



## 目 次

## ◆专论与综述

- 土壤重金属-有机物复合污染环境效应与修复技术研究进展 ..... 李婉怡, 於维维,  
余琼阳, 赵 玲, 王月梅, 宋家音, 马文亭, 张 宁, 张光华, 董荷玲, 滕 应, 骆永明 (453)  
温度耦合驱动下土壤-地下水有机污染物迁移规律与模拟研究进展 .....  
杨 蕊, 崔孜铭, 熊贵耀, 王锦国, 吴吉春 (464)  
盐渍土磷有效性研究进展与展望 ..... 咸敬甜, 陈小兵, 王 上, 张晓龙, 徐 刚 (474)  
中国稻田土壤有机碳汇特征与影响因素的研究进展 .....  
常琳溪, 梁新然, 王 磊, 李祖然, 湛方栋, 何永美 (487)

- 干旱半干旱煤矿区土壤水分研究进展 ..... 李禹凝, 王金满, 张雅馥, 朱秋萍, 王敬朋 (494)

## ◆研究报告

- 不同硝化抑制剂对稻季 N<sub>2</sub>O 排放、NH<sub>3</sub>挥发和水稻产量的影响 ..... 曾 科, 王书伟, 朱文彬, 田玉华, 尹 斌 (503)  
生物硝化抑制剂对黔西南黄壤硝化作用及 N<sub>2</sub>O 排放的影响 .....  
华 瑶, 陆玉芳, 高维常, 祖韦军, 施卫明, 郭亚利 (512)  
钾通道 ZmK2; I 在水稻中超表达提升水稻氮素利用潜力 ..... 陈天祥, 杨顺瑛, 苏彦华 (520)  
根系通气组织发育程度对水稻苗期生长及氮素吸收的影响 ..... 石承智, 王 瑞, 施卫明, 李奕林 (528)  
稻桔还田下减量化施氮对小麦产量、养分吸收及土壤理化性质的影响 .....  
张斯梅, 段增强, 顾克军, 张传辉, 张恒敢 (537)  
控释肥养分释放对坡耕地土壤磷钾损失及花生产量的影响 .....  
梁舒欣, 耿怡爽, 周春雨, 常鹏宇, 孙冬然, 刘前进, 杨修一, 耿计彪 (544)

- 不同绿肥对土壤肥力及后茬水稻养分吸收的影响 ..... 董青君, 董玉兵, 李卫红, 谢昶琰, 李传哲, 张 苗, 陈 川, 章安康 (554)  
温度和氮添加对旱地红壤反硝化功能基因丰度的影响 ..... 冯蒙蒙, 林永新, 樊剑波, 贺纪正 (562)  
冬灌条件下季节性冻融期农田土壤可培养微生物数量变化及其影响因素 .....  
杨跃发, 王春霞, 梁 飞, 蓝明菊, 孙 开 (569)

- 土壤呼吸及其 <sup>13</sup>C 同位素测定方法的对比研究 ..... 聂棠棠, 王 娟, 姚槐应, 葛超荣 (578)  
不同初始 pH 对猪粪水酸化贮存过程及氮素损失的影响 ..... 陈广银, 吴 佩, 董金竹, 王恩慧, 郑嘉伟 (587)  
电解质对喀斯特地区土壤团聚体稳定性的影响 .....  
马占龙, 肖 雁, 黄 娟, 韦 慧, 杨钙仁, 何铁光, 邓羽松 (596)

- 施用生物质炭对黑土腐殖质组成及水稳定性团聚体分布的影响 .....  
王 琪, 朱莹雪, 许连周, 陈柏杨, 马献发, 元 野, 高 珊, 焦玉生, 胡继军 (605)  
不同改良剂对酸性烟田的改良效果及其对烤烟生长的影响 .....  
闫 静, 时仁勇, 王昌军, 李德成, 李九玉, 徐仁扣, 孙光伟, 李建平, 陈振国, 孙敬国 (612)

