

- ◆ 全国中文核心期刊
- ◆ 中国科学引文数据库
- ◆ 中文科技期刊数据库收录期刊
- ◆ 中国期刊全文数据库全文收录期刊
- ◆ 中国生物医学文献数据库 (CBM)
- ◆ 中国学术期刊综合评价数据库统计源期刊
- ◆ 中国科技论文统计源期刊 (中国科技核心期刊)
- ◆ 万方数据—数字化期刊群 (中国核心期刊遴选数据库)

- ◆ RCCSE中国核心学术期刊
- ◆ 美国化学文摘 (CA) 收录期刊
- ◆ 波兰哥白尼索引 (IC) 收录期刊
- ◆ 美国乌利希期刊指南 (Ulrich PD) 收录期刊
- ◆ 美国《剑桥科学文摘 (自然科学)》(CSA) 收录期刊
- ◆ 日本科学技术振兴机构中国文献数据库 (JST) 收录期刊
- ◆ 英国国际农业与生物科学研究中心数据库 (CABI) 收录期刊



环境科学与技术

Huanjing Kexue yu Jishu

ISSN1003—6504

Vol.41 No.9

2018



Environmental Science & Technology

ISSN 1003-6504



湖北省环境保护厅 主管
湖北省环境科学研究院 主办

目 次

藻粉在土壤中矿化进程及对油麦菜肥效研究
..... 刘瑶, 田翠翠, 代亮亮, 王纯波, 吴幸强, 冯闪闪, 庆卉, 肖邦定(1)

苦草对盐碱离子的生长响应与去除效果研究
..... 林思宇, 孙瑞川, 栾永胜, 黄家明, 何洋, 靖美东, 左进城(7)

TiO₂纳米带制备及光催化降解气相甲苯研究
..... 吴淑娜, 蒋燕, 陈清华, 辛言君(12)

Na-CNB 光催化材料合成及应用
..... 崔玉民, 开春梅, 林美玉, 苗慧, 陶栋梁, 李慧泉(17)

埃洛石/g-C₃N₄-Cu₂O 催化剂的制备及催化性能研究
..... 徐杰, 郑建东, 张丽惠, 王余杰, 张华, 刘慧(22)

分子筛负载CoO₂催化剂用于苯的催化氧化
..... 贾永芹, 张晓晶(28)

厌氧氨氧化菌的真空冷冻干燥保藏及复壮性能
..... 张帆, 张挥民, 葛程程, 杨凤林(33)

稻壳直接液化及催化裂解产物分析
..... 杨莉, 刘毅(41)

Sm₂Ce_{1-x}VO₄纳米粒子对四环素抗生素的光降解机制
..... 郑小刚, 李子黎, 刘勇, 付孝锦(48)

3种微量元素对小球藻和小环藻生长的影响
..... 王洁玉, 陈艳, 李果光, 新同霞, 新萍, 马剑敏(55)

基于RSM模型对厌氧消化污泥脱水性能改善研究
..... 台明青, 付赛赛, 胡炜, 黄雪征(61)

热水解对农业废弃物-厨余共发酵产气的影响
..... 李雪兵, 金鹏康(66)

P/C 比对腐殖土SBR工艺运行效果的影响
..... 魏传银, 吴敏, 朱睿(74)

青藏高原腹地不同植被下河流溶解性有机碳特征
..... 马小亮, 吴晓东, 叶琳琳, 徐海燕, 白炜, 胡广录, 刘桂民(79)

