

目次

主编推荐

- 1 农田中无脊椎动物对抗生素和抗生素抗性基因环境行为的影响研究进展
李洁玲, 史非凡, 郭瑞, 陈照明, 成琪璐, 王强, 叶静, 马军伟, 林辉

“第九届全国生态毒理学大会”专栏

- 23 金属氧化物纳米颗粒诱导肺细胞毒性的机器学习预测模型
王天勤, 郭丰林, 孟伽娜, 张子琦, 李建青, 孙浩, 徐文龙, 张洪武, 黄杨, 李斐
- 36 基于 Kcap1/Nrf2 与 TLR4/NF- κ B 信号通路研究啮齿类暴露对斑马鱼的免疫毒性及机制
李丹, 李晓, 程云硕, 茹广华, 吴向阳
- 48 土壤湿度对重金属污染物的生物有效性和生态毒性影响
龚冰, 王徐鹏, 应蓉蓉, 仇浩
- 62 基于 PCA 的非甾体抗炎药与消毒副产物复杂混合物对 2 种水生生物的毒性作用比较
纪广振, 张瑾, 张颖, 赵远帆, 桂一心, 代碧雅, 王馨悦, 成潜
- 77 PM_{2.5}/O₃ 暴露损伤细胞及线粒体的分子调控机制差异
吴婷婷, 魏永杰, 李志刚

“河湖水生态环境监测和健康评估”专栏

- 95 乌梁素海和呼伦湖表层水体中农药的污染水平、来源分布及风险评估
赵雯雯, 杨慧婷, 许诺, 许妍, 金苗, 毛志刚, 谷孝鸿, 陈辉辉
- 109 长江十年禁捕初期石白湖鱼类群落多样性及环境影响因子研究
曹乐乐, 王银平, 葛坤, 徐少远, 刘凯
- 123 湟水河流域大型底栖动物功能摄食类群时空分布特征及生态系统属性评价
卓丰鑫, 杨中文, 高鑫, 杨辰, 朱培训, 陈立斌, 高欣
- 140 基于隐孢子虫卵囊浓度的畜禽养殖水环境承载力估算
楚天舒, 戴子扬, 陈晨晨, 贺雪妮, 赵智强, 张起赫, 蒲胜海, 吴湘琳, 马兴旺, 汤树生

“土壤环境中新污染物的赋存特征及其生态毒理效应”专栏

- 148 土霉素对油菜次生代谢及抗氧化作用的影响
陈映鸥, 李玥, 沈嘉怡, 项慧冰, 陈楠, 贾高骏, 徐冬梅
- 156 总石油烃中当量烷烃和多环芳烃组分的毒性风险及联合毒性效应
苟娜娜, 刘泽梁, 吴蔓莉, 唐诗薇, 胡丝怡, 于莹, 柯思佳

“新污染物筛查与评估”专栏

- 170 挥发性氯代烃类新污染物的环境特性、水平、行为与风险
赵曦, 蔡晓伟, 黄舒琳, 韦斯

“全球气候变化与生态毒理学”专栏

- 190 基于氨排放的畜禽养殖大气环境承载力估算
楚天舒, 贺雪妮, 张海星, 赵智强, 邓仕婕, 孙嘉祺, 张起赫, 汤树生

综述

- 198 室内空气中装饰和建筑材料 VOCs 迁移释放和暴露模型研究进展
尉立华, 熊大伟, 李智, 刘中贤, 高翠玲, 贺祥珂
- 209 纳米塑料检测技术现状分析及其研究进展
赵震乾, 唐子豪, 巩杨, 童文君, 董小伟, 吴晟旻
- 221 重金属生物可给性体外模拟方法研究进展
张玉康, 瞿福, 阮若涵, 王翠婷, 刘雪
- 238 新烟碱类杀虫剂对非靶标水生动物的毒性作用研究进展
刘佳涵, 张秀霞, 张泽龙, 郑佩华, 李军涛, 冼健安, 鲁耀鹏

- 253 短链氯化石蜡的环境分布和环境危害
谢建军,李方豪,赵云利
- 265 微/纳米塑料对农作物的毒性效应研究进展
姜丽思,刘子瑞,姜美琪,夏丝雨,刘佳滢,杨洋雯迪,李文远
- 280 农用抗生素的毒代动力学研究进展
杨佳音,李鸣霄,陈曦,宋超,许晶,范立民,袁丽萍,李丹丹,徐慧敏,孟顺龙,穆希岩,夏斌

