

收錄引用報

SCI·EI·ESI INDEX DATABASE

.June.~August. 2025 No.42

黑龍江八一農墾大學

圖書館 咨詢服務部

目录

1 收录概况.....	4
2 SCI 收录情况.....	5
2.1 细胞生物学 (Cell Biology)	7
2.2 兽医学 (Veterinary Sciences)	8
2.3 声学 (Acoustics)	9
2.4 农业 (Agriculture)	10
2.5 建筑学 (Architecture)	27
2.6 生物化学与分子生物学 (Biochemistry & Molecular Biology)	28
2.7 生物工程学和应用微生物学 (Biotechnology & Applied Microbiology)	32
2.8 化学 (Chemistry)	34
2.9 计算机科学 (Computer Science)	36
2.10 工程学 (Engineering)	39
2.11 环境科学与生态学 (Environmental Sciences& Ecology)	43
2.12 渔业 (Fisheries)	49
2.13 食品科学与技术 (Food Science & Technology)	50
2.14 免疫学 (Immunology)	57
2.15 微生物学 (Microbiology)	58
2.16 光学 (Optics)	63

2.17 寄生物学 (Parasitology)	64
2.18 植物科学 (Plant Sciences)	66
2.19 科技与技术-其他主题 (Science & Technology - Other Topics)	78
2.20 病毒学 (Virology)	81
3 EI 收录情况	
3.1 EI Compendex.....	84

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 2025.06.12-2025.08.06。

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. 06. 12-2025. 08. 06)

SCI 索引库共收录我校教师发表的 66 篇文献，图表后附录 66 篇文献详细题录信息。

RESEARCH FIELDS	研究领域	篇数
Cell Biology	细胞生物学	1
Veterinary Sciences	兽医学	1
Acoustics	声学	1
Agriculture	农业	14
Architecture	建筑学	1
Biochemistry & Molecular Biology	生物化学与分子生物学	4
Biotechnology & Applied Microbiology	生物工程学和应用微生物学	1
Chemistry	化学	2
Computer Science	计算机科学	3
Engineering	工程学	4
Environmental Sciences& Ecology	环境科学与生态学	5
Fisheries	渔业	1
Food Science & Technology	食品科学与技术	7
Immunology	免疫学	1
Microbiology	微生物学	4
Optics	光学	1
Parasitology	寄生物学	1
Plant Sciences	植物科学	10
Science & Technology - Other Topics	科技与技术-其他主题	3

Virology	病毒学	1
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表 1 我校 23 个研究领域发文篇数及详细题录信息

第 1 条

标题: Adipose-derived stem cells alleviate acute pancreatitis by inhibiting ferroptosis and oxidative damage in canines

作者: Ge, YS (Ge, Yansong); Chen, MZ (Chen, Mingzhen); Li, ML (Li, Meilin); Wang, Z (Wang, Zheng); Ding, RX (Ding, Ruxin); Wan, ZY (Wan, Zhiying); Xu, ES (Xu, Enshuang); Zheng, JS (Zheng, Jiasan)

来源出版物: STEM CELL RESEARCH & THERAPY 卷: 16 期: 1 文献号: 355

DOI: 10.1186/s13287-025-04466-4 **Published Date:** 2025 JUL 7

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Background Acute pancreatitis (AP) is a common exocrine pancreatic disease that can lead to systemic inflammatory response syndrome and multiorgan failure in canines. The therapeutic benefits of adipose-derived stem cells (ADSCs) and conditioned medium (CM) and the role in ferroptosis regulation in managing AP in canines (dogs) were investigated in this study. Methods Sixteen dogs were randomly divided into a control (CON), AP, ADSC, or ADSC-CM group. The AP model was established by injecting the dogs with sodium taurocholate (5%, 0.1 mL/kg) and trypsin (3500 U/kg) via the pancreaticobiliary duct. ADSCs (1 x 10⁶/kg) and CM (0.1 mL/kg) were injected intravenously 6 h after surgery, and the roles on ferroptosis and oxidative stress were analyzed. The changing patterns of ferroptosis and oxidative stress were determined in vitro using a lipopolysaccharide-induced cellular inflammation model of AR42J. Results Ferroptosis occurred in the pancreas during AP, as evidenced by significant iron accumulation, suppressed glutathione peroxidase (GPx)4 expression, and increased transferrin receptor-1 (TFR1), and ferritin heavy chain expression. Treatment with ADSCs and ADSC-CM led to pathological remission and effectively restored abnormal amylase and lipase levels. ADSC-CM showed ferroptosis-alleviating effects similar to that of ADSCs, with reduced iron accumulation and increased GPx4 expression. Furthermore, ADSCs could promote the nuclear translocation of nuclear factor erythroid 2-related factor 2 and initiate the transcription of detoxification enzymes to protect the pancreas from oxidative damage. Conclusions ADSCs can protect the pancreas of dogs by inhibiting ferroptosis and oxidative stress via paracrine function, indicating immense potential as a therapeutic target for treating AP.

入藏号: WOS:001524324700001

文献类型: Article

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研究方向: Cell Biology; Research & Experimental Medicine

输出日期: 2025-08-06

Veterinary Sciences

第 1 条

标题: Effectiveness of a novel propylene glycol protocol in reducing ketosis in transition dairy cows

作者: Song, YX (Song, Yuxi); Jiang, XJ (Jiang, Xuejie); Hao, Y (Hao, Yu); Sun, R (Sun, Rui); Bai, YL (Bai, Yunlong); Shao, G (Shao, Guang); Ren, WX (Ren, Wanxia); Xia, C (Xia, Cheng)

来源出版物: FRONTIERS IN VETERINARY SCIENCE 卷: 12 文献号: 1609300

DOI: 10.3389/fvets.2025.1609300 **Published Date:** 2025 MAY 28

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摘要: Ketosis is a prevalent metabolic disease in dairy cows, characterized by adverse effects on both animal health and production performance. Propylene glycol (PG), recognized for its glucogenic properties, is widely utilized in the therapeutic management of ketosis. This study evaluated the efficacy of two PG-based treatment protocols in mitigating ketosis and enhancing the metabolic health of Holstein cows. Ninety cows were randomly allocated into three groups (n = 30 each): control (Group C, no PG), original PG protocol (Group O, 500 mL PG orally drenched once daily on days 0, 1, 2, 7, 8, and 9 post-calving), and novel PG protocol (Group N, 500 mL PG orally drenched once daily on days 0, 7, and 14 post-calving). Data were collected for body condition score, milk yield, metabolic biomarkers, and the incidence of ketosis from 14 (+/- 3) days prepartum to 50 days postpartum. The results demonstrated that the novel PG protocol, compared with the control group, significantly enhanced energy metabolism by modulating glucose, insulin, and leptin levels while reducing beta-hydroxybutyric acid and non-esterified fatty acid concentrations ($p < 0.05$). Additionally, the novel PG protocol effectively decreased the incidence of ketosis (from 33.3% in Group C to 6.7% in Group N at 14 days postpartum), alleviated liver injury, and mitigated oxidative stress in dairy cows ($p < 0.05$). These findings underscore the potential of the novel PG protocol to improve metabolic health and reduce the risk of ketosis during the critical transition period in dairy cows. This offers a promising strategy for managing this condition in modern dairy production systems.

入藏号: WOS:001506447000001

文献类型: Article

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研究方向: Veterinary Sciences

输出日期:2025-08-06

Acoustics

第 1 条

标题: Ultrasound-assisted free radical modification: structural and functional characteristics of granular/fibrillar mung bean globulin-vitexin conjugates

作者: Jiang, P (Jiang, Peng); Xu, QP (Xu, Qingpeng); Zhang, S (Zhang, Shu); Fu, TX (Fu, Tianxin); Li, ZJ (Li, Zhijiang); Wang, CY (Wang, Changyuan)

来源出版物: ULTRASONICS SONOCHEMISTRY 卷: 120 文献号: 107453

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Published Date: 2025 SEP

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摘要: Protein morphology plays a critical role in determining the functional properties required for food applications. This study investigated the structural transitions and functional properties of granular and fibrillar mung bean globulin (GM and FM) conjugated with vitexin (V) under ultrasound-assisted free radical modification. The sodium dodecyl sulfate-polyacrylamide gel electrophoresis and spectroscopic analyses confirmed the formation of covalent conjugates between GM/FM-V. Ultrasound treatment further enhancing the conjugation efficiency, with binding amounts reaching 24.07 mg/g for GM-V and 30.45 mg/g for FM-V at 600 W. Appropriate ultrasound treatment improved the particle size distribution and surface charge of the GM/FM-V conjugates, thereby enhancing their hydrophobicity and solubility. Furthermore, compared with GM-V conjugates, FM-V conjugates demonstrated superior antioxidant activity under 600 W ultrasonic treatment, exhibiting maximum DPPH center dot and ABTS center dot+ and FRAP radical scavenging ability of 55.29 %, 64.21 %, and 2.10 mmol/mL. Meanwhile, ultrasonic treatment enhanced the emulsifying activity of FM-V and GM-V conjugates by 24.43 % and 34.99 %, respectively. This study highlights the critical role of protein structural morphology in modulating covalent interactions and enhancing functionality, offering theoretical support for the development of plant protein-polyphenol conjugates

as natural emulsifiers and antioxidant food additives.

入藏号: WOS:001535077100001

文献类型: Article

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研究方向: Acoustics; Chemistry

输出日期: 2025-08-06

Agriculture

第 1 条

标题: Virtual screening and in vitro validation of methane inhibitor-Fraxin

作者: Xiao, L (Xiao, Li); Liu, ZH (Liu, ZiHao); Zhou, MT (Zhou, MengTing); Guo, J (Guo, Jian); Nan, XM (Nan, XueMei); Tang, XF (Tang, XiangFang); Xiong, BH (Xiong, BenHai)

来源出版物: ANIMAL FEED SCIENCE AND TECHNOLOGY 卷: 327

文献号: 116404 DOI: 10.1016/j.anifeedsci.2025.116404

Published Date: 2025 SEP

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被引频次合计: 0

摘要: The production of methane (CH₄) poses a major challenge to both livestock and the environment, in particular contributing to the greenhouse effect, so reducing CH₄ emissions is urgent. In this study, methyl-coenzyme M reductase (MCR) was used as a target to screen natural product libraries, identify potential natural CH₄ inhibitors, and then verify their inhibitory effects on MCR and decreased in vitro CH₄. The results showed that fraxin and MCR scored well. In the follow-up verification, fraxin showed significant inhibitory activity on MCR, significantly decreased in vitro CH₄ production ($P = 0.010$), and significantly increased DMD ($P = 0.049$). The inhibition effect of 1 mg/gDM was the best, and the inhibition rate was 10.85 %. In this study, we found that fraxin can be used as a new feed additive that can inhibit CH₄.

入藏号: WOS:001507596900001

文献类型: Article

地址: [Xiao, Li; Liu, ZiHao; Zhou, MengTing; Guo, Jian; Nan, XueMei; Tang, XiangFang; Xiong, BenHai] Chinese Acad Agr Sci, Inst Anim Sci, Natl Key Lab Livestock & Poultry Nutr & Feeding, Beijing 100193, Peoples R China.

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研究方向: Agriculture

输出日期: 2025-08-06

第 2 条

标题: Effects of Glucose Concentration on Differentiation, Adipogenic Marker Genes Expression and Glucose Transporter Distribution in Bovine Subcutaneous Preadipocytes

作者: Bai, B (Bai, Bing); Chen, M (Chen, Meng); Wang, SK (Wang, Sikai); Qu, JC (Qu, Jiachen); Huang, XY (Huang, Xianye); Li, LY (Li, Lingyan)

来源出版物: INDIAN JOURNAL OF ANIMAL RESEARCH 卷: 59 期: 6 页: 934-941 DOI: 10.18805/IJAR.BF-1909 Published Date: 2025 JUN

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Background: Fat deposition in beef cattle significantly influences both the meat yield of individual carcasses and the perceived eating quality for consumers. Glucose, as a crucial regulator, plays an essential role in the differentiation of bovine preadipocytes and lipid metabolism. This study aimed to investigate the effects of varying glucose concentrations (0, 3.0, 3.5 and 4.0 mmol/L) on the differentiation of bovine subcutaneous preadipocytes. Additionally, we explored the expression levels of key adipogenic marker genes and the distribution of glucose transporters during adipocyte differentiation. Methods: The differentiation of preadipocytes was assessed using Oil Red O staining and triacylglycerol content was quantified using a triglyceride assay kit. To evaluate the expression of adipogenic genes included peroxisome proliferator-activated receptor-gamma (PPAR gamma), fatty acid synthase (FAS) and acetyl-CoA carboxylase 1 (ACC1), quantitative real-time polymerase chain reaction (qRT-PCR) was used to measure mRNA levels, while protein levels were determined through western blotting. Additionally, the distribution of glucose transporters GLUT1 and GLUT4 during differentiation was analyzed through immunofluorescence. Result: The results showed that the differentiation of preadipocytes, along with the accumulation of lipid droplets, was enhanced at 2 and 4 days ($p < 0.05$). However, this effect gradually diminished by day 8 as glucose concentration increased. During the

early stages of preadipocyte differentiation, the expression of adipogenic marker genes-PPAR gamma, FAS and ACC1-significantly increased at both the mRNA and protein levels ($p<0.05$, $p<0.01$). However, by day 8, as glucose concentration increased, a decreasing trend in the expression of these genes was observed. The fluorescence intensity of glucose transporters GLUT1 and GLUT4 rose significantly with higher glucose concentrations. These findings suggested that adding glucose at 3.0 to 3.5 mmol/L to the differentiation medium is optimal for promoting differentiation and fat deposition in bovine subcutaneous preadipocytes.

入藏号: WOS:001504683000005

文献类型: Article

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研究方向: Agriculture

输出日期:2025-08-06

第 3 条

标题: Surface Defect and Malformation Characteristics Detection for Fresh Sweet Cherries Based on YOLOv8-DCPF Method

作者: Liu, YL (Liu, Yilin); Han, X (Han, Xiang); Ren, LL (Ren, Longlong); Ma, W (Ma, Wei); Liu, BY (Liu, Baoyou); Sheng, CR (Sheng, Changrong); Song, YP (Song, Yuepeng); Li, QD (Li, Qingda)

来源出版物: AGRONOMY-BASEL 卷: 15 期: 5 文献号: 1234

DOI: 10.3390/agronomy15051234 Published Date: 2025 MAY 19

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被引频次合计: 0

摘要: The damaged and deformed fruits of fresh berries severely restrict the economic value of produce, and accurate identification and grading methods have become a global research hotspot. To address the challenges of rapid and accurate defect detection in intelligent cherry sorting systems, this study proposes an enhanced YOLOv8n-based framework for sweet cherry defect identification. First, the dilation-wise residual (DWR) module replaces the conventional C2f structure, allowing

for the adaptive capture of both local and global features through multi-scale convolution. This enhances the recognition accuracy of subtle surface defects and large-scale damages on cherries. Second, a channel attention feature fusion mechanism (CAFM) is incorporated at the front end of the detection head, which enhances the model's ability to identify fine defects on the cherry surface. Additionally, to improve bounding box regression accuracy, powerful-IoU (PIoU) replaces the traditional CIoU loss function. Finally, self-distillation technology is introduced to further improve the model's generalization capability and detection accuracy through knowledge transfer. Experimental results show that the YOLOv8-DCPF model achieves precision, mAP, recall, and F1 score rates of 92.6%, 91.2%, 89.4%, and 89.0%, respectively, representing improvements of 6.9%, 5.6%, 6.1%, and 5.0% over the original YOLOv8n baseline network. The proposed model demonstrates high accuracy in cherry defect detection, providing an efficient and precise solution for intelligent cherry sorting in agricultural engineering applications.

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文献类型: Article

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研究方向: Agriculture; Plant Sciences

输出日期:2025-08-06

第 4 条

标题: Ergothioneine Improves the Quality of Boar Sperm During In Vitro Liquid Preservation by Regulating Mitochondrial Respiratory Chain

作者: Guo, Q (Guo, Qing); Liu, X (Liu, Xue); Li, Y (Li, Yang); Cheng, Y (Cheng, Ye); Li, JC (Li, Jingchun)

来源出版物: ANIMALS 卷: 15 期: 10 文献号: 1450 DOI: 10.3390/ani15101450

Published Date: 2025 MAY 17

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摘要: Porcine artificial insemination primarily utilizes liquid-preserved (17 degrees C) semen; however, the quality of sperm diminishes progressively with extended preservation time. Ergothioneine (EGT) is a mitochondria-targeting antioxidant. Therefore, this study aimed to analyze the effect of various concentrations of EGT (0, 0.15, 0.3, and 0.6 mM) on the quality of boar sperm during in vitro liquid preservation and elucidate the underlying mechanisms of the mitochondrial electron respiratory chain inhibitor ROT. The results demonstrated that the addition of 0.3 mM EGT to the modified Modena extender significantly improved sperm motility and kinetic parameters, as well as mitochondrial membrane potential (MMP), adenosine triphosphate (ATP), antioxidant capacity, and the integrity of both the sperm plasma membrane and acrosome. Additionally, ROT significantly inhibited sperm motility, kinetic parameters, MMP, ATP levels, antioxidant capacity, and sperm integrity of the plasma membrane and acrosome. However, these adverse effects could be partially mitigated by the addition of 0.3 mM EGT. In conclusion, the novel findings of this study indicated that EGT plays a crucial role in protecting sperm from oxidative damage by regulating the mitochondrial electron respiratory chain, suggesting that the use of EGT is a promising approach for enhancing the in vitro liquid preservation efficiency of boar semen at 17 degrees C.

