



中文核心期刊
中国科技核心期刊
中国科学引文数据库(CSCD)来源期刊
RCCSE中国核心学术期刊(A)
中国农林核心期刊

ISSN 2095-1191

CODEN NNXAAB

南方农业学报

Nanfang Nongye Xuebao

第52卷 第3期 2021年3月

Journal of Southern Agriculture

Vol.52 No.3 Mar. 2021

3
2021

广西壮族自治区农业科学院 主办
Sponsored by Guangxi Academy of Agricultural Sciences

科学出版社 出版
Published by Science Press



南方农业学报

Nanfang Nongye Xuebao

第52卷 第3期 2021年3月

目 次

优秀青年学者论坛

- 547 复合益生菌对超早期断奶杜藏乳仔猪肠道微生物群落结构的影响
..... 刘韶娜, 郭飞, 张斌, 相德才, 赵智勇, 赵素梅, 赵彦光

专题:草地贪夜蛾

- 559 草地贪夜蛾和斜纹夜蛾幼虫体内保护酶及解毒酶对2种杀虫剂的响应比较
..... 李浩, 陈亚平, 鲁智慧, 郭建洋, 李亚红, 朱林云, 和淑琪, 桂富荣
- 570 12种杀虫剂对草地贪夜蛾和霍氏嗜小蜂的选择毒力
..... 苏豪, 吕宝乾, 张宝琴, 卢辉, 唐继洪, 杨石有, 吴琦琦
- 578 2种昆虫病原真菌对草地贪夜蛾体表侵染模式的扫描电镜观察
..... 雷妍圆, 官昭瑛, Shoaib Freed, Syed Muhammad Zaka, Abid Hussin, 章玉革
- 589 施硅玉米对草地贪夜蛾的影响 洪鼎剀, 卞润恬, 库木克努尔, 高三基, 王锦达
- 596 性信息素诱捕对玉米草地贪夜蛾的田间控害效果
..... 张景欣, 钟国浩, 刘平平, 黄爱玲, 杨祁云, 何淑琼, 蒲小明, 沈会芳, 孙大元, 林壁润
- 603 广西玉米主要种植区草地贪夜蛾发生及为害情况调查
..... 覃武, 覃江梅, 韦敏学, 韦丽龙, 于永浩, 蔡晓燕, 陈红松
- 611 草地贪夜蛾在贵州省黔西南州的发生情况及对不同环境的适应性
..... 李定银, 郭晓关, 谈孝凤, 黄国全, 周丹, 郭军锐, 李思梅, 李定超, 王显贵, 徐元柳
- 619 玉米田草地贪夜蛾卵寄生蜂(黑卵蜂)的形态特征观察及分子生物学鉴定
..... 杜广祖, 胡永亮, 陈华燕, 王春娅, 史爱民, 陈斌
- 626 草地贪夜蛾性诱剂纳米诱芯的制备及其应用 陈秀琴, 刘其全, 何玉仙, 刘必炮, 邱良妙

专题:茶业科学

- 632 茶树ZF-HD转录因子基因家族的鉴定及表达分析 庞丹丹, 刘玉飞, 田易萍, 孙云南, 陈林波
- 641 茶树CsCYP79A1基因克隆及表达分析 何荟如, 林杰, 吴叶蝶, 潘泓静, 彭志松, 苏祝成
- 651 茶树CsMAPKK3基因克隆及表达分析 陆鲸冰, 杨润梅, 张飞扬, 曹红利
- 660 基于GBS测序的全基因组SNP揭示贵州地方茶组植物资源的亲缘关系
..... 郭灿, 皮发娟, 吴昌敏, 高秀兵, 乔大河, 周媛
- 671 贵州茶园茶棍蓟马和小贯小绿叶蝉种群动态及主栽茶树品种寄主抗性
..... 杨春, 孟泽洪, 李帅, 郭燕, 梁思慧, 乔大河, 陈正武
- 682 贵州省珍稀四球茶茶树和土壤的碳氮磷生态化学计量特征
..... 何季, 卢青, 吴传美, 杨谨铭, 黄春艳, 甘正刚, 姚斌