方法与技术

- 295 化学品强化快速生物降解性测试技术的比对验证研究
邓桂荣,罗凤娟,叶芷君,高亮,刘东满,柳燕贞,许玫英,梅承芳

研究论文

- 305 纳米二氧化钛不同晶型混合物在环境改变下的沉降速率变化及其对细胞的毒性影响
黄惠莹,徐云东,胡天美,刘珊杏,汪旭,王晗
- 314 微塑料和高脂饮食暴露对小鼠非酒精性脂肪肝病的影响:肠道菌群与代谢组学研究
赵雪,徐旭龙,王贝贝,卢坤,黄陶,沈昕,晏彪,沈定文
- 329 奶牛场环境中耐药大肠杆菌的分离及耐药基因遗传环境分析
王灵舸,沈留红,唐俊妮,韩新锋,朱成林,赵珂,邹立扣
- 344 广州市城市公园绿地土壤重金属污染特征及健康风险评估
蔡莎,陈德翼,潘俊,罗豪杰,丁平,李歆,党垚,张六一,胡国成
- 356 基于文献计量的土壤重金属污染微生物修复研究现状分析
王章凯,张立航,冯衍,马玉尚,任伟征,吴明作,顾海萍,王长青
- 373 基于硬度和 pH 校正的锌的水生生物基准研究
蒿梦秋月,付卫强,李小峰,刘大庆,冯承莲
- 383 镉胁迫下晒对蜷体镉富集、亚细胞分布和抗氧化指标的影响
杨慕源,周升志,杨莹,姜珊,周子涵,符晓雯,王瑞萍,岳士忠
- 397 纳米零价铁对赤子爱胜蚓的毒性效应研究
罗庆睿,赵奕乔,蔡粤,段昌群,刘嫦娥
- 409 中国黑龙江省 3 处森林内鼯鼠骨组织中的镉、汞、铅生物积累
王再山,李强,高艺,韩美凤,陈欢,金志民,刘铸
- 419 基于宏基因组技术研究亚慢性氯仿暴露对小鼠肠道微生物群的影响
王再山,李强,栾天琪,金志民,刘铸
- 432 基于蒙特卡罗模拟的金属矿区周边农田土壤重金属健康风险评估
曾晓丽,李惠民,樊艳春,梅子奇,杨秀琼,赵刚
- 440 高浓度镉(Cd)、铅(Pb)胁迫对铜钱草生长和生理生化参数的影响
王慧,李长爱,李亚亮,宁丽丽,刘玲,黄荣

封面摄影:王为东

CONTENTS

Chief Editor's Recommendation

- 1 Research Progress on Effects of Invertebrates on Fates of Antibiotics and Antibiotic Resistance Genes in Farmland Ecosystem
LI Jieling, SHI Feifan, GUO Rui, CHEN Zhaoming, CHENG Qilu, WANG Qiang, YE Jing, MA Junwei, LIN Hui

Special Column on the 9th National Ecotoxicology Conference

- 23 Machine Learning Models for Prediction of Toxicity in A549 Cells Induced by Metal Oxide Nanoparticles
WANG Tianqin, GUO Fenglin, MENG Jiana, ZHANG Ziqi, LI Jianqing, SUN Hao, XU Wenlong, ZHANG Hongwu, HUANG Yang, LI Fei
- 36 Exploring the Immunotoxicity and Mechanisms of Acetamidiprid Exposure in Zebrafish Based on the Keap1/Nrf2 and TLR4/NF- κ B Signaling Pathways
LI Dan, LI Xiao, CHENG Yunshuo, MAO Guanghua, WU Xiangyang
- 48 Impact of Soil Moisture on the Bioavailability and Ecotoxicity of Heavy Metals
GONG Bing, WANG Xupeng, YING Rongrong, QIU Hao
- 62 Comparison of Toxicity Interactions within Complex Mixtures of Nonsteroidal Anti-inflammatory Drugs and Disinfection By-products between Two Aquatic Organisms by PCA
JI Guangzhen, ZHANG Jin, ZHANG Ying, ZHAO Yuanfan, GUI Yixin, DAI Biya, WANG Xinyue, CHENG Qian
- 77 Differences in Molecular Regulatory Mechanisms of Cells and Mitochondria Damaged by PM_{2.5}/O₃ Exposure
WU Tingting, WEI Yongjie, LI Zhigang