液膜提取回收土壤淋洗液中镉的研究	裴亮, 廖晓勇, 马赫(85)
粤东北地区臭氧与前体物关系	沈劲, 陈多宏, 蒋斌, 曹静, 黄建彰, 赵熠琳, 汪宇(90)
江苏省臭氧时空分布及其前体物影响特征研究	夏思佳, 赵秋月, 刘倩(96)
上海市大气干、湿沉降中DL-PCBs来源初判	程晨(101)
全运会期间天津市大气污染物时空变化特征	么相姝, 金如委(110)
辽中地区供暖期前后PM _{2.5} 质量浓度变化特征分析	柴曼, 吴立新, 项程程, 邹滨(117)
兰州市大气颗粒物生物磁学监测研究	陈红, 王博, 刘慧, 马珊, 路彩晨, 贾佳, 夏敦胜(124)
重庆市冬季PM _{2.5} 输送特征及污染源地解析	刘贤, 李月臣, 何君, 祝汉收(134)
和田市城区PM _{2.5} 中PAHs的浓度、来源及致癌风险	耿卓, 迪丽努尔·塔力甫, 王新明, 高博, 阿布力克木·阿不力孜, 买丽克扎提·买合木提, 亚力昆江·吐尔逊(142)
响应面优化原子吸收光谱法测定PM _{2.5} 中镉的含量	赵刚, 李旭梅, 顾佳丽, 董殿波, 赵芳, 夏云生(151)
南京9种绿化植物叶片中PAHs分布、来源和生态风险	冯驰, 赖政, 查燕, 李佳熙, 张银龙(156)
岩溶洞穴负离子空间分布特征与环境关系分析:以天缘洞与水帘洞为例	汪炎林, 李坡, 黎有为, 周忠发, 易武英, 高占冬, 贾真真(163)
生物炭对好氧堆肥化处理影响的研究进展	刘立, 张朝升, 赵美花(170)
基于现代分子生物学法追溯水体中粪便污染源	卢杰, 邢美燕, 马小杰, 邢丽波(176)
航空器排放清单计算方法研究进展综述	李杰, 赵志奇, 王凯, 刘新罡(183)
基于LMDI的湖南省旅游业碳排放影响因素分解	赵先超, 滕洁(192)
贵州植被生产力时空变化分析:以威宁县为例	王志红, 任金铜, 戴华阳, 杨可明(200)

CONTENTS

The Mineralization of Dried Algae Powder in Soil and Its Application in the Production of Lettuce.....	LIU Yao,
TIAN Cuicui, DAI Liangliang, WANG Chunbo, WU Xingqiang, FENG Shanshan, QING Hui, XIAO Bangding (1)	
Responses of Seed Germination and Seedling Growth of <i>Vallisneria natans</i> to Saline-alkali Stresses and Removal Rates of Salt Ions by <i>V. natans</i>	
...LIN Siyu, SUN Ruichuan, LUAN Yongsheng, HUANG Jiaming, HE Yang, JING Meidong, ZUO Jincheng (7)	
Photocatalytic Degradation of Toluene by TiO ₂ Nanobelts: an Experimental Research.....	
.....WU Shuna, JIANG Yan, CHEN Qinghua, XIN Yanjun (12)	
Synthesis and Application of Na-CNB Photocatalysts: an Experimental Study.....	
.....CUI Yumin, KAI Chunmei, LIN Meiyu, MIAO Hui, TAO Dongliang, LI Huiquan (17)	
Preparation of Halloysite/g-C ₃ N ₄ -Cu ₂ O and Its Catalytic Performance.....	
.....XU Jie, ZHENG Jiandong, ZHANG Lihui, WANG Yujie, ZHANG Hua, LIU Hui (22)	
Catalytic Oxidation of Benzene over Zeolites Supported CoO _x Catalysts.....	JIA Yongqin, ZHANG Xiaojing (28)
Research on Anammox Bacteria: Vacuum-freeze-dry Preservation and Rejuvenation Performance.....	
.....ZHANG Fan, ZHANG Hanmin, GE Chengcheng, YANG Fenglin (33)	
Direct Liquefaction of Rice Husk and the Analysis of Catalytic Cracking Products.....	YANG Li, LIU Yi (41)
Photocatalytic Mechanism of Sm _x Ce _{1-x} VO ₄ Nanocomposites for the Degradation of Tetracycline Antibiotics under Visible Light Irradiation.....	ZHENG Xiaogang, LI Zili, LIU Yong, FU Xiaojin (48)
Effects of Three Kinds of Trace Element on Growth of <i>Chlorella vulgaris</i> and <i>Cyclotella</i> sp.	
.....WANG Jieyu, CHEN Yan, LI Gaoguang, JIN Tongxia, JIN Ping, MA Jianmin (55)	
Study on Dewaterability of Anaerobic Digested Sludge Based on RSM Model.....	
.....TAI Mingqing, FU Saisai, HU Wei, HUANG Xuezheng (61)	
Effects of Thermo-hydrolysis on Gas Production by Co-fermentation of Agricultural Wastes and Food Wastes.....	
.....LI Xuebing, JIN Pengkang (66)	
Influence of Different P/C Ratio on Operation Efficiency of Humus Soil SBR Process.....	
.....WEI Chuanyin, WU Min, ZHU Rui (74)	
Research of Rivers in the Qinghai-Tibet Plateau with Different Types of Vegetation Regarding DOC Content.....	
.....MA Xiaoliang, WU Xiaodong, YE Linlin, XU Haiyan, BAI Wei, HU Guanglu, LIU Guimin (79)	
Study on Extraction and Recovery of Cadmium from Soil Leachate by Liquid Membrane.....	
.....PEI Liang, LIAO Xiaoyong, MA Dong (85)	

