



3945  
172/S

# 土壤通报

CHINESE JOURNAL OF SOIL SCIENCE

第 54 卷 第 1 期 Vol. 54 No.1

## 2023



中国土壤学会 主办  
科学出版社 出版

# 土壤通报

(Turang Tongbao)

第 54 卷 第 1 期 2023 年 2 月

目 次

## 研究报告

- 海南岛北部玄武岩区土壤母质均一性及相对年龄判定 ..... 罗原骏, 黄来明, 袁大刚 (1)
- 丘陵山区家庭农场土地规模经营的认知意愿、行为响应及影响因素研究  
——基于江津区现代农业示范园区的调查 ..... 熊 熙, 张仕超, 刘竞宇, 张煊贇 (11)
- 甘肃省陇西县中药材产区耕作土壤养分空间变异研究 .....  
..... 何明珠, 任建新, 白光祖, 赵鹏善, 李承义, 唐 亮 (21)
- 生物炭连续施用对油菜产量及早地红壤溶解性有机碳光谱特征的影响 .....  
..... 林小兵, 王馨悦, 黄尚书, 何绍浪, 刘艳琴, 张 昆, 王斌强, 黄欠如, 成艳红 (30)
- 耕作深度对红壤坡耕地季节性干旱期土壤水分变化特征的影响 .....  
..... 黄尚书, 钟义军, 何绍浪, 黄欠如, 成艳红, 张 昆, 吴 艳, 叶 川 (39)
- 旱作条件下保护性耕作对土壤结构和容重影响试验研究 ..... 邓子正, 黄明镜, 张吴平, 王国芳 (46)
- 聚乙烯微塑料浓度对黑土团聚体特征及其稳定性的影响 .....  
..... 陈荣桓, 余 瑶, 黄 珊, 陈荣龙, 贾焮凯, 陈延华, 薛 菱, 刘萌娟, 杨晓梅 (56)
- 有机培肥对连作花生土壤肥力及活性有机碳库的影响 .....  
..... 高 欣, 赵雪淞, 赵凤艳, 高传俊, 冯良山 (67)
- 根系分隔方式对玉米/大豆根际土壤碳含量及磷有效性的影响 .....  
..... 王瑞雪, 李 景, 杨宇坤, 冯 瑞, 苏丽珍, 郑 毅, 汤 利 (77)
- 长期施肥对旱地红壤微团聚体磷素有效性的影响 ..... 周亦靖, 牛 犇, 李 欢, 王艳玲 (89)
- 外源氮素和凋落物添加对温带森林土壤氨基糖转化特征的影响 .....  
..... 张 威, 王婉琦, 董姝含, 张效琛, 崔艳荷, 何红波, 张旭东 (100)
- 穴施生物炭对烤烟根区土壤生物学性质的影响 .....  
..... 李彩斌, 王 琛, 康 俊, 郭丰磊, 何 轶, 罗贞宝, 王 兴, 李贵桐 (107)
- 不同功能微生物生长过程对酸胁迫的响应 ..... 单晓冉, 吴立珠, 章家恩, 吴佳男, 危 晖 (117)
- 生物有机肥对烟草根际微生物群落及青枯雷尔氏菌丰度的影响 .....  
..... 王海婷, 彭佩钦, 陈剑平, 葛体达, 吴传发, 刘勇军 (126)
- 当归不同生长期根际土壤酶活性及微生物群落结构变化 .....  
..... 谢田朋, 张 建, 柳 娜, 刘越敏, 寇 亮, 曲 馨, 薄双琴, 景 明 (138)
- 不同土壤湿度下平菇菌渣施用对土壤酶活性和温室气体排放的影响 .....  
..... 汪久翔, 邹冬生, 王 华, 刘梦婷, 王安崇, 张满云 (151)