- 693 66份云南茶树种质生化成分的分析及特异种质筛选 刘玉飞, 庞丹丹, 蒋会兵, 田易萍, 李友勇, 孙云南, 陈林波
- 700 茶树种质资源花器官微形态特征观察 樊晓静, 于文涛, 蔡春平, 王泽涵, 林 涵, 张琛, 叶乃兴
- 711 不同覆盖处理对茶园小气候及碾茶品质的影响 刘瑜, 何卫中, 娄艳华, 疏再发, 吉庆勇, 邵静娜

生理生化·土壤肥料·农业生态环境

- 722 高产碱性纤维素酶细菌的筛选鉴定及其酶学特性与发酵条件研究 马振刚, 熊亮, 张真, 罗城
- 732 木薯间作玉米共生期间的作物生长及根系互作 刘丽娟, 魏云霞, 黄洁, 王娟, 肖子丽
- 743 辣椒秸秆生物质炭对喀斯特石灰土有机碳矿化的影响 熊佰炼, 黄俊, 申杰
- 753 不同改良剂对连作大黄产量及其土壤肥力的影响 段媛媛, 吴佳奇, 周武先, 唐涛, 王帆帆, 郭晓亮, 游景茂, 郭杰
- 762 秸秆还田条件下固氮蓝藻复合菌剂与促生细菌SM13对水稻产量及稻米品质的影响 宋维民, 王丽艳, 郭永霞, 孙强, 吕艳东, 荆瑞勇, 王海泽
- 769 伊朗鹰嘴豆种质资源农艺性状遗传多样性分析及综合评价 于海天, 杨峰, 吕梅媛, 胡朝芹, 杨新, 郑爱清, 王玉宝, 何玉华, 王丽萍
- 779 HS-SPME-GC-MS结合OPLS-DA分析提取方法对牛油果油挥发性香气化合物的影响 欧阳红军, 刘义军, 袁源, 静玮, 张利, 李积华
- 789 辣木幼苗对淹水胁迫的生理响应及耐涝性综合评价 任保兰, 耿建建, 吕亚, 原慧芳, 郑诚, 杨焱
- 797 蚕沙解磷菌株SEM-5的分离鉴定及其溶磷作用 李庆荣, 廖森泰, 邢东旭, 肖阳, 赵超艺, 杨琼

水产科学

- 806 石斑鱼虹彩病毒主要衣壳蛋白的表达及其生物学功能分析 肖贺贺, 徐凤巧, 刘明珠, 苏美珍, 余庆, 李梦梦, 李鹏飞
- 815 急性高温胁迫对翘嘴鳜幼鱼抗氧化酶和消化酶活性及热休克蛋白基因表达的影响 张晨光, 丁炜东, 曹哲明, 郑旭文, 徐畅, 李良
- 827 上海凡纳滨对虾源副溶血弧菌耐药性及其耐药基因检测分析 高晓华, 安伟, 张明辉
- 837 硫酸铜对不同规格短须裂腹鱼苗的急性毒性研究 李天才, 刘小帅, 刘明昌, 李亚松, 曾如奎, 杨东, 邓龙君, 甘维熊

本期执行编辑:罗丽

期刊基本参数:CN 45-1381/S*1940*m*A4*300*zh*P* ¥ 45.00*1000*32*2021-03

Journal of Southern Agriculture

Vol.52 No.3, 2021

Contents

Outstanding Young Scholars Forum

- 547 Effects of the probiotic combinations on intestinal microbiota in ultra-early weaned piglets of Duroc×Diqing Tibetan pig LIU Shao-na, GUO Fei, ZHANG Bin, XIANG De-cai, ZHAO Zhi-yong, ZHAO Su-mei, ZHAO Yan-guang

