

目 次

1 序言

王新红

综述

2 海洋酸化与重金属、有机污染物和人工纳米颗粒的联合毒性效应研究进展

王昊,赵信国,陈碧鹃,夏斌,孙雪梅,朱琳,曲克明

18 多环芳烃对海洋贝类多生物水平毒性效应的研究进展

张翼飞,曲梦杰,丁家玮,陈思雨,王忆,邱雅楠

30 水环境中的微塑料及其生态效应

陈彪,汪玲,李达,胡小丽,薛春叶,高坤,邓祥元

41 海洋生物体内砷含量及其形态研究进展

张伟,黄良氏

54 砷在海洋食物链中的生物放大潜力及发生机制探讨

杜森,张黎

67 ^{137}Cs 在我国滨海核电周边海洋生物的富集及生态风险研究

纪建达,于涛

75 海洋硅藻细胞表面物理化学特性对镉累积的影响

马捷,陈丰源,周贝贝,段丹丹,韦阳,潘科

专论

83 2种烷基多环芳烃对仿刺参 *CYP450* 和 *p53* 基因表达的影响研究

李香,魏海峰,刘长发,宋雪,赵肖依,赵雨朦,夏宁,霍玉洁

90 单壁碳纳米管对太平洋牡蛎(*Crassostrea gigas*)的毒性效应及生物体防御机制研究

杨占宁,丁光辉,于源志,李西山,张楠楠,李瑞娟,张晶,崔福旭

99 重金属和聚苯乙烯微球对卤虫的复合毒性效应研究

张明兴,王莹,王立军,张微微,王菊英

106 镉对单环刺螠非特异性免疫及组织蓄积的影响

朱晓莹,甘宏涛,孟霄,姚海洋,徐国成,徐加涛,刘统昊,曹黎鑫,许星鸿

116 Cu 和 Pb 对赤潮异弯藻(*Heterosigma akashiwo*)生长的影响

邓紫云,陈清香

128 鲍鱼对2种多环芳烃的富集动力学研究

魏海峰,赵肖依,王闯,刘潘,刘长发,黄欣,霍玉洁,赵雨朦,夏宁

135 溢油污染物在栉孔扇贝不同组织的富集特异性及生物放大效应的初步研究

景玉婷,李志林,张传松,石晓勇,张海波

144 双酚 A 诱导下双齿围沙蚕实时荧光定量 PCR 内参基因的筛选

薛圣伦,黄艺,孙嘉,杨大佐,周一兵,赵欢

- 153 亚硝态氮胁迫下菲律宾蛤仔实时定量 PCR 内参基因的筛选
王爱云,曹滕飞,吕家森,丛明
- 161 4 种多环芳烃对仿刺参(*Apostichopus japonicus*)原肠胚发育的急性毒性研究
董雪纯,魏海峰,刘长发
- 168 鱼外渔场海洋生物体内重金属和多环芳烃含量水平与食用风险评价
彭菲,尹杰,王茜,倪天皓,林军,李娟英
- 180 渤海北部典型芳香烃类化合物污染状况及生态风险评价
吴金浩,王莹,张玉凤,王摆,宋伦,王志松
- 189 危险化学品泄漏入海区域风险评估方法研究
武江越,王斌,任翔宇,周荃,谢恬,陈新平,林雨霏
- 199 γ 射线外照射对大黄鱼幼鱼生长的影响
杨青川,纪建达,王蕾,于涛

