

CHINESE JOURNAL OF
APPLIED ENTOMOLOGY

双月刊

2

应用昆虫学报

全国中文核心期刊 / 全国科技核心期刊

2021



ISSN 2095-1353



中国科学院动物研究所 主办
中国昆虫学会

应用昆虫学报 (YINGYONG KUNCHONG XUEBAO)

第 58 卷 第 2 期 Chinese Journal of Applied Entomology 2021 年 3 月 26 日

目次

前沿与综述

245 丝氨酸蛋白酶抑制剂 Serpins 对昆虫免疫调控作用的研究进展

周诗敏 谷启娟 黄健华 时敏 陈学新

256 昆虫快速冷耐受的研究进展

张小香 JUNAID Iqbal 杜予州

265 共生菌与昆虫抗药性

王争艳 王文芳 鲁玉杰

277 熊蜂主要病虫害的发生和危害现状

张广硕 丁桂玲 安建东

研究论文

289 泽兰实蝇雌雄成虫转录组及差异分析

高平 李丽芳 兰明先 李梦月 廖贤斌 吴国星
高熹

300 甜菜夜蛾围食膜的蛋白质组鉴定

梁振普 李鹏娟 王亮 王朝兴 张小霞

309 中华蜜蜂气味受体基因 *AcerOR58* 的序列与时空表达分析

彭竹 黄丽 王雷 赵慧婷

318 光处理下粘虫头部组织定量 PCR 分析中内参基因的筛选

段云 巩中军 吴仁海 吴潇博 苗进 李彤
蒋月丽 武予清

326 云斑白条天牛雌雄成虫四个线粒体基因的序列比较

梅增霞 李建庆

335 玉米叶蝉缨翅小蜂 *Anagrus dmitrievi* (膜翅目, 缨翅小蜂科) DNA 条形码研究

努日耶·木合太尔 陈光辉 彭杰 高滨 张晓东
席欧彦 朱丽得孜·艾山 胡红英

347 北京白羊沟景区农林交错带蛾类 DNA 条形码鉴定

武宇鹏 范仁俊 曹天文 武春生

364 爪哇棒束孢侵染美国白蛾过程及抗氧化酶活性变化

葛喆昊 王文秀 董广平 潘宏阳 陈凤毛

371 茄无网蚜几种酶对溴氰菊酯与高温胁迫的应答

张文霖 韩岚岚 赵奎军 肖建飞 陈娟 高丽瞳
朱琳 高云雷 金明国

378 虫瘿挥发物对枸杞红瘿蚊拟长尾小蜂寄主选择的影响

朱秀 刘赛 徐常青 汪祥 郭昆 徐荣
乔海莉 陈君

390 不同西瓜品种对截形叶螨生长发育和繁殖的影响

邱晔 杨润 陆明星 龚伟荣 胡婕 杜予州

398 双委夜蛾成虫主要活动节律和卵孵化节律

董少奇 田彩虹 郭线茹 袁星星 汤金荣 王鑫辉
赵曼

408 普通草蛉幼虫对麦二叉蚜和麦长管蚜的捕食功能反应与搜寻效应

白微微 高海峰 张航 杨安沛 阿克旦·吾外士
丁瑞丰 李广阔

415 抗虫和感虫大豆混播对产量及害虫种群发生和昆虫群落多样性影响

沈方圆 张逸飞 高凡淇 肖子衿 李立坤 陈法军

425 川硬皮肿腿蜂携带松墨天牛致病菌的研究

杨春平 陶园媛 向茂裕 杨伟 杨桦

437 产卵基质模式和性比对白星花金龟生殖力的影响

张广杰 徐韬 杨柳 马德英 刘玉升

445 栖北散白蚁致病菌的分离鉴定与特性研究

吕笑同 刘仁怡 梁仕壮 倪金凤

453 六星黑点豹蠹蛾性信息素活性成分的提取和初步鉴定

刘红霞 荆小院 郑海霞 杨美红 张金桐 朱卫华
刘金龙

461 大豆田间节肢动物群落调查取样方法的比较研究

李悦铭 高宇 吴磊 苗雨 许喆 史树森

技术与方法

472 稻纵卷叶螟的人工饲养技术

徐红星 钱佳宁 王国荣 吕仲贤 杨亚军

封面照片: 鳞纹肖蛸 *Tetragnatha squamata* Karsch -----张润志 摄, 文 (276)