Special Subject : *Spodoptera frugiperda*

- 559 Response comparison of protective and detoxification enzymes in *Spodoptera frugiperda* (J. E. Smith) and *Spodoptera littoralis* (Fabricius) larvae to two insecticides LI Hao, CHEN Ya-ping, LU Zhi-hui, GUO Jian-yang, LI Ya-hong, ZHU Lin-yun, HE Shu-qi, GUI Fu-rong
- 570 Selective toxicity of twelve insecticides to *Spodoptera frugiperda* and *Tetrastichus howardi* (Olliff) SU Hao, LYU Bao-qian, ZHANG Bao-qin, LU Hui, TANG Ji-hong, YANG Shi-you, WU Qi-qi
- 578 Mode of infection on the cuticle of *Spodoptera frugiperda* (Lepidoptera: Noctuidae) by two entomopathogenic fungi species revealed by scanning electron microscopy LEI Yan-yuan, GUAN Zhao-ying, Shoaib Freed, Syed Muhammad Zaka, Abid Hussin, ZHANG Yu-ping
- 589 Effects of silicon application in corn on *Spodoptera frugiperda* (J. E. Smith) HONG Ding-kai, BIAN Ruan-tian, Kumukenuer, GAO San-ji, WANG Jin-da
- 596 Field control effect of sex pheromone trapping against *Spodoptera frugiperda* (J. E. Smith) in maize ZHANG Jing-xin, ZHONG Guo-hao, LIU Ping-ping, HUANG Ai-ling, YANG Qi-yun, HE Shu-qiong, PU Xiao-ming, SHEN Hui-fang, SUN Da-yuan, LIN Bi-run
- 603 Investigation on the occurrence and damage of *Spodoptera frugiperda* in the main maize production areas of Guangxi QIN Wu, QIN Jiang-mei, WEI Min-xue, WEI Li-long, YU Yong-hao, CAI Xiao-yan, CHEN Hong-song
- 611 Occurrence of *Spodoptera frugiperda* (J. E. Smith) and adaptability of its larvae to different environments in Southwest Guizhou Autonomous Prefecture, Guizhou Province LI Ding-yin, GUO Xiao-guan, TAN Xiao-feng, HUANG Guo-quan, ZHOU Dan, ZHI Jun-rui, LI Si-mei, LI Ding-chao, WANG Xian-gui, XU Yuan-liu
- 619 Morphological characteristics and molecular identification of egg parasitoids (*Telenomus remus* Nixon) of *Spodoptera frugiperda* Smith from maize field DU Guang-zu, HU Yong-liang, CHEN Hua-yan, WANG Chun-ya, SHI Ai-min, CHEN Bin
- 626 The preparation and application of nanoscale sex attractant lures against *Spodoptera frugiperda* CHEN Xiu-qin, LIU Qi-quan, HE Yu-xian, LIU Bi-pao, QIU Liang-miao

Special Subject : Tea Science

- 632 Identification and expression analysis of ZF-HD transcription factor gene family in *Camellia sinensis* PANG Dan-dan, LIU Yu-fei, TIAN Yi-ping, SUN Yun-nan, CHEN Lin-bo
- 641 Cloning and expression analysis of *CsCYP79A1* gene in tea plant HE Hui-ru, LIN Jie, WU Ye-die, PAN Hong-jing, PENG Zhi-song, SU Zhu-cheng
- 651 Cloning and expression analysis of *CsMAPKK3* gene in tea plant LU Jing-bing, YANG Run-mei, ZHANG Fei-yang, CAO Hong-li
- 660 Genome-wide SNP developed by genotyping-by-sequencing revealed the phylogenetic relationship of Sect. *Thea* (L.) Dyer resources in Guizhou GUO Can, PI Fa-juan, WU Chang-min, GAO Xiu-bing, QIAO Da-he, ZHOU Yuan
- 671 Population dynamics of *Dendrothrips minowai* Priesner and *Empoasca onukii* Matsuda and host resistance of major tea varieties in Guizhou YANG Chun, MENG Ze-hong, LI Shuai, GUO Yan, LIANG Si-hui, QIAO Da-he, CHEN Zheng-wu