The Relationship between Ozone and Precursors in Northeast Guangdong.....

.....SHEN Jin, CHEN Duohong, JIANG Bin, CAO Jing, HUANG Jianzhang, ZHAO Yilin, WANG Yu(90)

Pollution Characteristics of Ozone and Impacts of Its Precursors in Jiangsu Province.....

.....XIA Sijia, ZHAO Qiuyue, LIU Qian(96)

Potential Sources of DL-PCBs in Dry and Wet Precipitation of Shanghai: a Preliminary Judgment.....CHENG Chen(101)

The Spatio-temporal Characteristics of Air Pollutants during National Games in Tianjin.....

.....YAO Xiangshu, JIN Ruwei(110)

Analysis of the Variation Characteristics of PM_{2.5} Mass Concentration around the Heating Period in the Central Liaoning Province...

.....CHAI Man, WU Lixin, XIANG Chengcheng, ZOU Bin(117)

Bio-magnetic Monitoring of Ambient PM Pollution in Lanzhou City.....

.....CHEN Hong, WANG Bo, LIU Hui, MA Shan, LU Caichen, JIA Jia, XIA Dunsheng(124)

Study on PM_{2.5} Transport Characteristics and Pollution Source in the Winter of Chongqing.....

.....LIU Xian, LI Yuechen, HE Jun, ZHU Hanshou(134)

Study on PAHs in PM_{2.5} in Urban Area of Hotan City: Concentration, Source and Carcinogenic Risk.....GENG

Zhuo, Dilinuer Talifu, WANG Xinming, GAO Bo, Ablikim Abliz, Mailidezhati Maihemuti, Yalkunjan Tursun(142)

Determination of Cadmium in PM_{2.5} by Ultrasound Assisted Extraction-Atomic Absorption Spectrometry with Response Surface

Method.....ZHAO Gang, LI Xumei, GU Jiali, DONG Dianbo, ZHAO Fang, XIA Yunsheng(151)

PAHs in Leaves of Nine Species of Greening Plants in Nanjing City: Distribution, Sources and Ecological Risk Assessment.....

.....FENG Chi, LAI Zheng, ZHA Yan, LI Jiayi, ZHANG Yinlong(156)

Analysis of Relationship between Spatial Distribution of Negative Ions in Karst Caves and Environment: in Case of Tianyuan Cave

and Shuilian Cave.....

.....WANG Yanlin, LI Po, LI Youwei, ZHOU Zhongfa, YI Wuying, GAO Zhandong, JIA Zhenzhen(163)

Impacts of Biochar on Aerobic Composting: a Review.....LIU Li, ZHANG Chaosheng, ZHAO Meihua(170)

Based on Modern Molecular Biology Method to Trace the Source of Fecal Pollution in Water Bodies.....

.....LU Jie, XING Meiyang, MA Xiaojie, XING Libo(176)

Review of Methods and Progress on Aircraft Emission Inventory Studies.....

.....LI Jie, ZHAO Zhiqi, WANG Kai, LIU Xingang(183)

Factor Decomposition of Impact Factors of Tourism Carbon Emissions in Hunan Province Based on LMDI Model.....

.....ZHAO Xianchao, TENG Jie(192)

Temporal-spatial Variation of Vegetation Productivity in Guizhou: a Case Study in Weining County.....