江苏省典型高速公路沿线土壤重金属分布特征及影响因素研究 .....	
..... 周 怡, 吴秋梅, 樊亚男, 胡文友, 田 康, 黄 标, 纪荣平	(161)
开封市某高校校园地表灰尘重金属分布特征及生态风险评估 .....	
..... 王洪涛, 闫帅腾, 武鲲鹏, 田 原, 胡文静, 姜玉玲, 李成蹊	(171)
大同市城区公园表层土壤重金属污染特征和健康风险及来源解析 .....	刘 玥, 郭文强, 武晔秋 (180)

## 专题综述

基于知识图谱分析的沼液还田利用研究现状与发展趋势 .....	
..... 刘银秀, 聂新军, 叶 波, 董越勇, 金 娟, 范志斌, 邢佳佳	(192)
基于 CiteSpace 的功能性有机肥研究动态与热点分析 .....	
..... 朱康文, 杨红军, 宋 丹, 张蓝心, 张 晟, 黄昌前, 张 可, 陈玉成	(202)
全球环境变化对土壤 N <sub>2</sub> O 排放影响的研究进展 .....	刘鑫慧, 李雅颖, 郑宁国, 姚槐应 (213)
水稻硒营养研究进展 .....	孙 星, 易 琼, 唐拴虎, 李 苹, 付弘婷, 吴永沛, 张 木 (223)
土壤原生生物类群的类群及功能 .....	雷 丽, 王加龙, 张 雪, 李香真, 姚敏杰 (232)
茶园管理方式对土壤微生物群落影响的研究进展 .....	朱 玲, 赵 仪, 严学兵, 孙盛楠 (245)

# CHINESE JOURNAL OF SOIL SCIENCE

Vol.54 No.1 Feb., 2023

## CONTENTS

### Research Articles

- Parent Material Uniformity and Relative Age Identification of Soil Chronosequence Derived from Basalt in Northern Hainan Island ..... LUO Yuan-jun, HUANG Lai-ming, YUAN Da-gang (1)
- Factors Influencing Family Farm-scale Management Willingness to Behavior in Hilly and Mountainous Areas: Taking Jiangjin District Modern Agriculture Demonstration Park as an Example ..... XIONG Xi, ZHANG Shi-chao, LIU Jing-yu, ZHANG Xuan-yun (11)
- Spatial Distribution Patterns of Soil Fertility in Producing Area of Traditional Chinese Medicine of Longxi County, Gansu Province ..... HE Ming-zhu, REN Jian-xin, BAI Guang-zu, ZHAO Peng-shan, LI Cheng-yi, TANG Liang (21)
- Effects of Continuous Biochar Application on Rapeseed Yield and Spectral Characteristics of Dissolved Organic Carbon in Upland Red Soil ..... LIN Xiao-bing, WANG Xin-yue, HUANG Shang-shu, HE Shao-lang, LIU Yan-qin, ZHANG Kun, WANG Bin-qiang, HUANG Qian-ru, CHENG Yan-hong (30)
- Effects of Tillage Depth on Characteristics of Soil Moisture in Red Soil Sloping Farmland under Seasonal Drought ..... HUANG Shang-shu, ZHONG Yi-jun, HE Shao-lang, HUANG Qian-ru, CHENG Yan-hong, ZHANG Kun, WU Yan, YE Chuan (39)
- Effects of Conservation Tillage on Soil Structure and Bulk Density under Dryland ..... DENG Zi-zheng, HUANG Ming-jing, ZHANG Wu-ping, WANG Guo-fang (46)
- Effect of Polyethylene Microplastic Concentration on the Characteristics and Stability of Black Soil Aggregates ..... CHEN Rong-huan, YU Yao, HUANG Shan, CHEN Rong-long, JIA Xin-kai, CHEN Yan-hua, XUE Sha, LIU Meng-juan, YANG Xiao-mei (56)
- Effect of Organic Fertilizer on Soil Fertility and Active Organic Carbon Pool in Monocultured Peanut Fields ..... GAO Xin, ZHAO Xue-song, ZHAO Feng-yan, GAO Chuan-jun, FENG Liang-shan (67)
- Effects of Root Barriers on Carbon Content and Phosphorus Availability in Maize/soybean Rhizosphere ..... WANG Rui-xue, LI Jing, YANG Zi-kun, FENG Rui, SU Li-Zhen, ZHENG Yi, TANG Li (77)
- Effects of Long-term Fertilization on Availability of Micro-aggregate Associated Phosphorus in Upland Red Soil ..... ZHOU Yi-jing, NIU Ben, LI Huan, WANG Yan-ling (89)
- Effects of Exogenous Nitrogen and Litter on the Transformation of Amino Sugars in Temperate Forest Soil ..... ZHANG Wei, WANG Wan-qi, DONG Shu-han, ZHANG Xiao-chen, CUI Yan-he, HE Hong-bo, ZHANG Xu-dong (100)
- Effects of Biochar Application at Root Zone on Soil Biological Properties in Flue-cured Tobacco Field ..... LI Cai-bin, WANG Chen, KANG Jun, GUO Feng-lei, HE Yi, LUO Zhen-bao, WANG Xing, LI Gui-tong (107)
- Acid Resistance of Different Functional Microbial Strains and Changes in Their Growth Curve under Acid Stress ..... SHAN Xiao-ran, WU Li-zhu, ZHANG Jia-en, WU Jia-nan, WEI Hui (117)
- Influence on the Tobacco Microbial Community and the Relative Abundance of *Ralstonia solanacearum* in Rhizosphere Soil after the Application of Bio-organic Fertilizer ..... WANG Hai-ting, PENG Pei-qin, CHEN Jian-ping, GE Ti-da, WU Chuan-fa, LIU Yong-jun (126)