Special Column on Monitoring and Health Assessment of River and Lake Water Ecological Environment

- 95 Pollution Levels, Distribution, Sources and Risk Assessment of Pesticides in Surface Water of the Wuliangsuhai Lake and Hulun Lake
ZHAO Wenwen, YANG Huiting, XU Nuo, XU Yan, JIN Miao, MAO Zhigang, GU Xiaohong, CHEN Huihui
- 109 Fish Community Diversity and Environmental Drivers in Shijiu Lake during the Early Phase of the Ten-Year Fishing Ban on the Yangtze River
CAO Lele, WANG Yiping, GE Kun, XU Shaoyuan, LIU Kai
- 123 Temporal-spatial Distribution Characteristics of Benthic Macroinvertebrates Functional Feeding Groups and Ecosystem Attributes Evaluation in Huangshui River Basin
ZHUO Fengjin, YANG Zhongwen, GAO Xin, YANG Chen, ZHU Peixun, CHEN Libin, GAO Xin
- 140 Estimation on Water Environmental Bearing Capacity of Livestock and Poultry Farming Based on *Cryptosporidium* Oocysts
CHU Tianshu, DAI Ziyang, CHEN Chenchen, HE Xueni, ZHAO Zhiqiang, ZHANG Qihe, PU Shenghai, WU Xianglin, MA Xingwang, TANG Shusheng

Special Column on the Occurrence Characteristics and Ecotoxicological Effects of Emerging Pollutants in Soil Environment

- 148 Effects of Oxytetracycline on Secondary Metabolism and Antioxidant Activity of Rapeseed
CHEN Yiou, LI Yue, SHEN Jiayi, XIANG Yibing, CHEN Nan, JIA Gaojun, XU Dongmei
- 156 Toxicological Risks and Combined Toxic Effects of Equivalent Alkanes and Polycyclic Aromatic Hydrocarbon Components in Total Petroleum Hydrocarbons
GOU Nana, LIU Zeliang, WU Manli, TANG Shiwei, HU Siyi, YU Ying, KE Sijia

Special Column on Emerging Pollutants Screening and Assessment

- 170 Environmental Characteristics, Levels, Behavior, and Risks of Emerging Volatile Chlorinated Hydrocarbons
ZHAO Xi, CAI Xiaowei, HUANG Shulin, Wei Si

Special Column on Global Climate Change and Ecotoxicology

- 190 Estimation on Atmospheric Environmental Bearing Capacity of Livestock and Poultry Farming Based on Ammonia Emissions
CHU Tianshu, HE Xueni, ZHANG Haixing, ZHAO Zhiqiang, DENG Shijie, SUN Jiaqi, ZHANG Qihe, TANG Shusheng

Review

- 198 Research Progress of Release Migration and Exposure Assessment Models for Indoor VOCs in Decorative and Building Materials
YU Lihua, XIONG Dawei, LI Zhi, LIU Zhongxian, GAO Cuiling, HE Xiangke

- 209 Current State and Research Progress of Nanoplastics Detection
ZHAO Zhenqian, TANG Zihao, GONG Yang, TONG Wenjun, DONG Xiaowei, WU Shengmin
- 221 Research Progress of *In vitro* Assessment of Heavy Metals Bioaccessibility
ZHANG Yukang, QU Fu, RUAN Ruohan, WANG Cuiting, LIU Xue
- 238 Research Progress on the Toxicological Effects of Neonicotinoid Pesticides on Non-Target Aquatic Animals
LIU Jiahan, ZHANG Xiuxia, ZHANG Zelong, ZHENG Peihua, LI Juntao, XIAN Jianan, LU Yaopeng
- 253 Environmental Distribution and Environmental Hazards of Short-Chain Chlorinated Paraffins
XIE Jianjun, LI Fanghao, ZHAO Yunli
- 265 Research Progress on the Toxic Effects and Mechanisms of Micro/nanoplastics on Crops
JIANG Lisi, LIU Zirui, JIANG Meiqi, XIA Siyu, LIU Jiaying, YANG Yangwendu, LI Wenyuan
- 280 Advances in Toxicokinetics of Agricultural Antibiotics
YANG Jiayin, LI Mingxiao, CHEN Xi, SONG Chao, XU Jing, FAN Limin, QIU Liping, LI Dandan, XU Huimin, MENG Shunlong, MU Xiyuan, XIA Bin