CONTENTS

- 1 Preface
Wang Xinhong
- 2 Research Progress on Toxic Effects of Ocean Acidification Combined with Heavy Metals, Organic Pollutants and Engineered Nanoparticles
Wang Hao, Zhao Xinguo, Chen Bijuan, Xia Bin, Sun Xuemei, Zhu Lin, Qu Keming
- 18 Ecotoxicology: A Review of Multi-Toxicity in Marine Bivalve Induced by Polycyclic Aromatic Hydrocarbons
Zhang Yifei, Qu Mengjie, Ding Jiawei, Chen Siyu, Wang Yi, Di Yanan
- 30 Microplastics in Water Environment and Their Ecological Effects
Chen Biao, Wang Ling, Li Da, Hu Xiaoli, Xue Chunye, Gao Kun, Deng Xiangyuan
- 41 Advances of Arsenic Contents and Different Species in Marine Organisms
Zhang Wei, Huang Liangmin
- 54 Biomagnification Potential and the Mechanisms of Arsenic in Marine Food Chains
Du Sen, Zhang Li
- 67 Enrichment and Ecological Risk of Cesium-137 in Marine Organisms in the Waters Adjacent to Coastal Nuclear Power Stations in China
Ji Jianda, Yu Tao
- 75 The Effects of Surface Physicochemical Properties on Cadmium Accumulation in Marine Diatoms
Ma Jie, Chen Fengyuan, Zhou Beibei, Duan Dandan, Wei Yang, Pan Ke
- 83 Effects of 2 Kinds of alkyl-PAHs on the Expression of *CYP450* and *p53* Genes of *Apostichopus japonicus*
Li Xiang, Wei Haifeng, Liu Changfa, Song Xue, Zhao Xiaoyi, Zhao Yumeng, Xia Ning, Huo Yujie
- 90 Study on Toxicity of Single-Walled Carbon Nanotubes (SWCNTs) to Pacific Oyster (*Crassostrea gigas*) and the Defense Mechanism Involved
Yang Zhanning, Ding Guanghui, Yu Yuanzhi, Li Xishan, Zhang Nannan, Li Ruijuan, Zhang Jing, Cui Fuxu
- 99 Combined Toxicity of Polystyrene Microplastics and Heavy Metals to Brine Shrimp (*Artemia parthenogenetica*)
Zhang Mingxing, Wang Ying, Wang Lijun, Zhang Weiwei, Wang Juying
- 106 Effects of Cadmium on Non-specific Immunity and Bioaccumulation of *Urechis unicinctus*
Zhu Xiaoying, Gan Hongtao, Meng Xiao, Yao Haiyang, Xu Guocheng, Xu Jiatao, Liu Tonghao, Cao Lixin, Xu Xinghong
- 116 Effects of Cu and Pb on the Growth of Alga, *Heterosigma akashiwo*
Deng Ziyun, Chen Qingxiang
- 128 Enrichment Kinetics of Two Kinds of Polycyclic Aromatic Hydrocarbons in Abalone *Haliotis discus hannai*
Wei Haifeng, Zhao Xiaoyi, Wang Chuang, Liu Pan, Liu Changfa, Huang Xin, Huo Yujie, Zhao Yumeng, Xia Ning
- 135 Preliminary Study on Biological Amplification Effect and the Enrichment Specificity of Oil-spill Pollutants in Different Tissues of *Chlamys farreri*
Jing Yuting, Li Zhilin, Zhang Chuansong, Shi Xiaoyong, Zhang Haibo
- 144 Reference Gene Selection for Quantitative Real-Time PCR in *Perinereis aibuhitensis* under BPA Exposure
Xue Shenglun, Huang Yi, Sun Jia, Yang Dazuo, Zhou Yibing, Zhao Huan

- 153 Selection of Reference Genes by Quantitative Real-Time PCR for *Ruditapes philippinarum* Exposed to Nitrite
Wang Aiyun, Cao Tengfei, Lv Jiasen, Cong Ming
- 161 Acute Toxicity of Four Polycyclic Aromatic Hydrocarbons to the Development of *Apostichopus japonicus* Gastrointestinal Embryo
Dong Xuechun, Wei Haifeng, Liu Changfa
- 168 Occurrence and Risk Assessment of Heavy Metals and Polycyclic Aromatic Hydrocarbons in Marine Organisms from Yuwai Fishing Ground
Peng Fei, Yin Jie, Wang Qian, Ni Tianhao, Lin Jun, Li Juanying
- 180 Pollution and Ecological Risk Assessment of Typical Aromatic Hydrocarbons in Northern Bohai Sea
Wu Jinhao, Wang Ying, Zhang Yufeng, Wang Bai, Song Lun, Wang Zhisong
- 189 Study on Risk Assessment Methods of Hazardous Chemicals Leak into Seas
Wu Jiangyue, Wang Bin, Ren Xiangyu, Zhou Quan, Xie Tian, Chen Xinping, Lin Yufei
- 199 Effect of γ -Ray External Irradiation on the Growth of Juvenile *Pseudosciaena crocea*
Yang Qingchuan, Ji Jianda, Wang Lei, Yu Tao