

ACTA

ISSN 1000-7091
CODEN: HNUOAG

华北农学报



华北农学报

ACTA AGRICULTURAE BOREALI-SINICA

■ 中国精品科技期刊 ■ 中文核心期刊 ■ 中国科学引文数据库核心期刊 ■
■ 中国科技核心期刊 ■ 中国农林核心期刊 ■ RCCSE中国核心学术期刊 ■

二〇二一年 · 第三十六卷 · 增刊

华北农学报编辑部



学报官网



微信公众号

2021 第36卷 增刊
Vol.36 Supp.

华北农学报编辑部



目 次

作物遗传育种·种质资源·生物技术

大麻 CBDAS 基因家族成员的全基因组鉴定及表达分析
..... 潘 根,陶 杰,聂 荣,周 兵,黄思齐,陈安国,李建军,唐慧娟,李德芳,赵立宁(1)

基于 BSA-seq 技术挖掘芝麻株高相关候选基因 崔彦芹,郭元章,侯少锋,李思达,关中波,徐桂真(8)

upp 基因在解淀粉芽孢杆菌 C10 遗传改造中的应用 靳 芹,张慧莉,赵长乐,曹小洁,万银平,王 娜(16)

基于全基因组关联分析挖掘野生大豆蛋白含量 QTL
..... 高 倩,冯 燕,杨雅华,赵青松,雷雅坤,刘兵强,张孟臣,史晓蕾,杨春燕(23)

基于 SSR 标记构建燕山板栗核心种质 张馨方,张树航,李 颖,郭 燕,王广鹏(31)

豇豆耐盐种质资源鉴定 张红梅,许文静,陈华涛,陈景斌,刘晓庆,杨守萍,陈 新(39)

基于果实表型的核桃种质资源遗传多样性分析..... 于秋香,李 扬,李 颖,刘 警,刘金利,白仲奎(53)

酸性红壤区耐低钙花生种质资源的筛选 唐 康,曾宁波,张晚晴,张 昊,万书波,刘登望,李 林(62)

耕作栽培·生理生化

根施 γ -氨基丁酸对糯玉米生长、光合特性和抗氧化生理及产量的影响
..... 李 武,李春艳,李光玉,梁敏怡,李余良,文天祥,涂攀峰,刘建华(72)

微咸水灌溉对玉米秸秆有机复合基质番茄生长及品质特性的影响
..... 杨官凯,武育芳,曹行行,王晓东,张雪艳(81)

不同核背景对玉米 CMS-C 线粒体复合体活性的影响
..... 赵长云,张启明,石海春,余学杰,董 丽,夏 伟,柯永培(89)

干旱胁迫对不同玉米品种生长性状及产量的影响..... 崔 蓉,王天野,王呈玉,李锦秀,张欣宇,刘淑霞(94)

不同品种鲜食玉米体外抗氧化能力综合评价..... 卢柏山,董 会,史亚兴,赵久然,徐 丽,刘 辉,张翠芬(101)

花后渍水对小麦旗叶光合和籽粒灌浆特性及产量的影响
..... 周袁慧,马尚宇,王艳艳,黄正来,张文静,樊永惠,侯君佑,盖盼盼,单雅敬(111)

春季灌水次数对强筋小麦淀粉组分与理化特性的影响
..... 郭双双,姚艳荣,张 敏,李清瑶,付陈陈,徐东娜,史金平,蔡瑞国(118)

干旱锻炼对小麦幼苗期抗氧化特性的影响
..... 万雪洁,张 艳,师长海,周宣材,孙新灵,李松坚,张守福,刘义国(125)

播期对不同品种大麦饲草及籽粒产量和品质的影响..... 陈晓东,赵 斌,王 瑞,朱 斌,季昌好(130)

施钾量对甘薯贮藏期间腐烂率及细胞壁成分和降解酶活性的影响
..... 林力卓,吕尊富,钟子毓,张思梦,陆国权(136)

密度对甘蓝型矮秆油菜干物质及氮素积累分配的影响..... 严红梅,段秋宇,李虹桥,郭世星,吴永成(143)

甘蓝型油菜茎秆强度相关性状及其与农艺性状的相关分析 刘 洁,何红琼,牛应泽,郭世星(149)

梅乐葡萄叶片和果实矿质元素变化规律及相关性分析
..... 王小龙,邵学东,张正文,钟晓敏,王福成,史祥宾,王宝亮,王海波(155)

TSINGKE 保水剂对绿萝外部形态与生理指标的影响 陈翔宇,李彦华,刘志科(165)