- 有色金属冶炼厂周边砷镉复合污染土壤的钝化材料研究 ..... 邓 林, 戴青云, 周金泉, 桂 娟, 和君强, 符云聪, 刘代欢 (619)  
宜章县耕地土壤硒含量空间分布特征及成因 .....  
丁庭康, 周卫军, 岳晴晴, 彭素华, 刘 沛, 崔浩杰, 谭振华 (626)

- 土壤重金属健康风险时空预测及管控目标研究 .....  
姬 超, 侯大伟, 赵晓杰, 谢 丽, 孙 华, 包广静, 邓爱萍 (634)  
基于文献计量的土壤健康评价研究进展可视化分析 .....  
吴 霞, 蔡进军, 雷金银, 王长军, 李维倩, 陈 刚, 白阳阳 (647)

- 基于单一和集合土壤转换函数模型对土壤含水量的模拟性能分析 .....  
李 奇, 陈文娟, 石文豪, 孙少波, 张永根 (658)  
基于集成学习的土壤含水量预测研究——以辽西地区为例 .....  
付平凡, 杨晓静, 苏志诚, 屈艳萍, 马苗苗 (671)

## ◆研究简报

- 二苯醚类除草剂降解菌 *Bacillus* sp. Za 微生物制剂的研发与初步应用 .....  
滕 晓, 沈心怡, 张步瑶, 罗子轩, 赵天卓, 徐铭阳, 黄 星 (682)