- Changes in Rhizosphere Soil Enzymatic Activities and Microbial Communities across Growth Stages of *Angelica sinensis* ..... XIE Tian-peng, ZHANG Jian, LIU Na, LIU Yue-min, KOU Liang, QU Xin, BO Shuang-qin, JING Ming (138)
- Effect of Resource Utilization of Spent *Pleurotus ostreatus* Mushroom Substrate on Soil Enzyme activities and Greenhouse Gas Emissions Under Different Soil Moisture Conditions ..... WANG Jiu-xiang, ZOU Dong-sheng, WANG Hua, LIU Meng-ting, WANG An-dong, ZHANG Man-yun (151)
- Spatial Distribution and Influencing Factors of Heavy Metals in Soils around Typical Highways in Jiangsu Provinces ..... ZHOU Yi, WU Qiu-mei, FAN Ya-nan, HU Wen-you, TIAN Kang, HUANG Biao, JI Rong-ping (161)
- Distribution Characteristics and Ecological Risk Assessment of Heavy Metals in Surface Dust from a University Campus in Kaifeng, China ..... WANG Hong-tao, YAN Shuai-teng, WU Kun-peng, TIAN Yuan, HU Wen-jing, JIANG Yu-ling, LI Cheng-xi (171)
- Pollution Characteristics, Health Risks and Source Analysis of Surface Soil Heavy Metals in Urban Parks of Datong City ..... LIU Yue, GUO Wen-qiang, WU Ye-qiu (180)

