收錄引用報

SCI·EI·ESI INDEX DATABASE

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黑龍江八一農墾大學

图书馆 咨询服务部

目录

1 收录概况

为及时了解学校最新SCI、EI收录引用情况，图书馆推出信息参考《收录引用报》，呈现学校最新SCI、EI收录引用信息，收录内容为我校教师为第一作者和合著者被SCI、EI收录的文献信息。

《收录引用报》有关说明如下：

一、图书馆所提供信息全部来源于SCIE和EI数据库。

二、以机构“Heilongjiang Bayi Agricultural University”为检索条件，时间范围2025.02.20-2025.04.16。

三、本月报相关数据不保证100%的完整性，不做决策依据，仅做参考，如需了解详细情况，需做进一步查证、查询，请以官方网站信息为准。

2 SCI 收录情况

（2025.02.20-2025.04.16）

SCI 索引库共收录我校教师发表的 89 篇文献，图表后附录 89 篇文献详细题录信息。

RESEARCH FIELDS	研究领域	篇数
Optics	光学	1
Acoustics	声学	1
Agriculture	农业	23
Automation & Control System	自动化和控制系统	1
Biochemistry & Molecular Biology	生物化学与分子生物学	11
Biophysics	生物物理学	1
Biotechnology & Applied Microbiology	生物工程学和应用微生物学	2
Chemistry	化学	10
Construction & Building Technology	施工和建筑技术	2
Environmental Sciences& Ecology	环境科学与生态学	4
Fisheries	渔业	2
Food Science & Technology	食品科学与技术	7
Immunology	免疫学	3
Materials Science	材料科学	1
Mathematics	数学	1
Microbiology	微生物学	1
Parasitology	寄生物学	1
Plant Sciences	植物科学	8
Science & Technology - Other Topics	科技与技术-其他主题	2

Veterinary Sciences	**兽医学**	**6**
Virology	**病毒学**	**1**

表 1　我校 23 个研究领域发文篇数及详细题录信息

Optics

第 1 条

标题: Recognition and phenotypic detection of maize stem and leaf at seedling stage based on 3D reconstruction technique

作者: Guan, HO (Guan, Haiou); Zhang, XY (Zhang, Xueyan); Ma, XD (Ma, Xiaodan); Zhuo, ZY (Zhuo, Zuyu); Deng, HT (Deng, Haotian)

来源出版物: OPTICS AND LASER TECHNOLOGY 卷: 187 文献号: 112787
DOI: 10.1016/j.optlastec.2025.112787 **Early Access Date:** MAR 2025
Published Date: 2025 SEP

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摘要: As one of the major global food crops, rapid detection of seedling maize phenotypic traits is important for maize cultivation, management and variety selection. Due to the lack of a systematic approach for the morphologicalphysiological phenotypic profiling of maize growth stages, it is urgent to overcome the challenges of multi-view 3D reconstruction and phenotypic detection in seedling maize. In this paper, recognition and phenotypic detection of maize stem and leaf at seedling stage was proposed based on 3D reconstruction technology. First, a maize heterogeneous data collection system was constructed using three Kinect v2 sensors to acquire 810 sets of color images and depth data for the maize plant. Second, maize plant data were obtained through filtering, radius outlier removal, and Euclidean distance segmentation algorithms. Third, an improved random sample consensus - trimmed iterative closest point (RANSAC-TrICP) algorithm was employed for 3D registration of multi-view maize point clouds, achieving an average registration error of 0.0030. On this basis, a maize stem and leaf recognition method was established, which integrated eigenvalue decomposition and normal analysis techniques, achieving an accuracy of 0.9897. In addition, the density-based spatial clustering of applications with noise (DBSCAN) clustering algorithm was used to identify individual leaves, with an accuracy of 0.9516. Finally, 3D image processing and mathematical statistical algorithms were used to establish the plant height algorithm based on3D Euclidean distance, the leaf length algorithm based on fitting the single-leaf axis, the canopy width algorithm based on the external rectangle, and the stem thickness algorithm based on the least-squares method of fitting a circle. The results showed that the R2 values for plant height, canopy width, leaf length, and stem thickness, were 0.9723, 0.9788, 0.9796, and 0.9876, respectively, comparing the calculated values with the measured values. This method effectively addressed the challenges of high-throughput phenotypic detection technology in monitoring maize growth state, providing a quantitative basis for the scientific regulation of phenotypic traits in maize cultivation, management, and breeding.

入藏号: WOS:001448575700001

文献类型: Article

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研究方向: Optics; Physics

输出日期: 2025-04-16

Acoustics

第 1 条

标题: Passive velocity estimation of underwater targets based on the multitaper synchrosqueezing cross-spectrum

作者: Song, P (Song, P. F.); Zhao, A (Zhao, A. B.); Hui, J (Hui, J.); Guo, J (Guo, J. B.); Wang, K (Wang, K. R.)

来源出版物: JOURNAL OF SOUND AND VIBRATION 卷: 606 文献号: 119021
DOI: 10.1016/j.jsv.2025.119021 **Early Access Date:** MAR 2025
Published Date: 2025 JUN 23

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摘要: A new velocity estimation method for maneuvering targets using a single sensor in ocean waveguides is proposed. Unlike the conventional cross-spectrum method, the proposed velocity estimation method can perform non-uniform velocity estimation. First, a new cross-spectrum signal model in a non-uniform velocity state is derived. The derivation result shows that the cross-spectrum acoustic field possesses time-varying frequency characteristics in the non-uniform velocity state. Second, based on the time-varying characteristics of the cross-spectrum, the multitaper synchrosqueezing cross-spectrum (MSSTC-S) method is proposed to obtain the maximum velocity estimation accuracy. Finally, simulations and experiments verify the effectiveness of the proposed method, and the results show that it can estimate the target non-uniform velocity in real time with good estimation accuracy.

入藏号: WOS:001441849000001

文献类型: Article

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研究方向: Acoustics; Engineering; Mechanics

输出日期: 2025-04-16

Agriculture

第 1 条

标题: Effects of nitrogen application levels on soybean photosynthetic performance and yield: Insights from canopy nitrogen allocation studies

作者: Qiang, BB (Qiang, Binbin); Chen, SY (Chen, Suyu); Fan, Z (Fan, Zhen); Cao, L (Cao, Liang); Li, X (Li, Xin); Fu, CY (Fu, Chenye); Zhang, YX (Zhang, Yuxian); Jin, XJ (Jin, Xijun)

来源出版物: FIELD CROPS RESEARCH **卷:** 326 **文献号:** 109871
DOI: 10.1016/j.fcr.2025.109871 **Published Date:** 2025 MAY 1

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摘要: Context: Increasing photosynthetic nitrogen use efficiency(PNUE) at the canopy level can increase seed yield with reduced nitrogen inputs. An appropriate increase in nitrogen application can maximize canopy optimal nitrogen allocation and improve nitrogen use efficiency. Objective: The objectives of this study were to employ a plot comparison approach to study the vertical distribution of light and nitrogen attenuation in crop canopy, the variations in nitrogen allocation within the photosynthetic system, and the limiting factors of PNUE based on the soybean(Glycine max L.) leaves at different positions during the filling stage. Methods: A two-year field experiment was conducted in Heshan Farm, Heilongjiang Province(China), to evaluate the effects of two soybean varieties and four nitrogen applications. Results and conclusions: The results showed that an appropriate nitrogen increases photosynthetic rate(Pn) in the middle and lower leaves and slows down the aging process and chlorophyll degradation in the lower leaves. As the canopy height decreases, the limiting factors that restrict PNUE transition from carboxylation and electron transport system to light-harvesting and electron transport system. Increasing nitrogen applications can significantly improve PNUE in the lower leaves. Two years of soybean yield showed that the N1 averagely increased by 38.1 % for Jinyuan55 and N1.5 increased by 47.1 % for Keshan1 compared to N0. Nitrogen application significantly improves the allocation of photosynthetic nitrogen in the middle and upper leaf positions, promoting the hundred-grain weight in the middle and upper leaf positions. In summary,

optimized nitrogen allocation accounted for the improvement in canopy PNUE while maintaining a high grain yield.

入藏号: WOS:001456606700001

文献类型: Article

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研究方向: Agriculture

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第 2 条

标题: Prevalence and risk factors of Haemonchus contortus in small ruminants in China: A systematic review and meta-analysis

作者: Wei, W (Wei, Wei); Lan, Z (Lan, Zhuo); Li, ZY (Li, Zhengyi); Wang, R (Wang, Rui)

来源出版物: SMALL RUMINANT RESEARCH **卷:** 246 **文献号:** 107486
DOI: 10.1016/j.smallrumres.2025.107486 **Published Date:** 2025 MAY

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摘要: Haemonchosis, caused by Haemonchus contortus, is a major parasitic disease impacting ruminants, with serious consequences for animal health and ruminant production. Despite numerous studies on its prevalence, a comprehensive understanding of the disease in China is still lacking. To address this gap, we conducted a meta-analysis of studies examining H. contortus infection in sheep and goats across 17 provinces in China. A total of 52 studies were included, revealing an overall pooled prevalence of 72 %. The highest infection rate was observed in central China (71.31 %), with Henan and Liaoning provinces showing particularly high rates of 87.22 % and 85.57 %, respectively. Region, season, and climatic factors significantly influenced infection rates ($P < 0.05$), with free-ranging small ruminants and over 6 months of age being more susceptible. Additionally, the study emphasized that goats are more susceptible to infection than sheep, with infection rates rising after 2015. These findings highlight the widespread distribution of H. contortus in China and the urgent need for targeted control measures. Efforts should focus on improving management practices during the autumn season, implementing rotational grazing,

using anthelmintics judiciously, and ensuring adequate nutritional support to reduce infection risks and minimize small ruminants production losses, all of which are crucial for advancing the small ruminants industry and fostering broader socioeconomic development.

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研究方向: Agriculture

输出日期: 2025-04-16

第 3 条

标题: AMPKα alleviates the inhibitory effect of NEFA on the function of bovine follicular granulosa cells cultured in vitro

作者: Zhao, C (Zhao, Chang); Xu, RR (Xu, Ruru); Xin, SZ (Xin, Shuzhen); Jiang, BZ (Jiang, Benzheng); Feng, SB (Feng, Shibin); Wang, XC (Wang, Xichun); Xia, C (Xia, Cheng)

来源出版物: ANIMAL REPRODUCTION SCIENCE **卷:** 276 **文献号:** 107831
DOI: 10.1016/j.anireprosci.2025.107831 **Published Date:** 2025 MAY

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摘要: High levels of non-esterified fatty acids (NEFA) in cows with subclinical ketosis (SCK) impair postpartum follicular development and disrupt estrus. The precise mechanism through which NEFA impacts the functionality of bovine follicular cells remains elusive. An in vivo experiment was conducted to compare SCK cows without estrus (SCK-E, n = 6) with healthy cows in estrus (CE, n = 6). In the vitro test, bovine granulosa cells (GCs) were exposed to 0.4 mM NEFA. Notably, the SCK-E group exhibited an elevated ratio of phosphorylated adenosine 5'-monophosphateactivated protein kinase alpha (AMPK alpha) to total AMPK alpha in both liver and ovarian tissues, compared to the C-E group. NEFA treatment of GCs adversely affected

steroid hormone synthesis, suppressed the expression of cyclin and proteins crucial for steroid synthesis, and triggered cell apoptosis, thereby inhibiting cell proliferation. Furthermore, it led to a decline in cell mitochondrial membrane potential and an increase in reactive oxygen species production, ultimately causing cellular damage. Subsequently, GCs were co-cultured with adenovirus (ad-AMPK alpha-siRNA) and NEFA (0.4 mM). Inhibiting AMPK alpha further exacerbated the detrimental effects of NEFA on steroid hormone synthesis, cell apoptosis, cell proliferation, and mitochondrial function in GCs. Furthermore, upon inhibiting AMPK alpha, a reduction was observed in both mRNA and protein levels of acetyl-CoA carboxylase 1, accompanied by an elevation in the levels of carnitine palmitoyltransferase-1. These findings suggest that AMPK alpha becomes activated in SCK cows experiencing elevated NEFA levels, and that AMPK alpha has the potential to mitigate the detrimental effects of NEFA on GCs function in vitro.

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文献类型: Article

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研究方向: Agriculture; Reproductive Biology; Veterinary Sciences

输出日期: 2025-04-16

第 4 条

标题: Regreening mechanisms in cucumber: insights from a CsSIG2 mutation affecting chloroplast development

作者: Liu, HQ (Liu, Hanqiang); Huang, ZQ (Huang, Zeqiang); Wang, XY (Wang, Xinyue); Hu, KH (Hu, Kaihong); Jiang, QQ (Jiang, Qinqin); Chen, FF (Chen, Feifan); Ma, YX (Ma, Yuxuan); Cheng, ZH (Cheng, Zhihui); Pan, YP (Pan, Yupeng); Weng, YQ (Weng, Yiqun)

来源出版物: THEORETICAL AND APPLIED GENETICS **卷:** 138 **期:** 4
文献号: 82 **DOI:** 10.1007/s00122-025-04854-7 **Published Date:** 2025 APR

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摘要: Key messageCsSIG2 is essential for cucumber chloroplast development, and mutations in CsSIG2 reveal mechanisms that restore chloroplast functionality and

drive the regreening phenotype in the mutant.AbstractChloroplast development and leaf color are essential traits that significantly influence plant photosynthesis and overall vigor. This study investigates a natural mutation in the cucumber that leads to a virescent leaf-color (Csvl-6) phenotype characterized by an initial yellow color in cotyledons and young leaves, which gradually transition to green as the plant matures. We utilized bulked segregant analysis and genetic linkage mapping to locate the best candidate gene sigma factor 2 (CsSIG2) on chromosome 6, identifying a single nonsynonymous SNP resulting in an arginine to glycine substitution in the CsSIG2 protein. Comparative transcriptome analysis highlighted that this mutation disrupts early chloroplast biogenesis and delays chlorophyll accumulation, but the chloroplasts can recover, leading to greening during later stages of leaf development. Our findings reveal that the recovery phenomenon involves upregulation of chloroplast-encoded genes responsible for thylakoid membrane formation and photosystem function, alongside altered expression of transcription factors linked to chlorophyll metabolism. This study elucidates the genetic and molecular basis of chloroplast development in cucumber, providing valuable insights into the mechanisms underlying leaf greening, which could inform future breeding efforts focused on manipulating leaf color traits for enhanced crop performance.

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文献类型: Article

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研究方向: Agriculture; Plant Sciences; Genetics & Heredity

输出日期: 2025-04-16

第 5 条

标题: Genome-Wide Identification and Expression Analysis of the Trihelix Gene

Family in Common Bean (Phaseolus vulgaris L.) Under Salt and Drought Stress

作者: Zhang, WJ (Zhang, Wenjing); Cheng, Y (Cheng, Yan); Jian, LM (Jian, Lingmin); Wang, HD (Wang, Hongda); Li, HX (Li, Haoxin); Shen, ZH (Shen, Zihao); Ying, WY (Ying, Wenyu); Yin, ZG (Yin, Zhengong); Zhang, Q (Zhang, Qi); Du, JD (Du, Jidao)

来源出版物: JOURNAL OF AGRONOMY AND CROP SCIENCE **卷:** 211 **期:** 2
文献号: e70038 **DOI:** 10.1111/jac.70038 **Published Date:** 2025 APR

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摘要: Triple-helix transcription factors (GT factors) play a pivotal role in plant abiotic stress responses and growth and development. Named for their specific binding affinity to GT factors, they are clustered into five subgroups: GT-1, GT-2, GT-gamma, SIP1 and SH4. In Phaseolus vulgaris, 43 GT family members have been identified through reference genome analysis. PvGT members exhibit uneven genomic distribution, and members within the same subgroup share similar gene structures and motifs. Cis-acting element analysis indicates the involvement of PvGTs in hormonal signalling and abiotic stress regulation. Collinearity analysis revealed four pairs of homologous PvGTs. To investigate their expression patterns, nine PvGTs with high expression levels were selected for quantitative real-time PCR (qRT-PCR) analysis. Among these, PvGT02, PvGT28, PvGT30 and PvGT34 were significantly upregulated under salt and drought stress. Functional characterisation demonstrated that PvGT02 significantly enhanced yeast tolerance to salt and drought stresses. These findings collectively contribute to our understanding of the PvGT family evolution in common bean, providing a foundation for further exploration. Additionally, PvGT02 emerges as a potential candidate gene for breeding salt and drought tolerance.

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文献类型: Article

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研究方向: Agriculture

输出日期: 2025-04-16

第 6 条

标题: Modification of soluble dietary fiber from quinoa bran and investigation of its anticancer activity in vitro

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来源出版物: JOURNAL OF THE SCIENCE OF FOOD AND AGRICULTURE **DOI:** 10.1002/jsfa.14231 **Early Access Date:** MAR 2025 **Published Date:** 2025 MAR 24

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摘要: BACKGROUNDTo investigate the immunological and anticancer actions of quinoa bran soluble dietary fiber (SDF), this study used a simple approach to develop an SDF-zinc complex (SDF-Zn) to enhance the biological activity of SDF. SDF-Zn was co-cultured with NK cells to investigate its ability to activate NK cells. Then, its ability to induce apoptosis in HepG2 human hepatoma cells was investigated using cell proliferation, scratch wound healing assay, flow cytometry, real-time polymerase chain reaction and western blot. RESULTSThe results revealed that chelating SDF and zinc ions considerably increased the cytotoxicity of NK cells against HeLa cells (48.76% at 150 mu g mL-1) and significantly (P < 0.05) increased the levels of IFN-gamma, TNF-alpha, granzyme-B and NKp44. SDF-Zn was co-cultured with common human cancer cells including AGS, HeLa, HCT116 and HepG2, and the results revealed that SDF-Zn significantly (P < 0.05) inhibited HepG2 cell proliferation. The overproduction of reactive oxygen species increased the expression of apoptotic genes including Bax and caspase-3, and the number of dead cells reached 45.91%. The inhibitory effect of SDF-Zn on HepG2 cells occurred through the MAPK and NF-kappa B signaling pathways. CONCLUSIONOverall, the SDF-Zn complex has the potential to be used as a therapeutic agent for human liver cancer. (c) 2025 Society of Chemical Industry.

入藏号: WOS:001450409200001

文献类型: Article; Early Access

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研究方向: Agriculture; Chemistry; Food Science & Technology

输出日期: 2025-04-16

第 7 条

标题: Methionine-Based Sulfonium Lipid Mediates dsRNA for Gene Silencing in Pests

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来源出版物: JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY
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摘要: Effective gene carriers will promote the application of RNA interference (RNAi) technology in future pesticide development. This paper reports a group of novel methionine-based sulfonium lipid compounds (MSLs) and screens their gene delivery abilities in vitro and in vivo. Experiments showed that most MSLs could encapsulate nucleic acids into nanoparticles at an S/P ratio of 4:1, with nanoparticle sizes ranging from 124 to 216 nm and zeta potentials ranging from +27 to 40 mV, and could effectively protect nucleic acids from enzymatic degradation. MSLs successfully mediated the cellular uptake and transfection of nucleic acids in Kc cells and insects. Using dsRNA of CHT10 as the RNAi target, four MSLs were proven to mediate dsRNA interference in Drosophila melanogaster and Ostrinia furnacalis and achieved significant growth inhibition during larval development, eventually leading to pest death. The study demonstrates that MSLs are useful nanocarriers for the development of dsRNA pesticides.

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文献类型: Article

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研究方向: Agriculture; Chemistry; Food Science & Technology

输出日期: 2025-04-16

第 8 条

标题: The Cryoprotectant Effects of Safflower Polysaccharides on the Quality of Frozen-Thawed Boar Sperm

作者: Li, JC (Li, Jingchun); Dong, YY (Dong, Yingying); Wang, HC (Wang, Hechuan); Zhang, Q (Zhang, Qun); Guo, Q (Guo, Qing); Li, YB (Li, Yanbing)

来源出版物: ANIMALS 卷: 15 期: 6 文献号: 843 **DOI:** 10.3390/ani15060843
Published Date: 2025 MAR 15

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摘要: The low resistance of boar sperm to cryopreservation dictates that adding antioxidants and energetic substances to the diluent to improve sperm quality is necessary. This study is designed to assess the impact of various concentrations of safflower polysaccharides (SPSs; 0, 0.5, 1.0, 1.5, and 2.0 g/L) on the quality of boar sperm following freezing and thawing. The results of the study showed that the supplementation of 1.5 g/L SPS significantly enhanced the motility, average path velocity, straight-line velocity, curvilinear velocity, beat cross frequency, acrosome integrity, plasma membrane integrity, mitochondrial activity, and DNA integrity compared with the control group ($p < 0.05$). In addition, the supplementation of 1.5 g/L SPS significantly enhanced the total antioxidant capacity, superoxide dismutase activity, glutathione peroxidase activity, and catalase activity while significantly decreasing malondialdehyde and hydrogen peroxide content ($p < 0.05$). Therefore,

the supplement SPS has potentially positive implications for improving the quality of cryopreserved boar sperm, and the recommended concentration is 1.5 g/L SPS.

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研究方向: Agriculture; Veterinary Sciences; Zoology

输出日期: 2025-04-16

第 9 条

标题: A High Amount of Straw Pellets Returning Delays Maize Leaf Senescence, Improves Dry Matter Accumulation and Distribution, and Yield Increase in Northeast China

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来源出版物: AGRONOMY-BASEL **卷:** 15 **期:** 3 **文献号:** 711 **DOI:** 10.3390/agronomy15030711 **Published Date:** 2025 MAR 14

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摘要: Enhancing chlorophyll retention in maize leaves and prolonging the grain-filling duration constitute critical strategies for yield improvement in agricultural production systems. This study investigated the mechanistic relationship between yield enhancement pathways and the leaf senescence process induced by high-input straw pellets amendment. We analyzed the impact mechanisms of green leaf area dynamics and dry matter redistribution on yield during late reproductive stages, establishing theoretical foundations for yield optimization through intensive straw pellets incorporation. The study used the maize variety Jingnongke 728 as the experimental material. Based on previous research, four treatments were set up, including no straw returning (CK), chopped straw (15 t/ha) returning to the field (FS1), a large amount of chopped straw (75 t/ha) returning to the field (FS5), and a large amount of pelletized straw (75 t/ha) returning to the field (KL5), with four replicates. A two-year experimental design systematically assessed green leaf area index (GLAI), dry matter accumulation, distribution, translocation, yield components, and grain yield to explore the differences among various treatments under different straw returning amounts and

returning forms. The study detected no significant differences between FS1 and CK. Although KL5 and FS5 delayed leaf senescence, FS5 significantly depressed green leaf area index (GLAI) at the R1 stage (silking), which results in it not having more effective photosynthetic area during late phenological phases. In dry matter dynamics, KL5 exhibited 5.52-25.71% greater pre-anthesis accumulation, 2.73-60.74% higher post-anthesis accumulation, and 9.48-25.76% elevated ear dry matter allocation relative to other treatments. KL5's post-anthesis assimilates contributed 2.43-17.02% more to grain development, concurrently increasing ear-to-total biomass ratio. Yield analysis ranked KL5 as the superior treatment with 0.68-25.15% yield advantage, driven by significantly enhanced kernel number per ear and 100-kernel mass, whereas FS5 displayed the lowest kernel count among all treatments. Returning 75 t/ha of straw pellets to the black soil area in Northeast China can significantly delay the senescence of maize leaves and increase the accumulation of dry matter after anthesis by maintaining the effective photosynthetic area of leaves in the later stage of growth, thereby achieving the goal of increasing yield. The research can offer a practical and novel approach for straw return in the black soil region of Northeast China and provide a new technological pathway for enhancing crop productivity.