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文献类型: Article

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研究方向: Agriculture; Veterinary Sciences; Zoology

输出日期:2025-08-06

第 5 条

标题: Design and Implementation of an Intelligent Pest Status Monitoring System for Farmland

作者: Yuan, XY (Yuan, Xinyu); He, ZS (He, Zeshen); Huang, CJ (Huang, Caojun)

来源出版物: AGRONOMY-BASEL 卷: 15 期: 5 文献号: 1214

DOI: 10.3390/agronomy15051214 **Published Date:** 2025 MAY 16

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被引频次合计: 0

摘要: This study proposes an intelligent agricultural pest monitoring system that integrates mechanical control with deep learning to address issues in traditional systems, such as pest accumulation interference, image contrast degradation under complex lighting, and poor balance between model accuracy and real-time

performance. A three-axis coordinated separation device is employed, achieving a 92.41% single-attempt separation rate and 98.12% after three retries. Image preprocessing combines the Multi-Scale Retinex with Color Preservation (MSRCP) algorithm and bilateral filtering to enhance illumination correction and reduce noise. For overlapping pest detection, EfficientNetv2-S replaces the YOLOv5s backbone and is combined with an Adaptive Feature Pyramid Network (AFPN), achieving 95.72% detection accuracy, 94.04% mAP, and 127 FPS. For pest species recognition, the model incorporates a Squeeze-and-Excitation (SE) attention module and alpha-CIoU loss function, reaching 91.30% precision on 3428 field images. Deployed on an NVIDIA Jetson Nano, the system demonstrates a detection time of 0.3 s, 89.64% recall, 86.78% precision, and 1.136 s image transmission delay, offering a reliable solution for real-time pest monitoring in complex field environments.

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文献类型: Article

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研究方向: Agriculture; Plant Sciences

输出日期:2025-08-06

第 6 条

标题: Calibration and Experimental Validation of Discrete Element Parameters for Long-Grain Rice with Different Moisture Contents Based on Repose Angle

作者: Chen, ZF (Chen, Zhengfa); Che, G (Che, Gang); Wan, L (Wan, Lin); Wang, HC (Wang, Hongchao); Zhang, K (Zhang, Kun)

来源出版物: AGRICULTURE-BASEL 卷: 15 期: 10 文献号: 1058

DOI: 10.3390/agriculture15101058 **Published Date:** 2025 MAY 14

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摘要: The accurate determination of discrete element parameters is crucial for ensuring reliable results in simulating the critical post-harvest stages of rice grain (processing, transportation, and storage) with different moisture contents. To determine the discrete element parameters, a physical model of rice grain was constructed by the multi-sphere (MS) modeling approach. Using the repose angle as the evaluation index, the discrete element parameters of rice grain were calibrated and optimized through the Plackett-Burman (PB) test, the steepest climbing test, and

the Box-Behnken (BB) test using EDEM software. A moisture content-significance discrete element parameters model was further developed based on a moisture content-repose angle model ($R^2 = 0.992$) and a repose angle-significance discrete element parameters model ($R^2 = 0.970$). The calibration results showed that the relative error between the simulated and actual repose angle did not exceed 3.52%. Meanwhile, the cylinder lifting method and unloading mass flow rate verification were performed. And the results showed that the relative errors of the repose angle and mass flow rate of rice grain did not exceed 2.09% and 7.72%, respectively. The study provides a general and reliable method for determining the parameters of discrete element method simulation for rice grain with different moisture contents.

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第 7 条

标题: ATR Deficiency Impairs DNA Damage Repair and Accelerates Cellular Senescence in Bovine Mammary Epithelial Cells, Leading to Lactation Dysfunction

作者: Zhou, QJ (Zhou, Qijun); Geng, ZJ (Geng, Zijian); Lian, S (Lian, Shuai); Wang, JF (Wang, Jianfa); Wu, R (Wu, Rui)

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摘要: Mammary glands in cows are highly dynamic, making genomic stability particularly crucial. Continuous lactation and self-renewal of these glands are primary contributors to genomic instability. Results: We employed transcriptomic and proteomic methods to analyze the expressional characteristics in the mammary glands of cows with varying levels of milk production. Our findings indicated differences in relevant pathways, including DNA damage repair and apoptosis, which are influenced by increasing parity. Notably, ATR protein levels in the mammary

glands of low-yield dairy cows were reduced. Following in vitro silencing of ATR, beta-galactosidase content increased in aging mammary epithelial cells, with cell cycle arrest in the G2 and S phases. Secretory phenotypes associated with aging, including IL-6, IL-10, IL-1 beta, INF-gamma, and IL-2, were elevated, along with increased TNF-alpha content. The expressions of DNA repair-related proteins, including PIG3, PARP1, and Cleaved caspase3, were upregulated, and SP1 expression was decreased. Furthermore, the expressions of cytochrome C and BAK increased, and ATR silencing inhibited mTOR and STAT5 lactation signaling pathways, resulting in elevated STAT3 protein levels associated with mammary gland degeneration. Conclusions: This study emphasizes the significance of the ATR protein in the mammary glands of dairy cows, contributing valuable insights into maintaining their health and presenting a novel perspective on strategies to enhance their lifespan.

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第 8 条

标题: Biochar Promotes Phosphorus Solubilization by Reconstructing Soil Organic Acid and Microorganism Networks

作者: Fan, BW (Fan, Bowen); Zhao, LQ (Zhao, Liqin); Yang, FJ (Yang, Fengjun); Zhao, CJ (Zhao, Changjiang); Li, ZT (Li, Zuotong)

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摘要: Biochar has the ability to enhance the solubilization of phosphorus (P) in soil. Nonetheless, the role played by organic acid and microorganism in P solubilization under biochar application conditions remains unclear. In this study, we examined the relationship between soil organic acids and microorganisms, as well as P fractions,

following the addition of biochar, utilizing foxtail millet, maize, soybean, and mung bean as materials. The results demonstrated that the addition of biochar increased the availability of P by increasing the content of the resin-P fraction and decreasing the content of the NaOH-Pi, NaOH-Po, and HCl-P fractions in the soil. In addition, resin-P fractions were elevated by 142.78%, 95.27%, 35.99%, and 21.55% in the soils of foxtail millet, maize, soybean, as well as mung bean, respectively. In the microorganisms, the addition of biochar promotes P conversion by increasing the number of labile-P-associated microorganisms and decreasing the number of moderate-labile-P- and non-labile-P-associated microorganisms. In the organic acids, biochar expanded the biological pathways for the solubilization of moderate-labile-P through organic acids. This study illustrates the potential mechanism of biochar to enhance soil P availability.

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研究方向: Agriculture; Plant Sciences

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第 9 条

标题: Deep Fertilization Is More Beneficial than Enhanced Efficiency Fertilizer on Crop Productivity and Environmental Cost: Evidence from a Global Meta-Analysis

作者: Wu, Q (Wu, Qi); Huang, H (Huang, Hua); Wang, QH (Wang, Qinhe); Liu, ZY (Liu, Zeyu); Pei, RZ (Pei, Runzhuo); Wen, GS (Wen, Guosheng); Feng, JH (Feng, Jinghui); Wang, H (Wang, Hao); Zhang, P (Zhang, Peng); Gao, ZQ (Gao, Zhiqiang); Wang, CY (Wang, Chuangyun); Wu, P (Wu, Peng)

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摘要: It is unclear whether enhanced efficiency fertilizer (EEF) or deep fertilization strategies (DF) can simultaneously improve crop productivity and reduce gaseous nitrogen losses. The DF strategy's investment cost is lower than that of EEF's, with more potential for large-scale promotion. However, there is still a need for a comprehensive comparison and evaluation of DF and EEF's effects on crop productivity and gaseous nitrogen losses. Here, we examine the effects of DF and EEF on crop yield, nitrogen use efficiency (NUE), and nitrous oxide (N₂O) and ammonia (NH₃) emissions by a meta-analysis of published studies. We collected peer-reviewed articles on EEF and DF published in recent decades and conducted a global meta-analysis, and explored their responses to different climatic, field management practices, and environmental factors. The results showed that compared with urea application on the surface, EEF and DF significantly increased yields by 7.52% and 13.88% and NUE by 25.84% and 36.27% and reduced N₂O emissions by 37.98% and 34.18% and NH₃ emissions by 42.37% and 69.68%, respectively. The DF strategy is superior to that of the EEF. Due to differences in climatic factors, soil properties, and management practices, the effects of DF and EEF in improving crop productivity and gaseous nitrogen loss vary. However, in most cases, DF is more beneficial than EEF. Compared with EEF, DF significantly increased the yield by 84.63% and reduced NH₃ volatilization by 64.47%, yield-scaled N₂O emission by 13.32%, and yield-scaled NH₃ emission by 60.23%. Therefore, we emphasize that DF can achieve higher yields, nitrogen fertilizer utilization efficiency, lower emissions of gaseous nitrogen, and lower yield-scaled N₂O and NH₃ emissions than EEF, which is beneficial for the sustainable development of global agricultural ecosystems. The research results provide valuable information on crop productivity and environmental costs under an effective fertilizer type and fertilization strategy management.

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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: Changes in Soil Properties, Content of Cd, and Cd-Resistant Bacterial Community with Biochar After One-Time Addition Under Soybean Continuous Cropping and Crop Rotation Patterns

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摘要: In recent years, Cadmium (Cd) pollution in soybean farmland is severe. Therefore, this study focused on whether biochar influences soil physiochemical properties, the Cd content in soil and soybean grains, and the abundance and community structure of the *czcA* gene. Four doses of rice husk biochar (0, 5, 15, and 25 t<middle dot>ha⁻¹) were applied under continuous cropping and crop rotation systems, and soil samples were collected after four years of one-time addition. The results indicated that biochar addition significantly increased soil available nitrogen, phosphorus, and soil organic carbon contents under continuous cropping and rotation. Biochar application significantly reduced the total Cd content of soil samples and soybean grains. Additionally, biochar application reduced *czcA* gene abundance in soybean soils by 14.26-37.88% and 35.96-48.71%, respectively. Correlation analysis revealed that Cd content and the abundance of the *czcA* gene significantly correlated with soil nutrients and pH. High-throughput sequencing revealed that the relative abundances of several Cd-resistant microorganisms were decreased by biochar addition. In addition, adding biochar significantly affected the Cd-resistant microbial community structure and diversity by influencing soil properties and Cd content. Therefore, this study has important practical significance for improving the soil environment and ensuring the quality and safety of agricultural products.

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研究方向: Agriculture; Plant Sciences

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第 11 条

标题: NF-kappaB is involved exclusively under inflammatory conditions in the regulation of cathelicidin 3 expression in bovine mammary glands through phosphorylation of p65

作者: Zhang, JY (Zhang, Jinyou); Xin, LY (Xin, Lingyu); Zhang, AB (Zhang, Aobo); Song, JT (Song, Jinting)

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摘要: Cathelicidin 3 (CATHL3), a member of the cathelicidin family, exhibits potent resistance against a spectrum of microorganisms. Despite its importance, the expression pattern and regulatory mechanisms of CATHL3 in inflamed dairy mammary glands remain elusive. For this purpose, healthy (n = 3) and inflamed (n = 3) mammary gland tissues were subjected to high-throughput transcriptome sequencing and RT-qPCR analysis. Our findings revealed significant differential expression of the CATHL3 gene and significantly higher nuclear factor kappa B (NF-kappa B) mRNA expression in inflamed tissues compared to healthy controls. Milk somatic cells from dairy cows with varying blood glucose concentrations were extracted and analyzed. In healthy cows, a decrease in blood glucose concentration

was significantly associated with an increase in CATHL3 mRNA expression in milk somatic cells, while NF-kappa B mRNA expression significantly decreased. Conversely, in milk somatic cells from cows with subclinical and clinical mastitis, a decrease in blood glucose concentration still led to a significant increase in CATHL3 mRNA expression, but NF-kappa B mRNA expression paradoxically increased, contrasting with the healthy cow group. The in vitro experiments mirrored the findings of the in vivo experiments mentioned above by culturing dairy cow mammary epithelial cells under varying glucose concentrations, with or without lipopolysaccharides (LPS). Additionally, the effects of NF-kappa B inhibitor (BAY 11-7082, 10 μ mol/L) or NF-kappa B activator (NF-kappa B activator-1, 1 μ mol/L) on cultured dairy cow mammary epithelial cells were assessed. While the addition of NF-kappa B activator alone upregulated the mRNA expression level of NF-kappa B, it did not alter the p-p65/p65 ratio and CATHL3 mRNA expression compared to the blank control group. Notably, the co-addition of LPS and the NF-kappa B inhibitor significantly attenuated the stimulatory effects of LPS on NF-kappa B mRNA expression and the p-p65/p65 ratio and also weakened the stimulatory effect of LPS on CATHL3 mRNA expression. Our results suggest that mastitis stimulates CATHL3 gene expression in mammary gland with the NF-kappa B signaling pathway playing a regulatory role through the phosphorylation of p65 exclusively under inflammatory conditions. Additionally, decreased blood glucose concentration promotes CATHL3 mRNA expression. These findings provide novel insights into the molecular mechanisms of bovine mastitis and potential targets for therapeutic intervention.

This research highlights potential therapeutic targets for mastitis management in dairy cows.

This research explores how mastitis, a common dairy cow disease, affects the expression of cathelicidin 3 (CATHL3), an antimicrobial peptide. The study reveals that CATHL3, a key immune response factor, is more active in inflamed bovine mammary tissues, and the role of the nuclear factor kappa B (NF-kappa B) signaling pathway in regulating CATHL3 gene expression exclusively under inflammatory conditions in bovine mammary with a dependence on p65 phosphorylation. Decreased blood glucose levels were associated with elevated CATHL3 mRNA expression.

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研究方向: Agriculture

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第 12 条

标题: Inversion and mapping of soil alkali-hydrolyzable nitrogen in farmland using satellite remote sensing and machine learning

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摘要: Soil alkali-hydrolyzable nitrogen (SAN) is a crucial indicator of soil nutrient status. Quickly and accurately obtaining the spatial distribution of SAN content is essential for the effective implementation of precision variable fertilization. To efficiently estimate SAN content at the field scale and improve the model's accuracy and stability, the basic farmland of Jianshan Farm in Heilongjiang Province was selected as the study area. Remote sensing factors and topographic variables were extracted from Sentinel-2 satellite imagery and Copernicus digital elevation model. Simultaneously, SAN content was measured during different bare soil periods in spring and autumn. This study employed support vector regression (SVR), extreme gradient boosting (XGBoost) and BP neural network (BPNN) to establish SAN content inversion models for different bare soil periods. Then, the zebra optimization algorithm (ZOA) was used to optimize the hyperparameters of the best-performing model, and the experimental results were analyzed. Finally, the model's interpretability and reliability were validated through feature importance analysis and statistical significance tests. The results indicated that the correlation between the raw bands of remote sensing data in autumn and SAN content was generally higher than that in spring. The spring SAN inversion model, ZOA-XGBoost-2, which incorporates raw bands and topographic variables demonstrated the best predictive performance ($R^2=0.3416$, $r = 0.6153$, $RMSE=31.1616$ mg/kg, $MAE=21.2132$ mg/kg, $MAPE=7.5184$ %). The autumn SAN inversion model, ZOA-BPNN-6, based on raw bands, vegetation indices and topographic variables demonstrated the best predictive performance ($R^2=0.7304$, $r = 0.8664$, $RMSE=20.3511$ mg/kg, $MAE=15.5451$ mg/kg, $MAPE=5.2008$ %). Compared with the unoptimized inversion model, R^2 increased by 6.32 percentage points and 1.12 percentage points, and r increased by 3.99 percentage points and 1.01 percentage points, respectively, while RMSE, MAE and MAPE decreased. In the spring model, vegetation indices and raw bands accounted for 52.82 % and 47.18 % of the total importance, respectively, while in the autumn model, raw bands, vegetation indices, and topographic variables contributed 46.15 %, 30.72 %, and 23.13 %, respectively. In addition, ANOVA confirmed that the model performance differed significantly between the two seasons, validating the superiority of the autumn model in SAN prediction. The proposed inversion model yielded better prediction results, which closely aligned with the actual SAN data. It can provide a theoretical basis and technical support for the rapid and dynamic monitoring of soil nitrogen content at the farm scale, as well as for variable fertilization decision-making.

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研究方向: Agriculture

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第 13 条

标题: Engineered Exosomes Delivering bta-miR-223 Alleviate Staphylococcus aureus-Induced Mastitis in Mice via the TLR4/NF- κ B Signaling Pathway

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摘要: Bovine mastitis is an inflammatory disease of the mammary gland, frequently associated with infection by Staphylococcus aureus. Effective delivery of the antiinflammatory microRNA bta-miR-223 remains a challenge. In this study, we constructed engineered exosomes loaded with bta-miR-223 and demonstrated their antiinflammatory effects both in vitro (Mac-T cells) and in vivo (mice). Overexpression of bta-miR-223 reduced the expression of IL-6 and IL-1 beta in a lipoteichoic acid-induced Mac-T cell inflammation model. Following tail vein injection in lactating mice, the engineered exosomes accumulated in the mammary gland, alleviated S. aureus-induced inflammation, and increased the expression of barrier-related proteins ZO-1, claudin-1, and occludin. Mechanistically, bta-miR-223 inhibited RHOB expression and modulated the TLR4/NF-kappa B pathway. These results demonstrate that exosome-mediated delivery of bta-miR-223 effectively alleviates mammary inflammation, providing a novel strategy for nucleic acid nanotherapy.

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

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第 14 条

标题: Agricultural Electrostatic Spraying Electrode Corrosion Degradation Mechanisms: A Multi-Parameter Coupling Model

作者: Li, YF (Li, Yufei); Zou, AN (Zou, Anni); Hu, J (Hu, Jun); Liu, CX (Liu, Changxi); Zhao, SX (Zhao, Shengxue); Li, QD (Li, Qingda); Zhang, W (Zhang, Wei); Wang, YF (Wang, Yafei)

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摘要: As an innovative plant protection method in precision agriculture, electrostatic spray technology can increase the droplet coverage area by over 30% compared to conventional spraying. This technology not only achieves higher droplet deposition density and coverage but also enables water and pesticide savings while reducing environmental pollution. This study, combining theoretical analysis with experimental validation, reveals the critical role of electrode material selection in induction-based electrostatic spray systems. Theoretical analysis indicates that the Fermi level and work function of electrode materials fundamentally determine charge transfer efficiency, while corrosion resistance emerges as a key parameter affecting system

durability. To elucidate the effects of different electrode materials on droplet charging, a comparative study was conducted on nickel, copper, and brass electrodes in both pristine and moderately corroded states based on the corrosion classification standard, using a targeted mesh-based charge-to-mass measurement device. The results demonstrated that the nickel electrode achieved a peak charge-to-mass ratio of 1.92 mC/kg at 10 kV, which was 8.5% and 11.6% higher than copper (1.77 mC/kg) and brass (1.72 mC/kg), respectively. After corrosion, nickel exhibited the smallest reduction in the charge-to-mass ratio (19.2%), significantly outperforming copper (40.2%) and brass (21.6%). Droplet size analysis using a Malvern Panalytical Spraytec spray particle analyzer (measurement range: 0.1-2000 μm) further confirmed the atomization advantages of nickel electrodes. The volume median diameter (Dv50) of droplets produced by nickel was 4.2-8 μm and 6.8-12.3 μm smaller than those from copper and brass electrodes, respectively. After corrosion, nickel showed a smaller increase in droplet size spectrum inhomogeneity (24.5%), which was lower than copper (30.4%) and brass (25.8%), indicating superior droplet uniformity. By establishing a multi-factor predictive model for spray droplet size after electrode corrosion, this study quantifies the correlation between electrode characteristics and spray performance metrics. It provides a theoretical basis for designing weather-resistant electrostatic spray systems suitable for agricultural pesticide application scenarios involving prolonged exposure to corrosive chemicals. This work offers significant technical support for sustainable crop protection strategies.

