收錄引用報

SCI·EI·ESI INDEX DATABASE

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黑龍江八一農墾大學

图书馆 咨询服务部

目录

1 收录概况

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

《收录引用报》有关说明如下：

一、图书馆所提供信息全部来源于SCIE和EI数据库。

二、以机构“Heilongjiang Bayi Agricultural University”为检索条件，时间范围2025.11.27-2026.1.27。

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

（2025.11.27-2026.1.27）

SCI 索引库共收录我校教师发表的 87 篇文献，图表后附录 87 篇文献详细题录信息。

RESEARCH FIELDS	研究领域	篇数
Agriculture	农业	33
Biochemistry & Molecular Biology	生物化学与分子生物学	5
Business & Economics	商务经济学	1
Chemistry	化学	7
Computer Science	计算机科学	2
Construction & Building Technology	施工和建筑技术	1
Energy & Fuels	能源和燃料	2
Engineering	工程	5
Environmental Sciences & Ecology	环境科学与生态学	2
Food Science & Technology	食品科学和技术	5
Immunology	免疫学	1
Materials Science	材料科学	1
Microbiology	微生物学	3
Optics	光学	1
Parasitology	寄生物学	1
Plant Sciences	植物科学	8
Reproductive Biology	生殖生物学	1
Science & Technology - Other Topics	科技与技术-其他主题	2
Spectroscopy	光谱学	1
Thermodynamics	热动力学	2

Veterinary Sciences	**兽医学**	**3**

表 1　我校 21 个研究领域发文篇数及详细题录信息

Agriculture

Record 1

Title: Influence of film-tensioning lines on the wind-induced responses of flat-elliptical pipe greenhouse

Author(s): Xie, HY (Xie, Hengyan); Wei, CX (Wei, Cunxing); Zheng, X (Zheng, Xin); Xu, WB (Xu, Wenbao)

Source: BIOSYSTEMS ENGINEERING **Volume:** 263 **Article Number:** 104370 **DOI:** 10.1016/j.biosystemseng.2025.104370 **Published Date:** 2026 MAR

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Under extreme wind loads, plastic greenhouses frequently experience film uplift, which leads to structural instability and crop damage. Existing research predominantly focuses on the stability of the greenhouse skeletons and the effect of covering material on load-bearing capacity, while the significant role of the film-tensioning lines in enhancing the wind resistance of plastic greenhouses has received limited attention. This study investigates the wind-induced response of plastic greenhouses by utilising ABAQUS finite element software to establish two models: a film-skeletons (FS) model and a film-tensioning lines-film-skeletons (FFS) model. Both static and dynamic wind load analyses are performed based on the Davenport wind spectrum, using a linear filtering method to simulate fluctuating wind speeds. The study compares the wind-induced responses of various components and analyses the contact conditions between the film and the skeletons under different loading scenarios. The results demonstrate that the introduction of the film-tensioning lines significantly enhances the film's stiffness, optimises the stress distribution, and effectively suppresses excessive deformation of the film. Additionally, the filmtensioning lines alleviates stress concentration in the skeletons, limits skeletons displacement, increases the radial constraint on the film, and reduces shear stress between the film and the skeletons. Under dynamic wind loads, the reinforcing effect of the film-tensioning lines on both film and skeletons stiffness is even more pronounced. This research contributes to the theoretical skeletons for analysing the wind-induced responses of greenhouse components, providing a scientific basis for the accurate evaluation of the wind resistance of plastic greenhouses.

Accession Number: WOS:001658274000001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 2

Title: Avirulent Phytophthora sojae strain R1 induces systemic resistance against virulent R5 in soybean via H2O2 signaling and lignin-based cell wall reinforcement

Author(s): Liang, H (Liang, Hao); Sun, JY (Sun, Jiayi); Li, Y (Li, Yue); Sun, WN (Sun, Weina); Yin, LH (Yin, Lihua); Zuo, YH (Zuo, Yuhu); Ke, XW (Ke, Xiwang)