Contents

Vol. 58 No. 2 March 26, 2021

Frontiers and Reviews

- 245 **Advances in research on serine protease inhibitors (Serpins) and their role in regulating insect immune systems**
ZHOU Shi-Min, GU Qi-Juan, HUANG Jian-Hua, SHI Min, CHEN Xue-Xin
- 256 **Advances in research on the rapid cold hardening of insects**
ZHANG Xiao-Xiang, JUNAID Iqbal, DU Yu-Zhou
- 265 **Symbiotic microbiota and insecticide resistance in insects**
WANG Zheng-Yan, WANG Wen-Fang, LU Yu-Jie
- 277 **Occurrence and current status of the main pathogens and parasites of bumblebees**
ZHANG Guang-Shuo, DING Gui-Ling, AN Jian-Dong

Research Articles

- 289 **Transcriptome and differential analysis of adult male and female *Procecidochares utilis* Stone**
GAO Ping, LI Li-Fang, LAN Ming-Xian, LI Meng-Yue, LIAO Xian-Bin, WU Guo-Xing, GAO Xi
- 300 **Identification of the peritrophic membrane proteome of *Spodoptera exigua***
LIANG Zhen-Pu, LI Peng-Juan, WANG Liang, WANG Zhao-Xing, ZHANG Xiao-Xia
- 309 **Sequencing and temporo-spatial expression of the Chinese honeybee, *Apis cerana cerana*, odorant receptor gene *AcerOR58***
PENG Zhu, HUANG Li, WANG Lei, ZHAO Hui-Ting
- 318 **Identification of reference genes in the heads of *Mythimna separata* with real-time quantitative PCR under different light sources**
DUAN Yun, GONG Zhong-Jun, WU Ren-Hai, WU Xiao-Bo, MIAO Jin, LI Tong, JIANG Yue-Li, WU Yu-Qing
- 326 **Differences in four mitochondrial genes in male and female *Batocera lineolate***
MEI Zeng-Xia, LI Jian-Qing
- 335 **DNA barcoding of *Anagrus dmitrievi* (Hymenoptera, Mymaridae)**
Nuriye Muhetaier, CHEN Guang-Hui, PENG Jie, GAO Bin, ZHANG Xiao-Dong, XI Ou-Yan, Julidezi Aishan, HU Hong-Ying
- 347 **Using DNA barcoding to classify moths in an agroforestry zone in Baiyanggou district, Beijing, China**
WU Yu-Peng, FAN Ren-Jun, CAO Tian-Wen, WU Chun-Sheng
- 364 **Infection of *Hyphantria cunea* with *Isaria javanica* and associated changes in antioxidant enzyme activity**
GE Zhe-Hao, WANG Wen-Xiu, DONG Guang-Ping, PAN Hong-Yang, CHEN Feng-Mao
- 371 **Responses of several enzymes in *Acyrtosiphon solani* (Kaltenbach) to deltamethrin and temperature stress**
ZHANG Wen-Lin, HAN Lan-Lan, ZHAO Kui-Jun, XIAO Jian-Fei, CHEN Juan, GAO Li-Tong, ZHU Lin, GAO Yun-Lei, JIN Ming-Guo
- 378 **Effect of volatiles emitted from galls induced by *Gephyraulax lycantha* on host selection by *Pseudotorymus jaapiellae***
ZHU Xiu, LIU Sai, XU Chang-Qing, WANG Xiang, GUO Kun, XU Rong, QIAO Hai-Li, CHEN Jun
- 390 **Effects of melon cultivars on the growth, development and reproduction of *Tetranychus truncatus* Ehara (Acarina: Tetranychidae)**
QIU Ye, YANG Run, LU Ming-Xing, GONG Wei-Rong, HU Jie, DU Yu-Zhou
- 398 **Adult activity and hatching rhythms of *Aethis dissimilis* (Lepidoptera, Noctuidae)**
DONG Shao-Qi, TIAN Cai-Hong, GUO Xian-Ru, YUAN Xing-Xing, TANG Jin-Rong, WANG Xin-Hui, ZHAO Man
- 408 **Predatory functional response and search efficiency of *Chrysoperla carnea* (Stephens) larvae with respect to the aphids *Schizaphis graminum* (Rondani) and *Sitobion avenae* (Fabricius)**
BAI Wei-Wei, GAO Hai-Feng, ZHANG Hang, YANG An-Pei, AH TAM-Uwais, DING Rui-Feng, LI Guang-Kuo
- 415 **Effects of sowing mixed crops of resistant and susceptible cultivars of soybean on crop yield, the population dynamics of key insect pests and insect community diversity**
SHEN Fang-Yuan, ZHANG Yi-Fei, GAO Fan-Qi, XIAO Zi-Jin, LI Li-Kun, CHEN Fa-Jun
- 425 **The potential for using *Scleroderma sichuanensis* as a vector for fungal pathogens of *Monochamus alternatus***
YANG Chun-Ping, TAO Yuan-Yuan, XIANG Mao-Rong, YANG Wei, YANG Hua
- 437 **Effects of oviposition substrate pattern and sex ratio on the fecundity of *Proteatia brevitarsis* (Coleoptera: Cetoniidae)**
ZHANG Guang-Jie, XU Tao, YANG Liu, MA De-Ying, LIU Yu-Sheng
- 445 **Isolation, identification and characterization of suspected pathogenic bacteria from lower termites**
LÜ Xiao-Tong, LIU Ren-Yi, LIANG Shi-Zhuang, NI Jin-Feng
- 453 **The extraction and identification of active components of the sex pheromones of *Zeuzera leuconotum* Butler (Lepidoptera: Cossidae)**
LIU Hong-Xia, JING Xiao-Yuan, ZHENG Hai-Xia, YANG Mei-Hong, ZHANG Jin-Tong, ZHU Wei-Hua, LIU Jin-Long
- 461 **Comparison of sampling methods for investigating arthropod communities in soybean fields**
LI Yue-Ming, GAO Yu, WU Lei, MIAO Yu, XU Zhe, SHI Shu-Sen