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文献类型: Article

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研究方向: Agriculture
输出日期: 2025-08-06

Architecture

第 1 条

标题: ESG performance drivers and corporate growth: a life-cycle-based fsQCA-PSM study of China's construction and manufacturing enterprises

作者: Li, D (Li, Ding); Yan, H (Yan, Han); Ma, SL (Ma, Shenglin)

来源出版物: JOURNAL OF ASIAN ARCHITECTURE AND BUILDING ENGINEERING DOI: 10.1080/13467581.2025.2517911 **Early Access Date:** JUN 2025

Published Date: 2025 JUN 15

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摘要: This study adopts a multi-perspective TOE framework and integrates Necessary Condition Analysis (NCA), fuzzy-set Qualitative Comparative Analysis (fsQCA), and Propensity Score Matching (PSM) to investigate how technological, organizational, and environmental factors jointly influence ESG performance and firm growth. Using a sample of construction and manufacturing firms in China, we find: (1) ESG improvements result from the synergy of multiple factors. Four causal paths are identified: H1a (digital transformation + R&D investment + marginal firm size), H1b (digital transformation + financial performance + government subsidies + marginal industry competition), H2 (R&D investment + financial performance + marginal firm size), and H3 (financial performance + industry competition). These form three configuration types: internal-external collaboration, proactive development, and self-reliance under external pressure. (2) The configurations display causal asymmetry, with a single-factor-driven model linked to poor ESG outcomes. (3) The impact on growth varies: the self-reliance model consistently promotes growth; the other two hinder it during early stages but enhance it in maturity. In the decline phase, only internal-external collaboration remains effective. This research advances ESG understanding and informs strategies for enterprise growth.

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研究方向: Architecture; Construction & Building Technology

输出日期:2025-08-06

Biochemistry & Molecular Biology

第 1 条

标题: Trichothecenes toxicity in humans and animals: Unraveling the mechanisms and harnessing phytochemicals for prevention

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来源出版物: COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY C-TOXICOLOGY & PHARMACOLOGY 卷: 296 文献号: 110226

DOI: 10.1016/j.cbpc.2025.110226 **Published Date:** 2025 OCT

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摘要: Mycotoxins are the major widespread hazardous substances in feed and food and are widely distributed throughout the world. Mycotoxins are a major food safety concern since they can produce substantial toxic and carcinogenic consequences in human and animals when consumed. Trichothecenes (TCTs), a class of highly toxic mycotoxins mainly generated by *Fusarium* species, are among the most prevalent food pollutants. Deoxynivalenol (DON), largely biosynthesized by *Fusarium graminearum* and *Fusarium culmorum*, along with T-2 toxin generated chiefly by *Fusarium langsethiae* and *Fusarium sporotrichioides*, represent the most agriculturally significant TCT subtypes. There are still no effective control strategies. Furthermore, phytochemicals have received widespread attention as natural compounds with strong antioxidant, anti-inflammatory and detoxifying effects. Because of the powerful antioxidant effects of phytochemicals, researchers have begun to look at ways to counteract the intense toxicity of TCT. Focusing on the global challenge of TCTs, this comprehensive review systematically examines contamination patterns of DON and T-2 toxin, elucidates their multi-organ toxicity pathways, and critically evaluates emerging evidence on phytochemical-based interventions targeting DON and T-2 toxin-induced health impairments. It concludes that These findings demonstrate that phytochemicals counteract DON and T-2 toxin toxicity by suppressing oxidative stress-mediated pathways, including pyroptosis, ferroptosis, apoptosis, and inflammatory responses. Accordingly, the direct addition of phytochemicals to food and feed is expected to be a promising prospect for the detoxification of DON and T-2 toxin, considering their safety, efficiency, and accessibility.

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文献类型: Review

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研究方向: Biochemistry & Molecular Biology; Endocrinology & Metabolism; Toxicology; Zoology

输出日期: 2025-08-06

第 2 条

标题: Cationic antimicrobial peptide CC34 potential anticancer and apoptotic induction on cancer cells

作者: Dong, LQ (Dong, Liqiang); Li, YH (Li, Yunhe); Zhang, YG (Zhang, Yaguang); Su, S (Su, Shi)

来源出版物: AMINO ACIDS 卷: 57 期: 1 文献号: 28

DOI: 10.1007/s00726-025-03458-1 **Published Date:** 2025 MAY 24

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摘要: To evaluate the potential of antimicrobial peptide CC34 for use as therapeutic agents for gastric cancer SGC-7901 and hepatocellular carcinoma HepG-2. In this study, the antibacterial activity and antibacterial mechanism were tested by the minimum inhibitory concentration (MIC) analysis, minimal bactericidal concentration (MBC) analysis, bacterial biofilm and NaCl permeability assays. Then, we assessed the hemolytic activity and cytotoxicity of CC34 for red blood cells and cancer cells, respectively. Apoptosis assay, cell cycle analysis, determination of intracellular ROS, western blot analysis caspase activity assay and ATP assay were further performed to investigate the mechanism of CC34 affected cancer cells. The novel peptide could inhibit Gram-negative and Gram-positive bacteria, with low hemolytic activity against mouse and chicken erythrocytes. Moreover, CC34 exhibited higher inhibitory activity against biofilm formation. In addition, our data showed that CC34 significantly suppressed cell proliferation, in a dose dependent manner. CC34 induced apoptosis, induced reactive oxygen species (ROS) generation, inhibited B-cell lymphoma-2 (Bcl-2) expression, increase B-cell lymphoma protein 2 associated X protein (Bax) expression, release of cytochrome c (Cyt C), promoted caspase-3 and -9 activities and reduced cellular ATP levels in cancer cells. Our results indicate that CC34 with antimicrobial activity have a highly potent ability to induced apoptosis via mitochondrial-mediated apoptotic pathway in cancer cells.

入藏号: WOS:001494540300002

文献类型: Article

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研究方向: Biochemistry & Molecular Biology

输出日期:2025-08-06

第 3 条

标题: Preparation and characterization of double-coated slow-release urea fertilizer encapsulated with polymethylmethacrylate and sulfonated cellulose derivatives modified sodium alginate hydrogel

作者: Tan, XX (Tan, Xiaoxiao); Dong, GH (Dong, Guohua); Shi, ZC (Shi, Zhichun); Zhang, DZ (Zhang, Dongzhe); Liu, DL (Liu, Donglong); Wang, YY (Wang, Yuanyuan); Li, J (Li, Jun); Wang, P (Wang, Peng); Zhang, WZ (Zhang, Wenzhi)

来源出版物: INTERNATIONAL JOURNAL OF BIOLOGICAL
MACROMOLECULES 卷: 319 文献

号: 145572 DOI: 10.1016/j.ijbiomac.2025.145572 Published Date: 2025 AUG 子
辑: 3

Web of Science 核心合集中的 "被引频次": 0

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摘要: The utilization of cellulose in preparation of slow-release fertilizer (SRF) is still challenging due to its inherent drawbacks such as low solubility and fragility. Herein, based on the preparation of sulfonation cellulose (SC) and sequential synthesis of corresponding SC based hydrogel (SC-SAH) by crosslinking the above-formed SC derivative with sodium alginate (SA), a novel double-coated SRF with urea granules as core was developed by utilizing polymethylmethacrylate (PMMA) as internal coating and the SC-SAH as external coating (SC-SAH/ PMMA@Urea-SRF). The optimization on the preparation conditions of the hydrogels and SRFs together with the comprehensive characterizations demonstrate that SC-SAH possesses a higher swelling capacity and hydrophilicity. Importantly, the SC-SAH/PMMA@Urea-SRF exhibits superior slow-release performance in deionized water and soil compared to others including neat urea, SAH/PMMA@Urea-SRF (without SC or cellulose) and C-SAH/ PMMA@Urea-SRF (merely cellulose). Specifically, the total cumulative release of SC-SAH/PMMA@Urea-SRF reaches 62.79 % within 36 h in water and

53.35 % over 35 days in soil. The nitrogen release of SC-SAH/ PMMA@Urea-SRF into the soil adheres to a First-order kinetic model and is governed by Fick's diffusion process. Moreover, the SC-SAH/PMMA@Urea-SRF has a positive promotion effect on tomato growth. Consequently, this study offering a novel route for progressing SRF with cellulose derivatives for sustainable agriculture.

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文献类型: Article

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

输出日期: 2025-08-06

第 4 条

标题: Characterization of the YcjN ABC Transporter in Escherichia coli: Role in Maltose and Ethidium Bromide Transport

作者: Wang, YH (Wang, Yanhong); Xu, BB (Xu, Beibei); Abdelazez, A (Abdelazez, Amro); Abdel-motaal, H (Abdel-motaal, Heba); Liu, QP (Liu, Qingpeng); Han, L (Han, Lu); Yang, M (Yang, Ming); Wang, WZ (Wang, Wenzhao); Abd El-Aziz, MA (Abd El-Aziz, Mohamed A.); Alshehry, G (Alshehry, Garsa); Algarni, E (Algarni, Eman); Aljumayi, H (Aljumayi, Huda)

来源出版物: MOLECULAR BIOTECHNOLOGY DOI: 10.1007/s12033-025-01475-9

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摘要: This study investigated the functional role of the ycjN gene in Escherichia coli, hypothesizing that its encoded protein, YcjN, functions as a carbohydrate transporter. Bioinformatics analysis confirmed YcjN as a solute-binding protein (SBP). The construction of a Delta ycjN deletion strain revealed that ycjN is not essential for bacterial viability. Ethidium bromide (EB) accumulation and efflux assays demonstrated that both the overexpression strain (E. coli/pET28a-ycjN) and wild-type E. coli exhibited significantly higher intracellular EB fluorescence as compared to null-loaded and defective strains, indicating enhanced substrate uptake capacity. No significant differences in EB efflux rates were observed among the strains, confirming

that ycjN encodes an inwardly directed uptake pump. Further experiments using ATPase inhibitors ortho-vanadate and CCCP revealed that the YcjNOPV transporter actively transports substrates via ATP hydrolysis, classifying it as an ATP-binding cassette (ABC) family transporter. Substrate specificity analysis using high-performance liquid chromatography (HPLC) and reducing sugar detection confirmed that YcjNOPV primarily transports maltose while also exhibiting glucoside transport activity. These findings establish the functional role of the ycjN gene in carbohydrate transport and provide a foundation for engineering applications involving ABC transporters.

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文献类型: Article; Early Access

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研究方向: Biochemistry & Molecular Biology; Biotechnology & Applied Microbiology

输出日期: 2025-08-06

Biotechnology & Applied Microbiology

第 1 条

标题: Construction of a cell model with membrane-surface expression of canine PD-1

and PD-L1 proteins in 293T cells by using eukaryotic expression systems

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来源出版物: BIOTECHNIC &

HISTOCHEMISTRY DOI: 10.1080/10520295.2025.2522465 **Early Access**

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摘要: Breakthrough progress has been made in the molecular mechanism research and clinical application of PD-1/PD-L1 in the regulation of immunosuppression and tolerance mainly in human and mouse fields, but is relatively slow in other species. The eukaryotic expression vectors pECFP-Fc-1 and pEYFP-Fc-L1 for high expression of canine PD-1 and PD-L1 proteins were constructed and transfected into human embryonic kidney 293 T cells. Fluorescence microscopy, laser scanning confocal microscopy, and immunofluorescence technology were used to identify the expression and membrane localization of the target proteins in human embryonic kidney 293 T cells. The binding activity of the target proteins expressed on the model cell was identified by eukaryotic expression vector co-transfection and immunoprecipitation. The results showed that canine PD-1 and PD-L1 proteins were expressed on the membrane surfaces of their respective positively transfected cells. The cell membrane complex was further analyzed by co-immunoprecipitation technology, PD-L1 protein components were successfully detected in the pull-down complex of canine PD-1 antibody, and the two target proteins expressed in the model cells showed good mutual binding activity. Further research is needed to evaluate high throughput and a reliable method for screening drugs that block the PD-1 and PD-L1 pathway.

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文献类型: Article; Early Access

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研究方向: Biotechnology & Applied Microbiology; Cell Biology

输出日期: 2025-08-06

第 1 条

标题: Near-infrared spectroscopy detection method of nitrogen content in corn leaf based on VMD and ensemble learning

作者: Yang, J (Yang, Jiao); Guan, HO (Guan, Haiou); Ma, XD (Ma, Xiaodan); Zhang, YF (Zhang, Yifei)

来源出版物: MICROCHEMICAL JOURNAL 卷: 214 文献号: 114150

DOI: 10.1016/j.microc.2025.114150 Published Date: 2025 JUL

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摘要: Leaves are important tissues and organs of the corn canopy. Their nitrogen content determines the growth and photosynthetic efficiency of the canopy, and affects the yield and quality of corn grains. Therefore, accurate detection of nitrogen content in corn leaves is of great significance for improving corn yield and nutritional quality and for rational application of nitrogen fertilizer. Given the problems of traditional leaves nitrogen content detection methods such as complex operations and low detection accuracy, this paper proposes a nearinfrared(NIR) spectrum detection method for corn leaves nitrogen content based on variational mode decomposition (VMD) and ensemble learning. The 150 sets of corn leaves NIR spectral data were obtained by using a Fourier transform NIR spectrometer, and divided into training set and test set in a ratio of 2:1 according to the KS algorithm. The VMD was used to denoise the spectral data, and the average correlation coefficient between spectral data bands increased from 0.9569 to 0.9682. The moving window correlation coefficient method (MWCC) was used to extract features from the preprocessed data, and 169 characteristic wavenumbers were extracted from the original 1845 wavenumbers. Then the three machine learning models were fused based on the ensemble learning algorithm, Least absolute deviations (LAD) were used to assign different weights to the base model, and the prediction results of the base model were linearly weighted to obtain an ensemble learning model (XCL) with stronger performance. Finally, the R2 of the leaves nitrogen content detection model VMD-MWCCXCL was 0.9879, and the RMSE was 0.0012, achieving efficient and rapid detection of nitrogen content in corn leaves. A new idea and method was proposed for the rapid and non-destructive detection of nitrogen nutrients in corn or other crops.

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研究方向: Chemistry

输出日期:2025-08-06

第 2 条

标题: Characterization of two types of magnetically cured microspheres for the adsorption and degradation of petroleum contaminants

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来源出版物: APPLIED SURFACE SCIENCE 卷: 710 文献号: 163958

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摘要: Petroleum pollution is becoming increasingly severe, posing serious threats to the natural environment and human health. Magnetic rice husk carbon (MRHC) and magnetic carbon nanotubes (MCNT) were used as adsorption carriers, and the petroleum-degrading bacteria LD23 were selected to prepare magnetic curing microspheres. A range of analytical techniques was used to examine the physicochemical properties, bacterial activity, the adsorption performance, and the stability of the two types of magnetically cured microspheres. Density functional theory (DFT) was applied to reveal the adsorption mechanisms of two magnetic materials, MCNT and MRHC, on petroleum pollutants. The excellent adsorption performance of MCNT is mainly attributed to high chemical activity and electron jump effect, while MRHC exhibits significant electrostatic adsorption property. The degradation kinetics were determined to verify the petroleum degradation effect of magnetically cured microspheres. The results showed that MCNT-MS had a superior specific surface area, pore size, pore volume, and magnetic response. The maximum adsorption capacity of MCNT-MS is 1.61 times greater than that of MRHC-MS. Moreover, the distribution and activity of petroleum-degrading bacteria were also better than on MRHC-MS. The degradation kinetics of MCNT-MS follow a second-order reaction, with a degradation rate that is 11.48% higher than that of MRHC-MS.

入藏号: WOS:001537896400002

文献类型: Article

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研究方向: Chemistry; Materials Science; Physics

输出日期: 2025-08-06

Computer Science

第 1 条

标题: Fast identification of maize varieties with small samples using near-infrared spectral feature selection and improved stacked sparse autoencoder deep learning

作者: Yang, DF (Yang, Dongfeng); Hu, J (Hu, Jun)

来源出版物: EXPERT SYSTEMS WITH APPLICATIONS 卷: 288

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摘要: Combining deep learning (DL) and near-infrared (NIR) spectroscopy provides a new direction for revolutionizing agricultural quality assessment methods. Typical DL frameworks often require a large number of samples, and the acquisition of NIR spectral samples is usually constrained by various factors. For this reason, this paper combines NIR spectral feature selection with improved stacked sparse autoencoder (ISSAE) DL to build a classification model suitable for small NIR samples and validate the model's performance with maize seed variety identification. An improved backward-spaced partial least squares method (IBIPLS) is used to select the feature wavelengths. IBIPLS keeps the number of spectral segments traveled within tolerable bounds. The correlation coefficient to the root mean square error of the cross-validation ratio was used to evaluate the merit of the extracted bands to achieve effective feature wavelength selection. ISSAE blends unsupervised feature learning with refined network parameter tuning, using a cross-entropy function as a supervised penalty term. A total of 276 NIR spectral samples from 13 maize varieties were collected, and IBIPLS selected 789 spectral features among 1845 spectral variables. The sparsity parameter and the number of hidden layer nodes were adjusted to obtain

the best performance during the training of ISSAE. The model performs best when the sparsity parameter is 0.1 and the number of hidden layer nodes is 130, with a test accuracy of 98.91%. Comparing this model with models such as k-nearest neighbor (KNN), support vector machine (SVM), back propagation (BP) neural network, and 1-D CNN, it performs the best. The above test results show that the method proposed in this paper can achieve accurate and fast classification of maize varieties with good reliability and generalization performance, which provides a new idea for NIR small sample classification using DL.