Source: PEST MANAGEMENT SCIENCE **DOI:** 10.1002/ps.70551 **Early Access Date:** JAN 2026 **Published Date:** 2026 JAN 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: BACKGROUND Induced crop resistance using attenuated strains has been employed to prevent yield losses in several cultivated crops. Phytophthora root rot of soybean (PRRS), caused by Phytophthora sojae, is a devastating disease prevalent worldwide. In pursuit of more ecofriendly disease control strategies, this study investigated the characteristics and mechanisms through which the avirulent strain R1 primes systemic resistance.RESULTS Pretreatment with the avirulent P. sojae strain R1 converted the compatible soybean-R5 interaction into an incompatible one. The optimal interval was 3 days, resistance lasted 20 days and spread 20 cm with a half-decay distance of 16.5 cm. During 12-72 h after treatment (hat), R1 raised superoxide dismutase (SOD) but reduced catalase (CAT) activity, letting H2O2 accumulate from 12 to 72 hat, and triggering GmPR1, GmPR2, GmPR4 and GmPR9. Additionally, upregulation of GmPAL (12, 24, and 72 hat) increased phenylalanine ammonia-lyase (PAL) activity from 24 and 72 hat, followed by sequential induction of lignin biosynthetic genes GmC3H (12 hat), GmCOMT and GmF5H (48 hat). Meanwhile, peroxidase (POD) activity increased steadily from 12 to 72 hat. Together, these changes led to visible lignin deposition in hypocotyl phloem fibers by 72 hat. Upon challenge with R5 that pretreated with R1, CAT rose at 1 days postchallenge-inoculation (dpci) whereas hydrogen peroxide (H2O2) declined from its peaks. GmPR1, GmPR2 and GmPR4 were repressed, yet GmRP9 and POD activity remained high, and lignin increased accordingly.CONCLUSION Avirulent P. sojae R1 rapidly adjusts the antioxidant balance to promote H2O2 accumulation; the added H2O2 activates defense genes that limit later R5 attack and provides substrate for R1-induced POD for lignin reinforcement. (c) 2026 Society of Chemical Industry.

Accession Number: WOS:001661719400001

Document Type: Article; Early Access

Addresses: [Liang, Hao; Sun, Jiayi; Li, Yue; Sun, Weina; Yin, Lihua; Zuo, Yuhu; Ke,

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Research Areas: Agriculture; Entomology

Output Date: 2026-01-27

Record 3

Title: Milk-Derived Extracellular Vesicles Inhibit Staphylococcus aureus Growth and Biofilm Formation

Author(s): Liu, P (Liu, Peng); Wang, ZY (Wang, Zhaoyuan); Gao, ZQ (Gao, Ziqiang); Liu, J (Liu, Juan); Zhang, YT (Zhang, Yutong); Song, YY (Song, Yangyang); Li, XL (Li, Xiaolin); Song, HX (Song, Huaxue); He, XL (He, Xingli); Kong, FZ (Kong, Fanzhi); Wang, CY (Wang, Changyuan); Shen, BL (Shen, Binglei)

Source: ANIMALS **Volume:** 16 **Issue:** 1 **Article Number:** 123 **DOI:** 10.3390/ani16010123 **Published Date:** 2026 JAN 1

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Staphylococcus aureus is a key pathogen in bovine mastitis, and antibiotic therapy is challenged by resistance and residue concerns. Milk-derived extracellular vesicles emerge as promising natural antimicrobials. This study aimed to evaluate the antimicrobial activity and explore potential associated mechanisms of milk-derived extracellular vesicles against S. aureus. Milk-derived EV-enriched fractions (mEVs) from healthy (HmEVs) and mastitic (MmEVs) bovine milk suppressed S. aureus growth in vitro and were associated with oxidative imbalance, with MmEVs showing stronger inhibition. In addition, MmEVs significantly reduced biofilm biomass, extracellular matrix production, and the expression of key biofilm-associated genes (sarA, icaB, fnbA, clfB, cidA). Small RNA sequencing revealed distinct miRNA profiles between HmEVs and MmEVs; in particular, MmEVs were enriched in miRNAs predicted to target the S. aureus biofilm-associated gene clfB. Although we did not directly demonstrate uptake of mEV-derived miRNAs by bacteria or their regulation of bacterial gene expression in this study, our small RNA sequencing data together with subsequent bioinformatic predictions suggest that vesicular miRNAs should be regarded as candidate contributors, rather than demonstrated mediators, of the observed antibacterial and antibiofilm effects. Taken together, these findings indicate

the potential of mEVs as residue-free adjuncts for controlling bovine mastitis, while recognizing that the present conclusions are mainly derived from in vitro experiments with S. aureus and bioinformatic analyses. Therefore, functional validation of candidate miRNAs, in vivo studies, and evaluation of activity against other mastitis-associated pathogens are still required to clarify the underlying mechanisms, therapeutic potential, and spectrum of activity of mEVs.