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文献类型: Article

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研究方向: Agriculture; Plant Sciences

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第 10 条

标题: The Impact of Agricultural Mechanisation on Agriculture Carbon Emission Intensity: Evidence from China

作者: Ma, SL (Ma, Shenglin); Yan, H (Yan, Han); Li, D (Li, Ding); Liu, HF (Liu, Huifang); Zeng, HJ (Zeng, Hongjun)

来源出版物: PAKISTAN JOURNAL OF AGRICULTURAL SCIENCES 卷: 6 2 期: 1 页: 99-110 **DOI:** 10.21162/PAKJAS/25.385 **Published Date:** 2025 MAR

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摘要: In the framework of the dual carbon objectives, agricultural mechanisation is a key factor in driving agricultural modernisation and promoting high-quality, green development within the sector. A thorough examination of how agricultural mechanisation influences agricultural carbon emission intensity can contribute to advancing China's agricultural sector along a green, low-carbon development path. This study, based on panel data from 30 provinces in China covering the period from 2004- 2023, employs panel fixed effects models, mediation effect models, and spatial econometric models to explore the effects of agricultural mechanisation on agricultural carbon emission intensity and its underlying mechanisms. The research also analyses the differences in influence across various agricultural economic advancement, regions, types of agricultural machinery (large, medium, and small), and whether the region is a major grain-producing area. The findings indicate that increased levels of agricultural mechanisation significantly reduced agricultural carbon emission intensity, with mechanisation also contributing to a decrease in emission density by improving the scale of land management. During the observation period, regions with lower agricultural economic advancement exhibited a suppressive effect on agricultural carbon emission strength. Regionally, the eastern provinces had a more pronounced effect on reducing carbon emission intensity. Small agricultural machinery showed potential in decreasing carbon emissions, while medium- and large-sized machinery contributed to increased emissions to some extent. In comparison to non-grain-producing regions, the spatial carbon reduction influence of agricultural mechanisation was more pronounced in major grain-producing regions. Based on these findings, this paper recommends that in agricultural carbon reduction efforts, emphasis should be placed on promoting eco-friendly agricultural machinery and technologies, driving green reforms and innovations in agricultural machinery, appropriately expanding the scale of land management, and selecting machinery based on local conditions to contribute to sustainable development.

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研究方向: Agriculture

输出日期: 2025-04-16

第 11 条

标题: Detection and Counting Model of Soybean at the Flowering and Podding Stage in the Field Based on Improved YOLOv5

作者: Yue, YH (Yue, Yaohua); Zhang, W (Zhang, Wei)

来源出版物: AGRICULTURE-BASEL 卷: 15 期: 5 文献号: 528
DOI: 10.3390/agriculture15050528 **Published Date:** 2025 MAR

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摘要: A phenotype survey on soybean flower and pod drop conducted by agricultural experts revealed issues such as poor real-time performance and strong subjectivity. Based on the YOLOv5 detection model, a microscale detection layer is added and the size of the initial anchor box is improved to enhance feature expression ability. The CBAM attention mechanism is introduced in the backbone network to capture the information of direction and position, which helps the model to locate and recognize more accurately. The test results show that the accuracy rate of the soybean flower and pod recognition model reaches 98.4%, and the recall rate reaches 97.4%. Compared with the original network model, the accuracy rate and recall rate increase by 12.8% and 4.1%, respectively. Compared with manual counting, the average accuracy rate of field flower number is 80.32%, and the average accuracy rate of pod number is 82.17%. The research results show that models can effectively replace manual labor to complete the task of field soybean flower and pod identification and counting, and this application will promote the study of the basic laws of flower and pod fall and provide phenotypic investigation techniques.

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研究方向: Agriculture

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第 12 条

标题: Eco-friendly controlled-release antifungal mulch films with carbendazim-loaded halloysite nanotubes

作者: Li, J (Li, Juan); Zhang, ZT (Zhang, Zitong); Zhang, Y (Zhang, Yuan); Zhang, DJ (Zhang, Dongjie)

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摘要: Carbendazim (CBZ) is a highly effective benzimidazole fungicide; however, its excessive use poses significant risks to the environment and nontarget organisms. To mitigate this issue, in this study, we developed environmentally friendly antifungal mulch films that exhibited controlled CBZ release. The films were prepared using a tape-casting technique, incorporating 21.32 % CBZ-loaded halloysite nanotubes, ultramicrocrushed sorghum straw powder, corn starch, polyvinyl alcohol, and glycerol. This unique combination not only enhanced the environmental compatibility of the films but also leveraged the synergistic properties of the components. The resulting mulch films had excellent mechanical properties (maximum tensile load of 28.9 N) and barrier performance (water vapor transmission rate of 253.22 g/(m2 ⋅d)), fully complying with the Chinese standard for biodegradable agricultural mulch films (GB/T 35795-2017). Additionally, the films demonstrated remarkable antifungal efficacy and controlled-release behavior, following a first-order release model with a cumulative release rate of 81.43 % CBZ over 18 d. The novelty of this study lies in the integration of CBZ-loaded halloysite nanotubes with a biodegradable matrix to develop multifunctional mulch films that combine antifungal performance, environmental protection, and agricultural sustainability. The controlled release of CBZ reduces its loss and excess release in soil, addressing pollution concerns and minimizing environmental risks. Thus, this study provides insight into the design of advanced agricultural materials that align with global sustainable development goals.

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文献类型: Article

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研究方向: Agriculture

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第 13 条

标题: Molecular Observations on the Regulation of hIAPP Aggregation Process and Enhancement of Autophagy by the Short Peptide LPFYPN and Its Modified Peptides of Coix Seed Prolamins

作者: Zhang, S (Zhang, Shu); Sun, JR (Sun, Jingru); Yu, SB (Yu, Shibo); Fu, TX (Fu, Tianxin); Feng, YC (Feng, Yuchao); Li, ZJ (Li, Zhijiang); Zhang, DJ (Zhang, Dongjie); Wang, CY (Wang, Changyuan)

来源出版物: JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY 卷: 73 期: 8 页: 4659-4672 **DOI:** 10.1021/acs.jafc.4c12559 **Early Access Date:** FEB 2025 **Published Date:** 2025 FEB 14

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摘要: Inhibiting the fibrotic aggregation of the human islet amyloid polypeptide (hIAPP) and accelerating aggregate clearance are crucial factors in type II diabetes regulation. Autophagy plays a central role in hIAPP fibrotic degradation. We investigated how the coix seed prolamin-derived active peptide (LPFYPN, LP6) and its modifying peptides affect hIAPP aggregation and autophagic processes in induced rat insulinoma (INS-1) cells. Both LP6 and its modified peptides inhibited the fibrotic aggregation of hIAPP, an effect related to the binding site within the core region of hIAPP. Additionally, LP6 and the modified peptides reduced hIAPP-induced cytotoxicity, enhanced LC3-II/LC3-I, decreased p62 protein levels, and promoted autophagy by inhibiting the PI3K-Akt-mTOR signaling pathway, thereby upregulating ULK-1 and Beclin-1 expression. Finally, LP6 modified with selenium showed superior inhibition of hIAPP aggregation and cytotoxicity as well as regulation of autophagic flow. These findings emphasize the potential of LP6 and its modified peptides in regulating type II diabetes and other amyloid-related diseases and indicate that they could be further developed as novel functional food ingredients against type 2 diabetes mellitus (T2DM).

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研究方向: Agriculture; Chemistry; Food Science & Technology

输出日期: 2025-04-16

第 14 条

标题: Research on maize leaves surface action potential recognition method based on ResNet-18SE

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来源出版物: SMART AGRICULTURAL TECHNOLOGY **卷:** 10 **文献号:** 100819
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摘要: Plant action potentials are rapid changes in cellular electrical potentials, serving as critical indicators of plant physiological activity. This study introduces a novel maize leaf surface action potential recognition method by leveraging the ResNet-18SE model combined with Short-Time Fourier Transform (STFT) to convert onedimensional electrophysiological signals into two-dimensional time-frequency domain images. The dataset was enhanced using advanced techniques, including random cropping, transformations, and generative adversarial networks (GANs). The ResNet-18SE model, integrated with Squeeze-and-Excitation (SE) blocks, achieved superior classification accuracy (95.60%), precision (96.80%), and recall (98.90%), surpassing VGG16, ResNeXt, SqueezeNet, and AlexNet. These results highlight the robustness and efficiency of combining deep learning with frequency-domain analysis in plant electrophysiological signal processing, providing a scalable framework for real-time plant health monitoring and advancing the study of plant physiology.

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研究方向: Agriculture

输出日期: 2025-04-16

第 15 条

标题: Zinc lysine and selenium yeast can effectively improve the reproductive performance of Northeast white geese

作者: Li, JC (Li, Jingchun); Feng, HZ (Feng, Heze); Song, YL (Song, Yulun); Wang, HC (Wang, Hechuan); Dong, YY (Dong, Yingying); Li, H (Li, Han); Guo, Q (Guo, Qing); Liu, SJ (Liu, Shengjun); Li, YB (Li, Yanbing)

来源出版物: POULTRY SCIENCE 卷: 104 期: 3 文献号: 104867
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摘要: The aim of this study was to investigate the effects of dietary supplementation with selenium yeast (YS) and zinc lysine (ZL) on goose semen quality, testicular tissue structure, reproductive hormone levels, antioxidant capacity and egg fertilization rate. A total of 24 male and 72 female geese, all 180-days-old, were selected and divided into four treatment groups, each with a consistent body weight. Each treatment group had six male and 18 female geese (1:3 ratio of male to female). The control (I) group was fed a basal diet. The YS (II) group was fed a basal diet supplemented with 0.3 mg/kg of selenium-yeast. The ZL (III) group was fed a basal diet supplemented with 106.05 mg/kg of zinc-lysine. The YS + ZL (IV) group was fed a basal diet supplemented with 0.3 mg/kg of selenium-yeast and 106.05 mg/kg of zinc-lysine. The experimental period lasted for 91 days. The results showed that supplementation of 0.3 mg/kg YS and 106.05 mg/kg ZL significantly increased sperm motility ($P < 0.05$), and significantly increased VAP, VSL, VCL, ALH, LIN, MAD and STR ($P < 0.01$) compared with the control group. Compared with the control group, dietary supplementation of YS and ZL increased the number of germ cells and Johnson score in groups II, III and IV ($P < 0.01$), and the number of spermatogonia and sertoli cells were significantly different from the control group ($P < 0.05$). Dietary supplementation

of YS and ZL could increase the reproductive hormone level (P < 0.05) and serum antioxidant capacity (P < 0.05), and the fertilization rate showed a certain promoting trend (P = 0.09). In conclusion, dietary supplementation of 0.3 mg/kg YS and 106.05 mg/kg ZL can improve semen quality, promote testicular development, maintain stability of the fertilization rate, and increase reproductive hormone levels and the serum antioxidant capacity of geese.

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文献类型: Article

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第 16 条

标题: Optimized Phosphorus Application Under Water Stress Enhances Photosynthesis, Physiological Traits, and Yield in Soybean During Flowering Stage

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摘要: Phosphorus application is widely regarded as a key measure for improving crop resistance to drought. This study investigated the effect of appropriate phosphorus fertilization on photosynthesis, physiological traits, and yield under water stress during the soybean flowering stage and selected the drought-sensitive soybean variety "Sui Nong 26" as the pot experiment object under a completely randomized design. The experiment was designed with three irrigation lower limits, corresponding to 70%, 60%, and 50% of the field capacity (FC), referred to as T1, T2, and T3. Four phosphorus fertilizer applications were also included: 0, 40, 50, and 60 mg<middle dot>kg (designated as P0, P1, P2, and P3), resulting in a total of 12 treatments.

Photosynthetic parameters, antioxidant enzyme activities, membrane lipid peroxidation, osmotic adjustment substances, yield, and yield components were measured to assess the effects of phosphorus fertilization on drought resistance. Results showed that under water stress, moderate phosphorus application (P1 and P2) enhanced photosynthetic capacity, antioxidation, osmotic adjustment, and yield, particularly by scavenging excess reactive oxygen species, protecting cells from oxidative damage, and maintaining metabolic balance, leading to increased yield. The average net photosynthetic rate and yield per plant under P1 and P2 levels increased by 33.53% and 37.67%, and 20.7% and 15.6%, respectively, compared to P0. In contrast, excessive phosphorus application (P3) improved the above parameters but had a significantly lower effect than moderate phosphorus application. Thus, appropriate phosphorus application is crucial for soybeans under water stress. Moderate application not only alleviates drought stress but also boosts soybean yield. This study highlights the importance of appropriate phosphorus use for mitigating water stress, offering scientific evidence for its practical application in agriculture. At the same time, with the increasing severity of climate change and water scarcity, phosphorus fertilizer application strategies under varying water conditions provide critical support for the application of precision agriculture technologies and ensuring food security.

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文献类型: Article

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研究方向: Agriculture; Plant Sciences

输出日期: 2025-04-16

第 17 条

标题: Research on the Prediction Model and Formation Law of Drying Cracks of Paddy Based on Multi-Physical Field Coupling

作者: Wang, HC (Wang, Hongchao); Wang, ZY (Wang, Ziyu); Che, G (Che, Gang); Wan, L (Wan, Lin); Chen, ZF (Chen, Zhengfa)

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摘要: Cracking in paddy during processing and storage can significantly degrade its quality and economic value. This study elucidates the crack formation law in paddy across various drying stages through experiments and simulations that integrate multiple physical fields. A predictive model for crack occurrence, based on the relationship between the probability of cracking and drying time, is developed by introducing a critical moisture evaporation coefficient to delineate safe regio for cracking. The findings indicate a sharp increase in the percentage of drying cracks during the initial rapid drying phase, with continued escalation through the slower drying phase. The predictive model's coefficient of determination exceeded 0.85, demonstrating its efficacy in forecasting crack progression. The primary driver for crack initiation and growth was identified as the cumulative effect of the moisture gradient, with the yield stress proving inadequate to counteract the stresses induced by this gradient, leading to cracking in paddy grains. These results furnish valuable insights for accurately predicting and managing crack development in paddy.

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研究方向: Agriculture

输出日期: 2025-04-16

第 18 条

标题: How to select favorable and promising alleles and genotypes for breeding: A case study of rice blast resistance genes in Southern and Northeastern China

作者: Wang, X (Wang, Xing); Li, RB (Li, Rongbai); Wang, JY (Wang, Jinyan); Zhang, YL (Zhang, Yaling); Yao, YX (Yao, Yongxiang); Liang, ZB (Liang, Zhibin); Deng, YZ

(Deng, Yizhen); Pan, QH (Pan, Qinghua); Sun, Y (Sun, Ying); Lin, LP (Lin, Liping); Ye, XM (Ye, Xuemei)

来源出版物: CROP JOURNAL **卷:** 13 **期:** 1 **页:** 104-114
DOI: 10.1016/j.cj.2024.12.011 **Published Date:** 2025 FEB

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摘要: Asian rice comprises two major subspecies: Xian (X) and Geng (G), and the diverged resistance genes (R) have provided a foundation for breeding improved cultivars to control rice blast disease. After conducting two-phase allele mining using six updated FNP marker systems, the functional haplotypes at Pit, Pib, and Pi63 strictly diverged into the X-populations and were defined as X-R loci, while those at Pi54, Pi37, and Pi36 into the G-populations as G-R loci. The genic diversity at the three X-R loci (16 alleles) was twofold higher than that at the three G-R loci (8 alleles), and the allelic diversity in the Southern region (21 alleles) was nearly double that in the Northeastern region (11 alleles). Both observations reflect a significant difference in genetic diversity between X- and G-populations, and indicate that the effective R-genes mainly originated from X-subspecies. Based on the allelic structures characterized by a set of 10 parameters, 8 and 16 alleles were respectively recognized as favorable and promising ones for the regional breeding programs. The genotypic structures of the two regional populations were almost different, indicating that the diverged alleles have been further assembled into two series of regional genotypes through long-term breeding programs, despite the presence of one-third of region-common alleles. The genotypic diversity in the Southern region (55 genotypes) was nearly twice as high as that in the Northeastern region (28), which perfectly reflects the aforementioned differences in both genic and allelic diversities. After analyzing the genotypic structures using a set of 13 parameters, 4 and 23 genotypes, respectively, can be recommended as the favorable and promising ones for the regional breeding programs. The case study serves as a concrete sample of how to identify the favorable and promising alleles and genotypes, and beneficial parents based their comprehensive population structures for gene-designed breeding. (c) 2025 Crop Science Society of China and Institute of Crop Science, CAAS. Production and hosting by Elsevier B.V. on behalf of KeAi Communications Co., Ltd. This is an open access article under the CC BY-NCND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

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研究方向: Agriculture; Plant Sciences

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第 19 条

标题: Plow tillage with buried straw increases maize yield by regulating soil properties, root growth, photosynthetic capacity, and bacterial community assembly in semi-arid black soil farmlands

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摘要: Combined plow tillage and buried straw sustainably increases maize yields. However, how it regulates the temporal and spatial-temporal dynamics of soil properties, maize growth, and bacterial community assembly in semi-arid black soil agricultural fields remains unclear. Therefore, we aimed to evaluate the changes in soil properties, root growth, photosynthetic capacity, and bacterial assembly and their contributions to maize yield after 7 years of different straw-returning treatments. The experiment comprised no-tillage straw-mulching (NTSM), plow tillage with buried straw (PTBS), and rotary-tillage straw removal (RTS-). We used highthroughput sequencing to investigate the bacterial community structures and assembly in different seasons and soil depths and assessed soil properties, root growth, and photosynthetic capacity. Compared with the effects observed under NTSM, PTBS improved average 0-40 cm soil layer nutrient content, promoted root growth, and improved photosynthetic rate, increasing yield. NTSM and PTBS treatments significantly changed the soil bacterial community structure and increased the relative abundance of beneficial bacteria. PTBS treatment significantly enhanced carbon-nitrogen-related functional groups. PTBS microbial community showed high microbial diversity and highly deterministic bacterial assembly processes. The dominant genera and biomarkers enriched in the different treatments had similar correlated environmental factors but opposite correlation trends. Soil nutrients, root growth, and photosynthetic rate explained most of the variations in annual maize yield,

while bacteria indirectly affected annual yield through nutrient and root characteristics. Our results indicate that soil nutrients, root growth, photosynthetic rate, and bacteria contribute to maize yield increase in plow tillage with buried straw treatment. NTSM only benefits the soil nutrients in the topsoil.

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文献类型: Article

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研究方向: Agriculture

输出日期: 2025-04-16

第 20 条

标题: Development of an Efficient Grading Model for Maize Seedlings Based on Indicator Extraction in High-Latitude Cold Regions of Northeast China

作者: Yu, S (Yu, Song); Lu, YX (Lu, Yuxin); Zhang, YT (Zhang, Yutao); Liu, XR (Liu, Xinran); Zhang, YF (Zhang, Yifei); Li, MK (Li, Mukai); Du, HT (Du, Haotian); Su, S (Su, Shan); Liu, JW (Liu, Jiawang); Yu, SQ (Yu, Shiqiang); Yang, J (Yang, Jiao); Lv, YJ (Lv, Yanjie); Guan, HO (Guan, Haiou); Zhang, CY (Zhang, Chunyu)

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摘要: Maize, the world's most widely cultivated food crop, is critical in global food security. Low temperatures significantly hinder maize seedling growth, development, and yield formation. Efficient and accurate assessment of maize seedling quality under cold stress is essential for selecting cold-tolerant varieties and guiding field management strategies. However, existing evaluation methods lack a multimodal approach, resulting in inefficiencies and inaccuracies. This study combines phenotypic extraction technologies with a convolutional neural network-long short-term memory (CNN-LSTM) deep learning model to develop an advanced grading system for maize seedling quality. Initially, 27 quality indices were measured from 3623 samples. The RAGA-PPC model identified seven critical indices: plant height (x1), stem diameter (x2), width of the third spreading leaf (x11), total leaf area (x12), root volume (x17), shoot fresh weight (x22), and root fresh weight (x23). The CNN-LSTM model, leveraging CNNs for feature extraction and LSTM for temporal dependencies, achieved a grading accuracy of 97.57%, surpassing traditional CNN and LSTM models by 1.28% and 1.44%, respectively. This system identifies phenotypic markers

for assessing maize seedling quality, aids in selecting cold-tolerant varieties, and offers data-driven support for optimising maize production. It provides a robust framework for evaluating seedling quality under low-temperature stress.

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文献类型: Article

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研究方向: Agriculture; Plant Sciences

输出日期: 2025-04-16

第 21 条

标题: Calcium Release-Activated Calcium Modulator ORAI1-Sensitive Serine Dehydratase Regulates Fatty Acid-Induced CD4⁺ Th17/Treg Imbalance in Dairy Cows

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摘要: In this work, data suggested a pro-inflammatory mechanism in CD4+Tcells regulated by the ORAI1-sensitive SDS pathway in early postpartum cows

experiencinghigh-FFA conditions. Thus, targeting this pathway may represent a new therapeutic andinterventional approach for preventing immune-related disorders around parturition. High concentrations of free fatty acids (FFAs) caused by negative energy balance render the cow more prone to inflammatory diseases in part due to an imbalance in the types of immune cells and their specific functions. We previously demonstrated that ORAI calcium release-activated calcium modulator 1 (ORAI1) was associated with increased CD4+ Th17 content, but the precise mechanisms remain unclear. The purpose of this study was to evaluate the efficacy of FFAs on CD4+ T cell inflammatory response. High FFAs in dairy cows caused the transcript level of the pro-inflammatory factor IL-17A, plasma concentration of IL-17A, and amount of intracellular IL-17A to increase while the transcript levels and intracellular amount of the anti-inflammatory factor FOXP3 were downregulated. These changes indicated Th17/Treg imbalance and inflammation in dairy cows with high FFA. Moreover, ORAI1 and SDS abundance was elevated in dairy cows with high FFAs by transcriptomics, QPCR, and Western blot. Knockdown of SDS (siSDS) did not alter ORAI1 expression in CD4+ T cells from high-FFA cows, while it decreased the expression of inflammatory factors. Transfection of CD4+ T cells using siRNA knockdown for ORAI1 (siORAI1) revealed that SDS and inflammatory factor abundance decreased. Serine can be catabolized to pyruvate by the action of serine dehydratase (SDS). Data from this study suggested that high FFAs caused by negative energy balance after calving regulates the Th17/Treg balance via SDS, but SDS does not regulate ORAI1 abundance. The above data suggested a pro-inflammatory mechanism in CD4+ T cells regulated by the ORAI1-sensitive SDS pathway in early postpartum cows experiencing high-FFA conditions. Thus, targeting this pathway may represent a new therapeutic and interventional approach for preventing immune-related disorders around parturition.