## CONTENTS

Environmental Effects and Remediation Technologies of Heavy Metal-Organic Pollutant Co-contaminated Soil: A Review .....	LI Wanyi, YU Weiwei, YU Qiongyang, ZHAO Ling, WANG Yuemei, SONG Jiayin, MA Wenting, ZHANG Ning, ZHANG Guanghua, DONG Heling, TENG Ying, LUO Yongming (453)
Research Progresses of Simulation and Migration Patterns on Organic Pollutants in Soil and Groundwater Driven by Thermal Coupling .....	YANG Yun, CUI Ziming, XIONG Guiyao, WANG Jinguo, WU Jichun (464)
Phosphorus Availability in Saline Soil: A Review .....	XIAN Jingtian, CHEN Xiaobing, WANG Shang, ZHANG Xiaolong, XU Gang (474)
Characteristics and Influencing Factors of Soil Organic Carbon Sink in Paddy Fields in China: A Review .....	CHANG Linxi, LIANG Xinran, WANG Lei, LI Zuran, ZHAN Fangdong, HE Yongmei (487)
Soil Water in Arid and Semi-arid Mining Areas: A Review .....	LI Yunling , WANG Jinman , ZHANG Yafu , ZHU Qiuping , WANG Jingpeng (494)
Effects of Different Nitrification Inhibitors on N <sub>2</sub> O Emission, NH <sub>3</sub> Volatilization and Yield in Rice Season .....	ZENG Ke, WANG Shuwei, ZHU Wenbin, TIAN Yuhua, YIN Bin (503)
Effects of Biological Nitrification Inhibitors on Nitrification and N <sub>2</sub> O Emissions of Yellow Soil in Southwestern Guizhou .....	HUA Yao, LU Yufang, GAO Weichang, ZU Weijun, SHI Weiming, GUO Yali (512)
Overexpression of Potassium Channel <i>ZmK2; 1</i> in Rice Improves Nitrogen Utilization Potential .....	CHEN Tianxiang, YANG Shunying, SU Yanhua (520)
Effects of Root Aerenchyma Development Degree on Rice Growth and Nitrogen Absorption at Seedling Stage .....	SHI Chengzhi, WANG Rui, SHI Weiming, LI Yilin (528)
Effects of Reduced Nitrogen Fertilization on Wheat Yield, Nutrient Uptake and Soil Physicochemical Properties Under Rice Straw Returning .....	ZHANG Simei , DUAN Zengqiang, GU Kejun, ZHANG Chuanhui, ZHANG Henggan (537)
Effect of Nutrient Release from Controlled-release Fertilizer on Phosphorus and Potassium Losses and Peanut Yield in Slope Field.....	LIANG Shuxin, GENG Yishuang, ZHOU Chunyu, CHANG Pengyu, SUN Dongran, LIU Qianjin, YANG Xiuyi, GENG Jibiao (544)
Effects of Different Green Manures on Soil Fertility and Nutrient Uptake of Rice .....	DONG Qingjun, DONG Yubing, LI Weihong, XIE Changyan, LI Chuanzhe, ZHANG Miao, CHEN Chuan, ZHANG Ankang (554)
Effects of Temperature and Nitrogen Addition on Abundance of Denitrifying Functional Genes in Upland Ultisol .....	FENG Mengmeng, LIN Yongxin , FAN Jianbo , HE Jizheng (562)
Changes of Soil Cultivable Microorganisms in Seasonal Freezing and Thawing Period Under Winter Irrigation and Influencing Factors .....	YANG Yuefa, WANG Chunxia, LIANG Fei, LAN Mingju, SUN Kai (569)
Comparative Study on Determination Methods of Soil Respiration and Its <sup>13</sup> C Isotope .....	NIE Tangtang, WANG Juan, YAO Huaiying, GE Chaorong (578)
Effects of Different Initial pH on Pig Slurry Acidification Storage Progress and Nitrogen Loss .....	CHEN Guangyin, WU pei, DONG Jinzhu, WANG Enhui, ZHENG Jiawei (587)
Effects of Electrolytes on Stability of Soil Aggregates in Karstic Limestone Areas .....	MA Zhanlong, XIAO Yan, HUANG Juan, WEI Hui, YANG Gairen, HE Tieguang, DENG Yusong (596)
Effects of Biochars Application on Humus Composition and Water-stable Aggregates Distribution of Black Soil .....	WANG Qi, ZHU Yingxue, XU Lianzhou, CHEN Baiyang, MA Xianfa, YUAN Ye, GAO Shan, JIAO Yusheng, HU Jijun (605)
Effects of Different Amendments on Soil Acidity and Tobacco Growth in Acidic Tobacco Field .....	YAN Jing, SHI Renyong, WANG Changjun, LI Decheng, LI Jiuyu, XU Renkou, SUN Guangwei, LI Jianping, CHEN Zhenguo, SUN Jingguo (612)
Research on Passivation Materials for As and Cd Compound Contaminated Soil Around Non-ferrous Metal Smelters .....	DENG Lin, DAI Qingyun, ZHOU Jinquan, GUI Juan, HE Junqiang, FU Yuncong, LIU Daihuan (619)
Spatial Distribution Characteristics and Influencing Factors of Selenium Content in Cultivated Land in Yizhang County .....	DING Tingkang, ZHOU Weijun, YUE Qingqing, PENG Suhua, LIU Pei, CUI Haojie, TAN Zhenhua (626)
Spatio-temporal Prediction and Control Objectives for Health Risk of Soil Heavy Metals .....	JI Chao, HOU Dawei, ZHAO Xiaojie, XIE Li, SUN Hua, BAO Guanjing, DENG Aiping (634)
Visual Analysis of Research Progress in Soil Health Assessment Based on Bibliometric .....	WU Xia, CAI Jinjun, LEI Jinyin, WANG Zhangjun, LI Weiqian, CHEN Gang, BAI Yangyang (647)
Performance Analysis of Simulating Soil Moisture Content Based on Single and Ensemble Pedotransfer Function .....	LI Qi, CHEN Wenjuan, SHI Wenhao, SUN Shaobo, ZHANG Yonggen (658)
Prediction of Soil Moisture Content Based on Ensemble Learning — A Case Study of Western Liaoning Province .....	FU Pingfan, YANG Xiaojing, SU Zhicheng, QU Yanping, MA Miaomiao (671)
Development and Preliminary Application of Microbial Preparation of Diphenyl Ether Herbicide Degrading Strain <i>Bacillus</i> sp. Za .....	TENG Xiao, SHEN Xinyi, ZHANG Buyao, LUO Zixuan, ZHAO Tianzhuo, XU Mingyang, HUANG Xing (682)