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文献类型: Article

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研究方向: Computer Science; Engineering; Operations Research & Management Science

输出日期:2025-08-06

第 2 条

标题: IMA-FLADRC-Based Electric-Driven High-Speed Maize Precision Seeding Control Strategy and System

作者: Wang, S (Wang, Song); Yi, SJ (Yi, Shujuan); Zhao, B (Zhao, Bin); Li, YF (Li, Yifei); Zhang, DM (Zhang, Dongming); Chen, T (Chen, Tao); Sun, WS (Sun, Wensheng)

来源出版物: IEEE ACCESS 卷: 13 页: 85177-85195

DOI: 10.1109/ACCESS.2025.3566590 **Published Date:** 2025

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摘要: Under high-speed seeding conditions, the accuracy and synchronization of the guiding and seeding motors are critical to seed spacing uniformity. This study develops an electric-driven high-speed maize precision seeding control system, establishing kinematic models for the seeding and guiding motors relative to operating speed. An Improve Mayfly Algorithm-Fuzzy Linear Active Disturbance Rejection Control (IMA-FLADRC)-based control strategy is proposed, integrating a fuzzy algorithm to adaptively adjust the proportional coefficient of the Linear State Error Feedback (LSEF) and optimizing key parameters using an IMA, enhancing system adaptability and robustness. Simulation results show that the IMA-FLADRC-based guiding motor achieves no overshoot or static error, with an adjustment time of

1.121s, a maximum disturbance error of 12.016 r/min, and a disturbance recovery time of 0.008s, while the seeding motor exhibits no static error, minimal overshoot of 0.059%, an adjustment time of 0.374s, a maximum disturbance error of 2.563 r/min, and a disturbance recovery time of 0.003s, outperforming four other strategies. Speed accuracy tests confirm that at 12-16 km/h, the dual-motor speed deviation ratio remains below 1.54%. Bench tests under varying speeds and theoretical seed spacing conditions indicate that the IMA-FLADRC achieves an average seed spacing variation coefficient of 9.10%, with reductions of 2.35, 1.60, and 0.85 percentage points compared to LADRC, FLADRC, and MA-FLADRC, respectively. The average seed spacing deviation is 2.56 mm, the lowest among all strategies. These findings demonstrate that the IMA-FLADRC-based control system ensures highly synchronized dual-motor operation, significantly enhancing seeding uniformity.

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文献类型: Article

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研究方向: Computer Science; Engineering; Telecommunications

输出日期:2025-08-06

第 3 条

标题: Population decomposition evolutionary framework for constrained multiobjective optimization

作者: Li, YC (Li, Yongchao); Jia, HM (Jia, Heming); Li, HG (Li, Hongguang)

来源出版物: SWARM AND EVOLUTIONARY COMPUTATION 卷: 97

文献号: 102055 DOI: 10.1016/j.swevo.2025.102055 Published Date: 2025 AUG

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摘要: The solution to constrained multiobjective optimization problems (CMOPs) requires both optimizing the objective function and satisfying the constraints. Many studies have demonstrated that multi-population models are effective for solving CMOPs. However, excessive consumption of evaluation times can lead to convergence difficulties in the later stages of population evolution. This article proposes a population decomposition strategy to overcome these drawbacks and enhance the quality of the solution set. Specifically, clustering techniques partition both the main and unconstrained populations in the objective space, yielding r

subpopulations and, consequently, $r + 1$ subpopulations. A fuzzy selection mechanism is introduced to enhance offspring convergence while preserving population diversity. By reformulating the selection of the optimal individual as a conditional extremum problem within a fuzzy environment, the algorithm's applicability to CMOPs is significantly improved. Additionally, a novel environmental selection model for unconstrained populations is proposed to ensure both convergence and diversity. In the early stage, this model prioritizes convergence by leveraging the Euclidean distance in the target space. In the later stage, diversity is maintained by incorporating both Euclidean distance and cosine similarity. Finally, comparisons with six state-of-the-art constrained multiobjective evolutionary algorithms on 57 benchmark test functions and 12 real-world problems demonstrate that the proposed algorithm achieves superior performance in terms of both convergence and diversity. The code for PDECMO is <https://github.com/YongchaoLucky/PDECMO.git>.

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文献类型: Article

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研究方向: Computer Science

输出日期: 2025-08-06

Engineering

第 1 条

标题: Microbial conversion of crop straw: From bioenergy to bio-based materials

作者: Zheng, AW (Zheng, Anwang); Ji, XY (Ji, Xinyue); Liu, T (Liu, Tao); Zhao, D (Zhao, Dan); Zhang, S (Zhang, Shuang); Yan, L (Yan, Lei)

来源出版物: PROCESS SAFETY AND ENVIRONMENTAL PROTECTION

卷: 200 文献号: 107337 DOI: 10.1016/j.psep.2025.107337 Published Date: 2025 AUG

Web of Science 核心合集中的 "被引频次": 0

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摘要: With growing population and energy demands and diminishing fossil fuel reserves, waste-to-energy conversion has emerged as an effective complementary strategy. Crop straw as initial fuel has become a feedstock for producing calorific value energy and biomaterials, yet processing faces several constraints, including low energy content, high ash/silica content, significant environmental issues and health hazards. Developing an efficient conversion method from crops for bio-based materials is important, and more research has been devoted to straw biotreatment. Here, we review the structural composition of crop straw, categorize straw-degrading bacteria and enzymes, and systematically outline the transformation process and application of straw-degrading microorganisms into bioenergy and bio-based materials. Additionally, the carbon footprint, economic potential, challenges, and future research directions of microbial transformation of crop straw were explored, and the existing problems in industry were also analyzed.

入藏号: WOS:001501745900015

文献类型: Article

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研究方向: Engineering

输出日期: 2025-08-06

第 2 条

标题: Calculation method of wilting index for the soybean canopy based on the three-dimensional Fourier transform

作者: Ma, XD (Ma, Xiaodan); Cheng, YY (Cheng, Yingying); Guan, HO (Guan, Haiou); Lin, HY (Lin, Hongyu)

来源出版物: MEASUREMENT 卷: 256 文献号: 118301

DOI: 10.1016/j.measurement.2025.118301 **Published Date:** 2025 DEC 1 子辑: C

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摘要: Drought stress significantly affecting soybean yield, thus, rapid detection of phenotypic traits for the soybean canopy is crucial for the breeding and cultivation.

Traditional methods in the determination of soybean wilting index have the problems of cumbersome and time consuming, thus, a calculation method of wilting index was proposed for the soybean canopy based on three-dimensional (3D) Fourier transform. First, the Kinect 2.0 sensor was used to acquire the 3D point cloud data of the soybean canopy, and the filter integration algorithm was applied to remove the invalid point cloud. Second, a height-based slicing algorithm was used to convert the 3D spatial structure of the canopy into a 2D image sequences. Third, a constraint function based on spectral features was constructed to select the optimal sequence position as 1/2 of the canopy, which realized a 3D Fourier transform algorithm of the soybean canopy. Finally, a 3D Fourier transform-based soybean wilting index was proposed based on the proportion difference of the direct component (DC) and the spectral radius energy to the total energy in the 3D canopy based on the normal water treatment (NWT) and the drought stress treatment (DST). The result showed that the test coefficient of the significant difference reached 1.12×10^{-7} under NWT and DST, and the determination coefficients R^2 between the calculated wilting index and the corresponding mean leaf inclination were all above 0.83. The research result can accurately characterize the wilting degree, and provide technical support for irrigation, seed examination of the drought soybean plant.

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文献类型: Article

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研究方向: Engineering; Instruments & Instrumentation

输出日期: 2025-08-06

第 3 条

标题: Collaborative moving regression-based surrogate modeling framework for structural low cycle fatigue life reliability assessment

作者: Dong, XW (Dong, Xiao-Wei); Li, ZA (Li, Zhen-Ao); Liang, JH (Liang, Jia-Hao); Li, QL (Li, Qing-Long); Zhu, CY (Zhu, Chun-Yan); Wang, M (Wang, Ming); Li, WK (Li, Wei-Kai)

来源出版物: COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING 卷: 445 文献号: 118213 DOI: 10.1016/j.cma.2025.118213

Published Date: 2025 OCT 1

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摘要: To achieve low-cycle fatigue (LCF) life prediction and reliability assessment for

mechanical structures, a collaborative moving regression-based surrogate modeling (CMR-SM) framework is proposed by fusing the collaborative moving regression (CMR) strategy, heuristic algorithm, adaptive hybrid surrogate modeling method, and matrix analysis theory. In this framework, the CMR strategy is developed from the decomposition-coordination (DC) method and moving least squares (MLS) technique to reduce model nonlinearity and acquire effective samples; the optimal radius for compact support region is determined through quadratic interpolation optimization (QIO); Matrix analysis theory is applied to construct vectors and cell arrays of unknown parameters, synchronously establishing the mathematical model. Under this concept, the CMR-based response surface method (CMR-RSM), CMR-based Kriging model (CMR-KM), CMR-based support vector machine (CMR-SVM), and CMR-based artificial neural network (CMR-ANN) are further developed. Considering the robustness of model, an adaptive weighting technique is employed to further develop the collaborative moving regression-based adaptive hybrid surrogate modeling (CMR-AHSM) method. The excellent modeling capabilities and simulation performance of the proposed method are validated through a numerical case (i.e., the probability analysis of a nested nonlinear function) and an engineering case (i.e., the LCF life reliability assessment of turbine disk). The proposed method provides new insights for LCF life reliability assessment in engineering structures.

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文献类型: Article

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研究方向: Engineering; Mathematics; Mechanics

输出日期: 2025-08-06

第 4 条

标题: A probabilistic neural network-based bimanual control method with multimodal haptic perception fusion

作者: Chi, XR (Chi, Xinrui); Guo, ZB (Guo, Zhanbin); Cheng, F (Cheng, Fu)

来源出版物: ALEXANDRIA ENGINEERING

JOURNAL 卷: 127 页: 892-919 DOI: 10.1016/j.aej.2025.06.024 Published

Date: 2025 AUG

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摘要: In the master-slave robot system, single-modal tactile perception has problems such as collision detection delay (>120 ms), force estimation error (>2.3 N), and sensor conflicts, resulting in a 37 % failure rate of robot operations in nuclear decommissioning scenarios and a 19.2 % risk of excessive tissue compression in laparoscopic surgery. To address this, this paper proposes a multimodal tactile perception fusion control method based on a probabilistic neural network (PNN). Pressure, vibration, and temperature signals are synchronously collected through bionic artificial skin. A hierarchical heterogeneous feature alignment (HHFA) module is designed to solve the spatio-temporal asynchrony of multi-source signals (root mean square error <0.8 ms), and a dynamic Bayesian fusion layer (DBFL) is developed to achieve adaptive weighting based on the entropy-variance coupling index, suppressing noise interference and modal conflicts. The dual-channel PNN encodes the fused sensory information into a Gaussian mixture model (8 components) and generates high-precision control instructions by maximizing the posterior probability. Experiments show that in grasping and fine operation tasks, the positioning error of this method is reduced to 0.15 mm, the operation success rate is increased by 19.6 % (reaching 96.4 %), and the signal-to-noise ratio remains stable at 40.2 +/- 1.5dB under humidity changes (30-90 %RH) and mechanical strain (15 %).

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研究方向: Engineering

输出日期: 2025-08-06

Environmental Sciences& Ecology

第 1 条

标题: Astaxanthin ameliorates Cr (VI) accumulation, antioxidant, digestive, apoptosis and inflammatory response

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来源出版物: REGIONAL STUDIES IN MARINE SCIENCE 卷: 87

文献号: 104240 **DOI:** 10.1016/j.rsma.2025.104240 **Published Date:** 2025 OCT

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摘要: Exposure to Cr (VI) can induce various adverse effects such as oxidative stress and inflammatory response in fish. Astaxanthin have been documented as a novel antioxidant and heavy metal antidote. This study was investigated potential protective effect of astaxanthin on Cr (VI) accumulation, antioxidant, digestive enzyme, glucocorticoid receptor (GR)-regulated inflammatory response and apoptosis in snakehead fish (*Channa argus*). In this study, 300 *C. argus* were randomly divided into three groups. The fish were exposed to waterborne Cr(VI) and/or dietary astaxanthin for 28 days. The results provided evidences that astaxanthin could inhibit Cr (VI) bioaccumulation, inflammatory response and apoptosis. Additionally, astaxanthin also exerted protective effects by increasing the activity of antioxidant, digestive enzymes and GR-related genes expression levels. Overall, our results suggest that administration of 100 mg/kg astaxanthin has the potential to combat Cr (VI) toxicity, antioxidant, digestive, anti-apoptosis.

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文献类型: Article

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研究方向: Environmental Sciences & Ecology; Marine & Freshwater Biology

输出日期: 2025-08-06

第 2 条

标题: CROP CANOPY SPECTRAL INFORMATION PREDICTION BASED ON EEMD AND CNN-LSTM

作者: Chen, H (Chen, H.); Yi, SJ (Yi, S. J.); Wang, X (Wang, X.); Li, W (Li, W.)

来源出版物: APPLIED ECOLOGY AND ENVIRONMENTAL RESEARCH

DOI: 10.15666/aeer/2303_49514966 **Early Access Date:** MAY 2025

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摘要: The utilization of the Normalized Difference Vegetation Index (NDVI) derived from canopy spectral information during crop growth helps identify growth conditions in farmland areas and facilitates management zone establishment. Targeted fertilizer

application is possible based on observed growth patterns. Accurate NDVI prediction from canopy spectral information is crucial for real-time zone delineation and precision fertilization. Long Short-Term Memory (LSTM) neural networks can predict NDVI time series, but have limitations in handling non-stationary signals. A prediction model integrating modal decomposition with Convolutional Neural Network and Long Short-Term Memory (CNN-LSTM) is proposed to address these issues. This model uses Ensemble Empirical Mode Decomposition (EEMD) to decompose NDVI data into Intrinsic Mode Functions (IMFs), Convolutional Neural Network (CNN) to extract spatial features from IMFs, and LSTM to predict NDVI. Evaluation against standalone CNN, CNN-LSTM, and EEMD-CNN models using MAPE, RMSE, and R-2 metrics showed the proposed CNNLSTM model with modal decomposition outperformed the others in prediction accuracy. For soybean and maize NDVI prediction, the model achieved MAPE of 2.111% and 2.425%, RMSE of 0.012, and R-2 of 0.971 and 0.968, respectively. This model provides a robust foundation for real-time management and precision fertilization, ensuring optimal crop growth and yield.

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文献类型: Article; Early Access

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研究方向: Environmental Sciences & Ecology

输出日期: 2025-08-06

第 3 条

标题: PARTITIONING OF FERTILIZATION MANAGEMENT ZONES FOR MAIZE BASED ON SOM-FCM

作者: Chen, H (Chen, H.); Yi, S (Yi, S. J.); Wang, X (Wang, X.); Li, W (Li, W.)

来源出版物: APPLIED ECOLOGY AND ENVIRONMENTAL RESEARCH

DOI: 10.15666/aeer/2303_58415857 **Early Access Date:** APR 2025

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摘要: At present, many clustering algorithms have been applied to the calculation of farmland fertilization management zoning, among which the fuzzy c-means (FCM) algorithm is the most widely used, but the FCM algorithm is sensitive to the initial clustering center, which affects the calculation efficiency. In order to improve the efficiency of clustering calculation, especially for the clustering calculation of large datasets such as normalized difference vegetation index (NDVI), an algorithm combining the self-organizing feature map neural network (SOM) and FCM is

proposed. The algorithm first uses SOM for preliminary clustering to determine the cluster center, then applies it as the initial cluster center of the FCM, and finally uses the FCM to further cluster the data. This method effectively combines the advantages of SOM and the FCM algorithm, solves the problem of setting the initial clustering center in the FCM, and overcomes their respective limitations. The NDVI data of maize was obtained through the ground remote sensing detection system. The FCM algorithm and the SOM-FCM algorithm were used to partition the fertilization management zones of maize. The sum of squared errors (SSE) and silhouette coefficient (SC) were used to evaluate the effectiveness of partitioning the fertilization management zones. The experimental results show that the SOM-FCM algorithm is better than the FCM algorithm for different NDVI data volumes. The maximum SSE difference is 639, and the maximum difference of SC value is 0.048. As NDVI data volume continues to grow of NDVI data volume, SOM-FCM algorithm shows better performance than FCM algorithm.

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文献类型: Article; Early Access

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研究方向: Environmental Sciences & Ecology

输出日期:2025-08-06

第 4 条

标题: EFFECT OF DIFFERENT IRRIGATION AMOUNT AND STRAW RETURNING AMOUNT ON GLOBAL WARMING POTENTIAL OF PADDY IN COLD REGIONS

作者: Lin, YY (Lin, Y. Y.); Yi, SJ (Yi, S. J.); Zheng, X (Zheng, X.); Liu, SD (Liu, S. D.)

来源出版物: APPLIED ECOLOGY AND ENVIRONMENTAL RESEARCH

DOI: 10.15666/aeer/2303_51935208 **Early Access Date:** APR 2025

Published Date: 2025 APR 14

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摘要: In order to explore the emission patterns and global warming potential (GWP) of CH₄ and N₂O from cold rice fields, the cold rice fields in Heilongjiang Province, China were selected as the research objects. The artificial static box method was used to comprehensively observe the CH₄ and N₂O gas emissions under three water management modes: controlled irrigation (CI), intermittent irrigation (II), and conventional flooding (CF), as well as three straw return management modes: no straw return amount (S0:0 t<middle dot>hm⁻²), low straw return amount (S1:t<middle dot>hm⁻²), and high straw return amount (S2:6t<middle dot>hm⁻²).

The results showed that both irrigation amount and straw returning amount promoted the comprehensive warming potential of CH₄ and N₂O. The effects of irrigation amount and straw returning amount on warming potential were as follows: irrigation amount > straw returning amount. At the same time, irrigation amount and straw returning amount also promoted each other. Based on comprehensive analysis, the optimization mode of cold rice field management aimed at reducing the comprehensive warming potential of CH₄ and N₂O in cold rice fields should adopt controlled irrigation (CI) and low straw return treatment (S1:3t<middle dot>hm(-2)), which can facilitate the transformation of soil nutrients and effectively reduce the comprehensive warming of CH₄ and N₂O.

