

目 次

化学品生态毒理测试的模式生物稀有鮎鲫的研究与实践专栏

1 序言

殷浩文

2 稀有鮎鲫作为化学品生态毒性测试鱼类模式生物的标准化实践

梁艺怀,张京佶,石利利,刘济宁,杨海荣,赵榆,杨鸿波,李俊,赵玉艳,殷浩文

11 中国化学品环境管理对本土模式生物的需求和应用

周红,郭琳琳,卢玲,葛海虹,高映新

20 中国本土鱼类模式生物稀有鮎鲫研究应用的历史与现状

王剑伟,曹文宣

34 化学品生态毒性测试鱼类模式生物的应用与展望

沈敏,Katherine Coady,董晶,John Davis,胡璟,柴运宙,高仁君

44 有关稀有鮎鲫作为本土模式生物的争议及辨析

张京佶,殷浩文

专 论

46 基于数据非依赖型采集质谱技术的血液脂质分子高通量分析

李文娟,万祎,李桐,高世雄,胡建英

56 稀有鮎鲫成体神经发生相关基因的分子克隆及序列分析

洪响声,覃剑晖,王子健,查金苗

63 SO₂与 CeO₂超细颗粒非均相反应产物的细胞毒性效应

俞森,汪冰,张丹,冯源,梁红丽,郑令娜,王萌,程路峰,丰伟悦

71 水培实验中不同粒径纳米 TiO₂对芦苇种子发芽和植株生长和生理的影响

文双喜,王毅力

81 运动对 2,3,7,8-四氯二苯并二噁英持续暴露大鼠肝脏氧化应激的影响

闫会萍,宋小波,李飞霏,陆一帆,彭朋,王娟娟,胡兵,张弛

88 苏丹红 I 对小鼠卵巢的损伤作用及对 Caspase-3 和 Ki-67 表达的影响

魏明,甘露,龙卫红,侯进,邓雅婷,陈玉龙,陈丽宏

94 0,0-二甲基-(2,2,2-三氯-1-羟基乙基)磷酸酯对 4 种藻类生长的影响

景江,夏林军,吴菊珍,孙磊

102 离子液体氯化 1-辛基-3-甲基咪唑对洋葱的遗传毒性作用

包小丹,李天函,郭梦龙,杨威利,李耀华,王文锋,井长勤

108 页岩气压裂返排液的水生生态毒性效应研究

贺美,陈文杰,田磊,陈广宇,谢瑶,向廷生

120 利用藻红外测试技术研究多种重金属溶液对滇池铜绿微囊藻的毒性作用

林艳,杨鹏飞,郭蔚华,罗菲尔,李星广

129 地表臭氧浓度升高对冬小麦和大豆生长和产量的影响

曹嘉晨,郑有飞,赵辉,徐静馨

137 水体低氧的早期暴露对青鳉(*Oryzias latipes*)后期的生长、性别比和繁殖能力的影响

穆景利,靳非,赵化德,郑楠,臧鲲鹏,王菊英

147 三氯卡班对小鼠血浆内源性物质影响的代谢组学研究

周丽丽,谢文平,李海山,陈会明,于文莲,崔媛,刘伟,宋乃宁,沈国林

155 河北平原农田土壤重金属形态分布特征及控制因素研究

蔡奎,张蓓,吴云霞,王贝

169 土壤 Cd 污染对跳虫 *Folsomia candida* 的生态毒性

保琼莉,李文华,黄益宗,刘仲齐

177 三氯卡班可以影响肾小管上皮细胞的屏障功能

杨峰,王京真,刘文华

182 氨态氮对菲律宾蛤仔毒理机制研究的内参基因筛选

曹滕飞,丛明,李兆艳,赵建民,吕家森,李成华

191 洞庭湖主要入湖口表层沉积物重金属分布特征与生态风险评价

田琪,张光贵,谢意南,莫永涛

201 吡啶硫酮金属对华美盘管虫(*Hydroides elegans*)精子 DNA 的损伤效应

陈新,李紫薇,覃宗敏,商群,唐敏

209 花背蟾蜍性腺抗氧化酶对稀土尾矿库污染胁迫的响应

司万童,蒋海明,栗利曼,刘莎,刘菊梅,沈渭寿,朱晓东

216 重金属 Cr(VI)、Pb 及 Cu 胁迫对双齿围沙蚕体腔细胞的 DNA 损伤

张来军,陈永敢,杭瑜瑜

222 草莓蚜虫防治用药对蜜蜂的急性毒性与风险评价

吴声敢,徐吉洋,饶惠仙,柳新菊,安雪花,吕露,关文碧,赵学平

228 3 种农药及其复配剂对日本鹌鹑的急性毒性比较

杨淞霖,尹晶,郝伟玉,王会利,郭宝元

233 3 种杀菌剂及其复配剂对斑马鱼的急性毒性

瞿唯钢,杨淞霖,王会利,郭宝元

238 3 种农药对大型溞的急性毒性比较

杨淞霖,尹晶,王会利,郭宝元

CONTENTS

- 1 Preface
Yin Haowen
- 2 Standardization of *Gobiocypris rarus* as Fish Model Used in Chemical Ecotoxicity Testing
Liang Yihuai, Zhang Jingji, Shi Lili, Liu Jining, Yang Hairong, Zhao Yu, Yang Hongbo, Li Jun, Zhao Yuyan, Yin Haowen
- 11 Needs and Application of Native Model Organisms for Chinese Chemical Management
Zhou Hong, Guo Linlin, Lu Ling, Ge Haihong, Gao Yingxin
- 20 *Gobiocypris rarus* as a Chinese Native Model Organism: History and Current Situation
Wang Jianwei, Cao Wenxuan