不同浓度芸苔素对菜豆光合及花色苷合成的影响..... 卫旭阳,刘婷婷,翟锡姣,郑少文,邢国明(170)

1-MCP 和乙烯利对秋子梨采后生理及软化相关指标的影响 贾朝爽,王志华,王文辉,佟 伟(176)

药食同源植物活性物质对尿酸代谢调控及作用机理研究进展
..... 万方数据..... 宋向飞,雷雅坤,刘 宁,胡景辉,孙丽敏,李树仁(188)

药食同源花叶类植物对高尿酸血症的功效及机理研究进展

..... 宋向飞,雷雅坤,刘 宁,胡景辉,孙丽敏,李树仁(195)

植物中谷氧还蛋白研究进展 张 硕,王 硕,韩胜芳,王冬梅(202)

转录因子 TCP4 参与植物生长发育和抗逆调节研究进展 雷其冬,孙旭东,徐慧妮(210)

主要农作物多样化轮作制度研究进展及展望 郑孟静,李 岩,贾秀领(215)

资源环境·植物保护

基肥正位深施对直播水稻产量和化肥利用的影响

..... 董林林,沈明星,全竖宇,闻育琴,沈 园,陶玥玥,施林林,陆长婴(222)

高油酸花生干物质积累及氮磷钾养分的吸收利用 金欣欣,王 瑾,宋亚辉,程增书,李玉荣,苏 俏(231)

黄淮海玉米自交系氮利用效率相关性状分析 安洪周,高增玉,李魁英,和剑涵,武玉华,张全国(240)

不同覆盖处理对土壤酶活性和土壤养分的影响

..... 刘长源,焦凤丽,洪圣哲,孙池涛,张明明,张 凯,李全起(246)

强还原灭菌条件下添加橘皮对土壤性状与酶活性的影响 樊娅萍,陈芳玲,贺苗苗,王倡宪(253)

秸秆还田对热带土壤-水稻种植系统 N₂O 排放的影响

..... 张 鹏,吴佩聪,单 颖,邹刚华,丁哲利,钱永德,赵凤亮(260)

滨海盐渍棉田施用微生物菌肥的降盐效果及棉花长势响应

..... 王启尧,赵庚星,赵永昶,杨婧文,张术伟,李 涛,李建伟,潘 登,涂 强(267)

贵州新老两代糯高粱品种(系)产量和氮肥利用率的差异 高 杰,李晓荣,封广才,李青凤,彭 秋(275)

茶树/大豆间作体系氮素对茶叶品质成分及其土壤养分的影响

..... 李金婷,韦锦坚,韦持章,农玉琴,骆妍飞,陆金梅,廖春文,覃潇敏(282)

茶与大豆间作对土壤微生物群落代谢功能多样性的影响

..... 韦锦坚,覃潇敏,农玉琴,骆妍妃,陆金梅,陈远权,韦持章(289)

施氮量对稻茬弱筋小麦原粮品质及大曲品质的影响

..... 陈艳琦,刘 琼,边巴拉姆,陈松鹤,张 恒,李朝苏,杨洪坤,郑 亭,黄秀兰,樊高琼(297)

有机无机肥料配施对设施番茄产量及土壤养分含量的影响 宋雅欣,赵同科,安志装,马茂亭(306)

土壤调理剂对土壤理化性状及不结球白菜生理特性的影响

..... 赵泓凯,张潇屹,曾慧云,邓婧涵,陈晓峰,宋丽芬(312)

植物病毒在宿主内的拮抗效应及其分子机制 李亚囡,李学华,王广海,董 辉(320)

大豆新品系抗 SMV 鉴定及分析 王大刚,陈圣男,黄志平,李杰坤,吴 倩,胡国玉,王维虎,杨永庆(326)

角瓜与南方根结线虫非亲和互作相关 MicroRNAs 的鉴定 叶德友,漆永红,张化生(333)

油菜内生阿氏芽孢杆菌鉴定及其对铬(Ⅲ)处理反应性分析

..... 张传丽,李同祥,黄天姿,汤 薇,王春艳,孙会刚(341)

枯草芽孢杆菌 SX3411 羊毛硫细菌素 Subtilomycin 结构基因 *subA* 的原核中串联表达和抗体制备

..... 丰 磊,魏伟群,钟雪晴,付鸣佳,肖世平,叶德晓,黄紫妍(347)

盐胁迫条件下木霉菌肥对小麦抗病性和土壤酶活性的影响

..... 刘 畅,段京涛,张建夫,庞 丽,宋昊跃,陈发菊,何正权,张福丽(353)