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文献类型: Article; Early Access

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研究方向: Environmental Sciences & Ecology

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第 5 条

标题: Digitalization of Agriculture, Rural Industrial Integration and Agroecological Efficiency: Evidence from China

作者: Liu, AZ (Liu, Anzhi); Yang, SG (Yang, Shuguo)

来源出版物: POLISH JOURNAL OF ENVIRONMENTAL

STUDIES 卷: 34 期: 5 页: 5703-5717 DOI: 10.15244/pjoes/191615 **Published**

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摘要: Informed by theoretical frameworks elucidating the nexus among agricultural digitalization, rural industrial integration, and agroecological efficiency, this study employs panel data encompassing 30 Chinese provinces from 2011 to 2020. Utilizing the super-efficiency SBM model, the study gauges the development index of

agroecological efficiency. The empirical investigation is conducted through systematic GMM, mediation analysis, and panel threshold modeling to scrutinize agricultural digitalization's impact and underlying mechanisms on agroecological efficiency. Results indicate a consistent upward trajectory in China's agroecological efficiency index, exhibiting a spatial-temporal pattern characterized by higher values on the extremities and lower values in the middle. Significantly, agricultural digitalization positively influences agroecological efficiency, with rural industrial integration mediating this relationship. Furthermore, a notable double-threshold effect of digital inclusive finance emerges, wherein agricultural digitalization's impact on agroecological efficiency and rural industrial integration intensifies with the progression of digital inclusive finance. Remarkably, the promotion effect of agricultural digitalization on agroecological efficiency is accentuated in the eastern region of China. This underscores the imperative to actively champion the advancement of agrarian digitalization, expedite rural industrial integration, and enhance agroecological efficiency to foster the sustainable development of agriculture and rural communities.

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文献类型: Article

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文献类型: Article

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研究方向: Environmental Sciences & Ecology; Marine & Freshwater Biology

输出日期: 2025-08-06

第 1 条

标题: The (32-adrenergic receptor modulates activity of porcine alveolar macrophages in response to *Actinobacillus pleuropneumoniae* infection

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来源出版物: DEVELOPMENTAL AND COMPARATIVE IMMUNOLOGY 卷: 169

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摘要: *Actinobacillus pleuropneumoniae* (APP) is a non-spore-forming, Gram-negative facultative, anaerobic bacterium frequently associated with piglet respiratory disease syndrome, which occurs at a notably higher incidence in the winter months and contributes to considerable economic losses to the global pig industry. Following APP infection, porcine lung tissues exhibit a robust inflammatory response characterized by the accumulation of porcine alveolar macrophages (PAMs), suggesting that the magnitude of the immune response elicited by PAMs is a critical determinant of the resolution of APP infection. Furthermore, the (32-adrenergic receptor (ADRB2) is predominantly expressed on the surface of PAMs, although the potential influence of ADRB2 on the immunological reactivity of PAMs post-APP infection remains unclear. Additionally, the regulatory effects of ADRB2 are closely associated with intracellular signaling of the cAMP-PKA pathway, which plays a pivotal role in shaping the immune response of PAMs. The aim of this study was to elucidate the critical regulatory mechanisms underlying the influence of ADRB2 on the antibacterial immunity capacities of PAMs in order to provide a theoretical foundation for the development of ADRB2-based immunomodulatory strategies and offer new insights into the intricate regulatory network governing host antibacterial immunity in response to APP infection.

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文献类型: Article

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输出日期: 2025-08-06

第 1 条

标题: Effects of organic acids on the physico-chemical and functional characteristics of mung bean globulin amyloid fibrils

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摘要: Amyloid fibers have valuable physicochemical properties for food and biomaterial applications, but research on their aggregation and fibrillation in different acidic environments is limited. This study integrated spectroscopic techniques, visual imaging, and molecular dynamic (MD) simulations to investigate the effect of different acidic environments on the structural transformation and fibrillation of mung bean globulin (MBG). The results indicated that acidic environments significantly affect the hydrolysis, self-assembly, and functional properties of MBG. Among them, mung bean protein amyloid fibrils (MBGF) formed from HCl exhibited the strongest fibrillation ability, with thioflavin T (ThT) fluorescence intensity 6 times higher than that induced by organic acids (lactic acid (LA), malic acid (MA), and citric acid (CA)). Transmission electron microscopy revealed that HCl-MBGF formed compact and uniform fibrils (similar to 5 nm in diameter), while organic acid-induced MBGF formed entangled fibrils with gel-like networks (similar to 20 nm in diameter). Functional analysis further showed that HCl-MBGF had the highest emulsifying activity index (EAI) of $17.25 \pm 0.13 \text{ m(2)/g}$, an increase of about 260 % compared to MBG ($4.79 \pm 0.23 \text{ m(2)/g}$), and enhanced rheological properties. In contrast, MBGF formed from organic acids exhibited weaker fibrillation abilities, but a rapid gelation process was promoted. MD simulations revealed that HCl disrupted the secondary structure of the protein, promoting the formation of beta-sheets, which were crucial for fibrillation. In contrast, organic acids (especially MA) facilitated protein unfolding and increased protein flexibility. This study highlights the impact of acidic conditions on MBG fibrillation and provides insights into its structural-functional design in food systems.

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文献类型: Article

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研究方向: Food Science & Technology

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第 2 条

标题: Dietary black soybean-whey blended protein prevents duodenal barrier damage via intestinal flora dysbiosis improvement, SCFA production and pyroptosis inhibition

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来源出版物: FOOD BIOSCIENCE 卷: 68 文献号: 106738

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摘要: Background: The protective efficacy of black soybean-whey blended protein (B-WP) in preserving the integrity of the duodenal barrier has been established. Purpose: This study aimed to explore the effects of different doses of B-WP on duodenal intestinal contents, short-chain fatty acids (SCFAs) and pyroptosis. Method: A comprehensive investigation was conducted using 16 S rRNA sequencing, non-targeted metabolomics, Western blot, immunohistochemistry (IHC), and enzyme-linked immunosorbent assay (ELISA) to evaluate the impact of B-WP on intestinal microbiota composition, SCFAs levels and pyroptosis in the duodenum, aiming to elucidate its underlying mechanism of action. Result: The results showed that lipopolysaccharide (LPS) stimulated the proliferation of Proteobacteria and Streptococcus, while inhibiting Firmicutes, Ruminococcus, and Lactobacillus. Additionally, LPS induced pyroptosis and damaged the duodenal barrier. However, supplementation with low, medium, and high doses of B-WP enhanced the stability of the intestinal microbiota, with the medium dose yielding the most favorable outcome. Different doses of B-WP effectively suppressed pyroptosis, with the medium dose showing significant effects ($P < 0.01$). This was evidenced by a 40.00 % reduction in gasdermin-D (GSDMD) protein expression and decreases in mean optical density of 29.23 % for NOD-like receptor family pyrin domain-containing 3 (NLRP3) and 33.96 % for cysteinyl aspartate specific proteinase (caspase)-1, respectively. Moreover, IL-18 levels decreased by 33.77 %, while IL-33 levels increased by 42.62 %. Conclusion: These findings indicate that B-WP can mitigate duodenal barrier injury by modulating intestinal microbiota composition. Specifically, B-WP enhances the abundance of Firmicutes, Ruminococcus, and Lactobacillus, while reducing Proteobacteria and Streptococcus abundance. This modulation promotes the synthesis of SCFAs,

thereby suppressing pyroptosis and contributing to the prevention of duodenal barrier damage.

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研究方向: Food Science & Technology

输出日期:2025-08-06

第 3 条

标题: Insight into the formation mechanism of umami taste in traditional Chinese soybean paste: A review

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来源出版物: LWT-FOOD SCIENCE AND TECHNOLOGY 卷: 224

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摘要: China boasts an extensive history of producing and consuming soybean paste. Soybean paste, as a typical fermented soybean product, is valued for its rich umami flavor and nutritional benefits. The distinctive taste of soybean paste is predominantly characterized by its umami taste. During soybean paste fermentation, the formation of umami compounds such as amino acids, nucleotides, organic acids and umami peptides is closely tied to microbial metabolism during fermentation. Therefore, it is crucial to elucidate the relationship between umami compounds and microbial diversity in soybean paste. At present, most of the research on the flavor of soybean paste focuses on volatile flavors, while there is relatively little research on its umami characteristics. There is still a lack of systematic reviews on the umami flavor of traditional Chinese soybean paste. This review synthesizes current research on umami compounds including amino acids, nucleotides, organic acids, and umami peptides, microbial diversity, and their interactions in soybean paste fermentation. It further explores detection methods and evaluation approaches of umami compounds,

as well as the presentation mechanism of umami compounds. The objective is to provide insights into regulating umami compound formation during fermentation, supporting high-quality soybean paste production.

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研究方向: Food Science & Technology

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第 4 条

标题: Comparative Analysis of Models for Identifying and Tracing Rice Flour Adulteration Using Raman Spectroscopy

作者: Li, XY (Li, Xingyan); Zhang, LY (Zhang, Liyuan); Yu, RZ (Yu, Runzhong)

来源出版物: JOURNAL OF FOOD SCIENCE 卷: 90 期: 5 文献号: e70272

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摘要: To address the issue of rice flour adulteration, where lower-cost rice flour is mixed with higher-grade varieties to reduce costs, this work proposes a rapid identification method using Raman spectroscopy. Rice varieties from Heilongjiang Province were selected for adulteration experiments, in which Longqingdao 8 (LQD) was mixed with Sanjiang 6, Longyang 16, Suijing 18, Longdao 18, and Daohuaxiang 2 in varying proportions. Six machine learning models were employed for classification, with four different preprocessing methods. The models' performance was evaluated using the receiver operating characteristic (ROC) curves, and key characteristic bands for each rice variety were identified. For Sanjiang 6, the optimal preprocessing method was standard normal transformation, and the best-performing model was the artificial neural network, which achieved an area under the curve (AUC) of 96.2% and an accuracy of 94.8%. For Daohuaxiang 2, smoothing forest and random forest yielded the best results, with an AUC of 92.4% and an accuracy of 94.8%. Similarly, for Longdao 18, standard normal transformation and artificial neural network provided the highest accuracy (99.6%) with an AUC of 99.3%. Longyang 16

also showed optimal results with standard normal transformation and artificial neural network, achieving an AUC of 93.7% and an accuracy of 96.6%. Finally, for Suijing 18, multivariate scattering correction and random forest were the most effective, with an AUC of 99.3% and an accuracy of 99.6%. This comparative analysis of traceability models demonstrates a promising approach to identifying rice flour adulteration. The identification of compounds influencing different rice varieties further enhances the traceability of rice types, providing a robust reference for future studies.

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研究方向: Food Science & Technology

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第 5 条

标题: Exploring *Allium mongolicum* Regel flavonoids alleviation of deoxynivalenol-induced gut inflammation and flesh-quality improvement based on muscle-intestinal axis in a *Channa argus* model

作者: Yu, Z (Yu, Zhe); Xiong, Z (Xiong, Zhuang); Wang, Y (Wang, Yi); Gao, ZQ (Gao, Zhi-Qiang); Lu, KX (Lu, Ke-Xin); Zhang, Y (Zhang, Ying); Li, MY (Li, Mu-Yang); Yue, YX (Yue, Yuan-Xi)

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摘要: Deoxynivalenol (DON) was widely found in plant-derived feed, threatening the animal health and food safety. *Allium mongolicum* Regel flavonoids (AMRF) is a natural plant extract with a variety of biological functions, but whether it can alleviate DON-induced biotoxicity remains unknown. Hence, the effect of DON-induced gut-inflammation and flesh-quality in *Channa argus* by AMRF were examined. DON (2 mg/kg) and AMRF (40 mg/kg) were supplemented to the basic formula feed to develop three dietary groups and *C. argus* were fed for 8 weeks. The results showed

that feed supplement AMRF significantly alleviated DON-induced growth inhibition, increased digestive enzymes activities, and enhanced intestinal detoxification of DON, which directly led to a significant reduction ($P<0.05$) of toxin residues in fish. Meanwhile, the inflammatory response (nf-kappa b, i-kappa b, tnf-alpha, il-1 beta, il-2, il-6, il-8, ifn-gamma) was also alleviated ($P<0.05$), and AMRF alleviated DON-induced inflammation possibly through the TRAF6/Sufu/p-p65-related pathway. Furthermore, inflammatory response also induced changes in gut microbiota ($P<0.05$), i.e., increased abundance of Cetobacterium and decreased Nostocaceae. Additionally, AMRF increased muscle protein content and antioxidant capacity, improved textural properties, and reduced fishy substances ($P<0.05$). This study provides valuable insights to elucidate the potential mechanisms by which AMRF mitigates DON toxicity.

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研究方向: Food Science & Technology

输出日期: 2025-08-06

第 6 条

标题: Current and prospective development trends of farmland resource conservation in coastal cities: a case study of Jiangsu, China

作者: Li, YT (Li, Yuting); Zhuang, S (Zhuang, Shu); Li, YJ (Li, Yujie); Xu, YX (Xu, Yixin); Wang, NN (Wang, Nana); Feng, YX (Feng, Yongxiang)

来源出版物: FRONTIERS IN SUSTAINABLE FOOD SYSTEMS 卷: 9

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摘要: The rapid economic development of coastal cities has significantly constrained

the availability of farmland resource. Therefore, understanding land-use change dynamics over the past two decades in these regions is essential for promoting the sustainable management of farmland. In this study, based on historical land-use data from the coastal cities of Jiangsu Province, we analyzed the spatiotemporal patterns of land-use change from 2000 to 2020 using remote sensing image interpretation with ArcGIS, construction of land-use change transition matrices, and calculation of land-use dynamic indices. Furthermore, we integrated the PLUS model with a Markov chain approach to simulate potential land-use patterns in 2035 under three future scenarios: natural development, ecological protection, and farmland protection. The results showed that paddy occupied the largest proportion of land use in the study area, ranging from 43.1 to 39.5%, followed by upland, which accounted for 37.7 to 36.5%. Both paddy and upland exhibited continuous declines during the study period, with total reductions of 1,086.67 km² and 381.35 km², respectively. The loss of farmland was primarily driven by conversion into built-up land, which expanded by 1,003.61 km². Transition matrix analysis further revealed that between 2005 and 2010, built-up land experienced a net increase of 1,154.93 km², of which 55.4 and 34.0% were converted from paddy and upland, respectively. Additionally, statistical analysis identified GDP, population density, annual precipitation, and annual average temperature as the main driving factors influencing land-use change. Simulation results indicated that under both the natural development and ecological protection scenarios, upland would experience slight increases of 32.8 km² and 10.5 km², respectively, by 2035. However, paddy would decrease significantly by 466.9 km² and 476.8 km² under these two scenarios. In contrast, under the farmland protection scenario, both paddy and upland would increase by 22.6 km² and 63.1 km², respectively, by 2035. In conclusion, under the current trajectory of land-use change, the consistent enforcement of farmland protection policies, together with targeted measures for paddy conservation, is crucial for achieving the sustainable utilization of farmland resource in the coastal cities of Jiangsu Province.

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研究方向: Food Science & Technology

输出日期: 2025-08-06

第 7 条

标题: Ultrasonic and enzymatic processing for optimizing gelation and functional properties of black bean protein isolate

作者: Wang, XC (Wang, Xuechun); Yin, Z (Yin, Ze); Wang, SX (Wang, Shixin); Zhai, AH (Zhai, Aihua)

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摘要: This study investigates the synergistic effects of ultrasonic and enzymatic treatments on the gelation properties of black bean protein isolate (BBPI). We hypothesize that this combined approach will enhance gelation by promoting structural modifications and molecular interactions. The results show that the combined treatment of ultrasound and enzymes effectively reduced the molecular weight of BBPI, facilitating protein dissociation and structural refolding. This process resulted in increased surface hydrophobicity, a significant reduction in particle size (by 85%), an increase in the absolute value of the zeta potential, and a 60% enhancement in solubility. These modifications led to a gel with improved viscoelasticity, increased water-holding capacity, and enhanced gel strength and springiness, which reached 5.11 N and 4.73 mm, respectively, while forming a more compact three-dimensional network structure. These findings suggest a promising strategy for improving BBPI for food applications, particularly in plant-based products, by enhancing its functional properties and expanding its industrial potential.

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研究方向: Food Science & Technology

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Immunology

第 1 条

标题: BVDV non-structural protein 4B promoted autophagy by regulating p62/ LC3-II molecule

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摘要: Bovine viral diarrhea virus (BVDV) causes bovine viral diarrhea-mucosal disease that is characterized by diarrhea, fever, leukopenia, and propagation disorders in host animals. Autophagy acts an important regulatory role during virial infection. However, the molecular mechanisms that BVDV induces autophagy remain poorly defined. Here, we report that BVDV non-structural protein 4B (NS4B) promotes autophagy in MDBK cells and HEK-293T cells by reducing the level of p62 protein and increasing the production of LC3-II protein, and NS4B proteins were able to improve autophagy in MDBK cells by inhibiting the phosphorylation of mTOR protein. In addition, NS4B (90-260aa) acts a main role in promoting autophagy. The results reveal a new mechanism of BVDV to induce autophagy in host cells and also provide a new theoretical basis for the interaction between BVDV and host cells, and an important target for the prevention and control of BVDV.

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文献类型: Article

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研究方向: Immunology; Veterinary Sciences

输出日期: 2025-08-06

第 1 条

标题: Differential impact of spotted fever group rickettsia and anaplasmosis on tick microbial ecology: evidence from multi-species comparative microbiome analysis

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摘要: Tick-borne diseases (TBDs) pose a significant public health challenge, as their incidence is increasing due to the effects of climate change and ecological shifts. The interplay between tick-borne pathogens and the host microbiome is an emerging area of research that may elucidate the mechanisms underlying disease susceptibility and severity. To investigate the diversity of microbial communities in ticks infected with vertebrate pathogens, we analyzed the microbiomes of 142 tick specimens. The presence of Rickettsia and Anaplasma pathogens in individual samples was detected through PCR. Our study aimed to elucidate the composition and variation of microbial communities associated with three tick species, which are known vectors for various pathogens affecting both wildlife and humans. We employed high-throughput sequencing techniques to characterize the microbial diversity and conducted statistical analyses to assess the correlation between the presence of specific pathogens and the overall microbial community structure. Pathogen screening revealed an overall positivity rate of 51.9% for Anaplasma and 44.6% for spotted fever group rickettsia (SFGR). Among the three tick species (*Dermacentor silvarum*, *Haemaphysalis concinna*, and *Haemaphysalis japonica*) analyzed, *D. silvarum* (the predominant species) exhibited the highest pathogen prevalence. The results indicate significant variation in microbial diversity between tick samples, with the presence of Anaplasma and SFGR associated with distinct changes in the microbial community composition. These findings underscore the complex interactions between ticks and their microbial inhabitants, enriching our understanding of tick-borne diseases.

