from an electronic waste site followed by vetiver grass phytoremediation. *J. Chem. Technol. Biot.* 2015, 90: 2027-2035.
 32. Ye M, **Sun MM**, Wan J, Fang G, Li H, Hu F, Jiang X*, Kengara FO. Enhanced soil washing process for the remediation of PBDEs/Pb/Cd-contaminated electronic waste site with carboxymethyl chitosan in a sunflower oil–water solvent system and microbial augmentation. *Environ. Sci. Pollut. Res.* 2015, 22: 2687-2698.
 33. Ye M, **Sun MM**, Hu F, Kengara FO, Jiang X*, Luo Y, Yang X. Remediation of organochlorine pesticides (OCPs) contaminated site by successive methyl-beta-cyclodextrin (MCD) and sunflower oil enhanced soil washing - *Portulaca oleracea* L. cultivation. *Chemosphere* 2014, 105: 119-125.
 34. Ye M, **Sun MM**, Liu Z, Ni N, Chen Y, Gu C, Kengara FO, Li H, Jiang X*. Evaluation of enhanced soil washing process and phytoremediation with maize oil, carboxymethyl-beta-cyclodextrin, and vetiver grass for the recovery of organochlorine pesticides and heavy metals from a pesticide factory site. *J. Environ. Manage.* 2014, 141: 161-168.
 35. Ye M, **Sun MM**, Ni N, Chen Y, Liu Z, Gu C, Bian Y, Hu F, Li H, Kengara FO, Jiang X*. Role of cosubstrate and bioaccessibility played in the enhanced anaerobic biodegradation of organochlorine pesticides (OCPs) in a paddy soil by nitrate and methyl- β -cyclodextrin amendments. *Environ. Sci. Pollut. Res.* 2014, 21: 7785-7796.
 36. Ye M, **Sun MM**, Kengara FO, Wang J, Ni N, Wang L, Song Y, Yang X, Li H, Hu

- F, Jiang X*. Evaluation of soil washing process with carboxymethyl- β -cyclodextrin and carboxymethyl chitosan for recovery of PAHs/heavy metals/fluorine from metallurgic plant site. J. Environ. Sci. 2014, 26: 1661-1672.
37. Ye M, Sun MM, Yang XL, Wei HJ, Song Y, Jiang X*. Remediation of organochlorin pesticides (OCPs) contaminated soil by successive hydroxypropyl- β -cyclodextrin and peanut oil enhanced soil washing-nutrient addition: a laboratory evaluation. J. Soil. Sediment. 13, 403-412.
38. 夏蓉, 郑晓璇, 叶茂, 朱冬, 张辉, 朱春梧, 胡锋, 孙明明*. 噬菌体对土壤碳氮元素循环转化影响的研究进展. 土壤, 2021, DOI: 10.13758/j.cnki.tr.2021.04.001
39. 晁慧珍, 孙明明*, 朱国繁, 叶茂, 张胜田, 刘满强, 胡锋. 蚯蚓肠道细菌生态功能及毒理学研究进展. 生态毒理学报, 2020, 15(5): 35-48.
40. 孙明明, 滕应, 骆永明*. 厌氧微生物降解多环芳烃研究进展. 微生物学报, (2012, 8: 931-939.

其他:

1. TOEFL: 104 (Reading 30, Listening 29, Speaking 20, Writing 25), 06/ 2015
2. 江苏省极真空手道联赛, 高校业余组 55-56 公斤级冠军, 12/2014
3. 中国科学院院长优秀奖 (博士论文), 06/2013

**真诚欢迎生态学、微生物学、分子生物学、土壤学、
生物信息学等背景专业的同学报考**