畜牧·水产·兽医

牦牛 *CTGF* 基因克隆、蛋白功能及组织表达分析 陈 美,柴志欣,武志娟,王吉坤,钟金城,信金伟(361)

IGFBP-3 基因核苷酸变异与绵羊屠宰性状相关性分析 石丰运,朱广琴,廖云琼,王 兵(368)

荣昌猪、长白猪先天免疫候选基因筛选 龙 熙,赵久刚,柴 捷,潘红梅,张 亮,张廷焕(373)

不同盐度、碱度、pH 值对瓦氏雅罗鱼精子活力及其受精率的影响

..... 李 乾,梁利群,艾克达·热合曼,孙 博,张立民,董志国,常玉梅(381)

巨须裂腹鱼 5 种组织乳酸脱氢酶和苹果酸脱氢酶的电泳分析 张 涛,张 林,周剑光,甘金华,何 力(390)

CONTENTS

Crop Genetics & Breeding· Germplasm Resources· Biotechnology

Genome-Wide Identification and Expression Analysis of the CBDAS Cannabidiolic Acid Synthase Gene Family in *Cannabis sativa* L. PAN Gen et al(1)

Candidate Gene Detection for Sesame Plant Height Based on BSA-seq CUI Yanqin et al(8)

Application of *upp* Gene in Genetic Modification of *Bacillus amyloliquefaciens* C10 JIN Qin et al(16)

Detecting QTL Underlying Wild Soybean Protein Content Through Genome Wide Association Study
..... GAO Qian et al(23)

Construction of Core Collection of Yanshan Chestnut Germplasm Based on SSR Markers ZHANG Xinfang et al(31)

Identification of Salt Tolerance of Yardlong Bean Germplasm Accessions ZHANG Hongmei et al(39)

Analysis of Genetic Diversity of Walnut Germplasm Resources Based on Fruit Phenotype YU Qiuxiang et al(53)

Screening of Peanut Germplasm Resources Resistant to Low Calcium in Acid Red Soil Area TANG Kang et al(62)

Tillage & Cultivation· Physiology & Biochemistry

Effects of Root Application of γ -aminobutyric Acid on Plant Growth, Photosynthetic Characteristics, Antioxidant Physiology and Yield of Waxy Corn LI Wu et al(72)

Effects of Organic Compound Substrate from Corn Stalk on Tomato Growth and Fruit Quality under Brackish and Fresh Water Irrigation YNAG Guankai et al(81)

Effects of Different Nuclear Backgrounds on Mitochondrial Complex Activity of CMS-C in Maize
..... ZHAO Changyun et al(89)

Effects of Drought Stress on Growth Characters and Yield of Different Maize Varieties CUI Rong et al(94)

Comprehensive Evaluation of Antioxidant Capacity *in vitro* of Different Varieties of Fresh Corn LU Baishan et al(101)

Effect of Waterlogging Duration after Anthesis on Flag Leaf Photosynthesis, Grain Filling Characteristics and Yield of Wheat ZHOU Yuanhui et al(111)

Effect of Spring Irrigation Times on Starch Composition and Physicochemical Properties of Strong Gluten Wheat
..... GUO Shuangshuang et al(118)

Priming of Drought on the Antioxidant Characteristics of Wheat Seedlings WAN Xuejie et al(125)

Effects of Sowing Dates on the Yield and Quality of Forage and Grain among Different Barley Varieties
..... CHEN Xiaodong et al(130)

Effect of Potassium Application on Cell Wall Composition and Degrading Enzyme Activity of Sweetpotato During Storage
..... LIN Lizhuo et al(136)

Effect of Density on Dry Matter and Nitrogen Accumulation and Distribution of Dwarf Rape ... YAN Hongmei et al(143)

Correlation Analyses of Stalk Strength Related Traits and Agronomy Traits in *Brassica napus* L. LIU Jie et al(149)

Variation Laws and Correlation Analysis of Mineral Elements in Leaves and Fruits of Merlot Grape
..... WANG Xiaolong et al(155)

Effects of TSINGKE Water Retaining Agent on External Morphology and Physiological Indexes of *Epipremnum aureum*
..... CHEN Xiangyu et al(165)

Effects of Brassinolide at Different Concentrations on Photosynthesis and Anthocyanin Synthesis in Bean
..... WEI Xuyang et al(170)

Effect of 1-Methylcyclopropene and Ethephon on Physiological and Softening Related Indexes of *Pyrus ussuriensis*
During Storage JIA Chaoshuang et al(176)