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文献类型: Article

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研究方向: Microbiology

输出日期:2025-08-06

第 2 条

标题: The isolation and immunoprotective efficacy of outer membrane vesicles of *Dichelobacter nodosus*

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摘要: *Dichelobacter nodosus* is a major causative agent of infectious foot diseases in ruminants, responsible for substantial economic losses globally in the livestock industry. The development of a vaccine is therefore of great importance. In this study, we employed density gradient ultracentrifugation to extract outer membrane vesicles (OMVs) from *D. nodosus* and evaluated their immunoprotective effects. The extracted OMVs were spherical structures with an average diameter of 144 nm, predominantly comprising outer membrane proteins, toxin proteins, and lipoproteins, mainly involved in biological processes such as cellular protein metabolism and protein transmembrane transport. Mice immunized with OMVs showed significantly increased production of serum antigen-specific antibodies ($P < 0.0001$). In addition, compared with the control group, the expression of tumor necrosis factor- α , interferon- γ , and interleukin-1 in the serum of mice at 35 days post-immunization was significantly upregulated ($P < 0.05$). The protective efficacy of the vaccine was assessed by challenging with an intraperitoneal injection of 10 LD₅₀ doses of *D. nodosus*, and the OMVs provided 100 % protection. Histopathological examination and tissue bacterial load detection revealed that the OMVs significantly alleviated tissue damage and bacterial colonization ($P < 0.001$). These findings provide a valuable reference and new strategies for the development of vaccines against *D. nodosus* to prevent infectious foot diseases.

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文献类型: Article

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研究方向: Microbiology; Veterinary Sciences

输出日期: 2025-08-06

第 3 条

标题: Recombinant canine distemper virus expressing virus-like particle VP2 protein of mink enteritis virus protects minks against lethal challenges of both viruses

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摘要: Canine distemper virus (CDV) and mink enteritis virus (MEV) are among the most devastating viruses in minks (*Mustela vison*). They often cause two fatal diseases-canine distemper (CD) and mink viral enteritis (MVE)- resulting in severe respiratory symptoms and acute enteritis in breeding minks, respectively. Here, using the attenuated CDV vaccine strain CDV3-CL (currently employed in breeding mink in China) as a backbone, we constructed a recombinant strain, rCDV3-mVP2, expressing the wild-type MEV capsid protein VP2. Notably, the VP2 protein expressed by this recombinant virus assembles into virus-like particles (VLPs) in Vero cells and exhibits hemagglutination activity. rCDV3-mVP2 exhibits genetic stability through at least 30 serial passages and replicates to titers comparable to the parental CDV3-CL strain in Vero cells. To evaluate its protective efficacy as a bivalent vaccine candidate, twenty weaned minks were immunized with rCDV3-mVP2 (104.0 TCID₅₀) and challenged with a highly virulent CDV strain (SD (14)7; n = 5 minks) or lethal MEV wild-type strain (LN-10; n = 5 minks) 3 weeks post-immunization. A single vaccination with rCDV3-mVP2 induced neutralizing antibodies (mean value = 43) against CDV and hemagglutination-inhibiting antibodies (mean value = 128) against MEV, conferring 100 % protection against lethal challenges of both viruses. Moreover, vaccination effectively alleviated lymphopenia, reduced virus shedding, and

minimized tissue viral loads and pathological changes. These results suggest that rCDV-mVP2 is a suitable bivalent live vaccine against CDV and MEV for minks. Importance: Canine distemper (CD) and mink viral enteritis (MVE), caused by canine distemper virus (CDV) and mink enteritis virus (MEV), respectively, are fatal diseases in minks, with significant impacts on the mink product industry. In this study, we employed reverse genetics to construct a recombinant CDV vaccine strain, rCDV3-mVP2, that expresses stably the MEV VP2 protein. Vaccination of weaned minks with rCDV3-mVP2 safely induced neutralizing antibody responses to both viruses, protecting minks from challenges with lethal CDV and MEV. This is the first study to demonstrate that recombinant CDV can be serve as a bivalent live vaccine for MVE and CD in animals.

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文献类型: Article

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研究方向: Microbiology; Veterinary Sciences

输出日期: 2025-08-06

第 4 条

标题: Rotavirus Reverse Genetics Systems and Oral Vaccine Delivery Vectors for Mucosal Vaccination

作者: Wang, J (Wang, Jun); Qin, SK (Qin, Songkang); Li, KH (Li, Kuanhao); Yin, X (Yin, Xin); Sun, DB (Sun, Dongbo); Chang, JT (Chang, Jitao)

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摘要: Mucosal immunization represents a promising strategy for preventing enteric infections. Rotavirus (RV), a leading gastrointestinal pathogen distinguished by its remarkable stability and segmented double-stranded RNA genome, has been engineered into a versatile oral vaccine vector through advanced reverse genetics

systems. The clinical efficacy of live-attenuated RV vaccines highlights their unique capacity to concurrently induce mucosal IgA responses and systemic neutralizing antibodies, positioning them as a multiple action vector for multiple immune protection. In this review, we summarize the RV colonization of the intestine and stimulation of intestinal immunity, as well as recent advancements in RV reverse genetics, and focus on their application in the rational design of a multivalent mucosal vaccine vector targeting enteric pathogens considering the advantages and challenges of RV as a vector. We further propose molecular strategies to overcome genetic instability in recombinant RV vectors, including the codon optimization of heterologous inserts. These insights provide a theoretical foundation for developing next-generation mucosal immunization platforms with enhanced safety, stability, and cross-protective efficacy.

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文献类型: Review

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研究方向: Microbiology

输出日期: 2025-08-06

标题: CIPD-Net: A pod detection method based on cascade deep learning network

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摘要: Pods, as the direct carriers of soybean seed development and maturation, play a key role in variety breeding and yield prediction. Addressing the difficulties of in-situ calculation of pod phenotypic indicators caused by severe occlusion, complex postures, and background interference, this paper proposes a Cascade In-situ Pod Detection Network (CIPD-Net) and phenotypic calculation method based on deep learning. First, 760 soybean images from the pod-setting to maturity stages were collected and randomly divided into training, validation, and test sets at a ratio of 7:1:2, and the samples were expanded to 3,800 using image enhancement algorithms. Second, a firststage network based on YOLOv8n for pod detection was constructed, achieving mAP and mAP@0.5:0.95 of 0.877 and 0.588, respectively. The second-stage network, based on the detection results of the first-stage network, improved the convolutional structure of the ResNet-50 model by applying feature separation and reconstruction techniques embedded with a Self-Attention mechanism, and built a deep learning-based pod posture recognition network PodSAFFNet, which achieved accuracy, precision, recall, and F1 score of 0.904, 0.862, 0.961, and 0.909, respectively. Finally, a method for calculating pod length and pod width based on PCA and distance transformation was proposed, with R2 values of 0.9351 and 0.9166, and RMSE values of 3.7794 and 0.0474, respectively. This method provides an efficient and reliable solution for automatic in-situ soybean pod detection and phenotypic extraction.

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文献类型: Article

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研究方向: Optics; Physics

输出日期: 2025-08-06

Parasitology

标题: Genetic variation and population structure of *Haemonchus contortus*: an in-silico analysis

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来源出版物: JOURNAL OF HELMINTHOLOGY 卷: 99 文献号: e78

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摘要: *Haemonchus contortus* is a parasitic nematode that causes significant economic losses in ruminant livestock worldwide. In this study, we assessed the global genetic diversity and population structure of *H. contortus* using mitochondrial COX1 and ribosomal ITS2 sequences retrieved from the NCBI GenBank database. In total, 324 haplotypes of the COX1 and 72 haplotypes of the ITS2 were identified. The haplotype diversity values were all higher than 0.5, and the nucleotide diversity values were higher than 0.005. The Tajima's D value for COX1 (-1.65634) was higher than that for ITS2 (-2.60400). Fu's F_s , Fu and Li's D (FLD), and Fu and Li's F (FLF) values also showed high negative values, indicating a high probability of future population growth. In addition, the high fixation index (F_{ST}) value suggests significant genetic differentiation among populations. The haplotype networks of *H. contortus* populations based on COX1 sequences revealed clear geographic clustering, whereas ITS2 sequences showed more haplotype admixture across regions. The results of phylogenetic analyses were consistent with the haplotype networks. These findings highlighted that *H. contortus* populations exhibit significant genetic variation and are undergoing rapid population expansion, with clear genetic differences across geographic regions. This study established critical baseline data for future molecular epidemiology studies, which could guide region-specific parasite surveillance and targeted control strategies, thus helping to mitigate the risk of cross-border parasite transmission and drug resistance.

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研究方向: Parasitology; Zoology

输出日期: 2025-08-06

Plant Sciences

第 1 条

标题: Starch-sucrose metabolic homeostasis in germinating soybean reserve mobilization with different levels of salt stress

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摘要: Salt stress is one of the abiotic factors limiting crop growth. However, the mechanisms regulating starch-sucrose metabolism in the mobilization of soybean (*Glycine max* L.) reserves at different levels of salt stress during germination remain unknown. This study evaluated the effects of different levels of salt stress [0 mmol L⁻¹ NaCl (CK), 75 mmol L⁻¹ NaCl (S), and 150 mmol L⁻¹ NaCl (SS)] on germinating seeds of three soybean varieties. Salt stress, especially the SS treatment, significantly reduced the radicle length, radicle fresh weight, and total fresh weight. Salt stress had different effects on the starch accumulation of cotyledons and radicles, while significantly increased the sucrose accumulation through several mechanisms. The regulatory mechanisms governing starch-sucrose metabolism in cotyledon and radicle during the germination stage exhibit distinct differences. In cotyledons, the decrease of starch content under S and SS treatment was due to the decrease of sucrose decomposition, which inhibited the metabolic cycle of starch. The up-regulated expression of GmSWEET6/15 under different levels of salt stress can promote the accumulation of sucrose in radicles. However, different salt stress levels have different response mechanisms to sucrose and starch metabolism in radicles. The activities of sucrose-metabolizing enzymes sucrose synthase (cleavage) and invertase in the radicle of S treatment were significantly reduced, while SS treatment could activate the sucrose metabolic cycle and increase the efficiency of starch-sucrose conversion. Compared with S treatment, the accumulation of starch content in SS treatment was due to the increase of SSS, alpha-amylase and beta-amylase activities and the up-regulation of GmAMY3 and GmBAM1 expression levels. Based on the results of this study, in order to promote soybean germination in saline soils, rationalized soybean seed compositions can be designed according to

the degree of salinity in each region, which can provide a reference to the future breeding of salt-tolerant soybeans.

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文献类型: Article

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研究方向: Plant Sciences

输出日期:2025-08-06

第 2 条

标题: Unmanned aerial vehicle image detection of maize-YOLOv8n seedling leakage

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摘要: Introduction Missing seedlings is a common issue in field maize planting, arising from limitations in sowing machinery and seed germination rates. This phenomenon directly impacts maize yields owing to the poor effect of unmanned aerial vehicle (UAV) remote sensing images based on seedling leakage detection in fields. Therefore, this study proposed a method for detecting missing seedling in fields based on UAV remote sensing to quickly and accurately detect missing seedling and facilitate subsequent crop management decisions. Methods The method calculates the rated inter-seedling distance in UAV-captured images of maize fields using a combination of image processing techniques, including background segmentation, stalk center region detection, linear fitting of plant rows, and average plant distance calculation. Based on these calculations, an improved Maize-YOLOv8n model was employed to detect actual seedling emergence. Results The experimental results demonstrate that the new model achieved superior performance on a self-constructed dataset, with a mean average precision (mAP) of 97.4%, precision (P) of 94.3%, recall (R) of 93.1%, and an F1 score of 93.7%. The model was lightweight, comprising only

1.19 million parameters and requiring 20.2 floating-point operations per second (FLOPs). The inference time was 12.8 ms, satisfying real-time detection requirements. Performance evaluations across various conditions, including different leaf stages, light intensities, and weed interference levels, further indicated the robustness of the model. In addition, a linear regression equation was developed to predict the total number of missing seedlings, with model performance evaluated using the root mean squared error (RMSE) and mean absolute error (MAE) metrics. Discussion The results confirm the ability of the model to accurately detect maize seedling gaps. This study can evaluate the quality of seeding operations and provide accurate information on the number of missing seedlings for timely replacement work in areas with high rates of missing seedlings. This study advances precision agriculture by enhancing the efficiency and accuracy of maize planting management.

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研究方向: Plant Sciences

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第 3 条

标题: Physiological and metabolomic responses of adzuki bean (*Vigna angularis*) to individual and combined chilling and waterlogging stress

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摘要: Introduction Climate change exacerbates combined environmental stresses, leading to significant crop losses globally. Methods This study investigated the physiological and metabolomic responses of adzuki bean (*Vigna angularis*) leaves to individual and combined chilling-waterlogging stresses during the flowering

stage. Results and discussion Results demonstrated that both stresses significantly inhibited photosynthesis, elevated reactive oxygen species accumulation, and induced membrane lipid peroxidation. Waterlogging exhibited more severe impacts, triggering extreme ABA accumulation and plant death at 4 days post-treatment, resulting in total yield loss. Notably, combined stresses induced antagonistic effects, reducing photosynthetic decline by 14.10-32.40% and mitigating oxidative damage by 5.79-10.75% compared to waterlogging alone after 4 days. Metabolomic analysis revealed that combined stress activated more metabolic pathways than individual stress, including flavone/flavonol biosynthesis and cGMP-PKG signaling, which are critical for plant adaptation. Conclusion This study provides valuable insights into the physiological and metabolic mechanisms underlying adzuki bean's response to combined chilling-waterlogging stress.

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文献类型: Article

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研究方向: Plant Sciences

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第 4 条

标题: QTL-based dissection of three key quality attributes in maize using double haploid populations

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摘要: Introduction Maize is a crucial source of nutrition, and the quality traits such as starch content, oil content, and lysine content are essential for meeting the demands of modern agricultural development. Understanding the genetic basis of these quality traits significantly contributes to improving maize yield and optimizing end-use quality. While previous studies have explored the genetic basis of these traits, further investigation into the quantitative trait loci (QTL) responsible for variations in starch content, oil content, and lysine content still requires additional attention. Methods Double haploid (DH) populations were developed via a nested association mapping (NAM) design. Phenotypic data for starch, oil, and lysine content were collected using near-infrared spectroscopy and analyzed via ANOVA. Genotyping employed a 3K SNP panel, and genetic maps were constructed using QTL IciMapping. QTL analysis integrated single linkage mapping (SLM) and NAM approaches, with candidate genes identified via maizeGDB annotation and transcriptome data. Results The broad-sense heritability of the populations with a range of 63.98-80.72% indicated the majority of starch content, oil content and lysine content variations were largely controlled by genetic factors. The genetic maps were constructed and a total of 47 QTLs were identified. The phenotypic variation explained (PVE) of the three traits is in a range of 2.60-17.24% which suggested that the genetic component of starch content, oil content and lysine content was controlled by many small effect QTLs. Five genes encoding key enzymes in regulation of starch, oil and lysine synthesis and metabolism located within QTLs were proposed as candidate genes in this study. Discussion The information presented herein will establish a foundation for the investigation of candidate genes that regulate quality traits in maize kernels. These QTLs will prove beneficial for marker-assisted selection and gene pyramiding in breeding programs aimed at developing high-quality maize varieties.

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第 5 条

标题: Integrated metabolomics and transcriptomics unravel the biosynthesis mechanism of anthocyanin in postharvest red raspberry (*Rubus idaeus* L.)

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摘要: Introduction Anthocyanins are crucial secondary metabolites that are responsible for pigment deposition in fruits. Raspberry fruit color shifts from white to red during natural or postharvest ripening. However, the precise mechanisms and biosynthetic pathways of anthocyanins in postharvest raspberries remain unclear. Methods This study used metabolomic and transcriptomic analyses to explore anthocyanin biosynthesis in postharvest raspberries at various color stages: white (RBT-1), white-to-pink (RBT-2), pink (RBT-3), red (RBT-4), and deep red (RBT-5). Results We identified 43 key metabolites, and 13,239 DEGs linked to anthocyanin biosynthesis in postharvest raspberry colour development, including cyanidin-3-O-sophoroside and cyanidin-3-O-glucoside. The key DAMs in colored raspberries were gentiobioside, pelargonidin-3,5-O-diglucoside, cyanidin-3-O-sambubioside, and pelargonidin-3-O-sambubioside. Transcriptome analysis revealed 32 differentially expressed structural genes linked to anthocyanin and flavonoid synthesis, with significant upregulation of PAL, CHS, F3H, C4H, F3'H, DFR, ANS, CHI, and UFGT genes, which promote anthocyanin synthesis and pigment accumulation. Integrated analysis showed that cyanidin-3-O-sophoroside was correlated with 9 structural genes involved in anthocyanin biosynthesis, 19 transcription factors (TFs), and 14 hormone signaling-related genes. Discussion This study explored the regulatory mechanisms of MYB, WRKY, bHLH, and NAC transcription factors, as well as structural genes and phytohormone-related genes, in modulating anthocyanin metabolism during postharvest color changes in raspberries. The findings provide valuable insights for optimizing postharvest fruit storage conditions and enhancing fruit quality.