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研究方向: Agriculture; Veterinary Sciences; Zoology

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第 22 条

标题: DESIGN AND EXPERIMENT OF LARGE STRAW CRUSHER WITH CYLINDER FEEDING HAMMER

作者: Chen, T (Chen, Tao); Yi, SJ (Yi, Shu-juan); Wang, S (Wang, Song); Sun, WS (Sun, Wen-sheng)

来源出版物: INMATEH-AGRICULTURAL ENGINEERING **卷:** 74 **期:** 3 **页:** 592-602
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摘要: In order to solve the problems of small feeding amount, high manual labor intensity and low work efficiency of the existing straw crusher, a large straw crusher with cylinder feeding hammer is designed. The key parts of the machine are designed and calculated, and the mechanism of corn straw crushing in the crusher is analyzed, and the theoretical factors affecting the working effect of the crusher are obtained. With the rotational speed of crushing shaft, diameter of sieve and clearance of sieve-hammer as test factors, and the productivity, qualification rate of crushing length as performance evaluation indicators, a quadratic regression orthogonal rotation combination test with three factors and five levels was carried out. The regression mathematical model of test factors and performance evaluation indicators was established by using Design-Expert 13.0 software. With the goal of simultaneously maximizing the qualified rate of productivity and crushing length, multi- objective optimization solutions were carried out for the rotational speed of crushing shaft, diameter of sieve and clearance of sieve-hammer, and the optimal parameter combination was determined as follows: the rotational speed of crushing shaft is 1709.24 r/min, the diameter of sieve is 22.83mm, the clearance of sieve- hammer is 15.38 mm, the verification test shows that the productivity is 9187.98 kg/h, and the qualification rate of crushing length is 93.87%. The machine improves the efficiency of crushing operation and can meet the design requirements.

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文献类型: Article

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研究方向: Agriculture

输出日期: 2025-04-16

第 23 条

标题: NUMERICAL SIMULATION AND EXPERIMENTAL RESEARCH ON COMPACTION DEVICE OF SEEDBED LEVELING MACHINE

作者: Shan, BJ (Shan, Bo-jun); Che, G (Che, Gang); Wan, L (Wan, Lin); Zhao, NC (Zhao, Nai-chen); Zhang, Q (Zhang, Qiang)

来源出版物: INMATEH-AGRICULTURAL ENGINEERING **卷:** 74 **期:** 3 **页:** 42-56
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摘要: Currently, the compaction operations in rice seedling greenhouses are mostly performed manually or with simple machinery, resulting in significant discrepancies between the operational effects and requirements. Moreover, simple compaction machinery towed by small tractors cannot meet the dimensional requirements of rice seedling greenhouses. To address the issues of limited types of rice seedling compaction machinery and inability to meet the technical requirements for seedbed compaction quality, an eccentric compaction mechanism suitable for use in rice seedling greenhouses has been designed to reduce manual labor and improve soil firmness and evenness of seedbeds. Based on eccentric vibration theory, the motion equation of the leveling machine was established, and numerical simulations of the eccentric compaction mechanism were conducted using the RecurDyn-EDEM coupling method. Results indicate that the eccentric compaction mechanism effectively resolves the inability of traditional compaction devices to meet soil firmness requirements. Using a seedbed leveling machine independently developed by Heilongjiang Bayi Agricultural University, parameter optimization experiments were conducted using a second-order orthogonal rotational combination simulation method. The optimized parameter combination was: forward speed of 0.708 m/s, eccentric shaft rotation speed of 63.23 rad/s, and counterweight box mass of 50.99 kg, resulting in soil firmness of 3156.554 kPa and evenness of 0.02573 m. The experimental results were within 5% relative error of the simulation optimization results, indicating that the seedbed soil firmness and evenness meet agronomic requirements and have practical application value.

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研究方向: Agriculture

输出日期: 2025-04-16

Automation & Control Systems

第 1 条

标题: An enhanced IWCARS method for measuring soil available potassium

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来源出版物: CHEMOMETRICS AND INTELLIGENT LABORATORY SYSTEMS **卷:** 258 **文献号:** 105324 **DOI:** 10.1016/j.chemolab.2025.105324
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摘要: The Competitive Adaptive Re-weighted Sampling (CARS) method, while excelling in feature extraction, encounters several challenges when processing low-quality data, including high computational complexity, intricate parameter settings, and the potential for overfitting. To address these issues, this paper introduces the IWCARS (Initial Weight and Weight, I & W) algorithm, which implements two key methodological enhancements: initial weight selection and weight update strategy. This algorithm, building upon the traditional CARS algorithm and density-based clustering, offers a supplementary tool for data feature selection by computing density and weight, and employs an adaptive model evaluation mechanism to select the most pertinent features, ultimately constructing a model with enhanced predictive capability. IWCARS optimizes model performance by dynamically adjusting the feature set, thereby improving the algorithm's prediction performance and model fit. Furthermore, the IWCARS method, in conjunction with a Partial Least Squares (PLS) model, was applied to measure soil Available Potassium (AK) content using near-infrared spectroscopy. Five pre-processing techniques were conducted on the near-infrared spectrum, with the IWCARS + PLS model constructed using first derivative data, yielding optimal results. The experimental results demonstrated that the model based on 1st Derivative + IWCARS + PLS yielded the best performance. Specifically, the model achieved RC2of 0.9905, Rp2 of 0.9817, RMSEC of 0.8917, RMSEP of 0.9024, and RPD of 8.5176. Robustness, versatility, and transferability tests demonstrated that the proposed IWCARS algorithm, when integrated into the PLS model, achieved

commendable measurement accuracy. While there are limited strategies for concurrently addressing high computational complexity, challenging parameter settings, and overfitting risks, this study aims to mitigate these concerns by reducing the computational complexity of the CARS algorithm, simplifying parameter settings, and preventing overfitting, ultimately enhancing the model's fitting accuracy, training speed, and generalization capability.

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Biochemistry & Molecular Biology

第 1 条

标题: Structure-activity relationships of polyphenol-rice starch complexes: Impact on 3D printing and resistant starch formation

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摘要: This study aimed to investigate the effects of gallic acid (GA), luteolin (LUT), and quercetin (QUE) on the structure, physicochemical characteristics, and 3D printing behavior of rice starch and to elucidate the underlying mechanisms. The results revealed that incorporating GA significantly decreased the viscoelasticity of rice starch, reducing the printing accuracy from 98.64 % to 72.4 %. However, the polyhydroxy structures of LUT and QUE helped maintain the network strength of the starch gel, exerting a minimal influence on the 3D printing performance. Structural and

molecular docking analyses demonstrated that all three polyphenols bind to starch molecules via hydrogen bonding, forming single-helix complexes that disrupt the double-helix gel network, thereby lowering the gel viscoelasticity. Moreover, the addition of polyphenols significantly increased the resistant starch content in the 3D-printed products, from 22.10 % in natural starch to 53.36 % in the starch-GA complex, 47.79 % in the starch-LUT complex, and 48.34 % in the starch-QUE complex. These findings offer valuable insights for advancing the development of functional 3D-printed foods.

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研究方向: Biochemistry & Molecular Biology; Chemistry; Polymer Science

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第 2 条

标题: O-GlcNAcylation modification of MyoD regulates skeletal muscle fiber differentiation by antagonizing the UPF1 pathway

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摘要: Skeletal muscle is an essential tissue for maintaining the body's basic functions. The basic structural unit of skeletal muscle is the muscle fiber, and its type is the main factor that determines the athletic ability of animals. The O-linked Nacetylglucosamine (O-GlcNAc) modification, a reversible protein post-translational modification, is

involved in many important biological processes such as gene transcription, signal transduction, cell growth, and differentiation. Myogenic differentiation factor (MyoD), the first discovered myogenic regulatory factor, facilitates the transformation of fibroblasts into skeletal muscle cells. In early laboratory studies, MyoD was found to be modified by O-GlcNAcylation. However, the regulatory effects and mechanisms of O-GlcNAcylation modification on MyoD in skeletal muscle development and differentiation remain unclear. Therefore, our research was aimed at exploring the mechanism of MyoD in skeletal muscle differentiation under the influence of O-GlcNAcylation modification, through O-linked N-acetyl glucosamine transferase (OGT) or O-N-acetylaminoglucosidase manipulation, as well as MyoD supplementation. During the differentiation of C2C12 cells, O-GlcNAcylation of MyoD was found to be mediated by OGT, through its interaction with MyoD. Additionally, OGT was found to antagonize with up-frameshift protein 1 in inhibiting the ubiquitination-mediated degradation of MyoD via the K48 site, thereby regulating myotube led to the differentiation of mouse skeletal muscle fibers from this effect was mitigated by supplementation with exogenous MyoD. These results enhance understanding of the regulatory indicate potential therapeutic targets for muscle and metabolism-related diseases.

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研究方向: Biochemistry & Molecular Biology

输出日期: 2025-04-16

第 3 条

标题: Lycopene improves cisplatin induced hepatointestinal injury in rats by modulating the microbe-gut-liver axis

作者: Xu, ES (Xu, Enshuang); Yu, ZY (Yu, Zhiying); Zheng, JS (Zheng, Jiasan)

来源出版物: FOOD & FUNCTION **DOI:** 10.1039/d4fo06059h
Early Access Date: MAR 2025 **Published Date:** 2025 MAR 27

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摘要: Cisplatin (CIS) is a commonly used antitumor drug in clinics, but its application is limited due to hepatotoxicity, nephrotoxicity and gastrointestinal toxicity. In recent

years, a large number of studies have shown that the imbalance of intestinal flora is one of the important factors in the malignant development of diseases. Therefore, improving organ function by regulating intestinal flora may be an important strategy to prevent the side effects of chemotherapy drugs. Lycopene (LYC) is found in a wide range of red foods and has antioxidant, anti-inflammatory and immune-enhancing effects. So the purpose of this study was to explore its effect on hepatointestinal injury caused by chemotherapy drugs. The results of this study showed that CIS could significantly restore body weight, diet, water intake, and AST, ALT and other physiological and biochemical indexes of rats. HE staining, projective electron microscopy and TUNEL results showed that LYC alleviated morphological and ultrastructural damage of the liver and intestine. Then, ELISA results showed that LYC can reduce cell apoptosis by increasing the antioxidant capacity and reducing inflammatory response. Secondly, 16sRNA and metabolome results showed that LYC enriched beneficial bacteria (Firmicutes and Proteobacteria), reduced harmful bacteria (E. coli, etc.), enhanced metabolic pathway changes such as taurine and hypotaurine metabolism, and alleviated organ damage caused by CIS. Finally, network pharmacology, molecular docking and immunohistochemistry showed that LYC could reduce CIS induced hepatocyte inflammation and apoptosis by activating the PI3K/AKT pathway. In summary, LYC alleviates the toxic side effects of chemotherapy drugs by regulating the PI3K/AKT pathway and the intestinal microbiota-metabolite-liver axis.

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文献类型: Article; Early Access

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研究方向: Biochemistry & Molecular Biology; Food Science & Technology

输出日期: 2025-04-16

第 4 条

标题: Estrogen and glucocorticoid promote the lactoferrin synthesis and secretion ability of bovine mammary epithelial cells through ER and GR signaling pathways

作者: Yang, YJ (Yang, Yuejie); Li, XR (Li, Xinru); Wang, YD (Wang, Yandi); Wang, JH (Wang, Jianhui); Liu, GC (Liu, Guichi); Geng, ZJ (Geng, Zijian); Wu, R (Wu, Rui); Lian, S (Lian, Shuai); Wang, JF (Wang, Jianfa)

来源出版物: INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES **卷:** 307 **文献号:** 140636 **DOI:** 10.1016/j.ijbiomac.2025.140636 **Early Access Date:** MAR 2025 **Published Date:** 2025 MAY **子辑:** 1

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摘要: Lactoferrin (LF) is an innate immunity glycoprotein with antibacterial, anti-inflammatory, antiviral, anti-tumor, and autoantibody activity-enhancing properties. Steroid hormones are essential for development and lactation in the dairy cow mammary gland, and act through binding to receptors that drive gene transcription. However, it remains unclear whether steroid hormone receptors play roles in LF synthesis in bovine mammary epithelial cells (BMECs). In this study, we investigated the direct effects of estrogen and glucocorticoid on LF synthesis and secretion by BMECs. The results show that treatment of BMECs with estrogen (17-beta-estradiol, E2) and glucocorticoid (hydrocortisone) significantly promoted cell proliferation. Furthermore, E2 or hydrocortisone increased the expression levels of estrogen receptor (ER) and glucocorticoid receptor (GR), and stimulated the synthesis and secretion of LF in BMECs. Treatment of BMECs with various inhibitors (fulvestrant, mifepristone, and pimozide) decreased LF gene transcript and LF protein levels. It was concluded that fulvestrant and mifepristone inhibit LF transcription and translation via inhibiting ER and GR, respectively. Our data indicate that E2 and hydrocortisone regulate LF protein synthesis through the ER and GR signaling pathways. These results provide new information about the regulation of the synthesis of functional proteins in milk.

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文献类型: Article

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输出日期: 2025-04-16

第 5 条

标题: Fermentation-enriched quinoa β-glucan ameliorates disturbed gut microbiota

and metabolism in type 2 diabetes mellitus mice

作者: Ma, N (Ma, Nan); Li, R (Li, Rong); Zhang, GF (Zhang, Gui-Fang); Gao, RH (Gao, Ruo-Han); Zhang, DJ (Zhang, Dong-Jie)

来源出版物: INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES **卷:** 306 **文献号:** 141666 **DOI:** 10.1016/j.ijbiomac.2025.141666
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摘要: Quinoa beta-glucan (QBG) has shown potential benefits in treating type 2 diabetes mellitus (T2DM); however, comprehensive evaluations of its effects remain limited. This study investigates the impact of QBG-derived from hot water extraction (Q-) and microbial fermentation enrichment (Q+)-on serum glucose levels, lipid profiles, appetite-regulating hormones, fecal short-chain fatty acids (SCFAs), and gut microbiota composition and function in streptozotocin/high-fat diet (STZ/HFD)-induced T2DM mice. The results indicate that QBG treatment significantly reduced fasting blood glucose, insulin levels, triglycerides (TG) and total cholesterol (TC), while concurrently increasing high-density lipoprotein cholesterol (HDL-C) levels. Additionally, liver and pancreatic function improved, as evidenced by decreased levels of malondialdehyde (MDA), aspartate transaminase (AST), and alanine transaminase (ALT). SCFA levels were significantly higher in QBG-treated groups compared to MC group. QBG treatment also reduced the abundance of Firmicutes and Patescibacteria, along with the Firmicutes/ Bacteroidota ratio, while increasing levels of Bacteroidota and Actinobacteria. These findings suggest that QBG can regulate the dysbiosis of SCFAs production in T2DM mice and may indirectly modulate the secretion of appetite-regulating hormones by influencing gut microbiota composition. Furthermore, PICRUSt analysis revealed that QBG treatment, particularly Q + _H, could enhance disrupted metabolism and improve gut microbiota functions, helping restore normal physiological function.

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研究方向: Biochemistry & Molecular Biology; Chemistry; Polymer Science

输出日期: 2025-04-16

第 6 条

标题: Widely targeted metabolomics to analyze the effect of polyvinyl alcohol/ pullulan/ZnO-Nps composite film on postharvest storage of Allium mongolicum regel

作者: Zhang, XH (Zhang, Xinhua); Xu, JL (Xu, Jieli); Chen, Z (Chen, Zhao); Yu, YH (Yu, Yuhe); Zhang, XL (Zhang, Xiuling); Zhang, WT (Zhang, Wentao)

来源出版物: INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES **卷:** 306 **文献号:** 141667 **DOI:** 10.1016/j.ijbiomac.2025.141667
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摘要: In this study, a composite film (CF) made of polyvinyl alcohol, pullulan, and ZnO nanoparticles was prepared by solution casting. The CF were applied to the postharvest preservation of Allium mongolicum Regel. Widely targeted metabolomics analysis of A. mongolicum Regel by ultra-high performance liquid chromatography-tandem mass spectrometry (UPLC-MS/MS) to investigate the mechanism of action of active substances in A. mongolicum Regel during CF-treated storage process. Analysis of the results showed that 1534 metabolites were present in CF- treated A. mongolicum Regel, of which 175 metabolites were significantly different. KEGG analysis showed that the differential metabolites were mainly involved in metabolic pathways, secondary metabolite biosynthesis, including the biosynthetic metabolism of compounds such as flavonoids and phenolic acids and alkaloids. The changes in these secondary metabolites further affected key metabolic pathways such as flavonoid biosynthesis, phenylalanine metabolism, carbon fixation in photosynthesis and glycolysis. These results help to explain the preservation mechanism of A. mongolicum Regel during the storage period and provide an important theoretical basis for the preservation of A. mongolicum Regel composite film packaging in the future.

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研究方向: Biochemistry & Molecular Biology; Chemistry; Polymer Science

输出日期: 2025-04-16

第 7 条

标题: Effects of phenolic acid incorporation on the structure, physicochemical properties, and 3D printing performance of rice starch gel: Exploring underlying mechanisms

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来源出版物: INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES **卷:** 306 **文献号:** 141244 **DOI:** 10.1016/j.ijbiomac.2025.141244 **Early Access Date:** MAR 2025 **Published Date:** 2025 MAY **子辑:** 2

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摘要: This study aimed to investigate the effects of incorporating ferulic acid (FA) or gallic acid (GA) on structural, physicochemical, and 3D printing properties of rice starch gel, while also exploring underlying mechanisms. These phenolic acids were incorporated into rice starch at varying concentrations. The addition of FA or GA reduced the gel's viscoelasticity, leading to significant decline in 3D printing accuracy. The printing accuracy of the starch decreased from 98.64 % for the native starch to 83.85 % for the FA-starch complex and 72.40 % for the GA-starch complex. Structural analysis revealed that FA and GA formed single-helical complexes with starch, disrupting the formation of a double-helical gel network and consequently reducing the gel's viscoelasticity. Additionally, the incorporation of FA and GA significantly increased the resistant starch content in the 3Dprinted products, rising from 22.02 % in the native starch to 46.37 % in the FA-starch complex and 53.42 % in the GA-starch complexes. These single-helix complexes improved both the stability and bioavailability of the polyphenols. Findings of this study provide valuable insights for advancing the development of functional 3Dprinted foods.

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第 8 条

标题: Mechanism of O-GlcNAcylation regulating liver lipid synthesis in mice through FASN

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摘要: Nonalcoholic fatty liver disease (NAFLD) has become one of the most common chronic liver diseases. O-Linked attachment of beta-N-acetylglucosamine (O-GlcNAc) are ubiquitous post-translational modifications of proteins as "nutrient sensors" and "stress receptors" in the body that are involved in maintaining normal cellular physiological functions. Increased levels of O-GlcNAcylation have been found in the liver samples of patients with NAFLD and nonalcoholic steatohepatitis. However, the role of O-GlcNAcylation in the development and pathogenesis of NAFLD remains unclear. Here, we sought to determine the specific role of O-GlcNAcylation in NAFLD. In this study, the results demonstrated that inhibition of O-GlcNAc transferase (OGT) led to decreased expression of liver lipid synthesis genes and proteins in vitro. In addition, we showed that fatty acid synthase (FASN) expression was positively correlated with O-GlcNAcylation levels. Immunoprecipitation and pulldown assays confirmed the interaction between FASN and OGT at the serine 1483 of FASN, to inhibit K48-linked ubiquitination and degradation of FASN, thereby promoting hepatic lipid accumulation and the development of NAFLD. Administration of the OGT inhibitor OSMI-1 to ob/ob mice led to decreased liver lipid accumulation, further confirming our in vitro experimental results. Finally, we used liver-specific Ogt gene knockout mice fed a high-fat diet to elucidate the specific mechanism of O-GlcNAcylation on NAFLD and found that knockdown of the Ogt gene led to decreased liver lipid accumulation. In conclusion, our findings show that inhibiting the O-GlcNAcylation of FASN at the S1483 site promotes the K48-linked ubiquitination and degradation of FASN and leads

to inhibition of lipid accumulation in the liver. Treatment with the OGT inhibitor OSMI-1 leads to decreased lipid accumulation in the liver, suggesting that targeting O-GlcNAcylation sites could be a potential therapeutic strategy for alleviating NAFLD.

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文献类型: Article

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研究方向: Biochemistry & Molecular Biology; Life Sciences & Biomedicine - Other Topics; Cell Biology

输出日期: 2025-04-16

第 9 条

标题: Preparation and characterization of chitosan / corn starch based films loaded with Vaccinium vitis-idaea anthocyanin nanocomplexes and the application in shrimp preservation

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摘要: In this experiment, the nanocomposite film prepared by adding of nanocomplexes (ACNs-CHC/CMC-WPI) of Vaccinium vitis-idaea anthocyanins encapsulated with carboxymethyl chitosan (CMC), chitosan hydrochloride (CHC), and whey protein isolate (WPI) to chitosan/corn starch (CTS/Corn) blend matrix for food packaging. The functionality and stability of anthocyanin-loaded nanocomplexes and anthocyanin-containing films were determined and compared. Good encapsulation was observed by transmission electron microscopy. The freshness preservation effect of the prepared films on shrimp was investigated. Scanning electron microscopy results showed that ACNs-CHC/CMC-WPI was uniformly dispersed in chitosan-corn

starch matrix, indicating the formation of a stable CTS/Corn-anthocyanin nanocomplex film (CTS/Corn-AN film). Although CTS/Corn-free anthocyanin (CTS/Corn-FA film) had better antioxidant activity in the short term, the CTS/Corn-AN film could better maintain the antioxidant activity and original color after 28 days of light exposure. In summary, the CTS/Corn-AN film possessed better mechanical property with elongation at break at 88.67 %, oxidation resistance with DPPH scavenging of 28.71 % at 28th, and other physicochemical properties than those of the CTS/ Corn-FA film. Finally, the CTS/Corn-AN film showed effective freshness preservation of shrimp at 4 degrees C for 10 days compared to the control group due to durable antibacterial and antioxidant properties. Therefore, CTS/ Corn-AN film was promising active packaging material in shrimp preservation.

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文献类型: Article

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第 10 条

标题: Biologically Active Peptides from Corn Gluten Meal Improve Microbiota Disorders Caused by Helicobacter pylori Infection in Mice

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来源出版物: MOLECULES 卷: 30 期: 3 文献号: 705
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摘要: This study investigated the potential effects of corn protein activity peptides (CPAPs) on inflammation response levels and gastrointestinal microbiota in Helicobacter pylori (H. pylori) infection mice. CPAPs significantly up-regulated the mRNA expression of the anti-inflammatory factor IL-10 and down-regulated the mRNA expression of the pro-inflammatory factors TGF-beta, TLR4, MyD88, and NF-kappa B, indicating that CPAPs may antagonize H. pylori-induced inflammatory responses by inhibiting NF-kappa B signaling pathways. Through the intervention of CPAPs, H. pylori colonization in the stomach was significantly reduced. Additionally, the structural

composition of the gastrointestinal microbiota improved, with an increase in abundance and diversity. These changes positively regulate gastrointestinal microbiota disorders in mice. In addition, the PICRUST function prediction of intestinal microbiota revealed that CPAPs may prevent or reduce metabolic disorders brought about by H. pylori, which improve biometabolic pathways by modulating intestinal microbiota composition. In conclusion, these findings suggest that CPAPs may prevent or mitigate metabolic disorders induced by H. pylori, offering theoretical support for the development of corn-protein-based functional foods.