Techniques and Methods

- 472 **Progress in the artificial rearing of the leaf-folder, *Cnaphalocrocis medinalis***
XU Hong-Xing, QIAN Jia-Ning, WANG Guo-Rong, LÜ Zhong-Xian, YANG Ya-Jun

国内外公开发行 刊号: CN 11-6020/Q
ISSN 2095-1353

代号: 国外发行: BM-407
国内邮发: 2-151 定价: 138.00元

万方数据



Contents

Vol. 58 No. 2 March 26, 2021

Frontiers and Reviews

- 245 **Advances in research on serine protease inhibitors (Serpins) and their role in regulating insect immune systems**
ZHOU Shi-Min, GU Qi-Juan, HUANG Jian-Hua, SHI Min, CHEN Xue-Xin
- 256 **Advances in research on the rapid cold hardening of insects**
ZHANG Xiao-Xiang, JUNAID Iqbal, DU Yu-Zhou
- 265 **Symbiotic microbiota and insecticide resistance in insects**
WANG Zheng-Yan, WANG Wen-Fang, LU Yu-Jie
- 277 **Occurrence and current status of the main pathogens and parasites of bumblebees**
ZHANG Guang-Shuo, DING Gui-Ling, AN Jian-Dong

Research Articles

- 289 **Transcriptome and differential analysis of adult male and female *Procecidochares utilis* Stone**
GAO Ping, LI Li-Fang, LAN Ming-Xian, LI Meng-Yue, LIAO Xian-Bin, WU Guo-Xing, GAO Xi
- 300 **Identification of the peritrophic membrane proteome of *Spodoptera exigua***
LIANG Zhen-Pu, LI Peng-Juan, WANG Liang, WANG Zhao-Xing, ZHANG Xiao-Xia
- 309 **Sequencing and temporo-spatial expression of the Chinese honeybee, *Apis cerana cerana*, odorant receptor gene *AcerOR58***
PENG Zhu, HUANG Li, WANG Lei, ZHAO Hui-Ting
- 318 **Identification of reference genes in the heads of *Mythimna separata* with real-time quantitative PCR under different light sources**
DUAN Yun, GONG Zhong-Jun, WU Ren-Hai, WU Xiao-Bo, MIAO Jin, LI Tong, JIANG Yue-Li, WU Yu-Qing
- 326 **Differences in four mitochondrial genes in male and female *Batocera lineolate***
MEI Zeng-Xia, LI Jian-Qing
- 335 **DNA barcoding of *Anagrus dmitrievi* (Hymenoptera, Mymaridae)**
Nuriye Muhetaier, CHEN Guang-Hui, PENG Jie, GAO Bin, ZHANG Xiao-Dong, XI Ou-Yan, Julidezi Aishan, HU Hong-Ying
- 347 **Using DNA barcoding to classify moths in an agroforestry zone in Baiyanggou district, Beijing, China**
WU Yu-Peng, FAN Ren-Jun, CAO Tian-Wen, WU Chun-Sheng
- 364 **Infection of *Hyphantria cunea* with *Isaria javanica* and associated changes in antioxidant enzyme activity**
GE Zhe-Hao, WANG Wen-Xiu, DONG Guang-Ping, PAN Hong-Yang, CHEN Feng-Mao
- 371 **Responses of several enzymes in *Acyrtosiphon solani* (Kaltenbach) to deltamethrin and temperature stress**