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研究方向: Plant Sciences

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第 6 条

标题: Effects of rot-promoting bacteria on decomposition characteristics of corn straw
and spring soybean yield in Saline-alkali Land

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摘要: Understanding the relationship between microbial inoculants and straw decomposition is crucial for achieving a high soybean yield in northern China's cold region. This study investigated the effects of different microbial inoculants on nutrient release characteristics and extracellular enzyme activities. A pot experiment was conducted over two growing seasons (2023 and 2024) using the soybean (*Glycine max* L. Merrill) cultivar Nongqing 28, the saline-alkali soil as the test soil, and corn straw as the test straw. The microbial inoculants tested were *Bacillus* sp. ND1 and *Bacillus* sp. ND2. The following treatments were employed: straw with no microbial agent application (CK), straw with *Bacillus* sp. ND1 application (T1), straw with *Bacillus* sp. ND2 application (T2), and straw with a 1:1 application of *Bacillus* sp. ND1 and *Bacillus* sp. ND2 compound bacteria (T3). The two-year results showed that the T1, T2, and T3 treatments significantly increased the rate of straw decomposition, reduced the lignocellulose content, and progressively released nitrogen, phosphorus, and potassium from the straw compared to the CK. During both years, the T3 treatment exhibited the highest straw decomposition rate and enzyme activity at R2(Full Bloom period), R4(Full Pod period), R6(Full Seed period) and R8(Full Maturity period) periods, which ultimately increased soybean yield by 24.00%-28.00% ($P<0.05$). These findings indicate that microbial inoculants have significant potential for application in straw management and provide an important basis for optimizing straw return and crop yield. In summary, T3 treatment can accelerate straw decomposition and nutrient release rates, increase soybean yield, and provide a theoretical basis for optimizing the straw decomposition effect and rational utilization of organic resources by promoting the activity of extracellular enzymes and the

degradation of straw cellulose, hemicellulose, and lignin.

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研究方向: Plant Sciences

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第 7 条

标题: Proline-Nitrogen Metabolic Coordination Mediates Cold Priming-Induced Freezing Tolerance in Maize

作者: Gai, ZJ (Gai, Zhijia); Liu, L (Liu, Lei); Zhang, N (Zhang, Na); Liu, JQ (Liu, Jingqi); Cai, LJ (Cai, Lijun); Yang, X (Yang, Xu); Zhang, A (Zhang, Ao); Zhang, PF (Zhang, Pengfei); Ding, JJ (Ding, Junjie); Zhang, YF (Zhang, Yifei)

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摘要: Cold stress critically restricts maize seedling growth in Northeast China, yet the mechanism by which cold priming (CP) enhances cold tolerance through proline-nitrogen metabolic networks remains unclear. This study systematically investigated CP's synergistic regulation in cold-tolerant (Heyu27) and cold-sensitive (Dunyu213) maize using a two-phase temperature regime (priming induction/stress response) with physiological and multivariate analyses. CP alleviated cold-induced photosynthetic inhibition while maintaining a higher chlorophyll and photosynthetic rate, though biomass responses showed varietal specificity, with Heyu27 minimizing growth loss through optimized carbon-nitrogen allocation. Antioxidant enzymes such

as superoxide dismutase (SOD), peroxidase (POD), and catalase (CAT) were pre-activated during early stress, effectively scavenging reactive oxygen species (ROS) and reducing malondialdehyde (MDA) accumulation, with Heyu27 showing superior redox homeostasis. CP enhanced proline accumulation via bidirectional enzyme regulation (upregulating triangle 1-pyrroline-5-carboxylate synthase/reductase [P5CS/P5CR], inhibiting proline dehydrogenase [ProDH]) and reprogrammed nitrogen metabolism through glutamate dehydrogenase/isocitrate dehydrogenase (GDH/ICDH)-mediated ammonium conversion to glutamate, alleviating nitrogen dysregulation while supplying proline precursors. Principal component analysis revealed divergent strategies: Heyu27 prioritized proline-antioxidant synergy, whereas Dunyu213 emphasized photosynthetic adjustments. These findings demonstrate that CP establishes "metabolic memory" through optimized proline-nitrogen coordination, synergistically enhancing osmoregulation, reactive oxygen species (ROS) scavenging, and nitrogen utilization. This study elucidates C4-specific cold adaptation mechanisms, advancing cold-resistant breeding and stress-resilient agronomy.

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研究方向: Plant Sciences

输出日期:2025-08-06

第 8 条

标题: 2,4-Epibrassinolide Alleviates cd Toxicity in *Vigna angularis* by Boosting Antioxidant Defense, Detoxification, and Genome Stability

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摘要: Cadmium is one of the most toxic heavy metal pollutants in the world, seriously affecting crop growth and human health. 2,4-Epibrassinolide (BRs) has been proven to promote plant growth, enhance abiotic stress resistance and improve crop quality and yield. In this study, adzuki bean (*V. angularis*) cultivar 'Zhen Zhuhong' was grown hydroponically in 1/2 Hoagland nutrient solution with 0, 1, and 2 mg L⁻¹ cadmium chloride (CdCl₂), and then treated with 0 or 1 μM BR at the V1 stage. Compared with Cd stress, ascorbic acid content, peroxidase (POD, EC 1.11.1.7), catalase (CAT, EC 1.11.1.6) and superoxide dismutase (SOD, EC1.15.1.1) activities in adzuki Cd-stressed bean roots under BR treatment were increased by 30.63%, 41.83%, 51.49%, and 29.48%, which alleviated intracellular ROS accumulation and DNA oxidative damage. In addition, proline content and free amino acid content in BR-treated adzuki bean seedling roots under Cd stress increased by 30.37% and 35.96%, which was conducive to maintaining cell membrane homeostasis and improving root activity. RNA-seq and real-time quantitative reverse transcription PCR analyses revealed that BR treatment regulates the absorption, transport, and accumulation processes of Cd²⁺ in adzuki bean seedling roots, reducing the nonspecific accumulation of Cd²⁺ within cells and alleviating the toxic effects of Cd on root cells. BR treatment enhances the DNA damage repair in the roots of adzuki beans under Cd stress by reducing the extent of DNA oxidative damage, and effectively promoting the transition of cells from the G1 phase to the S phase.

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输出日期:2025-08-06

第 9 条

标题: MiR5651, miR170-3p, and miR171a-3p Regulate Cadmium Tolerance by Targeting MSH2 in *Arabidopsis thaliana*

作者: Wang, XP (Wang, Xianpeng); Wang, HT (Wang, Hetong); Sun, XR (Sun, Xiuru); Tang, ZH (Tang, Zihan); Liu, ZL (Liu, Zhouli); Ludlow, RA (Ludlow, Richard A.); Zhang, M (Zhang, Min); Cao, QJ (Cao, Qijiang); Liu, W (Liu, Wan); Zhao, Q (Zhao, Qiang)

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摘要: The DNA mismatch repair (MMR) system plays a crucial role in repairing DNA damage and regulating cell cycle arrest induced by cadmium (Cd) stress. To elucidate the mechanism by which miRNAs target AtMSH2 in regulating *Arabidopsis*' response to Cd stress, the wild-type *Arabidopsis*, *Atmsh2* mutant, and three miRNA-overexpressing transgenic lines were grown hydroponically in half-strength MS solution containing cadmium (Cd) at concentrations of 0, 0.5, 1, 2, and 3 mg/L for 5 days. miRNA-seq analysis, bioinformatics prediction, dual-luciferase reporter assays, and qRT-PCR results demonstrated that miR5651, miR170-3p, and miR171a-3p specifically targeted AtMSH2 and their expression levels showed a significant negative correlation. Compared to wild-type (WT) *Arabidopsis*, Cd stress tolerance was significantly enhanced in miRNA-overexpressing transgenic lines. Moreover, exogenous application of these three miRNAs in half-strength MS liquid medium also markedly improved Cd stress tolerance in wild-type *Arabidopsis*. Furthermore, the expression of these three miRNAs expression was further upregulated by Cd stress in a dose-dependent manner. Additionally, DNA damage response in miRNA-overexpressing transgenic lines was promoted based on the expression of DNA repair, DNA damage signaling, and cell cycle genes, which differed from both wild-type and *Atmsh2* plants. Taken together, miR5651, miR170-3p, and miR171a-3p participated in Cd stress response and improved plant Cd tolerance by mediating the expression of AtMSH2. Our study provides novel insights into the epigenetic mechanisms of Cd tolerance in plants, which sheds light on breeding for stress resilience in phytoremediation.

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研究方向: Plant Sciences
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第 10 条

标题: Spray-induced gene silencing enables the characterization of gene function during pre-penetration stages in *Blumeria graminis* f. sp. *tritici*

作者: Zhang, MH (Zhang, Meihui); Zhou, MJ (Zhou, Meijiao); Jia, YM (Jia, Yunmeng); Li, XP (Li, Xipeng); Wang, AL (Wang, Aolin); Liu, TG (Liu, Taiguo); Zhou, YL (Zhou, Yilin); Liu, W (Liu, Wei); Fan, JR (Fan, Jieru)

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摘要: *Blumeria graminis* f. sp. *tritici* (Bgt), the causal agent of wheat powdery mildew, poses a significant threat to global wheat production. As an obligate biotroph, Bgt is recalcitrant to stable genetic manipulation. Although host-induced gene silencing has been used for gene function studies, it remains ineffective for targeting genes active during pre-penetration stages. Consequently, the functional roles of many Bgt genes during pre-penetration stages remain largely unexplored. In this study, the feasibility of spray-induced gene silencing (SIGS) to characterize gene function during pre-penetration stages was evaluated. The results demonstrated that Bgt conidia and germ tubes efficiently took up environmental double-stranded RNA (dsRNA), enabling the targeted silencing of BgtActin. Exogenous application of BgtActin-dsRNA effectively reduced target gene expression and impaired infection of Bgt. BgtActin

silencing predominantly induced abnormal appressoria and reduced disease severity when dsRNA was applied at 6 and 10 hours post-inoculation (hpi). In contrast, BgtActin was almost not silenced when dsRNA was applied at 2 hpi. These findings established SIGS as a promising tool for gene functional studies during the pre-penetration stages of Bgt and highlight the potential of RNA-based strategies for the control of wheat powdery mildew.

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文献类型: Article

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研究方向: Plant Sciences

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Science & Technology - Other Topics

第 1 条

标题: Analysis measurements of millet collision coefficient of restitution for mechanized seeding

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摘要: The millet collision coefficient of restitution (COR) is one of the important elementary physical parameters for researching the precision hole seeding system. In this study, to explore the factors affecting the bounce issue observed when seeds exit the seed-metering and seed-guiding devices, the dynamic equations for the millet collision process were derived employing Newtonian kinematics, and a COR

measurement test bench was built. The effects of collision material type, speed and variety respectively on the COR were investigated by single-factor experiments and orthogonal experiments. Single-factor tests revealed that COR values decreased in the sequence of Acrylic plate, ABS, Rubber, Black soil, Meadow soil, and Sandy loam soil, with Tuogu exhibiting higher COR than Zhang Zagu 13 and Shuangyu, the latter having the lowest value. During two collision phases, the COR progressively decreased as seeding speed increased. Orthogonal tests identified the significant influences of each factor. A combination of bench and simulation tests validated the test results, showing no significant differences and confirming the method's viability for determining COR. These findings offer a reference for optimizing the design of relevant components within the millet metering system.

入藏号: WOS:001498579800021

文献类型: Article

地址: [Li, Yifei; Zhou, Wenqi] Northeast Agr Univ, Coll Engn, Harbin, Heilongjiang, Peoples R China.

[Li, Yifei; Yi, Shujuan; Chen, Tao; Zhang, Dongming; Wang, Song] Heilongjiang Bayi Agr Univ, Coll Engn, Daqing, Heilongjiang, Peoples R China.

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研究方向: Science & Technology - Other Topics

输出日期: 2025-08-06

第 2 条

标题: Oxytranscriptome of soybean seedlings under short-term cadmium treatment

作者: Gzyl, J (Gzyl, Jaroslaw); Zywicki, M (Zywicki, Marek); Deckert, J (Deckert, Joanna); Lichocki, M (Lichocki, Mikolaj); Skafe, Y (Skafe, Yara); Bak, J (Bak, Jacek); Roszka, W (Roszka, Wojciech); Shen, Y (Shen, Yang); Sun, XL (Sun, Xiaoli); Chmielowska-Bak, J (Chmielowska-Bak, Jagna)

来源出版物: SCIENTIFIC REPORTS 卷: 15 期: 1 文献

号: 25308 DOI: 10.1038/s41598-025-09324-0 Published Date: 2025 JUL 13

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摘要: Despite the important role of reactive oxygen species (ROS) in plant stress response, little is known about their effects on RNA. Present study focuses on RNA oxidation in soybean seedlings exposed for a short time to cadmium (1-3 h, 10 mg/L Cd). Treatment with the metal had no effect on the level of common oxidative stress markers: superoxide anion accumulation, lipid peroxidation, protein carbonylation and reduced/oxidized glutathione ratio. On the other hand, 2 h-long exposure to Cd induced the formation of the most frequent oxidative modification of RNA,

8-hydroxyguanosine (8-OHG). The immunohistochemical detection of 8-OHG in the root cross sections demonstrated that this modification is accumulated in the inner cortex tissue, endodermis, protoxylem and phloem, and co-localizes with ROS. The sequencing of 8-OHG enriched poly(A)RNA revealed that transcripts differ in their susceptibility to the oxidation. The highly oxidized transcripts (HOTs) are associated with signalling, stress response and proteins folding. In turn, the lowly oxidized transcripts (LOTs) are involved in mitochondria functioning, response to stimuli and gibberellic acid (GA) metabolism.

入藏号: WOS:001528208600017

文献类型: Article

地址: [Gzyl, Jaroslaw; Deckert, Joanna; Lichocki, Mikolaj; Chmielowska-Bak, Jagna] Adam Mickiewicz Univ, Inst Expt Biol, Fac Biol, Dept Plant Ecophysiol, Poznan, Poland.

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[Roszka, Wojciech] Poznan Univ Econ & Business, Inst Informat & Quantitat Econ, Dept Stat, Poznan, Poland.

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研究方向: Science & Technology - Other Topics

输出日期: 2025-08-06

第 3 条

标题: Global identification and characterization of soybean TPR genes with expression analysis under photoperiod variations

作者: Yu, S (Yu, Song); Ren, WW (Ren, Wenwen); Song, CY (Song, Chengyang); Wang, YX (Wang, Yuxuan); Fang, YS (Fang, Yisheng); Huang, C (Huang, Can); Liu, XL (Liu, Xiulin); Zhang, YF (Zhang, Yifei); Luo, X (Luo, Xiao)

来源出版物: SCIENTIFIC REPORTS 卷: 15 期: 1 文献

号: 24644 DOI: 10.1038/s41598-025-10368-5 Published Date: 2025 JUL 9

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摘要: TOPLESS/TOPLESS-RELATED (TPR) proteins are conserved transcriptional co-repressors vital for plant growth and development. However, the functions of

soybean TPR (GmTPR) gene family members and their roles in photoperiod responses remain largely unexplored. In this study, we identified 12 TPR genes in the soybean genome, distributed across 11 chromosomes. Phylogenetic analysis classified GmTPRs into three subfamilies (Class I-III) by comparing them with Arabidopsis TPR proteins. Collinearity analysis revealed that 6 GmTPR genes are collinear with 3 AtTPR genes, resulting in 10 pairs of collinear genes, with no tandem duplications found. Analysis of physicochemical properties, motif composition, and gene structure indicated significant differences among GmTPR members. Subcellular localization confirmed that GmTPRs predominantly reside in the nucleus, suggesting regulatory functions. Additionally, analysis of cis-regulatory elements revealed significant enrichment of light-responsive elements in GmTPR promoters, indicating possible regulation by light. Tissue-specific expression analysis showed that GmTPR genes are mainly expressed in flowers and seeds. RNA-seq and RT-qPCR analyses revealed distinct expression patterns of GmTPRs between long and short photoperiods, highlighting their responsiveness to photoperiod changes. This study provides a comprehensive analysis of the GmTPR family, emphasizing their critical role in photoperiod responses.

入藏号: WOS:001526484100035

文献类型: Article

地址: [Yu, Song; Ren, Wenwen; Wang, Yuxuan; Zhang, Yifei] Heilongjiang Bayi Agr Univ, Coll Agr, Daqing 163319, Heilongjiang, Peoples R China.

[Song, Chengyang; Fang, Yisheng; Huang, Can; Liu, Xiulin; Luo, Xiao] Peking Univ, Inst Adv Agr Sci, Shandong Key Lab Precis Mol Crop Design & Breeding, Shandong Lab Adv Agr Sci Weifang, Weifang 261325, Shandong, Peoples R China.

通讯作者地址: Luo, X (通讯作者), Peking Univ, Inst Adv Agr Sci, Shandong Key Lab Precis Mol Crop Design & Breeding, Shandong Lab Adv Agr Sci Weifang, Weifang 261325, Shandong, Peoples R China.

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Affiliations: Heilongjiang Bayi Agricultural University; Peking University

研究方向: Science & Technology - Other Topics

输出日期: 2025-08-06

Virology

第 1 条

标题: First linear B-cell epitope identified on the nucleocapsid protein of bovine coronavirus

作者: Zhou, YL (Zhou, Yulong); Zhang, JW (Zhang, Jiawen); Wu, HL (Wu, Hailiang); Zhao, S (Zhao, Shuai); Ren, YC (Ren, Yachao); Chen, QH (Chen, Qiuhui); Zhang, Z (Zhang, Zhe); Liao, XM (Liao, Xianmao); Mo, YM (Mo, Yuming); Zhong, YM (Zhong, Yiming); Zhang, GH (Zhang, Guohua)

来源出版物: VIROLOGY 卷: 610 文献号: 110581

DOI: 10.1016/j.virol.2025.110581 **Published Date:** 2025 SEP

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摘要: Bovine coronavirus (BCoV) is an important pathogen that can cause diarrhea in calves, respiratory disease, and winter dysentery in adult dairy cows. BCoV nucleocapsid protein (N) is highly conserved structural proteins that stimulate a strong immune response in the host, inducing both humoral and cellular immune responses, and are key targets for early and rapid diagnosis of coronaviruses and vaccine development. Therefore, the identification and screening of epitopes on N proteins is essential for the development of sensitive and specific diagnostic methods. In this study, BALB/c mice were immunized with soluble recombinant BCoV N protein expressed with a prokaryotic expression system, and two N-specific monoclonal antibodies (mAbs): 2F9 and 7H6 were prepared that recognize the same linear B-cell epitope with the smallest fragment located at 380YQQQDG385. Homology analysis of the amino acid sequences of the corresponding regions of nine typical BCoV strains from the different areas showed that the epitopes were high conservation. Homology analysis of the corresponding amino acid sequences of other animal-derived coronaviruses within the beta coronavirus genus revealed that the homology of this epitope across different species was remarkably low. Intriguingly, it exhibited 100 % identity exclusively with human coronavirus OC43 and canine coronavirus CRCoV/BJ - 221. Such a finding offers crucial insights into viral evolution, transmission dynamics, and strategies for disease prevention and control, thereby highlighting its significance in advancing our understanding of coronaviruses. These findings fill the gaps in the study of BCoV N protein epitopes and promote the understanding of BCoV N protein structure, which is valuable for developing diagnostic methods for detecting BCoV and exploring the biological functions of BCoV N proteins.