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输出日期: 2025-04-16

第 11 条

标题: The major roles of intestinal microbiota and TRAF6/NF-κB signaling pathway in acute intestinal inflammation in mice, and the improvement effect by Hippophae rhamnoides polysaccharide

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来源出版物: INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES **卷:** 296 **文献号:** 139710 **DOI:** 10.1016/j.ijbiomac.2025.139710
Early Access Date: JAN 2025 **Published Date:** 2025 MAR

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摘要: Acute enteritis, an intestinal disease with intestinal inflammation and injury as the main pathological manifestations. Inhibiting the inflammatory response is critical to the treatment of acute enteritis. Previous studies have shown that the Hippophae rhamnoides polysaccharide (HRP) has strong immune-enhancing effects. However, their functions regarding the intestines and the underlying mechanism are still unclear.

In this study, the role of HRP in lipopolysaccharide (LPS)-induced acute enteritis in mice and its related mechanisms are discussed from two aspects: intestinal inflammation and intestinal microbiota. Kunming mice were inoculated with LPS to establish animal models of acute enteritis. The results showed that HRP attenuated the histological damage and maintained the intestine mucosal barrier via up-regulating the expression of occludin, claudin-1, and zona occludens-1 (ZO-1), and suppressing the levels of pro-inflammatory cytokines (tumor necrosis factor-alpha (TNF alpha), interleukin-6 (IL-6), and interleukin-1 beta (IL-1 beta)). The relative mRNA and protein levels of nuclear factor-kappa B p65 (NF-kappa Bp65) and tumor necrosis factor-receptor-associated factor 6 (TRAF6) in the intestine tissues of LPSinduced acute enteritis mice significantly increased, whereas these adverse changes were alleviated in the HRP intervention groups. Notably, HRP may regulate the expression of the TRAF6/NF-kappa B signaling pathway by affecting the diversity of the intestinal microbiota. Microbiota analysis showed that HRP promoted the proliferation of beneficial bacteria, including Clostridia_UCG-014, Candidatus_Saccharimonas, Lachnospiraceae_NK4A136_group, Bacteroidota, Deferribacterota, and reduced the abundance of Atopostipes, Corynebacterium, Actinobacteriota, and Desulfobacterota. The studies conformed that the gut microbiota is crucial in HRP-mediated immunity regulation. HRP shows great potential as an immune enhancer and a natural medicine for treating intestinal inflammatory diseases.

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文献类型: Article

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Biophysics

第 1 条

标题: Impacts of neonicotinoid compounds on the structure and function of Apis

mellifera OBP14: Insights from SPR, ITC, multispectroscopy, and molecular modeling

作者: Li, XS (Li, Xiangshuai); Li, SY (Li, Shiyu); Zhao, FK (Zhao, Fangkui); Fu, RH (Fu, Ruohan); Cui, L (Cui, Li); Chen, SN (Chen, Shuning); Yang, DB (Yang, Daibin); Yuan, HZ (Yuan, Huizhu); Yan, XJ (Yan, Xiaojing)

来源出版物: COLLOIDS AND SURFACES B-BIOINTERFACES **卷:** 250 **文献号:** 114551 **DOI:** 10.1016/j.colsurfb.2025.114551 **Early Access Date:** FEB 2025 **Published Date:** 2025 JUN

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摘要: Honeybees are vital for biodiversity and agricultural productivity, yet their populations are declining globally, partly due to exposure to neonicotinoid pesticides. Odorant-binding protein 14 (OBP14) plays an important role in honeybee chemosensation, but its involvement in neonicotinoid toxicity remains underexplored due to limitations in traditional fluorescence spectroscopy techniques. This gap hampers our understanding of neonicotinoid risks to honeybee health. Here, we explored the molecular interactions between OBP14 from Apis mellifera and three widely used neonicotinoids (imidacloprid, thiamethoxam, and clothianidin) using molecular modeling, surface plasmon resonance (SPR), isothermal titration calorimetry (ITC), and multispectroscopy. SPR and ITC characterized the binding affinity, specificity, and thermodynamic parameters of AmelOBP14 interacting with three neonicotinoid compounds, revealing that the binding process is spontaneous and primarily driven by hydrophobic and electrostatic interactions. Molecular modeling highlighted that phenylalanine residue Phe54, near the binding site, plays a critical role in these interactions. UV-vis absorption spectroscopy and synchronous fluorescence spectroscopy (SFS) support slight changes in the microenvironment around the aromatic amino acids of OBP14. Fourier Transform Infrared Spectroscopy (FTIR) and circular dichroism spectroscopy (CD) indicate a decrease in the alpha-helix content of OBP14, suggesting a change in its secondary structure, while threedimensional (3D) fluorescence spectroscopy confirms the non-fluorescent nature of the OBP14 polypeptide backbone. The study results revealed its potential as a biomarker for pesticide risk assessment, providing important insights into the molecular mechanisms by which neonicotinoids may impair bee chemosensory function, and offering guidance for the design of safer pesticides to minimize harm to these important pollinators.

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文献类型: Article

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Biotechnology & Applied Microbiology

第 1 条

标题: Genome-wide identification and characterization of the FLA gene family in sorghum under salt-alkali stress

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来源出版物: 3 BIOTECH 卷: 15 期: 5 文献号: 117
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摘要: Fasciclin-like arabinogalactan proteins (FLAs) are crucial for plant growth and development. Utilizing whole genome data, this study delineated the number of genes, gene structure, chromosomal localization, protein structure, evolutionary relationships, and Gene Ontology (GO) annotations of the FLA family in sorghum (Sorghum bicolor L.). In addition, FLA genes' expression in wild-type sorghum (P898012) under salt-alkali stress (SAS) was examined. We identified 26 FLA genes in sorghum. Phylogenetic analysis divided these genes into five subgroups, where members within the same subgroup exhibited extremely similar, though not identical, gene structures. A collinearity analysis of the sorghum FLA genes revealed that SbFLA19 does not share a homologous relationship with those in Zea and Arabidopsis, suggesting its uniqueness to sorghum. Promoter element analysis indicated that the FLA genes contain various response elements associated with abiotic stress. GO annotations demonstrated that most FLA proteins are primarily located on the plasma membrane and are involved in diverse biological processes. Transcriptomic data and qRT-PCR analysis under SAS revealed that members of the SbFLA family responded to stress at different times. These findings provide valuable references for breeding sorghum varieties tolerant to salt-alkali conditions.

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研究方向: Biotechnology & Applied Microbiology

输出日期: 2025-04-16

第 2 条

标题: Genomics and biodegradation properties of an oleophilic bacterium isolated from shale oil sludge

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来源出版物: INTERNATIONAL BIODETERIORATION & BIODEGRADATION **卷:** 200 **文献号:** 106028 **DOI:** 10.1016/j.ibiod.2025.106028
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摘要: Shale oil exploitation is accompanied with the generation of a large quantity of oily sludge. In order to provide suitable microbial resources for treating the growing amount of oily sludge, a microbial strain was isolated and purified from the sewage sludge produced in Daqing shale oil field in this study. The isolated strain in the sludge, temporarily termed FM-1, was identified by morphological, biochemical experiments and 16S rDNA sequencing. At the same time, the protein coding genes of the strain FM-1 were classified by genome-wide sequencing and analyzed its genetic characteristics. The degradation effect of FM-1 was detected to C12, C17 and crude oil and sludge samples by gas chromatography and spectrophotometer. The results confirmed that FM-1 was Bacillus proteolyticus. The whole genome sequencing data analysis showed that there were 1495 protein coding genes related to metabolism, including 384 genes for carbohydrate metabolism. All the genes related to the degradation function, such as almA, mdhA, CYPs, ladA, catD, catE and fadE, were enriched in the oxidative phosphorylation signaling pathway, indicating that FM-1 had abundant genes associated with petroleum hydrocarbon degradation. The strain FM-1 could utilize C10-C40 petroleum hydrocarbons as the sole carbon source, and the degradation rate of crude oil was 17.5% in seven days under the experimental conditions. The degradation rate for petroleum hydrocarbon pollutants in shale oil sludge was as high as 91.5% in 28 days. Literature and patent searches found that

Bacillus proteolyticus was a kind of new efficient petroleum hydrocarbon degrading bacterium, which had been obtained the Chinese invention patent.

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研究方向: Biotechnology & Applied Microbiology; Environmental Sciences & Ecology

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Chemistry

第 1 条

标题: Different interaction behaviors of rice glutelin with amylose and amylopectin within starch under the extrusion environment

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来源出版物: FOOD CHEMISTRY **卷:** 480 **文献号:** 143974
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摘要: Effects of rice glutelin (RG) on structural properties of amylose (AM) and amylopectin (AP) within rice starch and their interaction mechanism were revealed. At the same RG addition, AP had a greater binding capacity than AM. Adding RG increased the thermal stability and short-range orders of extruded amylose (EAM) and

extruded amylopectin (EAP), as well as changed their surface morphologies. Extrusion destroyed the crystalline structure of AM and AP, while the relative crystalline of EAM and EAP increased with the increasing of RG. When RG content was 6 % and 8 %, RG mainly interacted with AM and AP via hydrogen bonds. The main driving force between RG and AP changed into hydrophobic interaction when RG content was 10 % and 12 %. These results contributed to a deep understanding of structural evolution of AM and AP within rice starch caused by the interaction with RG under the extrusion environment.

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研究方向: Chemistry; Food Science & Technology; Nutrition & Dietetics

输出日期: 2025-04-16

第 2 条

标题: Dynamic migration of phenolics in microwaved combined cooked sorghum: Focus on the polyphenols interact with starch/protein

作者: Xu, L (Xu, Lei); Song, XJ (Song, Xuejian); Yao, D (Yao, Di); Wang, CY (Wang, Changyuan); Yao, XM (Yao, Xinmiao); Li, ZJ (Li, Zhijiang)

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摘要: Based on the perspective of whole sorghum food, the polyphenols migration process was analyzed during microwave-combined cooking treatment utilizing wide metabolomics, simulated reactions, and molecular docking. Microstructure confirmed that microwave broke the grain cells, resulting in the elevated polyphenols contents. Flavonoids were significantly released by microwave (e.g. arbutin, eriodictyol-7-o-glucoside, narirutin, and naringenin-7-o-glucoside), which regulated the antioxidant activity of sorghum. Simulated co-gelatinization reaction revealed that polyphenols interacted non-covalently with starch, resulting in higher levels of polyphenols being retained during cooking (711.12 mg GAE/100 g). Molecular

docking results exhibited that 6 flavonoids could also bind to the kafirin via hydrogen bonds and hydrophobic interaction during cooking. Meanwhile, the gamma-mangostin also possessed stabilized root-mean-square deviation and outstanding binding free energies. The effective retention of bioactive components under synergetic microwave and cooking treatment highlights the potential of natural ingredients in food processing, promoting a more natural approach to modern cereal nutrition.

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文献类型: Article

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研究方向: Chemistry; Food Science & Technology

输出日期: 2025-04-16

第 3 条

标题: Fatty acid composition and origin of frozen lamb determined by handheld NIR spectroscopy with chemometrics

作者: Feng, YC (Feng, Yuchao); Wei, PL (Wei, Peiling); Zheng, WX (Zheng, Wenxin); Zhang, YS (Zhang, Yushu); Gong, P (Gong, Ping); Fan, X (Fan, Xia)

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摘要: Given the lack of on-site analytical tools for determining the origin and fatty acid (FA) composition of lamb, this study used a handheld near-infrared (NIR) spectrometer to build qualitative and quantitative models. A total of 144 frozen lamb samples from the Shandong (n = 24), Ningxia (n = 29), and Xinjiang (n = 91) provinces were analyzed, and prediction models were developed using partial least squares

regression (PLSR) and partial least squares discriminant analysis (PLS-DA). Competitive adaptive reweighted sampling was employed to select characteristic wavelengths of the FA composition model. The PLSR results for the estimation of C14:0, C15:0, C16:0, C17:0, C18:0, C18:3n3, C20:4n6, and polyunsaturated fatty acid, with ratios of predictive deviation (RPDs) ranging from 1.79 to 1.96, was "not recommended." The models for C16:1, C18:1n9t, C18:1n9c, C18:2n6c, C20:3n6, saturated fatty acid, and monounsaturated fatty acid (RPD = 2.11-2.46) were classified as "rough screening," while C10:0 and C12:0 (RPD = 2.71 and 2.54, respectively) were classified as "screening." PLS-DA could effectively distinguish between Ningxia and Shandong samples, but the prediction performance for Xinjiang cashmere was poor. These results demonstrate the potential of the handheld NIR device as a rapid and convenient on-site tool to predict the major FA compositions and origins of frozen lamb samples.

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研究方向: Chemistry

输出日期: 2025-04-16

第 4 条

标题: Synthesis of bis-sulfonium lipids and their antibacterial ability

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摘要: Gemini cationic surfactants have great advantages as antibacterial agents. Herein, a group of bis-sulfonium lipids was synthesized and their antibacterial activities were investigated on Gram-negative and Gram-positive bacterial stains. The activity of bis-sulfonium lipids was related to the hydrophobic substitution. When each of the sulfonium contained one long alkyl chain and the spacer was short, the gemini salt exhibited strong inhibition. The compound with benzyl, decyl and pentylene spacer exhibited the broad antibacterial activity, and was more sensitive on Gram-negative than commercial quaternary ammonium salts. The mechanism study showed that increasing cell membrane permeability and disrupting the cell membrane are important pathways for inhibiting bacteria.

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研究方向: Chemistry

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第 5 条

标题: Low-fat spray dairy emulsion produced by nitrous oxide: The synergistic effects of polysaccharide-emulsifier on the stability, rheology and aeration performance

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来源出版物: FOOD HYDROCOLLOIDS **卷:** 164 **文献号:** 111223
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摘要: This study aimed for strategies to enhance the stability and aeration performance of low-fat spray emulsions (LFSE) whipped with nitrous oxide. Eight LFSE formulations (LFSE 1 to 8) were selected from uniform experimental design to evaluate the synergistic effects of polysaccharides and emulsifiers on the physical properties of emulsions, including particle size and zeta-potential, microstructure, and processing performance. Results suggested that formulations with higher

mono-diglycerides (MDG) and polysorbate 80 dosages were associated with higher zeta-potential, reduced fat globule size, shortened whipping time, and improved bubble stability. On the contrary, increasing the levels of maltodextrin (MD) and gellan gum (GG) resulted in non-uniform fat globule, increased emulsion viscosity, reduced fluidity, and extended whipping time. Combined use of emulsifiers and polysaccharides improved the viscoelastic properties of emulsions which facilitated whipping and molding. However, excessive emulsifier (1.6%) and polysaccharide (3.46%) addition led to predominantly elastic behaviors (G> G') with reduced aeration performance and foam instability. Through comprehensive evaluation, it was revealed that the LFSE 2 formulation, with an HLB value of 5.2 and a total polysaccharide concentration of 1.91%, achieved optimal stability and aeration performance.

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文献类型: Article

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研究方向: Chemistry; Food Science & Technology

输出日期: 2025-04-16

第 6 条

标题: Research on millet origin identification model based on improved parrot optimizer optimized regularized extreme learning machine

作者: Gao, P (Gao, Peng); Wang, N (Wang, Na); Lu, Y (Lu, Yang); Liu, JM (Liu, Jinming); Wang, GN (Wang, Guannan); Hou, R (Hou, Rui)

来源出版物: JOURNAL OF FOOD COMPOSITION AND ANALYSIS **卷:** 141 **文献号:** 107354 **DOI:** 10.1016/j.jfca.2025.107354
Early Access Date: FEB 2025 **Published Date:** 2025 MAY

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摘要: To achieve nondestructive identification of millet origins, near-infrared

spectroscopy technology was employed to obtain the original spectral data of millet. By integrating the Parrot Optimizer (PO) with the Regularized Extreme Learning Machine (RELM), the model achieved an accuracy of 83.67 % in millet origin identification. To further enhance model performance, this study incorporated strategies such as chaotic mapping and adaptivity into PO, resulting in the Improved Parrot Optimizer (IPO). The IPO was then combined with RELM to construct the IPO-RELM model, which significantly improved the model's generalization capability and robustness. Experimental results demonstrated that the IPO-RELM model outperformed the RELM model, achieving an accuracy of 98.33 %, a precision of 98.49 %, a recall of 98.33 %, an F1 score of 98.41 %, and a Kappa coefficient of 98 %, representing respective improvements of 11.32 %, 7.92 %, 11.32 %, 9.62 %, and 13.90 % over the traditional RELM model. Furthermore, the performance of the IPO-RELM model was validated using two publicly available datasets, confirming its superiority over the conventional RELM model. Compared to the PO algorithm, the IPO algorithm exhibited enhanced global search and local optimization capabilities with faster convergence speed. The IPO-RELM model accurately and efficiently identified millet origin information, providing robust support for ensuring millet quality and safety, while also contributing to the protection of the uniqueness and market value of geographically indicated agricultural products.

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文献类型: Article

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研究方向: Chemistry; Food Science & Technology

输出日期: 2025-04-16

第 7 条

标题: Research on rapid non-destructive detection of tannin and protein content in sorghum based on multi-output Gaussian process

作者: Zhao, JY (Zhao, Jin-Yi); Chen, ZG (Chen, Zheng-Guang); Liu, S (Liu, Shuo); Liu, JM (Liu, Jin-Ming); Wang, PH (Wang, Peng-Hui)

来源出版物: JOURNAL OF FOOD COMPOSITION AND ANALYSIS **卷:** 141 **文献号:** 107326 **DOI:** 10.1016/j.jfca.2025.107326 **Early Access Date:** FEB 2025 **Published Date:** 2025 MAY

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摘要: Sorghum grains' tannin and protein content significantly affect their quality and

uses. To address the timeconsuming and high-cost issues associated with conventional techniques, this study utilizes near-infrared spectroscopy technology combined with chemometric methods to achieve rapid and non-destructive detection of tannin and protein content in sorghum. Sorghum grains with tannin content of 0.47 % -3.21 % and protein content of 5.37 % -8.23 % were taken as samples, data preprocessing was performed using Standard Normal Variate Transformation (SNV), and the sample set was partitioned using the sample set partitioning based on joint X-Y distances (SPXY) algorithm. A Multi-Output Gaussian Process Regression (MOGPR) model was established and compared with models such as Single-Output Gaussian Process Regression (SOGPR), Partial Least Squares Regression (PLSR), and Back Propagation Neural Network (BPNN). The results indicate that the Gaussian Process Regression (GPR) model significantly outperforms the PLSR and BPNN models, and the MOGPR model clearly surpasses the SOGPR model. In the prediction sets for tannin and protein, RP2 values are 0.9790 and 0.9500, RMSEP values are 0.0587 and 0.1699, and RPD values are 6.8928 and 4.4710, respectively. The results indicate that the MOGPR model established using near-infrared spectroscopy in conjunction with chemometrics is more suitable for the rapid and non-destructive detection of tannins and proteins in sorghum.

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文献类型: Article

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研究方向: Chemistry; Food Science & Technology

输出日期: 2025-04-16

第 8 条

标题: Preparation and characterization of highly stable pH-sensitive multifunctional films based on co-pigment-anthocyanin conjugate system for pork monitoring and preservation

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来源出版物: FOOD HYDROCOLLOIDS **卷:** 164 **文献号:** 111151
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摘要: Although there is a large volume of literature on pork quality monitoring and bacteriostatic film preparation, the successful development of a packaging film that performs both functions still faces significant technical challenges. In this study, a highly stable pH-sensitive smart packaging film with freshness preservation function was prepared by using anthocyanin-co-pigment (polylysine, catechin, and ferulic acid) complex as the active ingredient and potato starch-carrageenan as the matrix. The pi-pi stacking and hydrogen bonding interactions between the introduced co-pigments and anthocyanins significantly improved the shelf life and color stability of anthocyanins compared to pure anthocyanin films. In addition, the introduction of co-pigments effectively improved the tensile strength (38.37%similar to 87.49%) and barrier properties of the films, and maintained the high anthocyanin retention (38.37%similar to 91.07%), antioxidant (70%) and antimicrobial (especially against Staphylococcus aureus) properties of the films under extreme conditions (prolonged exposure to light and 55 degrees C). The epsilon-polylysine-anthocyanin composite film effectively extended the shelf life of pork by up to 40 h compared to pork stored at 25 degrees C (24 h). In addition, the color variation of the film (RGB values) was combined with pork freshness through the "Color Coll" mobile application, which effectively reduces the variability of visual identification between individuals and enables visual quantitative analysis of pork quality. Therefore, this study has great potential for monitoring changes in meat quality and extending its shelf life.

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文献类型: Article

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研究方向: Chemistry; Food Science & Technology

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第 9 条

标题: Integrative denoising and feature extraction method (D-FE) for improving low-quality Raman data

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摘要: In the realm of online water measurement for paddy fields, a novel Integrative Denoising and Feature Extraction (D-FE) method has been proposed to overcome modeling challenges caused by strong interference from sources such as light, electricity, and mechanical factors, which degrade data quality. D-FE method focuses on utilizing Raman fingerprint features as key indicators, initially evaluating noise and Raman signals by calculating the coefficient of variation between candidate and actual key features to filter out suspected noise. It then further examines the importance of the remaining features, constructs a regression model based on their significance, and identifies critical features through model evaluation feedback, completing data preprocessing and feature extraction. In this study, an XG-Boost measurement model for dissolved oxygen (DO) and pH levels was developed using the D-FE method and optimized with the Optuna algorithm. Experimental results demonstrate that the D-FE + Optuna + XG-Boost model (boasting R2p of 0.9305 and 0.9025; RMSEP of 0.6060 and 0.2488; and RPD of 4.4325 and 3.2023) consistently outperforms various classical algorithm combinations (preprocessing: SG 1st derivative, SNV, MSC, Baseline, S-G 2nd derivative, airPLS; feature extraction: SPA, CARS, UVE, IRF; regression methods: PLSR, PCR, BP, RBF). Even during simulated tests involving environmental temperature fluctuations, sunlight intensity variations, light source attenuation due to power consumption, and optical component degradation from extended use, the proposed D-FE + Optuna + XG-Boost model maintained the highest decision coefficient, lowest prediction root mean square error, and minimal fluctuations. This research expands the use of Raman feature peaks and introduces the integrative D-FE method. Unlike classical modeling approaches, which often require extensive optimization combinations for data preprocessing and feature extraction, the D-FE method achieves optimal denoising and feature extraction with less effort. By developing an Optuna + XG-Boost model based on D-FE, this research facilitates online, pollution-free, and rapid assessment of DO and pH values in paddy field water, offering technical support for synchronized measurement, fertilization, and sowing.