- 682 Stoichiometric characteristics of plants and carbon, nitrogen and phosphorus in soils of precious tea species *Camellia te-tracocca* Zhang in Guizhou Province HE Ji, LU Qing, WU Chuan-mei, YANG Jin-ming, HUANG Chun-yan, GAN Zheng-gang, YAO Bin
- 693 Biochemical component analysis and specific resource selection of 66 accessions of tea germplasms in Yunnan LIU Yu-fei, PANG Dan-dan, JIANG Hui-bing, TIAN Yi-ping, LI You-yong, SUN Yun-nan, CHEN Lin-bo
- 700 Floral micromorphological trait of tea germplasm resources FAN Xiao-jing, YU Wen-tao, CAI Chun-ping, WANG Ze-han, LIN Yi, ZHANG Chen, YE Nai-xing
- 711 Effects of different shading treatments on microclimate of tea garden and the quality of flake tea LIU Yu, HE Wei-zhong, LOU Yan-hua, SHU Zai-fa, JI Qing-yong, SHAO Jing-na

Physiology & Biochemistry · Soil & Fertilizer · Agroecology Environmet

- 722 Screening and identification of a strain with high yield of alkaline cellulase and its enzyme characterizations and fermentation conditions MA Zhen-gang, XIONG Liang, ZHANG Zhen, LUO Jian
- 732 Growth and root interaction during symbiotic period when intercropping cassava with maize LIU Li-juan, WEI Yun-xia, HUANG Jie, WANG Juan, XIAO Zi-li
- 743 Effects of pepper straw biochar on karst limestone soil organic carbon mineralization XIONG Bai-lian, HUANG Jun, SHEN Jie
- 753 Effects of different amendments on the yield of *Rheum officinale* Baill. and rhizospheric soil fertility under continuous cropping system DUAN Yuan-yuan, WU Jia-qi, ZHOU Wu-xian, TANG Tao, WANG Fan-fan, GUO Xiao-liang, YOU Jing-mao, GUO Jie
- 762 Effects of nitrogen-fixing cyanobacteria complex microbial inoculant and growth-promoting bacteria SM13 on yield and quality of rice with straw turnover SONG Wei-min, WANG Li-yan, GUO Yong-xia, SUN Qiang, LYU Yan-dong, JING Rui-yong, WANG Hai-ze
- 769 Genetic diversity and comprehensive evaluation of agronomic traits of chickpea resources from Iran YU Hai-tian, YANG Feng, LYU Mei-yuan, HU Chao-qin, YANG Xin, ZHENG Ai-qing, WANG Yu-bao, HE Yu-hua, WANG Li-ping
- 779 HS-SPME-GC-MS coupled with OPLS-DA to analyze the effects of extraction methods on volatile aroma compounds of avocado oil OUYANG Hong-jun, LIU Yi-jun, YUAN Yuan, JING Wei, ZHANG Li, LI Ji-hua
- 789 Physiological response and tolerance evaluation to waterlogging in moringa at seedling stage REN Bao-lan, GENG Jian-jian, LYU Ya, YUAN Hui-fang, ZHENG Cheng, YANG Yan
- 797 Isolation and identification of phosphate-solubilizing strain SEM-5 from silkworm excrement and its phosphorus dissolution function LI Qing-rong, LIAO Sen-tai, XING Dong-xu, XIAO Yang, ZHAO Chao-yi, YANG Qiong

Fisheries Science

- 806 Expression and biological functional analysis of major capsid protein (MCP) of Singapore grouper iridovirus XIAO He-he, XU Feng-qiao, LIU Ming-zhu, SU Mei-zhen, YU Qing, LI Meng-meng, LI Peng-fei
- 815 Effects of acute high temperature stress on antioxidant enzymes activity, digestive enzymes activity and gene expression of heat shock proteins in mandarin fish (*Siniperca chuatsi*) ZHANG Chen-guang, DING Wei-dong, CAO Zhe-ming, BING Xu-wen, XU Chang, LI Liang
- 827 Resistance of *Litopenaeus vannamei* from Shanghai to *Vibrio parahaemolyticus* and detection and analysis of resistance genes GAO Xiao-hua, AN Wei, ZHANG Ming-hui
- 837 Acute toxicity of copper sulfate to the two specifications of *Schizothorax wangiachii* fry LI Tian-cai, LIU Xiao-shuai, LIU Ming-chang, LI Ya-song, ZENG Ru-kui, YANG Dong, DENG Long-jun, GAN Wei-xiong