入藏号: WOS:001510057900001

文献类型: Article

地址: [Zhou, Yulong; Zhang, Jiawen; Wu, Hailiang; Zhao, Shuai; Ren, Yachao; Chen, Qiuhui; Zhang, Zhe; Liao, Xianmao; Mo, Yuming; Zhong, Yiming; Zhang, Guohua] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Daqing 163319, Peoples R China.

[Zhou, Yulong; Ren, Yachao] Heilongjiang Prov Technol Innovat Ctr Bovine Dis C, Daqing 163319, Peoples R China.

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[Zhang, Guohua] Heilongjiang Acad Agr Sci, Branch Anim Husb & Vet, Qiqihar 161000, Peoples R China.

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研究方向: Virology

输出日期:2025-08-06

3 EI 收录情况

(2025. 06. 12–2025. 08. 06)

3.1 EI Compendex

EI 索引库共收录我校教师发表的 45 篇文献，文献详细题录信息如下。

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

Han, Guanghe (College of Economics and Management, Heilongjiang Bayi Agricultural University, Daqing, China); Zhang, Xin; Pan, Xin

Source: Quality Assurance and Safety of Crops and Foods, v 17, n 1, p 201-216, 2025

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

2. Fast identification of maize varieties with small samples using near-infrared spectral feature selection and improved stacked sparse autoencoder deep learning

Yang, Dongfeng (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Hu, Jun

Source: Expert Systems with Applications, v 288, September 1, 2025

Database: Compendex

Data Provider: Engineering Village

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3. Generalized model for the quantitative moisture analysis of maize grains during filling stage based on near-infrared spectroscopy

Wang, Xue (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhang, Guangyue; Ma, Tiemin; Zhao, Xiaoyu; Liu, Jinming; Yi, Shujuan

Source: Nongye Gongcheng Xuebao/Transactions of the Chinese Society of Agricultural Engineering, v 41, n 8, p 291-300, April 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

4. Construction of Multi-dimensional Teaching Resource System in Higher Education under the Blended Teaching Model

Chen, Zhengguang (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing, China); Liu, Shuo; Wang, Xue; Ma, Tiemin

Source: Proceedings of 2024 3rd International Conference on

Artificial Intelligence and Education, ICAIE 2024, p 190-195, April 29, 2025, Proceedings of 2024 3rd International Conference on Artificial Intelligence and Education, ICAIE 2024

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

5. Enhancement of high-solid chicken manure anaerobic digestion: Insights into ammonia air stripping pretreatment for microbial resilience and hydraulic retention stabilization

Yu, Xinhui (Agricultural College, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wei, Fangtong; Wang, Haipeng; Bi, Shaojie; Zhao, Changjiang; Wang, Yanjie

Source: Biomass and Bioenergy, v 201, October 2025

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

6. Microbial conversion of crop straw: From bioenergy to bio-based materials

Zheng, Anwang (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); Ji, Xinyue; Liu, Tao; Zhao, Dan; Zhang, Shuang; Yan, Lei

Source: Process Safety and Environmental Protection, v 200, August 2025

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

7. Cascaded wavelength selection method for near-infrared spectroscopy based on simulated annealing bee colony algorithm

Wang, Chunqi (College of Food, Heilongjiang Bayi Agricultural University, Daqing, China); Tong, Baihong; Sun, Huiting; Wang, Weida; Shi, Jianfei; Liu, Jinming

Source: Journal of Computational Methods in Sciences and Engineering, v 25, n 2, p 1184-1199, March 2025

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

8. Discrimination of Different Varieties of Rice in Wuchang Area Based on E-Nose and Hs-Spme-Gc-O-Ms

Qian, Lili (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Chen, Mingming; Song, Yan; Zhang, Tao; Liu, Xingquan; Zhou, Guoxin; Liu, Hongyan; Zuo, Feng

Source: SSRN, April 28, 2025

Database: Compendex

Data Provider: Engineering Village

9. Establishment and Application of a Quality Evaluation System for Commercial Flavored Extruded Noodles

Zhao, Xue (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Cong, Zhongxiao; Sun, Huajun; Zang, Yanqing; Li, Changsheng; Zhou, Xuan; Qian, Lili

Source: Shipin Kexue/Food Science, v 46, n 8, p 25-33, April 25, 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

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10. Insight into the stabilization mechanism of rice protein amyloid fibrils modification on soy protein isolate gels: Gel properties, microstructure, and molecular conformation

Ma, Jinming (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, Lishuang; Pan, Deyin; Wang, Kexin; Huo, Jinjie; Ma, Xiaoqi; Lu, Baoxin; Yu, Xiaoshuai; Xiao, Zhigang

Source: Food Chemistry: X, v 29, July 2025

Database: Compendex

Data Provider: Engineering Village

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11. Isolation and Function Study of Actinomycetes from Rhizosphere Soil of Soybean in the Black Soil Region

Chen, Yong-Qi (College of Life Science and Biotechnology, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Li, Zhi-Wen; Li, Xin; Yuan, Ruo-Xi; Wang, Chun-Xu; Han, Yi-Qiang; Gao, Ya-Mei

Source: Biotechnology Bulletin, v 41, n 5, p 255-266, May 26, 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

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12. Improved Sample Entropy Algorithm Based on Symbolic Variable Matrix

Li, Yan-Yang (College of Civil Engineering, Water Conservancy Institute, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Luo, Wei

Source: Science Technology and Engineering, v 25, n 5, p 1913-1919, 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

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13. A Lightweight Hybrid Model for Accurate Ammonia Prediction in Pig Houses

Musabimana, Jacqueline (College of Electrical and Information, Northeast Agricultural University, Harbin; 150030, China); Xie, Qiuju; Zhou, Hong; Zheng, Ping; Liu, Honggui; Ma, Tiemin; Liu, Jiming

Source: SSRN, May 13, 2025

Database: Compendex

Data Provider: Engineering Village

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14. Exploration of Feature Engineering Teaching Based on Max-Relevance Min-Redundancy

Chen, Zhengguang (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing, China); Ma, Xiaohui; Liu, Shuo; Feng, Huiyan; Yin, Shuxin; Xu, Nan

Source: Proceedings of 2024 3rd International Conference on Artificial Intelligence and Education, ICAIE 2024, p 292-296, April 29, 2025, Proceedings of 2024 3rd International Conference on Artificial Intelligence and Education, ICAIE 2024

Database: Compendex

Data Provider: Engineering Village

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15. Effects of Soybean Oligosaccharides Extracted from Defatted Soybean Meal on Gut Microbiota and Metabolites during in Vitro Fermentation Process 豆

Su, Tingting (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Yang, Xiyuan; Yu, Qiaoru; Wu, Mengna; Xu, Lei; Wang, Hui; Mu, Xindi; Yao, Di; Wang, Changyuan

Source: Shipin Kexue/Food Science, v 46, n 11, p 164-179, June 15, 2025

Database: Compendex

Data Provider: Engineering Village

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16. Preparing a millet bran soluble dietary fiber polysaccharide - Cr (III) complex to regulate oxidative stress and apoptosis in pancreatic islet cells

Quan, Zhigang (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Chen, Mingming; Wang, Weihao; Zhang, Dongjie

Source: International Journal of Biological Macromolecules, v 318, July 2025

Database: Compendex

Data Provider: Engineering Village

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17. A Rapid Method for the De ERA tection of Pseudomonas aeruginosa ERA in Ready-to-drink Beverages

Zhao, Jiansong (College of Life Science and Biotechnology, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163000, China); Yang, Yange; Liu, Tong; Wei, Ying; Li, Hongna; Li, Tao; Sun, Dongmei; Yuan, Fei

Source: Journal of Chinese Institute of Food Science and Technology, v 25, n 4, p 376-385, April 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

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18. ating Compressor Bearings Based on GMPE and GWO-MKELM Algorithms

Li, Yan-Yang (College of Civil Engineering, Water Conservancy Institute, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, Jin-Dong; Qu, Xiao-Hai

Source: Science Technology and Engineering, v 24, n 23, p 9842-9847, 2024

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

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19. Study on regulation of kidney bean and haskap composite fermentation broth on gut microbiota via in vitro fermentation model

Wang, Jia (College of Food, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, Xi; Zhou, Fang; An, Yu; Zhang, Zhihui; Li, Sinan; Xu, Kaiyuan; Yuan, Peng; Wang, Ying; Zhang, Lu

Source: Food and Fermentation Industries, v 51, n 8, p 211-218, April 25, 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

20. Effect of Boron and Vanadium Co-Diffusion Temperature on the Friction and Wear Properties of Feconicrmn High-Entropy Alloys

Sheng, Changrong (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Li, Qingda; Hu, Jun; Liu, Yilin; Gao, Chuang

Source: SSRN, May 15, 2025

Database: Compendex

Data Provider: Engineering Village

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21. Design and Experiment of Seed Orientation Correction Element for High-speed Belt-type Soybean Seeding Device

Yi, Shujuan (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, Guangyu; Li, Yifei; Wang, Song; Li, Shuaifei; Wei, Ruiyong

Source: Nongye Jixie Xuebao/Transactions of the Chinese Society for Agricultural Machinery, v 56, n 5, p 268-278 and 424, May 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

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22. A Thermodynamics-Based Carbon Accounting Model for Carbon Emissions: A Multi-Objective Coupling Analysis of Energy Conservation and Cost Accounting

Geng, Xiaoyuan (College of Economics and Management, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Su, Xuefei; Gao, Wangsheng

Source: International Journal of Heat and Technology, v 43, n 2, p 403-414, April 2025

Database: Compendex

Data Provider: Engineering Village

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23. A nondestructive and rapid method for in situ measurement of crude fat content in soybean grains

Sui, Yutong (Heilongjiang Bayi Agricultural University, China); Zhao, Xiaoyu; Ding, Jiancheng; Sun, Shengyong; Tong, Yuchen; Ma, Wendi; Zhao, Yue

Source: Food Chemistry, v 491, November 1, 2025

Database: Compendex

Data Provider: Engineering Village

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24. Genome-wide Identification and Expression Analysis of the Rice BXL Gene Family

Wu, Hao (Crop Stress Molecular Biology Laboratory, College of Agriculture, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Dong, Wei-Feng; He, Zi-Tian; Li, Yan-Xiao; Xie, Hui; Sun, Ming-Zhe; Shen, Yang; Sun, Xiao-Li

Source: Biotechnology Bulletin, v 41, n 6, p 87-98, June 26, 2025 **Language:** Chinese

Database: Compendex

Data Provider: Engineering Village

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25. Inversion and mapping of soil alkali-hydrolyzable nitrogen in farmland using satellite remote sensing and machine learning

Qiu, Jinkai (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhang, Wei; Xu, Xiuying; Ma, Yongcai; Fu, Xiaoming; Shi, Wenqiang

Source: Soil and Tillage Research, v 254, December 2025

Database: Compendex

Data Provider: Engineering Village

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26. Differences in Flavor Profiles and Meat Quality of Grass Carp from China's Jingpo Lake Across Four Thermal Processing Methods

Pan, Deyin (Heilongjiang Bayi Agricultural University, Daqing, China); Ma, Jin-Ming; Li, Chang-Bo; Du, Hong-Zhen; Diao, Jingjing; Chen, Hongsheng

Source: SSRN, July 3, 2025

Database: Compendex

Data Provider: Engineering Village

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27. Characterization of two types of magnetically cured microspheres for the adsorption and degradation of petroleum contaminants

He, Tiantian (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, Heilongjiang, Daqing; 163319, China); Cao, Di; Xu, Mian; Yu, Jiaheng; Liu, Youhang; Liu, Yuhang; Shi, Haiyan; Yu, Liyun

Source: Applied Surface Science, v 710, November 30, 2025

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

28. Metagenomics and Binning Analysis Unveiled the Diversity and Transfer Patterns of Antibiotic Resistance Genes in Traditional Pickled Vegetables

Wang, Hui (College of Food, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Mu, Xindi; Su, Tingting; Yang, Xiyuan; Xu, Lei; Yao, Di; Li, Liangyu

Source: SSRN, June 24, 2025

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

29. Collaborative moving regression-based surrogate modeling framework for structural low cycle fatigue life reliability assessment

Dong, Xiao-Wei (School of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Li, Zhen-Ao; Liang, Jia-Hao; Li, Qing-Long; Zhu, Chun-Yan; Wang, Ming; Li, Wei-Kai

Source: Computer Methods in Applied Mechanics and Engineering, v 445, October 1, 2025

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

30. Synergistical Effects of Ethanol and Sodium Metabisulfite Treatments on the Physico-chemical Characteristic of Sorghum Kafirin

Lan, Yingqi (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Song, Xuejian; Li, Zhijiang; Dai, Lingyan

Source: Science and Technology of Food Industry, v 46, n 14, p 163-170, July 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

31. Engineered Exosomes Delivering bta-miR-223 Alleviate Staphylococcus aureus-Induced Mastitis in Mice via the TLR4/NF- κ B Signaling Pathway

Wang, Yuxuan (College of Animal Science, Guangdong Province Key Laboratory of Animal Nutritional Regulation, National Engineering Research Center for Breeding Swine Industry, State Key Laboratory of Livestock and Poultry Breeding, South

China Agricultural University, Guangdong, Guangzhou; 510642, China); Ouyang, Kun; Nie, Ying; Yang, Jingshuo; Liao, Yunxin; Chen, Xingping; Wang, Hailong; Luo, Junyi; Sun, Jiajie; Xi, Qianyun; Shen, Binglei; Chen, Ting; Zhang, Yongliang

Source: Journal of Agricultural and Food Chemistry, 2025 Article in Press

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

32. Population decomposition evolutionary framework for constrained multiobjective optimization

Li, Yongchao (School of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163000, China); Jia, Heming; Li, Hongguang

Source: Swarm and Evolutionary Computation, v 97, August 2025

Database: Compendex

Data Provider: Engineering Village

Compilation and indexing terms, Copyright 2025 Elsevier Inc.

33. Discrimination of different varieties of rice in Wuchang area based on E-nose and HS-SPME-GC-O-MS

Qian, Lili (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Chen, Mingming; Song, Yan; Zhang, Tao; Liu, Xingquan; Zhou, Guoxin; Liu, Hongyan; Zuo, Feng

Source: Food Chemistry: X, v 29, July 2025

Database: Compendex

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34. Parameters calibration and validation of hydration and crystallization salt swelling caused by soda saline soil in Daqing area

Zheng, Xin (College of Civil Engineering and Water Conservancy, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhang, Jingqiu; Xie, Hengyan; Xu, Wenbao

Source: Journal of Railway Science and Engineering, v 22, n 6, p 2583-2594, June 2025

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35. ESG performance drivers and corporate growth: a life-cycle-based fsQCA – PSM study of China’ s construction and manufacturing enterprises

Li, Ding (School of Economic and Management, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing, China); Yan, Han; Ma, Shenglin

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Jiang, Peng (College of Food Science, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Xu, Qingpeng; Zhang, Shu; Fu, Tianxin; Li, Zhijiang; Wang, Changyuan

Source: Ultrasonics Sonochemistry, v 120, September 2025

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Li, Bo (College of Civil Engineering and Water Conservancy, Heilongjiang Bayi Agricultural University, Xinfeng Road, Daqing; 163319, China); Shi, Yannan; Jiang, Wei; Zhang, Kuan; Liu, Gongliang; Yang, Ruitong; Guo, Wei; Wang, Fucheng; Li, Dong

Source: Energy for Sustainable Development, v 88, October 2025

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Han, Tianlu (Department of Food Engineering, Provincial Engineering Laboratory of Green Food Processing and Storage, Heilongjiang Key Laboratory of Food Science and Engineering, Heilongjiang Key Laboratory of Grain Food and Comprehensive Processing, Harbin University of Commerce, Heilongjiang, Harbin; 150028, China); Qiu, Lidan; Hu, Qinlin; Guo, Ruqi; Zhu, Ying; Huang, Yuyang; Liu, LinLin; Wang, Ying; Zhu, Xiuqing

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Yi, Xiuqin (Guangdong University of Science and Technology, China); Xiao, Yao

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40. Improved YOLOv5s algorithm for target detection in hyperspectral remote sensing images YOLOv5s

Tian, Li (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Jia, Yu-Hui

Source: Jilin Daxue Xuebao (Gongxueban)/Journal of Jilin University (Engineering and Technology Edition), v 55, n 5, p 1742-1748, May 2025

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41. CIPD-Net: A pod detection method based on cascade deep learning network

Zhuo, Zuyu (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Da Qing, 163319, China); Guan, Haiou; Ma, Xiaodan; Zhang, Xueyan

Source: Optics and Laser Technology, v 192, December 2025

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Chi, Xinrui (School of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Guo, Zhanbin; Cheng, Fu

Source: Alexandria Engineering Journal, v 127, p 892-919, August 2025

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43. Calculation method of wilting index for the soybean canopy based on the three-dimensional Fourier transform

Ma, Xiaodan (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Da Qing; 163319, China); Cheng, Yingying; Guan, Haiou; Lin, Hongyu

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Dong, Ying (Guangdong Provincial Key Laboratory of Intelligent Port Security Inspection, Huangpu Customs District P.R. China, Guangzhou, China); Wang, Weida; Zhang, Nanfeng; Liu, Jinming

Source: Journal of Chemometrics, v 39, n 8, August 2025

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Ma, Xiaodan (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Da Qing; 163319, China); Gu, Zhicheng; Zhang, Tao; Guan, Haiou

Source: Chemometrics and Intelligent Laboratory Systems, v 265, October 15, 2025

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