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文献类型: Article

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研究方向: Chemistry

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第 10 条

标题: IONIC LIQUID-BASED DISPERSIVE LIQUID-LIQUID MICROEXTRACTION FOLLOWED BY HPLC FOR THE DETERMINATION OF SIX EFFECTIVE COMPOSITION OF Silybum marianum

作者: Li, N (Li, Nan); Sun, P (Sun, Peng); Yang, X (Yang, Xue)

来源出版物: QUIMICA NOVA 卷: 48 期: 4 文献号: e20250109
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摘要: A novel pretreatment method ionic liquid-based dispersive liquid-liquid microextraction followed by high-performance liquid chromatography (HPLC) was established and applied in the analysis of silychristin, silydianin, silybin, silybin B, isosilybin A, isosilybin B in Silybum marianum. The critical parameters affecting dispersive liquid-liquid micro-extraction (DLLME), including selection of dispersive solvent and extraction solvent, volume of dispersive solvent and extraction solvent, adjustment of pH, salt concentration, extraction time, were investigated by single factor study. Under optimum conditions, all of the target analytes presented good linearity (r > 0.9991) and satisfied recoveries (recoveries > 89.5%, relative standard deviation (RSD) < 4.6%). The limits of detection and quantification were 0.16 to 0.74 ng kg(-1) and 0.42 to 2.52 ng kg(-1), respectively. The developed method is sensitive, rapid, accurate and employable to simultaneously determine six target compounds in Silybum marianum.

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文献类型: Article

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研究方向: Chemistry

输出日期: 2025-04-16

Construction & Building Technology

第 1 条

标题: Temperature characteristics of SiO_2 aerogels and PCM filled windows under long-period fire load

作者: Fu, EM (Fu, Enmin); Ma, LY (Ma, Lingyong); Jiang, W (Jiang, Wei); Shen, RH (Shen, Ruohan); Chen, Y (Chen, Yang); Li, Q (Li, Qing); Zhong, ZP (Zhong, Zhipeng); Li, D (Li, Dong); Tian, BY (Tian, Boyu)

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摘要: This study systematically investigates the thermal behavior and fire performance of triple-glazed windows filled with SiO2 aerogel and PCM under prolonged fire loading (3600s). Numerical simulations were conducted to analyze the effects of various interlayer combinations (PCM, air, SiO2 aerogel) on surface temperature changes and heat transfer. The fire resistance of four structural combinations (P + A, A + P, P + S, S + P) was compared. The results revealed significant differences in fire performance: while all structures remained partially intact after 3600s, the middle layer glass (G2) in P + A and P + S combinations failed at 1311s and 1260s, respectively. In contrast, A + P and S + P exhibited superior fire resistance, with only the firefacing glass (G1) failing, while the middle layer glass (G2) and the back fire-facing glass (G3) remained intact after 3600s. The ultra-low thermal conductivity of SiO2 aerogel combined with the heat-absorbing ability of PCM effectively enhanced the overall fire resistance of the structure. Additionally, the thickness of the SiO2 aerogel layer can be optimized to balance fire performance and material costs, providing the optimal solution for improving the fire safety of triple-glazed windows. This study highlights the innovative application of SiO2 aerogel and PCM in enhancing fire performance and provides essential data support for the design of fire-resistant glass structures.

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文献类型: Article

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研究方向: Construction & Building Technology; Engineering

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第 2 条

标题: Theoretical and numerical analysis on mechanical behavior of buckling restrained steel plate shear wall with staggered holes

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来源出版物: STEEL AND COMPOSITE STRUCTURES **卷:** 54 **期:** 6 **页:** 501-515 **DOI:** 10.12989/scs.2025.54.6.501 **Published Date:** 2025 MAR 25

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摘要: The four-side connected buckling restrained steel plate shear wall (FBRW) exhibits robust mechanical properties, including a high lateral load-bearing capacity and excellent stiffness, as well as effective energy dissipation. However, there is an inherent vulnerability due to the gap between the restraining panels and the boundary elements. This gap forms an unrestrained area in the inner steel plate, which is mechanically inferior to the areas confined by restraining panels. Consequently, damage typically manifests first in these unrestrained areas, particularly at the corners of the inner steel plate. To address this limitation, this paper introduced a modified design-namely, the four-side connected buckling restrained steel plate shear wall with staggered holes (SHBRW). In this innovative design, staggered holes were strategically positioned in the restrained regions of the inner steel plate. These perforations served to intentionally weaken those areas, thereby concentrating plastic strain within them. Moreover, the staggered holes oriented the inner steel plate into multiple strips aligned at 45 degrees, which aligns well with the principal stress direction in FBRW. This alignment enhanced the load-bearing efficiency of SHBRW. To rigorously assess the mechanical performance of SHBRW, finite element analysis was conducted. This analysis accounted for the distribution of plastic strain within the inner steel plate, as well as the internal forces exerted on the boundary elements. Subsequently, an optimal hole layout-comprising both hole spacing and diameter-was determined. Finally, theoretical equations for calculating the initial stiffness and yield capacity of SHBRW were derived to fulfill the demands of both performance

evaluation and structural design. A comparison between these theoretical calculations and the results of the finite element analysis revealed a high degree of concordance, affirming the utility and accuracy of the theoretical equations for practical applications.

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Environmental Sciences& Ecology

第 1 条

标题: Distinct effects of abundant and rare microbial communities on ecosystem multifunctionality across the soil profiles in agricultural Isohumosols

作者: Gu, HD (Gu, Haidong); Liu, ZX (Liu, Zhuxiu); Yao, Q (Yao, Qin); Jiao, F (Jiao, Feng); Liu, JJ (Liu, Junjie); Jin, J (Jin, Jian); Liu, XB (Liu, Xiaobing); Wang, GH (Wang, Guanghua)

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摘要: Microbial taxa living in deep soil cooperated closely with each other to cope with environmental stress.Rare microbial taxa occupy more central positions within ecological networks.Rare microbial community assembly was predominantly governed by deterministic processes.The impact of rare microbial taxa on ecosystem multifunctionality was greater than that of abundant taxa.Elucidating the intricate dynamics of microbial communities across soil profiles is essential for deciphering the mechanisms by which microorganisms regulate ecosystem functions. However, previous studies on soil microorganisms have predominantly centered on abundant

taxa, neglecting the significant role of rare taxa in maintaining ecosystem functions. This study comprehensively analyzed the diversity and assembly processes of both rare and abundant microbial taxa in the profiles of Udic and Ustic Isohumosols in northeast China. We also explored the relative contribution of rare and abundant microbial taxa in maintaining ecosystem multifunctionality. Results showed that rare microbial taxa exhibited a higher diversity compared to abundant taxa, and rare microbial taxa occupied more central positions within networks. Furthermore, rare taxa displayed narrower ecological niche breadths and stronger phylogenetic signals, and their community assembly was predominantly governed by deterministic processes. In contrast, stochastic processes exert more pronounced influences on the assemblage of abundant taxa. Ecosystem multifunctionality was significantly reduced in deep soil horizons relative to the surface soil horizons. This is accompanied by close cooperation of microorganisms to cope with environmental stress in deep soils. This study highlights the pivotal role of rare microbial communities in shaping multifunctionality of ecosystems across the entire soil profiles.

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文献类型: Article

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研究方向: Environmental Sciences & Ecology; Agriculture

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第 2 条

标题: The Simulation of the Wetland Biodiversity Pattern Under Different Land Use Policies on the Sanjiang Plain

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摘要: Involving wetland protection policies in the simulation of the wetland biodiversity pattern has the potential to improve the accuracy of policy-making. In this research, by combining the Cellular Automata Markov Model (CA-Markov) for land use change simulation and a wetland Biodiversity Estimation Model Based on Hydrological Pattern and Connectivity (BEHPC), we put forward a comprehensive framework that integrates policy stage division, the identification of stage characteristics, and biodiversity prediction. This framework divided the wetland conservation policies implemented in the study area into three stages: promoting (1995-2005), strengthening (2005-2010), and stabilizing (2010-2020). CA-Markov verification confirmed the stages' consistency with actual policy implementation, indicating its usability. Using the land use data of different policy stages as input for the CA-Markov model, we then predicted the wetland biodiversity pattern in 2030 under different scenarios. The results showed that the land use and wetland protection policies implemented during 2010-2020 were most beneficial for enhancing wetland biodiversity in the study area, with an expected increase of about 8% if continued. This study offers technical and scheme references for the future evaluation of wetland-related policies at the regional scale. It also provides guidance for optimizing the spatial structure and providing numerical goals for land use and wetland protection.

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研究方向: Environmental Sciences & Ecology; Water Resources

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第 3 条

标题: Warming stimulates cellulose decomposition by recruiting phylogenetically diverse but functionally similar microorganisms

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摘要: Cellulose is the most abundant component of plant litter, which is critical for terrestrial carbon cycling. Nonetheless, it remains unknown how global warming affects cellulose-decomposing microorganisms. Here, we carried out a 3-year litterbag experiment to examine cellulose decomposition undergoing +3 degrees C warming in a tallgrass prairie. Most cellulose-associated bacteria and fungi in litterbags were also detected in bulk soil, and bacteria in litterbags had higher community-level rrn copy numbers, larger genome sizes, and higher genome guanine-cytosine (GC) contents than those in bulk soil, implying higher growth rates. Warming stimulated soil respiration by 32.3% and accelerated mass loss of cellulose, concurring with the increase in relative abundances of most functional genes associated with carbon decomposition in litterbags. Incorporating cellulose-decomposing genes into an ecosystem model reduced model parameter uncertainty and showed that warming stimulated microbial biomass, activity, and soil carbon decomposition. Collectively, our study supports a trait-centric view since cellulose-decomposing genes or genomic traits are amenable for ecosystem modeling. By characterizing the phylogenetically diverse yet functionally similar cellulose-associated microorganisms and their responses to warming, we take a step toward more precise predictions of soil carbon dynamics under future climate scenarios.

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研究方向: Environmental Sciences & Ecology; Microbiology

输出日期: 2025-04-16

第 4 条

标题: Effects of exogenous phosphorus compounds interact with nitrogen addition on soil organic phosphorus fractions in a meadow steppe

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来源出版物: JOURNAL OF SOILS AND SEDIMENTS **DOI:** 10.1007/s11368-025-03993-0 **Early Access Date:** FEB 2025 **Published Date:** 2025 FEB 27

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摘要: Purpose Soil organic phosphorus is vital for plant growth and function, but there is still largely restricted to learning about how co-adding nitrogen (N) and phosphorus (P) affects the soil OP dynamics. Methods We researched the impacts of different P compound addition [KH2PO4 (PK) vs. Ca(H2PO4)2 (PCa)] at rates of 0, 2, 4, 6, 8, and 10 g P m- 2 yr- 1 combined with two-level N (NH4NO3) addition (0 and 10 g N m- 2 yr- 1) on soil labile, moderate-labile, moderate-stable, and high-stable organic P concentrations in a meadow steppe. Results Results showed that PK addition resulted in higher soil labile and high-stable organic P concentrations than PCa addition. P addition enhanced the concentration of soil labile organic P regardless of P compound form. P addition alone showed no impact on soil moderate-stable organic P. Compared with P addition alone, combined N and PK addition increased soil labile, moderate-labile and high-stable organic P concentrations, while combined N and PCa addition significantly decreased moderate-labile and moderate-stable organic P. Conclusion Our results highlighted that soil labile organic P is critical to the P cycle in grassland, and the P compound forms need to be taken into account when managing grasslands related to P utilization.

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文献类型: Article; Early Access

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研究方向: Environmental Sciences & Ecology; Agriculture

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Fisheries

第 1 条

标题: Ecotin as a novel virulence factor: Enhancing Edwardsiellapiscicida survival and pathogenicity

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来源出版物: AQUACULTURE 卷: 603 文献号: 742428
DOI: 10.1016/j.aquaculture.2025.742428 **Published Date:** 2025 JUN 15
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摘要: Edwardsiella piscicida is a highly pathogenic and stress-resistant bacterium that poses significant threats to the aquaculture industry. Ecotin (EcoT) is a multifunctional serine protease inhibitor that plays important roles in the pathogenicity of various bacteria. Its ability to inhibit host proteases and protect bacteria from immune attacks makes it a significant factor in bacterial infections. However, the role of EcoT in bacterial virulence remains largely unexplored. This study presents the first comprehensive elucidation of the diverse and critical roles of EcoT in E. piscicida. Our findings revealed that the mutation of ecoT significantly increases the production of bacterial extracellular polysaccharides (EPS) and enhances bacterial biofilm production. Under the strong acid stress, the expression of ecoT was significantly induced. Consistently, the mutation of ecoT significantly reduced bacterial capability to consume H+ ions and impaired its survival under strong acid stress conditions. Infection experiments demonstrated that ecoT deletion diminished the bacterium's resistance to host serum-mediated killing, proliferation within phagocytes, dissemination in immune tissues, and overall virulence. Based on these findings, we have formulated a hypothesis concerning the mechanism of action of EcoT. Under acidic conditions within the host, E. piscicida increases the levels of the periplasmic protein EcoT. EcoT enhances bacterial resistance to acidic stress, thereby facilitating bacterial survival within host cells. Concurrently, EcoT reduces EPS production and inhibits host protease activity, aiding the bacteria in evading the host's immune response. Our results suggest that EcoT functions as a novel virulence factor in E. piscicida, underscoring its significance in bacterial biofilm formation, stress tolerance, and pathogenicity.

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研究方向: Fisheries; Marine & Freshwater Biology

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第 2 条

标题: Identification of a target polypeptide of the CD169 receptor of bovine macrophage using a phage display peptide library

作者: Tong, CY (Tong, Chunyu); Liu, Q (Liu, Qi); Zhang, ZL (Zhang, Zhelin); Liang, YM (Liang, Yimin); Feng, WZ (Feng, Wenzhi); Yu, HH (Yu, Honghao); Lan, D (Lan, Di); Liu, QY (Liu, Qianyi); Song, BC (Song, Bocui)

来源出版物: DEVELOPMENTAL AND COMPARATIVE IMMUNOLOGY **卷:** 166 **文献号:** 105359 **DOI:** 10.1016/j.dci.2025.105359
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摘要: CD169, a salivary acid adhesion receptor on macrophages, plays a crucial role in enhancing the phagocytic response to pathogenic bacteria and in antibacterial immunity. To explore its potential in targeted veterinary drug applications, we used phage display technology to biopan peptide fragments specific to CD169. After several rounds of screening, 45 phage clones were selected for ELISA testing, resulting in 21 high-affinity clones. DNA sequencing revealed that 65 % of the peptides shared a common amino acid sequence (APRL***HHH). A 12-amino acid peptide, CD169-T1, was synthesized with rhodamine B labeling at the N-terminal to

assess its targeting capability. Flow cytometry and immunofluorescence assays confirmed that CD169-T1 specifically binds to HEK293T cells expressing bovine CD169 and murine macrophages, showing red fluorescence at the cell membrane. Moreover, the fluorescent marker of CD169-T1 was detected in the flow cytometry test results, thus confirming that the CD169-T1 has a significant targeting effect. The CD169-T1 obtained in this study can serve as the targeted part of the immune preparations to prevent and treat a wide variety of pathogenic bacteria, thus significantly facilitating the antigen presentation and increasing the utilization rate and the immune protection effect. Furthermore, this study provides a reference for the targeted research on CD169.

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文献类型: Article

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研究方向: Fisheries; Immunology; Veterinary Sciences; Zoology

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Food Science & Technology

第 1 条

标题: Purification and molecular docking of α-glucosidase inhibitory peptides from mung bean protein hydrolysates

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摘要: High-fat diet is a significant contributor to the development of various chronic metabolic diseases. Food-derived bioactive peptides have shown potential in mitigating such conditions by inhibiting alpha-glucosidase activity, thereby improving metabolic health. This study investigates the molecular mechanisms underlying the interaction between mung bean peptide and alpha-glucosidase using a combination of

ultrafiltration, high-performance liquid chromatography, mass spectrometry, molecular docking, and molecular dynamics simulations. Results demonstrate that ultrafiltration and fractionation of mung bean peptide mixtures yield four components with alpha-glucosidase inhibitory activity, among which the P4 (<1 kDa) exhibits the strongest hypoglycemic effect. Comparative analysis identified novel monomeric peptides with significant activity, including FNSL (IC50 = 0.24 +/- 0.031 mmol/L, P > 0.05) and DVTPL (IC50 = 0.27 +/- 0.072 mmol/L, P > 0.05), whose hypoglycemic activities approach that of acarbose (IC50 = 0.17 +/- 0.034 mmol/L). Molecular docking revealed that FNSL, FGLN, and EFGHLR establish spatially complementary binding interactions and alpha-glucosidase, driven by hydrogen bonds, salt bridges, and van der Waals forces. Molecular dynamics simulations in an aqueous environment indicated that FNSL exhibits a binding free energy of -12.773 kcal/mol, with key contributions from residues Asp616, Leu678, Leu677, Lee650, Phe649 and Ser676. These findings provide valuable insights into the structural basis and inhibitory mechanisms of mung bean peptides.

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研究方向: Food Science & Technology

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第 2 条

标题: Exploration of Pea Protein Isolate-Sodium Alginate Complexes as a Novel Strategy to Substitute Sugar in Plant Cream: Synergistic Interactions Between the Two at the Interface

作者: Sun, JR (Sun, Jingru); Yang, XY (Yang, Xiyuan); Diao, JJ (Diao, Jingjing); Wang, YC (Wang, Yichang); Wang, CY (Wang, Changyuan)

来源出版物: FOODS 卷**:** 14 期**:** 6 文献号**:** 991 **DOI:** 10.3390/foods14060991 **Published Date:** 2025 MAR 14

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摘要: This study aims to explore the feasibility of using pea protein isolate (PPI)/sodium alginate (SA) complex as a sugar substitute to develop low sugar plant fat cream. Firstly, this study analyzed the influence of SA on the structure and physicochemical properties of PPI and evaluated the types of interaction forces between PPI and SA. The addition of SA effectively induces the unfolding and

structural rearrangement of PPI, causing structural changes and subunit dissociation of PPI, resulting in the exposure of internal-SH groups. In addition, the addition of SA increased the content of beta-folding in PPI, making the structure of PPI more flexible and reducing interfacial tension. The ITC results indicate that the binding between PPI and SA exhibits characteristics of rapid binding and slow dissociation, which is spontaneous and accompanied by heat release. Next, the effect of PPI/SA ratio on the whipping performance and quality of low sugar plant fat creams was studied by using PPI/SA complex instead of 20% sugar in the cream. When using a PPI/SA complex with a mass ratio of 1:0.3 instead of sugar, the stirring performance, texture, and stability of plant fat cream reach their optimum. Finally, the relevant analysis results indicate that the flexibility and interface characteristics of PPI are key factors affecting the quality of cream. This study can provide theoretical support for finding suitable sugar substitute products and developing low sugar plant fat cream.

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研究方向: Food Science & Technology

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第 3 条

标题: Effects of Different Shaping Methods and Loading on Fruit Quality and Volatile Compounds in 'Beibinghong' Grapes

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摘要: The effects of different shaping methods and loading treatments on the photosynthetic rate, chlorophyll content, fruit yield and quality, and volatile compound composition of the 'Beibinghong' grape were studied. In the experiment, 6-year-old 'Beibinghong' grapes were selected as the material, and two kinds of shaping methods were adopted: the double main vine upright tree (control) and the inclined horizontal dragon tree. The inclined horizontal dragon tree was treated with different loads. The volatile components in grapes were analyzed by gas chromatography-mass spectrometry (GC-MS). The changes in quality and volatile components of 'Beibinghong' grape under different treatments were analyzed by multivariate statistics. The results showed that the inclined horizontal dragon tree significantly increased the net photosynthetic rate and chlorophyll content of leaves, and increased the soluble sugar content and sugar-acid ratio of fruits. The quality of grapes was better than that of the upright tree with double main vine. The results of loading showed that the plants with nine fruit branches had higher net photosynthetic rate and yield, and the best performance in reducing sugar content, titrable acid content and sugar-acid ratio, which was the most suitable loading treatment. The results of metabolomics study showed that 291 volatile metabolites were identified, of which 25 were considered to be the key differential metabolites affecting the flavor of 'Beibing red' fruit under different treatments. Further analysis showed that the inclined horizontal draconite tree was superior to the double main draconite tree in improving fruit quality and accumulation of volatile compounds in fruit. This study revealed the regulation mechanism of different shaping methods and loading loads on the growth and fruit quality of 'Beibinghong' grapes, which provided theoretical support for optimizing the viticulture management of 'Beibinghong' and improving the fruit quality and market competitiveness.

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研究方向: Food Science & Technology

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第 4 条

标题: Metabolomic Analysis of Flavour Development in Mung Bean Foods: Impact of Thermal Processing and Storage on Precursor and Volatile Compounds

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摘要: Consumers prefer mung beans for their low allergenicity and nutritional benefits. However, flavour development in mung bean foods has been problematic, with beany flavour being a limiting factor. Hot processing is crucial in forming mung bean flavours, and storage-induced changes in flavour precursors directly impact the taste post-processing. This study used metabolomics to analyse the effects of hot processing (baking and cooking) on mung bean flavour and differences after storage. A total of 131 flavour precursors and 45 volatile substances were identified across six sample groups. The results showed that baking and cooking upregulated 22 and 18 volatile substances (ketones, aldehydes, esters, pyridine, pyrazines, etc.), respectively. The Maillard reaction during baking notably increased compounds like 2-hydroxypyridine, 2-methoxy-3-isobutyl pyrazine, 1,2-hexanedione, and 2,3-butanedione. Both methods inhibited linoleic acid oxidation, significantly reducing hexanal content, a key "bean" odour substance. However, storage accelerated linoleic acid conversion to C13 peroxides, increasing hexanal content and bean odour. This process decreased precursor substances like glucose-1-phosphate and caused the accumulation of pyruvic acid intermediates in pentose phosphate and pyruvate metabolism/amino acid metabolism pathways, leading to reduced mung bean taste richness.

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文献类型: Article

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研究方向: Food Science & Technology

输出日期: 2025-04-16

第 5 条

标题: Physiological impact of Trichoderma viride agents on the quality and production of melon that is grown on soils continuously cropped to melon

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来源出版物: FRONTIERS IN SUSTAINABLE FOOD SYSTEMS 卷: 9
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Published Date: 2025 FEB 12

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摘要: The issue of ongoing cropping barriers is getting worse as China's melon planting area steadily grows, and the melon industry's sustainable growth is being negatively impacted by the steadily diminishing yield and quality of the fruit. Trichoderma is a probiotic that can enhance the physiological traits of crops, encourage their growth, and raise their yield and quality. It is yet unknown, though, how Trichoderma influences the growth, physiological traits, and yield of melon grown on soils continuously cropped to melon. Trichoderma viride kf57 agents at 1.0 x 104, 8.0 x 104, 6.4 x 105, and 5.12 x 106 CFU/g and no Trichoderma viride agents (CK) were utilized as treatments. At the seedling and fruiting stages, a pot experiment and a bedding experiment were conducted to study the physiological properties and yield of melon under varying concentration of Trichoderma viride kf57 agents. As a result of the application of T. viride agents, the indexes of melon seedlings were all significantly improved. The treatment of 6.4 x 105 CFU/g had the best promoting effect on the morphology of melon seedlings, and the plant height, stem diameter, leaf area, fresh weight of whole plant, dry weight of whole plant, root shoot ratio, and strong seedling index of melon seedlings increased by 90.39, 46.30, 37.55, 81.35, 100.62, 51.47, and 240.00%, respectively, compared with CK. The results showed that different amounts of T. viride agents could improve physiological and biochemical indices of melon leaves during the fruiting stage; the treatment of 6.4 x 105 CFU/g was the most effective; chlorophyll content, nitrate nitrogen content, sucrose content, reducing sugar content, free proline content, nitrate reductase (NR) activity, peroxidase (POD) activity, and superoxide dismutase (SOD) activity of melon leaves increased at 30 days after melon pollination. Melon quality and yield was also enhanced by the use of T. viride agents, with the treatment of 6.4 x 105 CFU/g T. viride agents having the best

boosting effects. The melon fruit's transverse diameter, vertical diameter, single fruit weight, and yield all increased. The amount of soluble solids, vitamin C, soluble protein, soluble sugar, and sugar acid ratio also increased. In conclusion, by promoting the morphology of melon grown on soils continuously cropped to melon seedlings, T. viride agents can improve the physiological characteristics of melon grown on soils continuously cropped to melon and improve the production and quality qualities of melon. When using T. viride kf57 agents, 6.4 x 105 CFU/g is the highest effective dosage. The study revealed that T. viride agents had significant potential as biological agents as they showed good results in melon yield and quality formation, as well as in enhancing seedling quality.