ZHANG Wen-Lin, HAN Lan-Lan, ZHAO Kui-Jun, XIAO Jian-Fei, CHEN Juan, GAO Li-Tong, ZHU Lin, GAO Yun-Lei, JIN Ming-Guo
- 378 **Effect of volatiles emitted from galls induced by *Gephyraulus lycantha* on host selection by *Pseudotorymus jaapiellae***
ZHU Xiu, LIU Sai, XU Chang-Qing, WANG Xiang, GUO Kun, XU Rong, QIAO Hai-Li, CHEN Jun
- 390 **Effects of melon cultivars on the growth, development and reproduction of *Tetranychus truncatus* Ehara (Acarina: Tetranychidae)**
QIU Ye, YANG Run, LU Ming-Xing, GONG Wei-Rong, HU Jie, DU Yu-Zhou
- 398 **Adult activity and hatching rhythms of *Aethis dissimilis* (Lepidoptera, Noctuidae)**
DONG Shao-Qi, TIAN Cai-Hong, GUO Xian-Ru, YUAN Xing-Xing, TANG Jin-Rong, WANG Xin-Hui, ZHAO Man
- 408 **Predatory functional response and search efficiency of *Chrysoperla carnea* (Stephens) larvae with respect to the aphids *Schizaphis graminum* (Rondani) and *Sitobion avenae* (Fabricius)**
BAI Wei-Wei, GAO Hai-Feng, ZHANG Hang, YANG An-Pei, AH TAM-Uwais, DING Rui-Feng, LI Guang-Kuo
- 415 **Effects of sowing mixed crops of resistant and susceptible cultivars of soybean on crop yield, the population dynamics of key insect pests and insect community diversity**
SHEN Fang-Yuan, ZHANG Yi-Fei, GAO Fan-Qi, XIAO Zi-Jin, LI Li-Kun, CHEN Fa-Jun
- 425 **The potential for using *Scleroderma sichuanensis* as a vector for fungal pathogens of *Monochamus alternatus***
YANG Chun-Ping, TAO Yuan-Yuan, XIANG Mao-Rong, YANG Wei, YANG Hua
- 437 **Effects of oviposition substrate pattern and sex ratio on the fecundity of *Proteatia brevitarsis* (Coleoptera: Cetoniidae)**
ZHANG Guang-Jie, XU Tao, YANG Liu, MA De-Ying, LIU Yu-Sheng
- 445 **Isolation, identification and characterization of suspected pathogenic bacteria from lower termites**
LÜ Xiao-Tong, LIU Ren-Yi, LIANG Shi-Zhuang, NI Jin-Feng
- 453 **The extraction and identification of active components of the sex pheromones of *Zeuzera leuconotum* Butler (Lepidoptera: Cossidae)**
LIU Hong-Xia, JING Xiao-Yuan, ZHENG Hai-Xia, YANG Mei-Hong, ZHANG Jin-Tong, ZHU Wei-Hua, LIU Jin-Long
- 461 **Comparison of sampling methods for investigating arthropod communities in soybean fields**
LI Yue-Ming, GAO Yu, WU Lei, MIAO Yu, XU Zhe, SHI Shu-Sen

Techniques and Methods

- 472 **Progress in the artificial rearing of the leaf-folder, *Cnaphalocrocis medinalis***
XU Hong-Xing, QIAN Jia-Ning, WANG Guo-Rong, LÜ Zhong-Xian, YANG Ya-Jun

国内外公开发行 刊号: CN 11-6020/Q
ISSN 2095-1353

代号: 国外发行: BM-407
国内邮发: 2-151 定价: 138.00元

万方数据