## Reviews and Comments

- Research of Returning Biogas Slurry to Cropland Based on Knowledge Graph Analysis and Its Development Trend ..... LIU Yin-xiu, NIE Xin-jun, YE Bo, DONG Yue-yong, JIN Juan, FAN Zhi-bin, XING Jia-jia (192)
- Research Trends and Hot Spot Analysis of Functional Organic Fertilizer Based on CiteSpace ..... ZHU Kang-wen, YANG Hong-jun, SONG Dan, ZHANG Lan-xin, ZHANG Sheng, HUANG Chang-qian, ZHANG Ke, CHEN Yu-cheng (202)
- Effects of Global Environmental Change on Soil N<sub>2</sub>O Emission: a Review ..... LIU Xin-hui, LI Ya-ying, ZHENG Ning-guo, YAO Huai-ying (213)
- Review on Selenium Nutrition Research in Rice ..... SUN Xing, YI Qiong, TANG Shuan-hu, LI Ping, FU Hong-ting, WU Yong-pei, ZHANG Mu (223)
- Soil Protists: the Classification and Functions ..... LEI Li, WANG Jia-long, ZHANG Xue, LI Xiang-zhen, YAO Min-jie (232)
- Research Progress on Effects of Tea Plantation Managements on Soil Microbial Community ..... ZHU Ling, ZHAO Yi, YAN Xue-bing, SUN Sheng-nan (245)

中文核心期刊  
中国科学引文数据库 (CSCD) 来源期刊  
中国学术期刊综合评价数据库 (CAJCED) 统计源期刊  
中国期刊全文数据库 (CJFD) 全文收录期刊  
《中国期刊网》、《中国学术期刊 (光盘版)》全文收录期刊  
《中国核心期刊 (遴选) 数据库》收录期刊  
中国科技论文统计源期刊 (中国科技核心期刊)  
《中国生物学文摘》和生物学文献数据库收录期刊  
RCCSE 中国权威学术期刊  
CA 化学文摘(美) 收录期刊  
JST 日本科学技术振兴机构数据库(日) 收录期刊  
《CAJ-CD 规范》执行优秀奖  
辽宁省一级期刊

## 土壤通报 Turang Tongbao

(双月刊 1957 年创刊)

第 54 卷 第 1 期(总第 322 期) 2023 年 2 月

## CHINESE JOURNAL OF SOIL SCIENCE

(Bimonthly, Started in 1957)

Vol.54 No.1 Feb., 2023

<b>主管单位</b> 中国科学技术协会	<b>Administered by</b> China Association for Science and Technology
<b>主办单位</b> 中国土壤学会	<b>Sponsored by</b> Soil Science Society of China
<b>承办单位</b> 沈阳农业大学	<b>Undertaken by</b> Shenyang Agricultural University
<b>编辑</b> 《土壤通报》编辑部 地址: 沈阳市沈河区东陵路120号 邮编: 110866 电话: 024-88487213 电子邮箱: trtb@163.com; trtbbjb@126.com 网址: www.trtb.cbpt.cnki.net; www.trtb.net	<b>Edited by</b> Editorial Department of Chinese Journal of Soil Science Add: No.120 Dongling Road, Shenyang, Liaoning 110866, China Tel: 024-88487213 E-mail: trtb@163.com; trtbbjb@126.com Website: www.trtb.cbpt.cnki.net; www.trtb.net
<b>主编</b> 汪景宽	<b>Editor in Chief</b> WANG Jing-kuan
<b>出版</b> 科学出版社 地址: 北京市东皇城根北街16号 邮编: 100717	<b>Published by</b> Science Press Add: No.16 Donghuangchenggen North Street, Beijing 100717, China
<b>印刷</b> 沈阳中科印刷有限责任公司	<b>Printed by</b> Shenyang Zhongke Printing Co.Ltd.
<b>总发行</b> 辽宁省邮政公司报刊发行公司	<b>Released by</b> Post Company in Liaoning Province Newspaper Distribution Companies
<b>国内发行</b> 全国各地邮局	<b>Domestic Issue by</b> All Local Post Offices in China
<b>国外发行</b> 中国国际图书贸易总公司 地址: 北京399信箱, 邮编: 100048	<b>Oversea Issue by</b> China International Book Trading Corporation P.O.Box 399, Beijing 100048, China

刊号: ISSN 0564-3945  
CN 21-1172/S

国内邮发代号: 8-15  
国外发行代号: BM8088

2023 年 2 月 6 日出版 定价: 50.00 元