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研究方向: Food Science & Technology

输出日期: 2025-04-16

第 6 条

标题: Fabrication and characterization of soy isoflavones-oat β-glucan complexes: Improvement on the antioxidant activity and release rate

作者: Dai, AN (Dai, Anna); Chi, XX (Chi, Xiaoxing); Wang, HL (Wang, Helin); Zhang, DJ (Zhang, Dongjie)

来源出版物: LWT-FOOD SCIENCE AND TECHNOLOGY **卷:** 218
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摘要: The interaction between polyphenols and polysaccharides has the potential to enhance the stability and antioxidant activity of natural polyphenols. This study investigated the complexation between soy isoflavones (SI) and oat beta-glucan (OBG) under different conditions (ratio, pH, and temperature). When the ratio was 1:1, pH was 5 and 40 degrees C, the binding rate and turbidity were 65.1% and 0.461.

Additionally, in comparison to SI alone, it was observed that a higher binding rate correlated with an increase in phenolic hydroxyl groups present, which subsequently enhanced the ABTS center dot+ scavenging rate. After digestion, these complexes dissociated to expose additional active sites, resulting in superior antioxidant capacity compared to SI alone, and more SI was released (21.4%). Transmission electron microscopy (TEM) confirmed successful preparation of spherical complexes. Fourier-transform infrared (FT-IR) spectroscopy and nuclear magnetic resonance (NMR) analyses revealed that hydrogen bonding served as the primary binding force between SI and OBG. Furthermore, X-ray diffraction (XRD) and differential scanning calorimetry (DSC) demonstrated that SI was incorporated into the network structure of OBG by inclusion. This study elucidates both the interaction mechanism between SI and OBG as well as their enhancement of antioxidant capacity, providing valuable theoretical insights for designing dietary fiber and polyphenol systems.

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研究方向: Food Science & Technology

输出日期: 2025-04-16

第 7 条

标题: Study on agricultural carbon emission efficiency calculation and driving path of grain production department in China

作者: Han, GH (Han, Guanghe); Zhang, X (Zhang, Xin); Pan, X (Pan, Xin)

来源出版物: QUALITY ASSURANCE AND SAFETY OF CROPS & FOODS **卷:** 17 **期:** 1 **页:** 201-216 **DOI:** 10.15586/qas.v17i1.1512 **Published Date:** 2025

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摘要: Agriculture plays a pivotal role in China's environment, economy, and society, standing as a pillar in the country's shifts toward lower carbon emissions. This is important, especially in food production, where sustainable practices protect the environment and ensure food security and quality. Therefore, understanding the factors affecting carbon emission efficiency is highly practical for speeding up

emission reductions and improving efficiency throughout the entire food supply chain. This study uses the Super Slacks Based Measure (SBM) model to evaluate the efficiency of carbon emissions in 30 provinces (including municipalities and autonomous regions) in China from 2013 to 2022, emphasizing the food production sector. Through the Technology Organization Environment (TOE) framework, an integrated analysis is crafted to explore ways to enhance carbon emission efficiency. The set Qualitative Comparative Analysis (fsQCA) method is applied to examine these pathways from a perspective offering unique insights tailored to the food production field. The findings reveal that agricultural carbon emission efficiency surpasses the average in half of the provinces studied, yet notable discrepancies exist among them. In the eastern regions, efficiency values tend to be higher compared to the western areas, impacting the sustain- ability of regional food production. The research identifies four patterns that drive agricultural carbon emission efficiency: those led by technical conditions, attention structure synergy, agriculture support structure synergy, and overall development synergy. Enhancing efficiency involves factors such as adopting technologies promoting digital economy development, investing in agriculture financially, embracing eco-friendly agricultural practices, and optimizing the agricultural industrial structure. These aspects have implications for food science and the broader agricultural sector. Additionally, the study uncovers a substitution relationship between technological and environmental conditions that influence efficiency. These findings provide an overview of the pathways that enhance provincial agricultural carbon emission efficiency from an interactive perspective. This study is helpful to expand the understanding of the TOE framework, enrich the research results in the field of low-carbon agriculture, provide insights for provinces in the stage of efficiency improvement, and provide theoretical support for carbon emission reduction in grain production in various provinces. The research aims to guide policymakers, food scientists, and agricultural stakeholders in China toward optimizing carbon efficiency in food production systems to support global climate change mitigation efforts while ensuring food supply.

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研究方向: Food Science & Technology

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第 1 条

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摘要: African swine fever (ASF) is a highly contagious and severe infectious disease caused by African swine fever virus (ASFV). The disease significantly threatens the sustainable development of the global pig industry. Unfortunately, to date, no safe and efficacious vaccines are commercially available except in Vietnam. Antioxidative stress is a critical factor in antiviral strategies. In this study, we show that ASFV infection elevates the level of reactive oxygen species (ROS) and suppresses the nuclear factor erythroid 2-related factor 2 (Nrf2) signaling pathway in vitro and in vivo. Moreover, overexpressing Nrf2 can significantly inhibit ASFV replication. Through high-throughput screening of natural small molecules against ASFV, we identify resveratrol (RES), an Nrf2 activator, as a compound capable of inducing the cellular antiviral responses and effectively inhibiting ASFV replication in primary porcine alveolar macrophages (PAMs). Notably, untargeted metabolomics profiling reveals that glutathione emerges as a primary differential metabolite related to the antiviral activities of RES against ASFV. Mechanistically, RES exerts its antiviral effects and attenuates the elevated level of ROS caused by ASFV infection by inducing the production of reduced glutathione (GSH) via the activation of the Nrf2 signaling pathway. In conclusion, RES exhibits broad efficacy as a potentially effective compound for inhibiting ASFV infection and alleviating the oxidative stress induced by ASFV infection via the Nrf2 signaling pathway.

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文献类型: Article

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研究方向: Immunology; Infectious Diseases; Microbiology

输出日期: 2025-04-16

第 2 条

标题: Editorial: Exploring zoonoses: therapeutic strategies and drug mechanisms

作者: Tan, L (Tan, Lei); Ma, MX (Ma, Mingxiao); Zhu, ZB (Zhu, Zhanbo); Yang, S (Yang, Shen)

来源出版物: FRONTIERS IN CELLULAR AND INFECTION MICROBIOLOGY **卷:** 15 **文献号:** 1581340 **DOI:** 10.3389/fcimb.2025.1581340 **Published Date:** 2025 MAR 19

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研究方向: Immunology; Microbiology

输出日期: 2025-04-16

第 3 条

标题: Effects of Portulaca oleracea L. Polysaccharide on piglets infected with porcine rotavirus

作者: Li, Y (Li, Yan); Zhou, XC (Zhou, Xiechen); Qi, SS (Qi, Shanshan); Jia, GY (Jia, Guiyan); Cao, JY (Cao, Junyang); Guan, ZJ (Guan, Zijan); Zhao, R (Zhao, Rui)

来源出版物: MICROBIAL PATHOGENESIS **卷:** 200 **文献号:** 107355
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摘要: Piglet diarrhea stands as the primary cause of piglet mortality, inflicting substantial economic losses to pig farmers. Porcine rotavirus (PoRV), a member of the Reoviridae family, bears responsibility for instigating diarrhea and severe dehydration, culminating in piglet fatalities. Portulaca oleracea L. (POL), a Chinese medicinal herb commonly utilized for its antiviral properties and effectiveness in

treating diarrhea, holds promise for mitigating these effects. Nevertheless, the in vivo antiviral effect of Portulaca oleracea L. polysaccharide (POL-P), a key component of POL, on PoRV infection remains obscure. This study aimed to investigate the antiviral effects of POL-P on PoRV in piglets and its impact on their intestinal flora. Studies have demonstrated that oral POL-P improves growth in both lactating mice and PoRV-infected piglets, while reducing diarrhea and mortality. It also helps to reduce intestinal damage and lower viral mRNA levels in the jejunum and ileum. Additionally, POL-P improves blood tests in piglets, boosting levels of IFN-alpha and IL-10, and lowering tumor necrosis factor-alpha and IL-6. Analysis of the intestinal flora in PoRV-infected piglets showed reduced levels of Bacteroides (18.39 %) and increased levels of Firmicutes (39.81 %), Proteobacteria (33.46 %), and Verrucomicrobia (7.42 %). After POL-P treatment, Bacteroides increased to 28.31 %, while Firmicutes, Proteobacteria, and Verrucomicrobia decreased to 34.93 %, 25.52 %, and 2.53 %, respectively. At the genus level, POL-P treatment reduced the abundance of Klebsiella, Ackermannia, and Streptococcus. In conclusion, POL-P helps reduce inflammation and intestinal damage caused by PoRV infection, prevents viral colonization, restores gut flora balance, improves piglet growth, and reduces diarrhea and mortality.

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研究方向: Immunology; Microbiology

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Materials Science

第 1 条

标题: Corrigendum to "An amorphous calcium phosphate for drug delivery: ATP provides a phosphorus source and microwave - assisted hydrothermal synthesis" [Mater. Today Commun. 25 (2020), 101455]

作者: Feng, WP (Feng, Wenpo); Feng, CX (Feng, Chenxi); Wang, BB (Wang, Binbin); Jing, AH (Jing, Aihua); Li, GD (Li, Guangda); Xia, XC (Xia, Xichao); Liang, GF (Liang,

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研究方向: Materials Science

输出日期: 2025-04-16

Mathematics

第 1 条

标题: A Constrained Multi-Objective Optimization Algorithm with a Population State Discrimination Model

作者: Zhao, SY (Zhao, Shaoyu); Jia, HM (Jia, Heming); Li, YC (Li, Yongchao); Shi, Q (Shi, Qian)

来源出版物: MATHEMATICS **卷:** 13 **期:** 5 **文献号:** 688
DOI: 10.3390/math13050688 **Published Date:** 2025 MAR

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摘要: The solution to constrained multi-objective optimization problems (CMOPs) requires optimizing the objective functions while satisfying the constraint conditions. To effectively address CMOPs, algorithms must balance objectives and constraints.

However, the limited adaptability of specific constraint-handling techniques (CHTs) has hindered the widespread applicability of constrained multi-objective evolutionary algorithms (CMOEAs). To overcome this limitation, this article proposes a population state-based CMOEA. First, a model is developed to identify population states based on the positions of the primary and auxiliary populations. Tailored environmental selection models are then designed for the auxiliary population according to different states, enabling them to guide the evolution of the main population more effectively. By dynamizing the CHTs, the proposed algorithm can adapt to a broader and more complex range of CMOPs. Additionally, state-specific optimal individual selection methods are introduced, allowing the auxiliary population to escape local optima and accelerate exploration. A simple yet effective resource allocation model is incorporated to address the potential computational resource waste associated with dual populations, enhancing the resource utilization. Comprehensive tests, including comparisons with seven state-of-the-art algorithms, were conducted on 47 benchmark functions and 12 real-world problems. The experimental results demonstrate that the proposed CMOEA outperforms existing CMOEAs in its convergence and diversity.

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研究方向: Mathematics

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Microbiology

第 1 条

标题: Fusobacterium necrophorum mediates the inflammatory response in the interdigital skin and fibroblasts of dairy cows via the TNF-α/TNFR1/ NF-κB pathway

作者: Yue, Y (Yue, Yang); Zhang, AC (Zhang, Anchi); Liu, M (Liu, Meng); Ge, YS (Ge, Yansong); Xu, ES (Xu, Enshuang); Zheng, JS (Zheng, Jiasan)

来源出版物: VETERINARY MICROBIOLOGY **卷:** 304 **文献号:** 110483
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摘要: Foot rot is a contagious disease caused by F.necrophorum. It is responsible for economic losses in dairy farming. Studies on foot rot in dairy cows are focused on the isolation and identification of pathogens and treatment methods. Few studies have reported inflammatory changes in tissues and regulatory mechanisms following infection. Here, the effects of F.necrophorum infection on the skin explants and skin fibroblasts between the toes of cattle were analyzed using histopathology and other techniques. F.necrophorum infection increased the epidermal thickness and number of hair follicles and sebaceous glands. Other skin appendages exhibited varying degrees of necrosis, and a significant infiltration of inflammatory cells was noted in the interdigital skin explants. The expressions of pro-inflammatory cytokines (IL-1 beta and TNF-alpha) and key genes in the inflammatory signalling pathway (TNFR1 and NF-kappa B p65) were elevated. Treatment with the TNFR1 inhibitor CAY10500 reduced inflammatory cell infiltration and alleviated TNFR1 and p65 expression. An inflammatory cell model was established using different proportions of F.necrophorum to infect BDF cells. F.necrophorum infection significantly inhibited the proliferation and viability of BDF cells and enhanced the expression of TRADD, TRAF2, TNF-alpha, and IL-18. CAY10500 reduced the F.necrophorum infection-induced inflammatory response and induced inflammatory responses in interdigital skin explants and BDF cells by inhibiting the TNF-alpha/TNFR1/NF-kappa B signaling pathway. In summary, these findings provide new insights into the mechanism of inflammatory responses in dairy cows with foot rot.

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文献类型: Article

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研究方向: Microbiology; Veterinary Sciences

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Parasitology

第 1 条

标题: Prevalence, risk factors, and regional insights of bovine fasciolosis in China: A systematic review and meta-analysis

作者: Lan, Z (Lan, Zhuo); Zhang, YX (Zhang, Yu-Xi); Zhang, AH (Zhang, Ai-Hui); Wang, YY (Wang, Yong-Yan); Qiu, HY (Qiu, Hong-Yu); Gao, JF (Gao, Jun-Feng);

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摘要: Fasciolosis, a significant zoonotic disease with considerable economic and public health implications, presents a serious challenge to both animal husbandry and human health. Despite numerous reports on bovine fasciolosis, a comprehensive understanding of its prevalence and associated risk factors in China remains limited. To address this knowledge gap, we conducted a meta-analysis of studies examining the occurrence of Fasciola hepatica and Fasciola gigantica in key ruminant species across China. Our review included 104 eligible articles. The meta- analysis revealed an overall pooled prevalence of bovine fasciolosis at 17 %. Among the two species, F. gigantica exhibited a higher infection rate (52.33 %) compared to F. hepatica (36.60 %). Geographical and environmental factors influenced disease distribution, with higher prevalence observed in Southwestern China and Chongqing, high altitude regions, during summer months, and in areas with BWk climate conditions. Temporal analysis indicated a higher prevalence in samples collected before 1978. Additionally, female ruminant and free-ranging groups showed increased susceptibility. Significant differences ($P < 0.05$) were identified based on bovine species and age, with ruminant aged older than 4 years being particularly at risk. Our findings highlight the widespread distribution of bovine fasciolosis across 23 provinces and autonomous regions in China. Efforts to prevent and control bovine fasciolosis, with a focus on vulnerable age groups and high-risk regions, will be crucial for advancing animal husbandry and contributing to broader societal and economic development.

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文献类型: Review

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研究方向: Parasitology; Tropical Medicine

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Plant Sciences

第 1 条

标题: Identification of miRNA-mRNA regulatory network during the germination of soybean seed (Glycine max) and the role of Gma-miR1512a-GmKIN10 interaction

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来源出版物: PLANT PHYSIOLOGY AND BIOCHEMISTRY 卷: 223
文献号: 109853 **DOI:** 10.1016/j.plaphy.2025.109853 **Published Date:** 2025 JUN

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摘要: Seed germination is a key and complex physiological process in plant life, including soybeans. Here, we explored the miRNA-mRNA transcriptome changes and the key genes in the germination stages of the soybean. Morphological analysis showed that the imbibition of seeds was completed at 12 h, and the embryo broke through the seed coat at 36 h. During seed germination, mRNA and miRNA sequencing identified 20845 differentially expressed mRNAs (DEMs) and 421 differentially expressed miRNAs (DEMIs) at three specific time points: 12 h, 36 h, and 108 h. KEGG enrichment revealed that plant hormone signal transduction, plant-pathogen interaction and MAPK signaling pathway-plant were the crucial biological processes for seed germination. ABA and GA related DEMs on plant hormone signal transduction were abundant. miRNA-mRNA integrated analysis showed that 5170 miRNA-mRNA pairs were found. During germination, 20 significant miRNA-mRNA interactions were identified, involving the top 10 differentially expressed miRNAs (DEMIs) and 198 differentially expressed mRNAs (DEMs). Interestingly, the expression level of Gma-miR1512a increased significantly during soybean seed germination. This miRNA specifically regulates GmKIN10, homologous to AtKIN10, which mediates germination. To verify this interaction, co-agroinjection of GmKIN10-GFP/GUS and Gma-miR1512a into tobacco leaves demonstrated that Gma-miR1512a can inhibit GmKIN10 expression by cleaving its target site. Furthermore, the function of Gma-miR1512a-GmKIN10 were verified by overexpression transgene. Although Arabidopsis seeds overexpressing Gma-miR1512a (OE-Gma-miR1512a) showed no significant differences in germination indices compared to wild-type (WT) seeds, those overexpressing GmKIN10 (OE-GmKIN10) exhibited significantly lower germination indices. The seeds germination index of GmKIN10 and Gma-miR1512a double overexpression lines recovered. Additionally, the yeast two-hybrid assay, protein interaction prediction,and molecular docking all showed that GmKIN10 might interact with GmPP2A and

GmDSP4. This study identified a complex miRNAmRNA regulatory network that plays a crucial role in soybean seed germination. Specifically, Gma-miR1512a was found to regulate GmKIN10, significantly influencing germination rates and hormone signaling pathways.

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文献类型: Article

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研究方向: Plant Sciences

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第 2 条

标题: Effects of the plant growth-promoting rhizobacterium Zobellella sp. DQSA1 on alleviating salt-alkali stress in job's tears seedings and its growth-promoting mechanism

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来源出版物: BMC PLANT BIOLOGY **卷:** 25 **期:** 1 **文献号:** 368
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摘要: Plant probacteria as a sustainable microbial resource are crucial to plant, which not only promote plant growth but also increase the stress resistance of plants. In this study, whole-genome sequencing of Zobellella sp. DQSA1 was performed, and Zobellella sp. DQSA1 was applied to Job's tears seedings under salt-alkali stress. Whole-genome analysis revealed that Zobellella sp. DQSA1 can produce metabolites such as tryptophan, alpha-linolenic acid and other products through metabolism. In

response to the action of Zobellella sp. DQSA1, the contents of jasmonic acid (JA) and indole-3-acetic acid (IAA) in the root system increased by 32.5% and 81.4% respectively, whereas the content of abscisic acid (ABA) decreased by 30.0%, and the contents of other endogenous hormones also significantly differed. Additionally, the physiological and biochemical indices related to growth and salinity demonstrated notable differences. Finally, sequencing analysis revealed that 57 differentially expressed genes (DEGs) were involved in 16 Gene Ontology (GO) pathways. Furthermore, the correlations between the contents of endogenous hormones and 57 DEGs were analyzed, and JA was found to be the most significantly correlated. These results provide a theoretical basis for further exploration of the functions and mechanisms of plant growth-promoting rhizobacteria (PGPR) under salt-alkali stress.

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文献类型: Article

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研究方向: Plant Sciences

输出日期: 2025-04-16

第 3 条

标题: Soybean RING-type E3 ligase GmCHYR16 ubiquitinates the GmERF71 transcription factor for degradation to negatively regulate bicarbonate stress tolerance

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摘要: Plant AP2/ERF (APETALA2/ethylene response factor) transcription factors are key regulators of environmental stress tolerance. We previously characterized that the wild soybean ERF71 transcription factor conferred bicarbonate stress tolerance; however, the underlying mechanism still remains elusive. Here, multiple approaches were used to identify the E3 ubiquitin ligase GmCHYR16 as an interactor of GmERF71. Ubiquitination and protein degradation of GmERF71 mediated by GmCHYR16 were then analyzed. Overexpression transgenic lines were generated to evaluate the function of GmCHYR16 and GmERF71 in bicarbonate stress response. GmCHYR16 interacts with GmERF71. GmERF71 proteins undergo ubiquitination and

26S proteasome-mediated degradation, and GmCHYR16 mediates the ubiquitination of GmERF71 for degradation. The GmCHYR16-mediated ubiquitination and proteasome-dependent degradation of GmERF71 are reduced under bicarbonate stress. GmCHYR16 expression in transgenic Arabidopsis, soybean hairy roots, and stable transgenic soybean reduces bicarbonate stress tolerance. GmERF71 degradation is decreased in the protein extracts of atchyr1/7 mutants, and atchyr1/7 mutants display higher bicarbonate tolerance. Overexpression of GmERF71 in transgenic soybean obviously increases bicarbonate tolerance, and GmCHYR16 reduces the bicarbonate tolerance of transgenic hairy root composite soybean plants by repressing GmERF71. Our results demonstrate that GmCHYR16 directly ubiquitinates GmERF71 for degradation and negatively regulates bicarbonate stress tolerance.

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文献类型: Article; Early Access

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研究方向: Plant Sciences

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第 4 条

标题: Comprehensive genome-wide analysis of the GmFRIGIDA gene family in soybean: identification, characterization, and expression dynamics

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来源出版物: FRONTIERS IN PLANT SCIENCE **卷:** 16 **文献号:** 1536866 **DOI:** 10.3389/fpls.2025.1536866 **Published Date:** 2025 MAR 10

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摘要: Background Frigida (FRI) genes are crucial for regulating flowering time in plants. While the biological importance of the Frigida-like (FRL) gene family has been

recognized in Arabidopsis, a systematic analysis of these genes in soybean is lacking. Characterizing FRL genes in soybean will help uncover their roles in flowering regulation, offering valuable insights for improving soybean adaptation.Results In this study, we identified 16 Frigida genes in soybean, naming them based on their relationship to the FRL genes in Arabidopsis thaliana. These genes are unevenly distributed across thirteen chromosomes. Phylogenetic analysis categorizes Frigida-like proteins from Arabidopsis, soybean, and rice into four distinct subfamilies (I-IV). Our findings indicate that eight GmFRLs arose from whole-genome duplication (WGD) events, alongside two tandem duplication events. Gene structure analysis confirmed that all GmFRL members contain Frigida domains. Additionally, promoter analysis revealed numerous cis-acting elements related to photoperiodic response, suggesting their significant role in soybean's light response mechanisms. RNA-seq data demonstrated variable expression levels of GmFRL genes across tissues, including flower, leaf, pod, and seed, and other tissues, while subcellular localization and qPCR analyses further support their vital role in light responsiveness in soybean.Conclusion In summary, our comprehensive analysis offers valuable insights into the evolution and potential functions of GmFRL genes, emphasizing their significance in photoperiodic responses and establishing a foundation for further research on the GmFRL family.

