

第55卷 | 第3期 | Vol.55 | No.3

CHINESE JOURNAL OF
APPLIED ENTOMOLOGY

Q K 1 8 3 8 5 0 4

3

双月刊

应用昆虫学报

全国中文核心期刊 / 全国科技核心期刊

2018



ISSN 2095-1353



9 772095 135189



万方数据

中国科学院动物研究所 / 中国昆虫学会 主办
福建农林大学植物保护学院 / 广东省生物资源应用研究所 协办

应用昆虫学报 (YINGYONG KUNCHONG XUEBAO)

第 55 卷 第 3 期 Chinese Journal of Applied Entomology 2018 年 5 月 26 日

目 次

前沿与综述

317 昆虫鞣化激素及其受体研究进展

弓慧琼 赵小明 郭东龙 马恩波 张建珍

水稻害虫专栏

329 云南勐海早稻白背飞虱种群动态及虫源地分析

田维连 李朝疆 吴 俨

338 云南稻区白背飞虱越冬种群发生及其与田间种群的相关性

赵雪晴 吴 俨 尹艳琼 李向永 谌爱东 吕建平
翟保平

349 二化螟谷胱甘肽-S-转移酶基因的鉴定与表达模式分析

金燕璐 张邦贤 林华峰

360 水稻挥发物对稻虱缨小蜂的引诱效果研究

李 婷 王成盼 蒋娜娜 尉吉乾 莫建初

368 抗虫、耐除草剂转基因水稻对非靶标害虫玉米蚜取食行为影响的评价

任少鹏 杨 帆 高明清 蒲德强 叶恭银 时 敏
陈学新

374 不同水稻品种对褐飞虱的抗性评价

胡新娣 杨静波 李湘民 魏洪义

382 中华稻蝗不同龄期的形态多样性研究

胡 鑫 潘晓丹 周斌灵 王奇美 陈佳航 王海瑞
白 义 唐亿意

393 染料标记对二化螟生长发育的影响

戴长庚 张昌容 李鸿波 胡 阳

研究论文

399 外源茉莉酸甲酯诱导的棉花防御对棉蚜及斜纹夜蛾发育的影响

马广民 刘守柱 杜学林 戴明勋 袁凤英 门兴元

407 取食不同食物的甜菜夜蛾幼虫感染核型多角体病毒后中肠组织的变化

郭 玲 王金彦 陈义娟 蒋杰贤

415 利用异地和往年的气象因子构建郴州地区烟田斜纹夜蛾的年发生动态预测模型

杨 湘 李小一 文礼章

428 内蒙古典型草原粪食性金龟的取食偏好和日活动节律特征

翟 娜 阿拉腾巴根 刘新民

438 双尾新小绥螨对五种寄主植物不同受害后挥发物的趋性

董 芳 张燕南 陈 静 张建萍

445 基于线粒体 16S rDNA 和 CO II 基因的三种高等白蚁分子鉴定与系统发育研究

肖元玺 楚君鹏 李 琪 赵鹏飞 席玉强 宋安东
苏丽娟

454 玉米象 *Sitophilus zeamais* DNA 条形码研究

陈光辉 李 炎 刘 东 李凤姐
阿依努尔·阿卜杜艾尼 胡红英

464 斑鳌素类衍生物对粘虫胃毒活性及解毒酶系的影响

席 娜 孙 红 孙文博 郑胜礼 张雅林

474 韭菜迟眼蕈蚊成虫对十三种有机肥的趋性研究

李晓莉 张利焕 曹 雪 庄乾营 于 毅 周仙红

481 小菜蛾对三氟甲吡醚的抗性风险评价与抗性生化机制研究

孙 杨 秦文婧 黄水金 秦厚国

489 不同剂量信息素缓释迷向剂防治苹小卷叶蛾的比较

涂洪涛 张金勇 张 蒙 陈汉杰

497 山楂叶蝉对螺螨脂的抗药性及对七种杀螨剂的交互抗性

封云涛 郭晓君 庾 琴 张润祥 张 苗 史高川
范仁俊

503 基于几何形态学方法的秦巴山区中华蜜蜂翅形态变异研究

邱立飞 魏朝明 王俊杰 刘红霞 赵白雪 张 或
廉振民

514 全国主产茶区茶树小绿叶蝉种类鉴定及分析

孟召娜 边 磊 罗宗秀 李兆群 辛肇军 蔡晓明

527 我国新发现一种入侵蚧虫——藤壶蜡蚧(半翅目: 蜇次目:
蚧科)