- 34 Application and Outlook of Various Fish Models Used in Chemical Ecotoxicity Test
Shen Min Summer, Katherine Coady, Dong Jing, John Davis, Hu Jing, Chai Yunzhou Joe, Gao Renjun
- 44 Is Chinese Rare Minnow a Qualified Model Organism in China?
Zhang Jingji, Yin Haowen
- 46 High Throughput Screening of Lipid Metabolites in Blood Based on the Data-independent Acquisition Mode
Li Wenjuan, Wan Yi, Li Tong, Gao Shixiong, Hu Jianying
- 56 Cloning and Sequence Analysis of Genes Involved in Adult Neurogenesis of Rare Minnow (*Gobiocypris rarus*)
Hong Xiangsheng, Qin Jianhui, Wang Zijian, Zha Jinmiao
- 63 Cytotoxicity Study of Secondary Ultrafine Particles Forming from SO₂ Reaction on CeO₂ Ultrafine Particles
Yu Miao, Wang Bing, Zhang Dan, Feng Yuan, Liang Hongli, Zheng Lingna, Wang Meng, Cheng Lufeng, Feng Weiyue
- 71 Effect of Nano Titanium Dioxide with Different Particle Size on the Seed Germination and Plant Growth and Physiology of *Phragmites australis* in Hydroponic Experiments
Wen Shuangxi, Wang Yili
- 81 Effect of Exercise on Liver Redox Status in Continuously 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) -Exposed Rats
Yan Huiping, Song Xiaobo, Li Feifei, Lu Yifan, Peng Peng, Wang Juanjuan, Hu Bing, Zhang Chi
- 88 Injury and Expression of Caspase-3 and Ki-67 in Ovary of Mice Exposed to Sudan I
Wei Ming, Gan Lu, Long Weihong, Hou Jin, Deng Yating, Chen Yulong, Chen Lihong
- 94 Toxic Effects of 0,0-Two-(2,2,2-Three Chloro-1-Hydroxy Ethyl) Phosphate on Four Kinds of Algae Growth
Jing Jiang, Xia Linjun, Wu Junzhen, Sun Lei
- 102 Genotoxic Effects of Ionic Liquid Chloride 1-Octyl-3-methylimidazolium on Onions
Bao Xiaodan, Li Tianhan, Guo Menglong, Yang Weili, Li Yaohua, Wang Wenfeng, Jing Changqin
- 108 Study on the Aquatic Ecological Toxicity of Shale Gas Fracturing Fluids
He Mei, Chen Wenjie, Tian Lei, Chen Guangyu, Xie Yao, Xiang Tingsheng
- 120 Research on Biototoxicity of Mixed Solutions of Heavy Metals on *Microcystis aeruginosa* in Dianchi Lake through Algae Infrared Testing Technology
Lin Yan, Yang Pengfei, Guo Weihua, Luo Feier, Li Xingguang
- 129 Impact of Elevated Ozone Concentration on Growth and Yield of Winter Wheat and Soybean
Cao Jiachen, Zheng Youfei, Zhao Hui, Xu Jingxin