.....WANG Zhihong, REN Jintong, DAI Huayang, YANG Keming(200)

《环境科学与技术》编辑委员会 THE EDITORIAL COMMITTEE

(以姓名拼音字母为序)

顾问 Advisers

郝吉明 HAO Jiming	(中国工程院院士, Academician of CAE)
刘鸿亮 LIU Hongliang	(中国工程院院士, Academician of CAE)
刘建康 LIU Jiankang	(中国科学院院士, Academician of CAS)
沈国舫 SHEN Guofang	(中国工程院院士, Academician of CAE)
殷鸿福 YIN Hongfu	(中国科学院院士, Academician of CAS)

主编 Editor-in-Chief

袁道先 YUAN Daoxian (中国科学院院士, Academician of CAS)

常务副主编(兼执行主编) Associate and Executive Editor-in-Chief

胡春华 HU Chunhua

编辑委员 Members

陈利顶 CHEN Liding	邵全琴 SHAO Quanqin	杨旭东 YANG Xudong
冯新斌 FENG Xinbin	沈永明 SHEN Yongming	杨志峰 YANG Zhifeng
冯玉杰 FENG Yujie	宋立荣 SONG Lirong	袁一星 YUAN Yixing
封志明 FENG Zhiming	王珂 WANG Ke	张福锁 ZHANG Fusuo
韩洪军 HAN Hongjun	王祥荣 WANG Xiangrong	张干 ZHANG Gan
胡洪营 HU Hongying	王晓蓉 WANG Xiaorong	赵景柱 ZHAO Jingzhu
蒋大和 JIANG Dahe	王新明 WANG Xinming	周培疆 ZHOU Peijiang
蒋展鹏 JIANG Zhanpeng	王焰新 WANG Yanxin	周启星 ZHOU Qixing
焦念志 JIAO Nianzhi	王子健 WANG Zijian	庄大方 ZHUANG Dafang
金相灿 JIN Xiangcan	吴丰昌 WU Fengchang	祝万鹏 ZHU Wanpeng
林金明 LIN Jinming	吴振斌 WU Zhenbin	朱荫渭 ZHU Yinwei
刘成付 LIU Chengfu	吴忠标 WU Zhongbiao	Stefano Nespor(意大利)
刘静玲 LIU Jingling	徐柏庆 XU Boqing	Francis Haumont(比利时)
罗胜联 LUO Shenglian	徐建明 XU Jianming	Philippe Billet(法国)
南忠仁 NAN Zhongren	严秀平 YAN Xiuping	Agnès Michelot(法国)
彭近新 PENG Jinxin	杨肖娥 YANG Xiao'e	

环境科学与技术
Huanjing Kexue Yu Jishu

(月刊, 1978年创刊)

2018年9月 第41卷 第9期

Environmental Science & Technology

(Monthly, Founded in 1978)

Vol.41 No.9 Sept. 2018

主管单位 湖北省环境保护厅

主办单位 湖北省环境科学研究院

编辑出版《环境科学与技术》编辑部

武汉市武昌八一路338号 430072

电话: +86-27-87643502 传真: 87643503

电子信箱: hjkxyjs@vip.126.com

bjb@hbepb.gov.cn

网址: <http://fjks.chinajournal.net.cn>

主 编 袁道先

执行主编 胡春华

印刷装订 武汉百事通印务有限公司

发行范围 公开发行

发 行 湖北省邮政报刊发行局

订 购 处 全国各地邮局、《环境科学与技术》编辑部

国外发行 中国国际图书贸易总公司

(中国国际书店)北京399信箱

Sponsored by Hubei Environment Science Research Academy,
Hubei Environment Protection Agency

Edited and Published by Editorial Board of Environmental
Science & Technology

338 Bayi Road, Wuchang, Wuhan 430072, China

Tel: +86-27-87643502, Fax: 87643503

E-mail: hjkxyjs@vip.126.com, bjb@hbepb.gov.cn

<http://fjks.chinajournal.net.cn>

Editor-in-Chief Yuan Daoxian

Associate and Executive Editor-in-Chief Hu Chunhua

Printed by Baishitong Presswork Co. Ltd, Wuhan

Distributed by Hubei Post and Publication Bureau

Domestic all local post offices in China

Editorial Board of Environmental Science & Technology

Foreign China International Books Trade Corporation

(China International Bookstore) Mail Box 399, Beijing

刊 号: ISSN 1003-6504
CN 42-1245/X

邮发代号: 38-86 国外代号: M03164 广告发布登记号: 鄂工商广登[2017]13号 国内定价: 40元