李 葛 王戌勃 武三安

533 首次截获中国未见分布种仙人掌粉蚧 *Pseudococcus
nakaharai* Gimpel & Miller(半翅目: 粉蚧科)的鉴定

李惠萍 刘艳俊 王 琳 张丽杰 陈 阵

技术与方法

540 基于神经网络的灯诱法预测马尾松毛虫发生量的研究

陈德兰

封面照片: 山茶象 *Curculio chinensis* (Chevrolat, 1878)----- 姜春燕 摄, 文 (337)



Contents

Vol. 55 No. 3

May 2018

Frontiers and Reviews

- 317 Progress in research on insect bursicon and its receptor

GONG Hui-Qiong, ZHAO Xiao-Ming, GUO Dong-Long, MA En-Bo,
ZHANG Jian-Zhen

Special Column

- 329 Population dynamics and source areas of the white-backed planthopper

Sogatella furcifera (Horváth) in Menghai, Yunnan province

TIAN Wei-Kui, LI Chao-Jiang, WU Yan

- 338 Characteristics of the overwintering population of the white-backed planthopper
and the correlation between the abundance of this population and that of the
summer population in Yunnan

ZHAO Xue-Qing, WU Yan, YIN Yan-Qiong, LI Xiang-Yong, Chen Ai-Dong,
LÜ Jian-Ping, ZHAI Bao-Ping

- 349 Identifying, and measuring the expression profiles, of *Chilo suppressalis*
glutathione-S-transferase genes

JIN Yan-Lu, ZHANG Bang-Xian, LIN Hua-Feng

- 360 Attractiveness of rice plant volatiles to *Anagrus nilaparvatae* Pang et Wang

LI Ting, WANG Cheng-Pan, JIANG Na-Na, WEI Ji-Qian, MO Jian-Chu

- 368 The effects of transgenic rice on the feeding behavior of the non-target aphid
Rhopalosiphum maidis (Fitch) (Homoptera: Aphididae)

REN Shao-Peng, YANG Fan, GAO Ming-Qing, PU De-Qiang, YE Gong-Yin,
SHI Min, CHEN Xue-Xin

- 374 Resistance of different rice varieties (lines) to the brown planthopper (*Nilaparvata*
lugens)

HU Xin-Di, YANG Jing-Bo, LI Xiang-Min, WEI Hong-Yi

- 382 Age-related morphological changes in *Oxya chinensis*

HU Xin, PAN Xiao-Dan, ZHOU Bin-Ling, WANG Qi-Mei, CHEN Jia-Hang,
WANG Hai-Rui, BAI Yi, TANG Yi-Yi

- 393 Effects of oil-soluble dyes on the growth and development of *Chilo suppressalis*
(Walker) (Lepidoptera: Cramidae)

DAI Chang-Geng, ZHANG Chang-Rong, LI Hong-Bo, HU Yang

Research Articles

- 399 Effect of exogenous MeJA treatment of cotton on the development of *Aphis*
gossypii (Hemiptera: Aphididae) and *Spodoptera litura* (Lepidoptera: Noctuidae)

MA Guang-Min, LIU Shou-Zhu, DU Xue-Lin, DAI Ming-Xun, YUAN Feng-Ying,
MEN Xing-Yuan

- 407 Effects of infection with the nucleopolyhedrovirus and diet on the midgut tissue
of *Spodoptera exigua* larvae

GUO Ling, WANG Jin-Yan, CHEN Yi-Juan, JIANG Jie-Xian

- 415 Using historical meteorological data from different sites to develop predictive
models of the annual occurrence dynamics of *Spodoptera litura* (Fabricius) in
tobacco fields

YANG Xiang, LI Xiao-Yi, WEN Li-Zhang

- 428 Feeding preferences and daily activity rhythms of dung beetles on the Inner
Mongolian steppe

ZHAI Na, Alatenbagen, LIU Xin-Min

- 438 Preferences of *Neoseiulus bicanthus* Wainstein for five host plants odours

DONG Fang, ZHANG Yan-Nan, CHEN Jing, ZHANG Jian-Ping

- 445 Molecular identification and phylogeny of three termite species (Isoptera:
Termitidae) based on the mitochondrial 16S rDNA and CO II genes

XIAO Yuan-Xi, CHU Jun-Peng, LI Yan, ZHAO Peng-Fei, XI Yu-Qiang,
SONG An-Dong, SU Li-Juan

- 454 DNA barcoding of *Sitophilus zeamais* (Motschulsky)

CHEN Guang-Hui, LI Yan, LIU Dong, LI Feng-Jie, AYNUR Abdigini,
HU Hong-Ying

- 464 The effect of cantharidin derivatives on the stomach poison activity to *Mythimna*
separata and its detoxification enzyme system