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研究方向: Plant Sciences

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第 5 条

标题: Transcriptome and metabolome analysis revealed that phenylpropanoid and flavonoid biosynthesis respond to drought in tiger nut

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摘要: Tiger nuts (Cyperus esculentus) have emerged as a novel oil crop, being utilized as raw materials for obtaining industrial ink. Drought is a serious stress that significantly affects the entire plant and reduces its yield. The seedling stage is crucial as it determines the future growth and yield. Consequently, it is essential to enhance the ability of tiger nuts to mitigate drought at the seedling stage. A comprehensive analysis was conducted on roots and leaves, including their phenotypes, physiological indicators, transcriptomes, and metabolomes. The results revealed that leaves and roots were affected by drought stress, as evidenced by phenotypic data such as leaf area and physiological indicators, including changes in peroxidase and catalase activity, malondialdehyde content, electrolyte leakage, and superoxide anion levels. Drought imposed greater effects on leaves. Phenylpropanoid and flavonoid biosynthesis were identified as candidate pathways using transcriptome and metabolome analysis, Real-Time Quantitative PCR (RT-qPCR), and physiological verifications. However, the response modes of the root and leaf parts differed based on the enriched pathways analysis, indicating that the changes in the content of some metabolites were contrasting between the roots and leaves. The study revealed the molecular mechanisms under drought, particularly the synergistic responses in leaves and roots, providing insights and a theoretical basis for enhancing the drought tolerance of tiger nuts.

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文献类型: Article

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研究方向: Plant Sciences

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第 6 条

标题: Exogenous tryptophan enhances cold resistance of soybean seedlings by promoting melatonin biosynthesis

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摘要: Given the global climate change, soybean production is highly susceptible to low temperature. Although tryptophan, the synthesis precursors of melatonin and auxin, exhibited a positive effect in regulating plant growth, it is still unclear whether tryptophan could improve the tolerance of soybean to low temperature stress through endogenous melatonin synthesis. Therefore, the effect of tryptophan on the resistance of two varieties of soybean seedlings to low temperature (4 degrees C) was evaluated, and the main regulation pathway of tryptophan was verified with melatonin synthesis inhibitors. The results revealed that low temperature stress significantly inhibited the growth of soybean, while the application of exogenous tryptophan significantly enhanced the antioxidant activity of soybean seedlings to reduce the content of reactive oxygen species, including O2- (11.3%) and H2O2 (17.8%), and effectively protected the photosynthetic capacity of leaves, involving net photosynthetic rate (22.94%), transpiration rate (15.31%), stomatal conductance (20.27%). And the application of tryptophan significantly increased the leaf area (16.63%), plant height (7.14%), root surface area (24.37%), root volume (22.92%) and root tip number (29.67%) of seedlings at low temperature. However, p-chlorophenylalanine inhibited the synthesis of melatonin and eliminated the effect of tryptophan. In conclusion, tryptophan mainly improved the cold tolerance of soybean seedlings by promoting endogenous melatonin synthesis, which provided a theoretical basis for tryptophan to enhance the cold tolerance of soybean in field production.

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文献类型: Article

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研究方向: Plant Sciences

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第 7 条

标题: Ultra-lightweight tomatoes disease recognition method based on efficient attention mechanism in complex environment

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摘要: A variety of diseased leaves and background noise types are present in images of diseased tomatoes captured in real-world environments. However, existing tomato leaf disease recognition models are limited to recognizing only a single leaf, rendering them unsuitable for practical applications in real-world scenarios. Additionally, these models consume significant hardware resources, making their implementation challenging for agricultural production and promotion. To address these issues, this study proposes a framework that integrates tomato leaf detection with leaf disease recognition. This framework includes a leaf detection model designed for diverse and complex environments, along with an ultra-lightweight model for recognizing tomato leaf diseases. To minimize hardware resource consumption, we developed five inverted residual modules coupled with an efficient attention mechanism, resulting in an ultra-lightweight recognition model that effectively balances model complexity and accuracy. The proposed network was trained on a dataset collected from real environments, and 14 contrasting experiments were conducted under varying noise conditions. The results indicate that the accuracy of the ultra-lightweight tomato

disease recognition model, which utilizes the efficient attention mechanism, is 97.84%, with only 0.418 million parameters. Compared to traditional image recognition models, the model presented in this study not only achieves enhanced recognition accuracy across 14 noisy environments but also significantly reduces the number of required model parameters, thereby overcoming the limitation of existing models that can only recognize single disease images.

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研究方向: Plant Sciences

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第 8 条

标题: ABA as a downstream signal actively participates in phthalanilic acid mediated cold tolerance of common beans (Phaseolus vulgaris)

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来源出版物: PLANT PHYSIOLOGY AND BIOCHEMISTRY **卷:** 220
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摘要: Although the reaction of plants to various stresses can be regulated by phthalanilic acid (PPA), the regulation mechanism in the cold resistance of common beans was still unclear. The study showed that the ABA content of common bean seedlings was significantly increased by PPA application under low-temperature stress, the growth of common bean seedlings was effectively protected, and the yield loss was reduced. Importantly, the regulation of PPA on cold resistance of common bean seedlings depended on ABA pathway. It was further revealed that the ABA

receptor pathway was observably activated by knocking down the ABA catabolic gene CYP707As, and the cold resistance of common bean seedlings was considerably enhanced. At the same time, the regulation of PPA on the low-temperature resistance of common bean seedlings was visibly weakened, which was also proved by gene over-expression and virus induced gene silence of CYP707As. In addition, combining exogenous treatment of ABA biosynthesis inhibitor (fluridone) with endogenous gene knock-down, over-expression and virus induced gene silence of phospholipase D coding gene (PLD1), it was found that PPA could obviously enhance cold resistance of common bean seedlings by promoting phospholipase D to produce phosphatidic acid, increasing the antioxidant enzyme activity to reduce oxidative damage and improve the stability of the photosynthetic system. In summary, the molecular and physiological basis was firstly elucidated that phthalanilic acid enhanced cold resistance of common bean seedlings by phospholipid metabolism, photosynthetic system, and antioxidant status through the ABA pathway in the present study.

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研究方向: Plant Sciences

输出日期: 2025-04-16

Science & Technology - Other Topics

第 1 条

标题: Constructing an origin discrimination model of japonica rice in Heilongjiang Province based on confocal microscopy Raman spectroscopy technology

作者: Zhang, GF (Zhang, Guifang); Liu, JM (Liu, Jinming); Li, ZM (Li, Zhiming); Li, N (Li, Nuo); Zhang, DJ (Zhang, Dongjie)

来源出版物: SCIENTIFIC REPORTS 卷: 15 期: 1 文献号: 5848 **DOI:** 10.1038/s41598-024-83894-3 **Published Date:** 2025 FEB 18

Web of Science 核心合集中的 **"被引频次":** 0

被引频次合计: 0

摘要: An origin discrimination model for rice from five production regions in Heilongjiang Province was constructed based on the combination of confocal microscopy Raman spectroscopy and chemometrics. A total of 150 field rice samples were collected from the Fangzheng, Chahayang, Jiansanjiang, Xiangshui, and Wuchang production areas. The optimal sample processing conditions, instrument parameter settings, and spectrum acquisition techniques were identified by investigating the influencing factor. The Raman spectra of milled rice within the range of 100-3200 cm-1 were selected as the raw data, and the optimal preprocessing method combination consisting of normalization, Savitzky-Golay smoothing, and multivariate scatter correction was identified. Subsequently, the competitive adaptive reweighted sampling and discrete binary particle swarm optimization algorithms were employed to optimize the feature wavelength selection, resulting in the screening of 226 and 1899 feature wavelength variables, respectively. Using the full Raman spectrum data and feature wavelength data as inputs, partial least squares discriminant analysis, support vector machine and extreme learning machine origin discrimination models were constructed. The results indicated that the BPSO-GA-SVM model exhibited the best predictive ability, achieving a testing set accuracy of 86.67%.

入藏号: WOS:001443189500049

文献类型: Article

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研究方向: Science & Technology - Other Topics

输出日期: 2025-04-16

第 2 条

标题: Optimization of Fresh Produce Supply Chain Resilience Capacity: An Extension Strategy Generation Method

作者: Chen, QL (Chen, Qianlan); Li, CL (Li, Chaoling); Lu, L (Lu, Lin); Ke, YA (Ke, Youan); Kang, K (Kang, Kai); Mao, SY (Mao, Siyi); Liao, ZZY (Liao, Zhangzheyi)

来源出版物: SYMMETRY-BASEL 卷: 17 期: 2 文献号: 272
DOI: 10.3390/sym17020272 Published Date: 2025 FEB

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Fresh produce, as a primary source of nutrition, plays a pivotal role in daily life. However, the unique characteristics of fresh produce-such as perishability, widespread production, short shelf life, long distribution cycles, and high volatility in both supply and demand-render the fresh produce supply chain particularly vulnerable to disruptions. These vulnerabilities not only impact daily consumption but also pose significant challenges to the operational efficiency of enterprises. Enhancing the fresh produce supply chain resilience is crucial for businesses to effectively mitigate risks, ensure consistent product quality, and maintain overall supply chain stability. Nevertheless, there remains a lack of clear, process-oriented guidance for developing resilience improvement strategies within the fresh agricultural product sector. Specifically, there is insufficient clarity regarding which elements should be prioritized for investment in resilience strategies, how these strategies should be formulated, and the absence of a theoretically sound framework to guide the strategic development of supply chain resilience improvements. To address the lack of scientific, quantitative, efficient, and specific processes for generating supply chain resilience improvement strategies in fresh agricultural product enterprises, this study adopts the framework of extensible primitive theory. Initially, an evaluation index system for the fresh produce supply chain is constructed, and the extendable evaluation method is employed to assess the resilience level of fresh agricultural product enterprises. This approach facilitates the identification of the key challenges that must be addressed to enhance supply chain resilience and helps generate strategies that reconcile previously incompatible issues. Next, the core objectives and conditions underlying the resilience incompatibilities in fresh agricultural product enterprises are quantitatively analyzed. Finally, the expansion transformation of both target and condition primitives is carried out to derive the optimal strategy for improving supply chain resilience. The study uses company M as a case example, where the evaluation results indicate that the company's supply chain resilience is rated as "good". However, several issues were identified, including inefficiencies in product supply, limited financing capacity, low enterprise visibility, and inadequate production and processing equipment. Based on these findings, the paper proposes a series of optimization strategies aimed at improving the fresh produce supply chain resilience through extension transformation.

入藏号: WOS:001431650800001

文献类型: Article

地址: [Chen, Qianlan; Li, Chaoling; Lu, Lin; Ke, Youan; Kang, Kai; Mao, Siyi; Liao, Zhangzheyi] Guangxi Normal Univ, Sch Econ & Management, Guilin 541000, Peoples R China.
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研究方向: Science & Technology - Other Topics

输出日期: 2025-04-16

Veterinary Sciences

第 1 条

标题: Genetic evolution analysis of PRRSV ORF5 gene in five provinces of Northern China in 2024

作者: Jian, YY (Jian, Yanyin); Lu, C (Lu, Chun); Shi, Y (Shi, Yuan); Kong, XY (Kong, Xiangyu); Song, J (Song, Jun); Wang, JT (Wang, Jintao)

来源出版物: BMC VETERINARY RESEARCH 卷: 21 期: 1 文献号: 242
DOI: 10.1186/s12917-025-04679-y **Published Date:** 2025 APR 3

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: BackgroundPorcine reproductive and respiratory syndrome (PRRS) was first discovered in North America in 1987, and since then it has been spread widely all over the world. The prevalence of PRRS has caused significantly economic losses to pig industry in many countries. ObjectivesInvestigate the prevalence and genetic evolution of porcine reproductive and respiratory syndrome virus (PRRSV) in five provinces of northern China. Methods190 samples suspected of PRRS were collected from 28 pig farms in five provinces of northern China. The PRRSV ORF7 and ORF5 gene were detected by RT-PCR, and the ORF5 gene were sequenced for the homology and genetic evolution analysis. ResultsThe positive samples of ORF7 gene were 50, and its positive rate was 26.32%. The positive samples of ORF5 gene were 48, and its positive rate was 25.26%. The sequenced results of the ORF5 gene showed that 48 positive samples all belonged to PRRSV-2. Among them, 26 samples were NADC34-like strains, 17 samples were NADC30-like strains, and 5 samples

were classical strains. The amino acid sequence analysis of PRRSV GP5 indicated that there was a deletion at the 37th amino acid in 4 NADC30-like strains. The amino acids of the transmembrane region 1 in all positive strains are relatively conserved, and multiple amino acid mutations were observed in the signal peptide, transmembrane region 2, and B cell epitope. The amino acid mutations were different in different strains and regions. The above results demonstrated that the complexity and diversity of PRRSV genetics. ConclusionThe strains from lineage 1 became the dominant strains in five provinces of northern China in 2024. The positive rate of NADC34-like strains was the highest in Heilongjiang Province and the NADC30-like strains were the most prevalent in these regions. The genetic evolution of PRRSV presented a complex trend. This study provided the data support for understanding PRRSV variation and for PRRS prevention and control in five provinces of northern China.

入藏号: WOS:001458229500005

文献类型: Article

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研究方向: Veterinary Sciences

输出日期: 2025-04-16

第 2 条

标题: Effect of body condition score loss during the transition period on metabolism, milk yield and health in Holstein cows

作者: Sun, R (Sun, Rui); Jiang, XJ (Jiang, Xuejie); Hao, Y (Hao, Yu); Li, Y (Li, Ying); Bai, YL (Bai, Yunlong); Xia, C (Xia, Cheng); Song, YX (Song, Yuxi)

来源出版物: JOURNAL OF VETERINARY RESEARCH **卷:** 69 **期:** 1 **页:** 91-99
DOI: 10.2478/jvetres-2025-0004 **Early Access Date:** FEB 2025
Published Date: 2025 MAR 1

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Introduction: This study aimed to investigate the impact of perinatal body condition score (BCS) and its subsequent loss on postpartum performance and health outcomes in dairy cattle. Material and Methods: A total of 156 cows were randomly selected, and blood samples were collected at -21, 0, 7, 14, 21, 28 and 50 days relative to calving. Milk yield and disease incidence in dairy cows were recorded after calving. These cows were subsequently categorised into three groups based on BCS loss during the transition period: a no-BCS-loss (maintained BCS) group (M, 0 < BCS

loss <= 0.25), low-BCS-loss group (L, 0.25 < BCS loss <= 0.5), and high-BCS-loss group (H, BCS loss > 0.5). Results: All groups experienced a decline in BCS from 21 days prepartum through 50 days postpartum (P-value < 0.01). Cows in the H group had the highest levels of non-esterified fatty acids, beta-hydroxybutyrate, total cholesterol, aspartate aminotransferase, albumin, malondialdehyde and leptin (P-value < 0.05). Concomitantly, total antioxidant capacity, as well as the levels of insulin and glucose, were the lowest in group H (P-value < 0.05). Plasma concentrations of Ca, P, Mg and K, urea nitrogen and total bilirubin were not significantly influenced by BCS loss (P-value > 0.05). Cows in the M group were less likely to develop ketosis, mastitis, retained placenta, displaced abomasum and metritis than those in the H group, and cows in the H group produced the lowest milk yields (P-value < 0.05). Conclusion: These observations collectively indicate that BCS loss is associated with measurable changes in energy balance, liver function, oxidative stress, daily milk production and disease incidence during the transition period.

入藏号: WOS:001430438400001

文献类型: Article

地址: [Sun, Rui; Jiang, Xuejie; Hao, Yu; Li, Ying; Bai, Yunlong; Xia, Cheng; Song, Yuxi] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Daqing 163319, Peoples R China.

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Affiliations: Heilongjiang Bayi Agricultural University

研究方向: Veterinary Sciences

输出日期: 2025-04-16

第 3 条

标题: Effects of Supplementing Rumen-Protected Glutathione on Lactation Performance, Nutrients, Oxidative Stress, Inflammation, and Health in Dairy Cows During the Transition Period

作者: Hao, Y (Hao, Yu); Jiang, XJ (Jiang, Xuejie); Sun, R (Sun, Rui); Bai, YL (Bai, Yunlong); Xu, C (Xu, Chuang); Song, YX (Song, Yuxi); Xia, C (Xia, Cheng)

来源出版物: VETERINARY SCIENCES **卷:** 12 **期:** 2 **文献号:** 84
DOI: 10.3390/vetsci12020084 **Published Date:** 2025 FEB

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Glutathione (GSH), widely present in plant and animal cells and crucial for combating oxidative stress and inflammation, has not been evaluated in dairy cows. This study aims to evaluate the effects of rumen-protected glutathione (RPGSH) supplementation on lactation, nutrient metabolism, oxidative stress, inflammation, and health in transition dairy cows. Forty Holstein dairy cows (2.65 +/- 0.78 of parity, 2.81

+/- 0.24 of body condition score, 9207.56 +/- 1139.18 kg of previous 305-day milk yield, 657.53 +/- 55.52 kg of body weight, mean +/- SD) were selected from a large cohort of 3215 cows on day 21 before expected calving (day -21 +/- 3 d). Cows were randomly stratified into four dietary treatment groups (n = 10 per group): control (basal diet + 0 g/d RPGSH); T1 (basal diet + 1.5 g/d RPGSH); T2 (basal diet + 2 g/d RPGSH); and T3 (basal diet + 3 g/d RPGSH). Supplementation commenced approximately 21 days (+/- 3) prepartum and continued through 21 days postpartum. Blood samples were collected at -21 +/- 3, -14 +/- 3, -7 +/- 3, 0, 7, 14, and 21 d for analysis of serum metabolic parameters related to oxidative stress and inflammation. Milk composition was analyzed from samples collected on days 3, 7, 14, and 21 postpartum. Compared with the control group, supplementation with 2 g/d of RPGSH reduced somatic cell count ($p < 0.05$) and the incidence of postpartum diseases in dairy cows. No differences were observed among the groups in milk yield, milk fat, protein, lactose, total solids, dry matter intake, or energy-corrected milk. However, fat-corrected milk and feed efficiency were higher in the T2 group compared to the control ($p < 0.05$). Calcium and phosphorus levels did not differ among the groups. Compared to the control group, cows supplemented with 2 g/d RPGSH had lower beta-hydroxybutyrate levels and higher glucose levels on days 14 and 21 postpartum ($p < 0.05$). From days 14 to 21 postpartum, RPGSH supplementation increased blood GSH, serum catalase, and total antioxidant capacity while reducing malondialdehyde, reactive oxygen species, haptoglobin, cortisol, C-reactive protein, and interleukin-6 levels compared with the control group ($p < 0.05$). The supplementation of 2 g/d RPGSH showed relatively better effects. RPGSH supplementation at 2 g/d improved lactation performance, nutrient metabolism, oxidative stress, and inflammation status in dairy cows, playing a crucial role in maintaining their health. To our knowledge, this is the first report on the effects of supplementing RPGSH additive in Holstein cows.

入藏号: WOS:001431060500001

文献类型: Article

地址: [Hao, Yu; Jiang, Xuejie; Sun, Rui; Bai, Yunlong; Song, Yuxi; Xia, Cheng] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Daqing 163319, Peoples R China.
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研究方向: Veterinary Sciences

输出日期: 2025-04-16

第 4 条

标题: Early warning for inactive ovaries based on insulin resistance index, serum adiponectin and leptin in dairy cows

作者: Hao, Y (Hao, Y.); Jiang, X (Jiang, X. J.); Sun, R (Sun, R.); Song, Y (Song, Y. X.); Bai, Y (Bai, Y. L.); Xia, C (Xia, C.)

来源出版物: POLISH JOURNAL OF VETERINARY SCIENCES **卷:** 28 **期:** 1 **页:** 63-72 **DOI:** 10.24425/pjvs.2025.154014 **Published Date:** 2025

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Postpartum inactive ovaries (IO) in dairy cows reduce the economic returns of the dairy industry. It is related to energy metabolism disorder, hormone levels and cytokines.The aim of this study was to evaluate the correlation between insulin resistance (IR), adiponectin (ADPN), and leptin (LEP) at 14 days postpartum to assess the predictive potential for IO risk in dairy cows. Cows at 14 days postpartum were randomly selected and allocated into an insulin resistance group (IR, with IR index > 2.5, n=30) and a non-insulin resistance (non-IR, with IR index < 2.5, n=30). Serum Samples were collected at 14 and 55 days postpartum. Six cows of estrus and six cows of IO were randomly selected for slaughter at 55 days postpartum. Then, adipose and ovary samples were allocated for further experiments. A significant association between IR and IO, with 53.33% prevalence in the IR group compared to 16.67% in the non-IR group. Cows with IR had higher levels of beta-hydroxybutyrate, non-esterified fatty acid, and lower levels of glucose, total cholesterol, triglyceride, ADPN, and LEP. Reproductive performance was adversely affected, with IR cows showing longer durations for first estrus and reduced milk yield. ADPN and LEP levels were significantly lower in IR cows, suggesting their role in modulating insulin sensitivity and reproductive functions. The combined analysis of ADPN, LEP, and IR index showed high sensitivity (91.3%) and specificity (87.2%) in predicting IO, highlighting their potential as reliable biomarkers. These observations indicate that IR and serum LEP and ADPN at 14 days postpartum can predict IO in dairy cows.

入藏号: WOS:001455728200007

文献类型: Article

地址: [Hao, Y.; Jiang, X. J.; Sun, R.; Song, Y. X.; Bai, Y. L.; Xia, C.] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Heilongjiang Prov Key Lab Prevent & Control Bovine, Daqing 163319, Peoples R China.

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研究方向: Veterinary Sciences

输出日期: 2025-04-16

第 5 条

标题: Investigation on body condition score, milk yield, reproductive performance, and health of dairy cows in four intensive dairy farms during lactation cycle

作者: Jiang, XJ (Jiang, X. J.); Hao, Y (Hao, Y.); Sun, R (Sun, R.); Bai, YL (Bai, Y. L.); Song, YX (Song, Y. X.); Xia, C (Xia, C.)