- 137 Early-life Exposure to Hypoxia Altered Growth, Sex Ratio, and Reproduction in Medaka (*Oryzias latipes*)
Mu Jingli, Jin Fei, Zhao Huade, Zheng Nan, Zang Kunpeng, Wang Juying
- 147 Metabolomics Study on the Effect of Triclocarban on the Endogenous Substances in Mice Plasma
Zhou Lili, Xie Wenping, Li Haishan, Chen Huiming, Yu Wenlian, Cui Yuan, Liu Wei, Song Naining, Shen Guolin
- 155 Speciation Distribution and Its Influencing Factors of Cd, Cr, Pb, As, Hg in Farmland Soil from Hebei Plain, China
Cai Kui, Zhang Qian, Wu Yunxia, Wang Bei
- 169 Toxicity of Cd to Springtails (*Folsomia candida*) in Soil
Bao Qiongli, Li Wenhua, Huang Yizong, Liu Zhongqi
- 177 Triclocarban Alters Barrier Function in NRK-52E Cells
Yang Feng, Wang Jingzhen, Liu Wenhua
- 182 Selection of Reference Genes for Toxicological Mechanism Research on *Ruditapes philippinarum* Exposed to Ammonia Nitrogen
Cao Tengfei, Cong Ming, Li Zhaoyan, Zhao Jianmin, Lv Jiasen, Li Chenghua
- 191 Distribution and Ecological Risk Assessment of Heavy Metals in Surface Sediments from Main Tributary Entrances of Dongting Lake
Tian Qi, Zhang Guanggui, Xie Yanan, Mo Yongtao
- 201 The Effects of Metal Pyrithione on Sperm DNA of Polychaete *Hydroides elegans*
Chen Xin, Li Ziwei, Qin Zongmin, Shang Qun, Tang Min
- 209 The Response of Antioxidant Enzyme in *Bufo raddei* Gonad to Rare Earth Tailings Pollution Stress
Si Wantong, Jiang Haiming, Li Liman, Liu Sha, Liu Jumei, Shen Weishou, Zhu Xiaodong
- 216 DNA Damage of Coelomocyte in *Perinereis aibuhitensis* Induced by Chromium(VI), Lead and Copper
Zhang Laijun, Chen Yonggan, Hang Yuyu
- 222 Acute Toxicity and Risk Assessment of Pesticides Used in Strawberry for Controlling Aphid to Honeybees
Wu Shenggan, Xu Jiyang, Rao Huixian, Liu Xinju, An Xuehua, Lv Lu, Guan Wenbi, Zhao Xueping
- 228 The Toxicity of Three Pesticides of Mefenoxam, Thiamethoxam, Fludioxonil and Their Compounds to *Coturnix coturnix japonica*
Yang Songlin, Yin Jing, Hao Weiyu, Wang Huili, Guo Baoyuan
- 233 The Toxicity of Three Pesticides of Mefenoxam, Fludioxonil, Azoxystrobin and Their Compounds to *Brachydanio rerio*
Qu Weigang, Yang Songlin, Wang Huili, Guo Baoyuan
- 238 The Toxicity of Three Pesticides of Mefenoxam, Fludioxonil, Azoxystrobin and Their Compounds to *Daphnia magna* Straus
Yang Songlin, Yin Jing, Wang Huili, Guo Baoyuan