Research Advances in Regulation and Mechanism of Active Substances from Food and Medicine Resources on Uric Acid Metabolism SONG Xiangfei et al(188)

Research Progress on the Effect and Mechanism of Medicinal and Food Homologous Flowers and Leaves on Hyperuricemia	SONG Xiangfei et al(195)
The Research Progress of Glutaredoxin in Plants	ZHANG Shuo et al(202)
Research Progress in Transcription Factor TCP4 Participating in Plant Growth, Development and Stress Resistance Regulation	LEI Qidong et al(210)
Research Progress and Perspective of Diversified Crop Rotation Systems in Main Crops	ZHENG Mengjing et al(215)
Resources & Environment· Plant Protection	
Deep Base Fertilizer Application Affects Direct Seeding Rice Yield and Fertilizer Utilization	DONG Linlin et al(222)
Dry Matter Accumulation and N,P,K Absorption and Utilization in High Oleic Acid Peanut	JIN Xinxin et al(231)
Analysis of Related Traits of Nitrogen Use Efficiency in Maize Inbred Lines of Huanghuaihai	AN Hongzhou et al(240)
Effects of Different Mulch Treatments on Soil Enzyme Activities and Soil Nutrients	LIU Changyuan et al(246)
Effects of Citrus Peels Addition on Soil Properties and Enzyme Activities under the Reductive Soil Disinfestation Conditions	FAN Yaping et al(253)
Effects of Straw Returning on N ₂ O Emission under Tropical Soil-rice Planting System	ZHANG Peng et al(260)
Effects of Microbial Fertilizer on Salt Reduction and Cotton Growth Response in Coastal Salted Cotton Field	WANG Qiyao et al(267)
Difference of Grain Yield and Nitrogen Recovery Efficiency Between New and Old Waxy Sorghum Cultivars (Lines) in Guizhou Province	GAO Jie et al(275)
Effects of Nitrogen Rates on Soil Nutrients and Tea Quality Components in Tea and Soybean Intercropping System	LI Jinting et al(282)
Effects of Tea and Soybean Intercropping on Metabolic Functional Diversity of Soil Microbial Community	WEI Jinjian et al(289)
Effects of Nitrogen Application Rate on Raw Grain Quality and Daqu Quality in Wheat-rice System	CHEN Yanqi et al(297)
Effects of Organic and Inorganic Fertilizers Combined Application on Yield and Soil Nutrient in Facility Tomatoes	SONG Yaxin et al(306)
The Effects of Soil Conditioner on the Soil Physicochemical Properties and Biological Characteristics of Non-Heading Chinese Cabbage	ZHAO Hongkai et al(312)
Antagonistic Interactions Between Plant Viruses within Host and Its Molecular Basis	LI Yanan et al(320)
Identification and Analysis of Soybean New Lines for Resistance to <i>Soybean mosaic virus</i>	WANG Dagang et al(326)
Identification of miRNAs Associated with Incompatible Interaction Between <i>Cucumis metuliferus</i> and <i>Meloidogyne incognita</i>	YE Deyou et al(333)
Identification and Reactivity Analysis to Cr (III) Treatment of <i>Bacillus aryabhatai</i> from <i>Brassica napus</i> L.	ZHANG Chuanli et al(341)
Prokaryotic Tandem Expression and Antibody Preparation of Subtilomycin Structural Gene <i>subA</i> from <i>Bacillus subtilis</i> SX3411	FENG Lei et al(347)
Effects of <i>Trichoderma</i> Fertilizer on Wheat Disease Resistance and Soil Enzyme Activity under Salt Stress	LIU Chang et al(353)
Animal Husbandry· Fisheries· Veterinarian	
Cloning, Protein Function and Tissue Expression Analysis of Yak <i>CTGF</i> Gene	CHEN Mei et al(361)
Correlation Analysis of <i>IGFBP-3</i> Gene Nucleotide Variation and Ovine Slaughter Traits	SHI Fengyun et al(368)
Screening of Innate Immune Candidate Genes in Rongchang Pigs and Landrace	LONG Xi et al(373)
Effects of Different Salinity, Alkalinity and pH Value on Sperm Motility and Fertilization Rate of Amur ide	LI Qian et al(381)
Electrophoretic Analysis on Lactate Dehydrogenase (LDH) and Malate Dehydrogenase (MDH) Isozymes in Five Different Tissues in <i>Thorax macropogon</i>	ZHANG Tao et al(390)