来源出版物: POLISH JOURNAL OF VETERINARY SCIENCES 卷: 28 期: 1 页: 51-61 **DOI:** 10.24425/pjvs.2025.154013 **Published Date:** 2025

Web of Science 核心合集中的 "被引频次": 0

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摘要: This study aimed to evaluate the impact of body condition score (BCS) on the milk yield, reproductive performance, and health status of lactating dairy cows. Data were collected from 1,960 cows across four dairy farms at 21 days prepartum, on the day of calving, and at 21, 50, 150, 200, and 250 days postpartum. The dataset included BCS, lactation performance, reproductive performance, disease incidence, and economic benefits for each cow. The cows were divided into seven groups based on BCS: <= 2.5, 2.75, 3.0, 3.25, 3.5, 3.75, and >= 4, with 40 cows per group at each time point (ten cows were selected from each of the four farms based on BCS differences at each time point for the experiment). The results demonstrated significant differences in BCS, milk yield, reproductive performance, and disease incidence among cows from different dairy farms. From 21 days prepartum to the day of calving, cows with BCS of 3.25 and 3.5 exhibited superior milk yield, reproductive performance, and economic benefits, as well as lower disease incidence. From 21 to 250 days postpartum, cows with BCS values of 3.0 and 3.25 continued to show improvements in milk yield, reproductive performance, and economic benefits, along with a reduction in disease incidence. These findings suggest that the ideal BCS for cows at 21 days prepartum and on the day of calving is 3.5, while BCS of 3.25 is optimal for cows at 21 days postpartum, and BCS of 3.0 is recommended for cows from 50 to 250 days postpartum.

入藏号: WOS:001455728200006

文献类型: Article

地址: [Jiang, X. J.; Hao, Y.; Sun, R.; Bai, Y. L.; Song, Y. X.; Xia, C.] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Heilongjiang Prov Key Lab Prevent & Control Bovine, Daqing 163319, Peoples R China.

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Affiliations: Heilongjiang Bayi Agricultural University

研究方向: Veterinary Sciences

输出日期: 2025-04-16

第 6 条

标题: Diagnosis and treatment of crop inflammation of Rough-legged Buzzard (Buteo lagopus) in Daqing Wildlife Nature Reserve, Heilongjiang Province, China

作者: Wang, Z (Wang, Zheng); Ding, RX (Ding, Ruxin); Ge, YS (Ge, Yansong); Xu, ES (Xu, Enshuang); Zheng, JS (Zheng, Jiasan)

来源出版物: THAI JOURNAL OF VETERINARY MEDICINE **卷:** 54 **期:** 4
文献号: 11 **Published Date:** 2024 OCT-DEC

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: This article describes a Rough-legged Buzzard (Buteo lagopus) from the Wildlife Nature Reserve in Daqing, China. According to the staff of Daqing Wildlife Nature Reserve, the Rough-legged Buzzard was found to have impaired flight ability, depression, and loss of aggression, but its feathers were full and there were no obvious external injuries, so it was sent to the Wildlife Rehabilitation Center of the Teaching Animal Hospital of Heilongjiang Bayi Agricultural University for treatment. After the vet conducted X-ray and blood tests, he diagnosed the bird with a foreign body in the crop and crop inflammation. He finally treated the bird using endoscopic techniques, and the bird recovered well and was successfully released.

入藏号: WOS:001460808200004

文献类型: Article

地址: [Wang, Zheng; Ding, Ruxin; Ge, Yansong; Xu, Enshuang; Zheng, Jiasan] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, 5 Xinfeng Rd, Daqing 163319, Peoples R China.

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研究方向: Veterinary Sciences

输出日期: 2025-04-16

Virology

第 1 条

标题: Ethyl caffeate as a novel targeted inhibitor of 3CLpro with antiviral activity against porcine epidemic diarrhea virus (vol 604, 110406, 2025)

作者: Jiang, LM (Jiang, Limin); Gu, MH (Gu, Minghui); Xiao, JW (Xiao, Jiawei); Zhao, YY (Zhao, Yingying); Shen, FB (Shen, Fanbo); Guo, XY (Guo, Xingyang); Li, HS (Li, Hansong); Guo, DH (Guo, Donghua); Li, CQ (Li, Chunqiu); Zhu, QH (Zhu, Qinghe); Yang, D (Yang, Dan); Xing, XX (Xing, Xiaoxu); Sun, DB (Sun, Dongbo)

来源出版物: VIROLOGY **卷:** 606 **文献号:** 110497
DOI: 10.1016/j.virol.2025.110497 **Published Date:** 2025 MAY

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文献类型: Correction

地址: [Jiang, Limin; Gu, Minghui; Xiao, Jiawei; Zhao, Yingying; Shen, Fanbo; Guo, Xingyang; Li, Hansong; Guo, Donghua; Li, Chunqiu; Zhu, Qinghe; Yang, Dan; Xing, Xiaoxu; Sun, Dongbo] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, 5 Xinfeng Rd, Daqing 163319, Peoples R China.

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研究方向: Virology

输出日期: 2025-04-16

3 EI 收录情况

（2025.02.20-2025.04.16）

3.1 EI Compendex

EI 索引库共收录我校教师发表的 40 篇文献，文献详细题录信息如下。

1. Impacts of neonicotinoid compounds on the structure and function of Apis mellifera OBP14: Insights from SPR, ITC, multispectroscopy, and molecular modeling

Li, Xiangshuai (State Key Laboratory for Biology of Plant Diseases and Insect Pests, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing; 100193, China); Li, Shiyu; Zhao, Fangkui; Fu, Ruohan; Cui, Li; Chen, Shuning; Yang, Daibin; Yuan, Huizhu; Yan, Xiaojing

Source: Colloids and Surfaces B: Biointerfaces, v 250, June 2025

Database: Compendex

Data Provider: Engineering Village

2. Eco-friendly controlled-release antifungal mulch films with carbendazim-loaded halloysite nanotubes

Li, Juan (College of Food, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhang, Zitong; Zhang, Yuan; Zhang, Dongjie

Source: Industrial Crops and Products, v 226, April 2025

Database: Compendex

Data Provider: Engineering Village

3. Fermentation-enriched quinoa β-glucan ameliorates disturbed gut microbiota and metabolism in type 2 diabetes mellitus mice

Ma, Nan (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Li, Rong; Zhang, GuiFang; Gao, Ruo-Han; Zhang, Dong-Jie

Source: International Journal of Biological Macromolecules, v 306, May 2025

Database: Compendex

Data Provider: Engineering Village

4. Effects of phenolic acid incorporation on the structure, physicochemical properties, and 3D printing performance of rice starch gel: Exploring underlying mechanisms

Lang, Shuangjing (College of Life Science and Biotechnology, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Li, Zhenjiang; Chu, Yangyang; Hu, Xin; Wang, Lidong; Wang, Changyuan

Source: International Journal of Biological Macromolecules, v 306, May 2025

Database: Compendex

Data Provider: Engineering Village

5. Effect of plasma manipulation on the developing quick-cooking and the hydration promotion of adzuki bean (*Open Access*)

Liang, Jiaxin (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Yu, Shibo; Li, Zhenjiang; Wu, Yanchun; Lu, Lele; Liu, Lijuan; Lang, Shuangjing; Wang, Lidong

Source: International Journal of Food Science and Technology, v 60, n 1, January 1, 2025

Open Access type(s): All Open Access, Hybrid Gold

Database: Compendex

Data Provider: Engineering Village

6.Ultrasonic-Assisted Preparation and Functional Evaluation of a Quercetin-Kafirin Nanodelivery System

Song, Xuejian (College of Food Science, Heilongjiang Bayi Agricultural University,Daqing; 163319, China); Wang, Xinhui; Dai, Lingyan; Zhang, Dongjie; Li, Zhijiang; Ruan, Changqing; Zhang, Hongwei; Cao, Rongan

Source: SSRN, February 5, 2025

Database: Compendex

Data Provider: Engineering Village

7.Genomics and biodegradation properties of an oleophilic bacterium isolated from shale oil sludge

Deng, Shuang (Heilongjiang Provincial Key Laboratory of Environmental Microbiology and Recycling of Argo-Waste in Cold Region, College of Life Science and Biotechnology, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Cai, Changfu; Wang, Junwei; Qin, Da; Yu, Liyun; Wang, Jiabin; Dai, Shuang; Fan, Jialin; Zhang, Chunlong; Li, Liyang; Song, Wei; Hou, Xilin

Source: International Biodeterioration and Biodegradation, v 200, April 2025

Database: Compendex

Data Provider: Engineering Village

8. Widely targeted metabolomics to analyze the effect of polyvinyl alcohol/pullulan/ZnO-Nps composite film on postharvest storage of Allium mongolicum regel

Zhang, Xinhua (College of Food Science, Northeast Agricultural University, Heilongjiang, Harbin; 150030, China); Xu, Jieli; Chen, Zhao; Yu, Yuhe; Zhang, Xiuling; Zhang, Wentao

Source: International Journal of Biological Macromolecules, v 306, May 2025

Database: Compendex

Data Provider: Engineering Village

9. Effect and Mechanism of Soluble Dietary Fiber from Corn Bran on Loperamide-induced Constipation in Mice

Zeng, Xiangrui (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Jiang, Caixia; Liu, Xiaolan; Zheng, Xiqun; Wei, Xuyao

Source: Science and Technology of Food Industry, v 46, n 4, p 374-384, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

10. UAV Image Matching Based on Graph Neural Network

Qiqi, Li (The Heilongjiang Provincial Key Laboratory of Autonomous Intelligence and Information Processing, School of Information and Electronic Technology, Jiamusi University, Heilongjiang, Jiamusi; 154000, China); Zhuo, Liu; Lingyue, Meng; Xiaomin, Liu; Huaqi, Zhao

Source: Lecture Notes in Electrical Engineering, v 1321 LNEE, p 307-315, 2025, Genetic and Evolutionary Computing - Proceedings of the 16th International Conference on Genetic and Evolutionary Computing

Database: Compendex

Data Provider: Engineering Village

11. Molecular Observations on the Regulation of hIAPP Aggregation Process and Enhancement of Autophagy by the Short Peptide LPFYPN and Its Modified Peptides of Coix Seed Prolamins

Zhang, Shu (College of Food, Heilongjiang Bayi Agricultural University, Xinfeng Lu 5, Daqing; 163319, China); Sun, Jingru; Yu, Shibo; Fu, Tianxin; Feng, Yuchao; Li, Zhijiang; Zhang, Dongjie; Wang, Changyuan

Source: Journal of Agricultural and Food Chemistry, v 73, n 8, p 4659-4672, February 26, 2025

Database: Compendex

Data Provider: Engineering Village

12. Effects of White Quinoa Polysaccharide on Regulation of Glucolipid Metabolism in Type 2 Diabetic Mice

Zang, Yanqing (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163000, China); Chuang, Yingying; Wang, Changyuan; Cao, Yang

Source: Science and Technology of Food Industry, v 46, n 4, p 385-392, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

13. Structure, Immune and Anti-aging Activities of Capsular Polysaccharide Produced by Lactobacillus plantarum W1

Gao, Yongjiao (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163000, China); Wang, Kun; Zhao, Jing; Zuo, Feng

Source: Science and Technology of Food Industry, v 46, n 4, p 90-99, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

14. Preparation and Physicochemical Properties of High-purity Isomaltooligosaccharides by Sequential Simulated Moving Bed Chromatography

Ruan, Shenghui (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zheng, Xiqun; Liu, Xiaolan; Li, Liangyu

Source: Science and Technology of Food Industry, v 46, n 4, p 225-236, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

15. Research Progress on Ultrasound-assisted Preparation of Resistant Starch

Zhao, Kedong (College of Food Sciences, Heilongjiang Bayi Agricultural University, Heilongjiang Engineering Research Center for Coarse Cereals Processing and Quality Safety, National Coarse Cereal Engineering Research Center, Daqing; 163319, China); Ruan, Changqing; Li, Zhijiang; Tang, Huacheng; Wang, Changyuan

Source: Science and Technology of Food Industry, v 46, n 5, p 8-16, March 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

16. Simple Oft with Yeast Particles Summoning for Enhanced Mulitple Particles Capture

Zhang, Siyuan (School of Mechanical and Electrical Engineering, Daqing Normal University, Daqing; 163712, China); Yin, Shuxin; Cui, Feng; Sun, Yudan; Xu, Kaichuan; Sun, Yu; Cong, Zhicheng; Yao, Linzhi; Li, Lun

Source: SSRN, February 12, 2025

Database: Compendex

Data Provider: Engineering Village

17. Passive velocity estimation of underwater targets based on the multitaper synchrosqueezing crossspectrum

Song, P.F. (National Key Laboratory of Underwater Acoustic Technology, Harbin Engineering University, Harbin; 150001, China); Zhao, A.B.; Hui, J.; Guo, J.B.; Wang, K.R.

Source: Journal of Sound and Vibration, v 606, June 23, 2025

Database: Compendex

Data Provider: Engineering Village

18. Effects of Cooking Treatment on the Changes of Polyphenol and Antioxidant Activity in Sorghum Rice and Its Exploration on the Flavor Enhancement Based on the Multi-omics Technique

Liu, Ke (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Xu, Lei; Wang, Changyuan; Li, Zhijiang; Deng, Jingzhi

Source: Science and Technology of Food Industry, v 46, n 4, p 1-9, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

19. Temperature characteristics of SiO_2 aerogels and PCM filled windows under long-period fire load

Fu, Enmin (School of Civil Engineering and Architecture, Northeast Petroleum University, Fazhan Lu Street, Daqing; 163318, China); Ma, Lingyong; Jiang, Wei; Shen, Ruohan; Chen, Yang; Li, Qing; Zhong, Zhipeng; Li, Dong; Tian, Boyu

Source: Journal of Building Engineering, v 102, May 15, 2025

Database: Compendex

Data Provider: Engineering Village

20. Parameter Optimization and Testing of Apple Laser Flower Thinning Test Bed Based on LT YOLO Inspection and Machine Vision

Gao, Ang (College of Mechanical and Electronic Engineering, Shandong Agricultural University, Taian; 271018, China); Wu, Kun; Song, Yuepeng; Ren, Longlong; Ma, Wei; Liu, Yilin

Source: Nongye Jixie Xuebao/Transactions of the Chinese Society for Agricultural Machinery, v 56, n 2, p 393-401, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

21. Design and Experiment of Positive Pressure Airflow Guide Groove Seed Guiding Device for Maize Detal-row High-speed Precision Seeder

Yi, Shujuan (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhang, Yupeng; Dai, Zhibo; Kong, Lingtong; Sun, Wensheng; Xu, Lei

Source: Nongye Jixie Xuebao/Transactions of the Chinese Society for Agricultural Machinery, v 56, n 2, p 261-274, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

22. Low-fat spray dairy emulsion produced by nitrous oxide: The synergistic effects of polysaccharide emulsifier on the stability, rheology and aeration performance

Li, Feng (School of Food, Heilongjiang Bayi Agricultural University, 163319, China); Zhu, Huiquan; Wang, Ruican; Sun, Zhenghan; Pang, Xiaoyang; Lv, Jiaping; Zhang, Shuwen; Wang, Xiaodan; Li, Xu; Liu, Yanyan; Wang, Yunna

Source: Food Hydrocolloids, v 164, July 2025

Database: Compendex

Data Provider: Engineering Village

23. Design and Testing of Sprayer Nozzle Performance Testing Instrument

Hu, Jun (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Feng, Chao; Liu, Changxi; Li, Yufei; Shi, Hang

Source: Nongye Jixie Xuebao/Transactions of the Chinese Society for Agricultural Machinery, v 56, n 2, p 305-313, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

24. Spectral Characterization of Refined Oils and Their Binary Mixtures at Unconventional Temperatures

Li, Chenxi (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing, China); Qi, Hanbing; Zhang, Xiaoxue; Zhu, Hang; Wang, Qiushi

Source: Journal of Applied Spectroscopy, v 91, n 6, p 1369-1377, January 2025

Database: Compendex

Data Provider: Engineering Village

25. Research on Wall Crack Recognition Algorithm Based on YOLOv8

Gao, Pengyuan (Heilongjiang Bayi Agricultural University, Daqing City, China); Liu, Lijie; Song, Xinzhe; Wang, Yubo; Wu, Siting; Chi, Ruyue

Source: 2024 IEEE 4th International Conference on Data Science and Computer Application, ICDSCA 2024, p 471-476, 2024, 2024 IEEE 4th International Conference on Data Science and Computer Application, ICDSCA 2024

Database: Compendex

Data Provider: Engineering Village

26. Research on Risk Strategy of Mutual Aid Pickup Platform on Agricultural University (*Open Access*)

Song, Wenjie (School of Economics and Management, Heilongjiang Bayi Agricultural University, Daqing, China); Ding, Meijiao; Yu, Chunxue; Zhao, Jixin; Song, Yingchao; Yu, Bo

Source: Manufacturing and Service Operations Management, v 4, n 5, p 68-73, 2023

Open Access type(s): All Open Access, Hybrid Gold

Database: Compendex

Data Provider: Engineering Village

27. Kinematics Modeling and Simulation of Paddy Field Leveler Working Device (*Open Access*)

Qi, Zengkun (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang; 163319, China); Wang, Xi

Source: Advances in Transdisciplinary Engineering, v 24, p 498-503, September 22, 2022, Advances in Machinery, Materials Science and Engineering Application - Proceedings of the 8th International Conference on Advances in Machinery, Materials Science and Engineering Application, MMSE 2022

Open Access type(s): All Open Access, Gold

Database: Compendex

Data Provider: Engineering Village

28. NUMERICAL SIMULATION AND EXPERIMENTAL RESEARCH ON COMPACTION DEVICE OF SEEDBED LEVELING MACHINE (*Open Access*)

Shan, Bo-jun (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing, China); Che, Gang; Wan, Lin; Zhao, Nai-chen; Zhang, Qiang

Source: INMATEH - Agricultural Engineering, v 74, n 3, p 42-56, 2024

Open Access type(s): All Open Access, Gold

Database: Compendex

Data Provider: Engineering Village

29. Research on optimization method of college student management based on comprehensive quantitative analysis of employment quality - Take heilongjiang bayi agricultural university for example

Zhang, Chunlei (Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang, China); Han, Guoxin; Wang, Shuang

Source: Proceedings - 2020 International Symposium on Advances in Informatics, Electronics and Education, ISAIEE 2020, p 82-86, December 2020, Proceedings - 2020 International Symposium on Advances in Informatics, Electronics and Education, ISAIEE 2020

Database: Compendex

Data Provider: Engineering Village

30. Prediction Model of Soil Moisture Content in Northern Cold Region Based on Near-Infrared Spectroscopy

Shi, Wen-Qiang (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Xu, Xiu-Ying; Zhang, Wei; Zhang, Ping; Sun, Hai-Tian; Hu, Jun

Source: Guang Pu Xue Yu Guang Pu Fen Xi/Spectroscopy and Spectral Analysis, v 42, n 6, p 1704-1710, June 2022

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

31. Notice of Retraction: Training implement strategy study of assistant director in Heilongjiang land reclamation

Ma, Yubo (College of Economic and Management, HLJ Bayi Agricultural University, Daqing, China); Guo, Qingran

Source: OPEE 2010 - 2010 International Conference on Optics, Photonics and Energy Engineering, v 2, p 309-312, 2010, OPEE 2010 - 2010 International Conference on Optics, Photonics and Energy Engineering

Database: Compendex

Data Provider: Engineering Village

32. Tractive resistance remote monitor system for no-tillage seeder

Yin, Yanxin (College of Engineering of China Agriculture University, Beijing 100083, China); Zheng, Yongjun; Cheng, Zhihua; Tan, Yu; Wang, Shumao

Source: Nongye Gongcheng Xuebao/Transactions of the Chinese Society of Agricultural Engineering, v 30, n 6, p 1-8, 2014

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

33. Reserve optimization method of new energy power system based on improved particle swarm optimization algorithm

Cao, Liang (State Grid Shanghai Electric Power Co., Ltd., Shanghai, China); Wu, Jinling; Wang, Xuan; Liu, Shuliang; Gu, Jun; Luo, Anna; Wang, Yangzhong

Source: 2024 6th International Conference on Energy Systems and Electrical Power, ICESEP 2024, p 629-634, 2024, 2024 6th International Conference on Energy Systems and Electrical Power, ICESEP 2024

Database: Compendex

Data Provider: Engineering Village

34. Evaluation of New Energy Accommodation Capability Based on Renewable Energy Power Prediction under "Double Carbon" Goal

Ji, Xiu (School of Electrical Engineering, Changchun Institute of Technology, Changchun, China); Cheng, Qi; Wang, Mingyue; Meng, Xiangping; Qi, Chenglong; Guo, Shuanghao

Source: 5th IEEE Conference on Energy Internet and Energy System

Integration: Energy Internet for Carbon Neutrality, EI2 2021, p 3970-3974, 2021, 5th IEEE Conference on Energy Internet and Energy System Integration: Energy Internet for Carbon Neutrality, EI2 2021

Database: Compendex

Data Provider: Engineering Village

35. Research on the collaborative operation strategy of shared energy storage and virtual power plant based on double layer optimization

Wang, Weijun (Department of Economic Management, North China Electric Power University, No.689, Huadian Road, Baoding; 071000, China); Kong, Zhe; He, Yan; Li, Chen; Jia, Kaiqing

Source: Journal of Energy Storage, v 101, November 10, 2024

Database: Compendex

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36. The development characteristics and prospect of pumped storage power station as the main energy storage facility in China under the background of double Carbon (*Open Access*)

Zhao, Kaili (Pumped-Storage Technological & Economic Research Institute, State Grid Xinyuan Co., Ltd., Beijing; 100053, China); Wang, Jue; Qiu, Liuchao; Wang, Wei

Source: Journal of Physics: Conference Series, v 2814, n 1, 2024

Open Access type(s): All Open Access, Gold

Database: Compendex

Data Provider: Engineering Village

37. PREDICTION METHOD FOR POWER FLUCTUATIONS IN CROSS REGIONAL CONSUMPTION AND TRANSPORTATION UNDER THE INTEGRATION OF NEW ENERGY

Li, Yajie (State Grid Xinjiang Electric Power Co., Ltd., Information and Communication Company, Urumqi; 832000, China); Wang, Tao; Chen, Shuting; Hu, Xinmiao; Yin, Rui; Yan, Jun

Source: RAIRO - Operations Research, v 58, n 4, p 3501-3519, July 1, 2024

Database: Compendex

Data Provider: Engineering Village

38. Application prospect, challenge and development of ammonia energy storage in new power system

Yang, Pengwei (Department of Environmental Science and Engineering, North China Electric Power University, Hebei, Baoding; 071003, China); Yu, Linzhu; Wang, Fangfang; Jiang, Haoxuan; Zhao, Guangjin; Li, Qi; Du, Mingzhe; Ma, Shuangchen

Source: Huagong Jinzhan/Chemical Industry and Engineering Progress, v 42, n 8, p 4432-4446, August 15, 2023

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

39. A low-cost electrode based on Mg-Co double hydroxide for high energy density structural supercapacitors in civil engineering

Li, Kangbao (Key Laboratory of Advanced Civil Engineering Materials, Ministry of Education, School of Materials Science and Engineering, Tongji University, Shanghai; 201804, China); Zhang, Yuanyuan; Zhang, Dong

Source: Journal of Alloys and Compounds, v 1003, October 25, 2024

Database: Compendex

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40. A study on the optimal allocation of photovoltaic storage capacity for rural new energy microgrids based on double-layer multi-objective collaborative decision-making

Li, Huixuan (Economic and Technical Research Institute, State Grid Henan Electric Power Co., Ltd, Henan, Zhengzhou; 450000, China); Li, Peng; Yue, Xianyu; Zheng, Yongle; Zu, Wenjing; Zhang, Hongkai

Source: Sustainable Energy Research, v 12, n 1, December 2025

Database: Compendex

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