Methods and Techniques

- 295 Comparative Verification Study for Enhanced Ready Biodegradability Testing Technology of Chemicals
DENG Guirong, LUO Fengjuan, YE Zhijun, GAO Liang, LIU Dongman, LIU Yanzhen, XU Meiyang, MEI Chengfang

Research Article

- 305 Changes in the Settling Rate of Mixtures of Titanium Dioxide Nanoparticles of Different Crystalline Forms in Response to Environmental Alterations and Their Toxic Effects on Cells
HUANG Huiying, XU Yundong, HU Tianmei, LIU Shanxing, WANG Xu, WANG Han
- 314 Impact of Microplastic and High-Fat Diet Exposure on Non-Alcoholic Fatty Liver Disease in Mice: A Study of Gut Microbiota and Metabolomics
ZHAO Xue, XU Xulong, WANG Beibei, LU Kun, HUANG Tao, SHEN Xin, YAN Biao, SHEN Dingwen
- 329 Isolation of Antibiotic-Resistant *Escherichia coli* and Analysis of the Genetic Environment of Antibiotic Resistance Genes from the Environment of a Dairy Farm
WANG Lingge, SHEN Lihong, TANG Junni, HAN Xinfeng, ZHU Chenglin, ZHAO Ke, ZOU Likou
- 344 Pollution Characteristics and Health Risk Assessment of Heavy Metals in Soils of Urban Parks in Guangzhou
CAI Sha, CHEN Deyi, PAN Jun, LUO Haojie, DING Ping, LI Xin, DANG Yao, ZHANG Liuyi, HU Guocheng
- 356 Analysis of the Research Status of Microbial Remediation of Soil Heavy Metal Contamination Based on Bibliometrics
WANG Zhangkai, ZHANG Lihang, FENG Yan, MA Yushang, REN Weizheng, WU Mingzuo, GU Haiping, WANG Changqing
- 373 Water Quality Criteria Study for Zn Based on Correction of Hardness and pH Parameters
HAO Mengqiuyue, FU Weiqiang, LI Xiaofeng, LIU Daqing, FENG Chenglian
- 383 Effect of Selenium on Cadmium Bioaccumulation, Subcellular Distribution, and Antioxidant Indexes in Earthworms Under Cadmium Stress
YANG Muyuan, ZHOU Shengzhi, YANG Ying, JIANG Shan, ZHOU Zihan, FU Xiaowen, WANG Ruiping, YUE Shizhong
- 397 Study on the Toxic Effects of Nano Zero Valent Iron on *Eisenia fetida*
LUO Qingrui, ZHAO Yiqiao, CAI Yue, DUAN Changqun, LIU Chang'e
- 409 Bioaccumulation of Cadmium, Mercury, and Lead in Bone Tissue of Shrews in Three Forests in Heilongjiang Province, China
WANG Zaishan, LI Qiang, GAO Yi, HAN Meifeng, CHEN Huan, JIN Zhimin, LIU Zhu
- 419 Macrogenomic-based Study of Effects of Subchronic Chloroform Exposure on the Gut Microbiota of Mice
WANG Zaishan, LI Qiang, LUAN Tianqi, JIN Zhimin, LIU Zhu
- 432 Monte Carlo Simulation-based Health Risk Assessment of Heavy Metals in Agricultural Soil Surrounding Metal Mining Areas
ZENG Xiaoli, LI Huimin, FAN Yanchun, MEI Ziqi, YANG Xiuqiong, ZHAO Gang
- 440 Effects of High Concentrations of Cadmium and Lead Stress on Growth, Physiological and Biochemical Parameters in *Hydrocotyle vulgaris* L.
WANG Hui, LI Changai, LI Yaliang, NING Lili, LIU Ling, HUANG Rong