XI Na, SUN Hong, SUN Wen-Bo, ZHENG Sheng-Li, ZHANG Ya-Lin

- 474 Preferences of adult *Bradysia odoriphaga* Yang et Zhang for 13 kinds of organic
fertilizers

LI Xiao-Li, ZHANG Li-Huan, CAO Xue, ZHUANG Qian-Ying, YU Yi,
ZHOU Xian-Hong

- 481 Risk assessment and biochemical mechanisms responsible for resistance to
pyridalyl in the diamondback moth, *Plutella xylostella* (Linnaeus)

SUN Yang, QIN Wen-Jing, HUANG Shui-Jin, QIN Hou-Guo

- 489 Comparison of different dosages of sex pheromone for disrupting the mating of
Adoxophyes orana

TU Hong-Tao, ZHANG Jin-Yong, ZHANG Meng, CHEN Han-Jie

- 497 Selection of *Amphitetranychus viennensis* for resistance to spirodiclofen and
cross-resistance to seven other acaricides

FENG Yun-Tao, GUO Xiao-Jun, YU Qin, ZHANG Run-Xiang, ZHANG Miao,
SHI Gao-Chuan, FAN Ren-Jun

- 503 Geometric analysis of morphological variation in the wing of *Apis cerana cerana*
from the Qinling-Daba Mountain Areas

QIU Li-Fei, WEI Zhao-Ming, WANG Jun-Jie, LIU Hong-Xia, ZHAO Bai-Xue,
ZHANG Yu, LIAN Zhen-Min

- 514 Taxonomic revision and analysis of the green tea leafhopper species in China's
main tea production area

MENG Zhao-Na, BIAN Lei, LUO Zong-Xiu, LI Zhao-Qun, XIN Zhao-Jun,
CAI Xiao-Ming

- 527 *Ceroplastes cirripediformis* Comstock: a new invasive pest in China (Hemiptera:
Coccoidea)

LI Ge, WANG Xu-Bo, WU San-An

- 533 Morphological identification of a recently detected exotic scale insect in China:
Pseudococcus nakaharai Gimpel & Miller (Hemiptera:Pseudococcidae)

LI Hui-Ping, LIU Yan-Jun, WANG Lin, ZHANG Li-Jie, CHEN Zhen

Techniques and Methods

- 540 Using light traps to forecast the occurrence of *Dendrolimus punctatus* (Walker)

CHEN De-Lan



Contents

Vol. 55 No. 3

May 2018

Frontiers and Reviews

- 317 Progress in research on insect bursicon and its receptor

GONG Hui-Qiong, ZHAO Xiao-Ming, GUO Dong-Long, MA En-Bo,
ZHANG Jian-Zhen

Special Column

- 329 Population dynamics and source areas of the white-backed planthopper

Sogatella furcifera (Horváth) in Menghai, Yunnan province

TIAN Wei-Kui, LI Chao-Jiang, WU Yan

- 338 Characteristics of the overwintering population of the white-backed planthopper
and the correlation between the abundance of this population and that of the
summer population in Yunnan

ZHAO Xue-Qing, WU Yan, YIN Yan-Qiong, LI Xiang-Yong, Chen Ai-Dong,
LÜ Jian-Ping, ZHAI Bao-Ping

- 349 Identifying, and measuring the expression profiles, of *Chilo suppressalis*
glutathione-S-transferase genes

JIN Yan-Lu, ZHANG Bang-Xian, LIN Hua-Feng

- 360 Attractiveness of rice plant volatiles to *Anagrus nilaparvatae* Pang et Wang

LI Ting, WANG Cheng-Pan, JIANG Na-Na, WEI Ji-Qian, MO Jian-Chu

- 368 The effects of transgenic rice on the feeding behavior of the non-target aphid
Rhopalosiphum maidis (Fitch) (Homoptera: Aphididae)

REN Shao-Peng, YANG Fan, GAO Ming-Qing, PU De-Qiang, YE Gong-Yin,
SHI Min, CHEN Xue-Xin

- 374 Resistance of different rice varieties (lines) to the brown planthopper (*Nilaparvata*
lugens)

HU Xin-Di, YANG Jing-Bo, LI Xiang-Min, WEI Hong-Yi

- 382 Age-related morphological changes in *Oxya chinensis*

HU Xin, PAN Xiao-Dan, ZHOU Bin-Ling, WANG Qi-Mei, CHEN Jia-Hang,
WANG Hai-Rui, BAI Yi, TANG Yi-Yi

- 393 Effects of oil-soluble dyes on the growth and development of *Chilo suppressalis*
(Walker) (Lepidoptera: Cramidae)

DAI Chang-Geng, ZHANG Chang-Rong, LI Hong-Bo, HU Yang

Research Articles

- 399 Effect of exogenous MeJA treatment of cotton on the development of *Aphis*
gossypii (Hemiptera: Aphididae) and *Spodoptera litura* (Lepidoptera: Noctuidae)

MA Guang-Min, LIU Shou-Zhu, DU Xue-Lin, DAI Ming-Xun, YUAN Feng-Ying,
MEN Xing-Yuan

- 407 Effects of infection with the nucleopolyhedrovirus and diet on the midgut tissue
of *Spodoptera exigua* larvae

GUO Ling, WANG Jin-Yan, CHEN Yi-Juan, JIANG Jie-Xian

- 415 Using historical meteorological data from different sites to develop predictive
models of the annual occurrence dynamics of *Spodoptera litura* (Fabricius) in
tobacco fields

YANG Xiang, LI Xiao-Yi, WEN Li-Zhang

- 428 Feeding preferences and daily activity rhythms of dung beetles on the Inner
Mongolian steppe

ZHAI Na, Alatenbagen, LIU Xin-Min

- 438 Preferences of *Neoseiulus bicanthus* Wainstein for five host plants odours

DONG Fang, ZHANG Yan-Nan, CHEN Jing, ZHANG Jian-Ping

- 445 Molecular identification and phylogeny of three termite species (Isoptera:
Termitidae) based on the mitochondrial 16S rDNA and CO II genes

XIAO Yuan-Xi, CHU Jun-Peng, LI Yan, ZHAO Peng-Fei, XI Yu-Qiang,
SONG An-Dong, SU Li-Juan

- 454 DNA barcoding of *Sitophilus zeamais* (Motschulsky)

CHEN Guang-Hui, LI Yan, LIU Dong, LI Feng-Jie, AYNUR Abdigini,
HU Hong-Ying

- 464 The effect of cantharidin derivatives on the stomach poison activity to *Mythimna*
separata and its detoxification enzyme system

XI Na, SUN Hong, SUN Wen-Bo, ZHENG Sheng-Li, ZHANG Ya-Lin

- 474 Preferences of adult *Bradysia odoriphaga* Yang et Zhang for 13 kinds of organic
fertilizers

LI Xiao-Li, ZHANG Li-Huan, CAO Xue, ZHUANG Qian-Ying, YU Yi,
ZHOU Xian-Hong

- 481 Risk assessment and biochemical mechanisms responsible for resistance to
pyridalyl in the diamondback moth, *Plutella xylostella* (Linnaeus)

SUN Yang, QIN Wen-Jing, HUANG Shui-Jin, QIN Hou-Guo

- 489 Comparison of different dosages of sex pheromone for disrupting the mating of
Adoxophyes orana

TU Hong-Tao, ZHANG Jin-Yong, ZHANG Meng, CHEN Han-Jie

- 497 Selection of *Amphitetranychus viennensis* for resistance to spirodiclofen and
cross-resistance to seven other acaricides

FENG Yun-Tao, GUO Xiao-Jun, YU Qin, ZHANG Run-Xiang, ZHANG Miao,
SHI Gao-Chuan, FAN Ren-Jun

- 503 Geometric analysis of morphological variation in the wing of *Apis cerana cerana*
from the Qinling-Daba Mountain Areas

QIU Li-Fei, WEI Zhao-Ming, WANG Jun-Jie, LIU Hong-Xia, ZHAO Bai-Xue,
ZHANG Yu, LIAN Zhen-Min

- 514 Taxonomic revision and analysis of the green tea leafhopper species in China's
main tea production area

MENG Zhao-Na, BIAN Lei, LUO Zong-Xiu, LI Zhao-Qun, XIN Zhao-Jun,
CAI Xiao-Ming

- 527 *Ceroplastes cirripediformis* Comstock: a new invasive pest in China (Hemiptera:
Coccoidea)

LI Ge, WANG Xu-Bo, WU San-An

- 533 Morphological identification of a recently detected exotic scale insect in China:
Pseudococcus nakaharai Gimpel & Miller (Hemiptera:Pseudococcidae)

LI Hui-Ping, LIU Yan-Jun, WANG Lin, ZHANG Li-Jie, CHEN Zhen

Techniques and Methods

- 540 Using light traps to forecast the occurrence of *Dendrolimus punctatus* (Walker)

CHEN De-Lan