Accession Number: WOS:001657085300001

Document Type: Article

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Research Areas: Agriculture; Veterinary Sciences; Zoology

Output Date: 2026-01-27

Record 4

Title: Genome-wide association and co-expression uncovered ZmMYB71 controls kernel starch content in maize

Author(s): Han, JN (Han, Jienan); Li, R (Li, Ran); Zhang, Z (Zhang, Ze); Liu, SY (Liu, Shiyuan); Liu, QQ (Liu, Qianqian); Xu, ZN (Xu, Zhennan); Zhou, ZQ (Zhou, Zhiqiang); Lu, X (Lu, Xin); Shangguan, XC (Shangguan, Xiaochuan); Zhou, TF (Zhou, Tingfang); Weng, JF (Weng, Jianfeng); Hao, ZF (Hao, Zhuanfang); Zhang, DG (Zhang, Degui); Yong, HJ (Yong, Hongjun); Xu, JY (Xu, Jingyu); Li, MS (Li, Mingshun); Li, XH (Li, Xinhai)

Source: JOURNAL OF INTEGRATIVE AGRICULTURE **Volume:** 24 **Issue:** 12 **Pages:** 4496-4514 **DOI:** 10.1016/j.jia.2024.03.013 **Early Access Date:** DEC 2025 Published **Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 2

Total Times Cited: 2

Abstract: Starch serves as a critical storage component, significantly influencing the

grain yield and quality of maize (Zea mays L.). Understanding the genetic basis of natural variation in kernel starch content (SC) is essential for maize breeding to meet future demands. A genome-wide association study (GWAS) identified 84 and 96 loci associated with kernel SC across two years, overlapping with 185 candidate genes. The candidate gene ZmMYB71, encoding a MYB-related transcription factor, demonstrated the highest co-expression frequency with starch synthesis genes. Analysis revealed that ZmMYB71 functions as a nuclear located transcription repressor, and mutants exhibited increased kernel SC by over 2.32%, with minimal impact on amylose content or 100-grain weight. Sh1, Sh2, and GBSSI exhibited up-regulation in mutants by 1.56-, 1.45-and 1.32-fold, respectively, aligning with RNA sequencing results; their promoter activities appear directly repressed by ZmMYB71 through the GATATC and TTAGGG motifs. Additionally, the ZmMYB71 elite haplotype Hap1 occurred in over 55% of the high-starch maize sub-populations Iowa Stiff Stalk Synthetic (BSSS) and Partner B (PB), but only in 7.14% of the low-starch sub-population Partner A (PA). Analysis of Hap1 haplotype frequencies across breeding stages revealed a significant increase to 40.28% in inbred groups released after 2010, compared to 28.57 and 27.94% in 1980 and 1990, and 2000, respectively. These findings enhance understanding of natural variation in maize kernel SC and establish ZmMYB71 as a negative regulator with potential applications in SC improvement.

Accession Number: WOS:001621443600001

Document Type: Article

Addresses: [Han, Jienan; Li, Ran; Zhang, Ze; Liu, Shiyuan; Liu, Qianqian; Xu, Zhennan; Zhou, Zhiqiang; Lu, Xin; Shangguan, Xiaochuan; Zhou, Tingfang; Weng, Jianfeng; Hao, Zhuanfang; Zhang, Degui; Yong, Hongjun; Li, Mingshun; Li, Xinhai] Chinese Acad Agr Sci, Inst Crop Sci, State Key Lab Crop Gene Resources & Breeding, Beijing 100081, Peoples R China.
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Research Areas: Agriculture

Output Date: 2026-01-27

Record 5

Title: Effects of Lactiplantibacillus plantarum LP18 on growth performance, immune

function, gut microbiota, serum metabolome, and disease resistance in Luhua chicks

Author(s): Shi, DD (Shi, Dongdong); Pei, YC (Pei, Yucheng); Liu, ZQ (Liu, Ziqi); Chen, C (Chen, Chen); Liu, ZY (Liu, Zhongyuan); Liu, LM (Liu, Liming); Zhao, CQ (Zhao, Cuiqing)

Source: POULTRY SCIENCE **Volume:** 105 **Issue:** 2 **Article Number:** 106302 **DOI:** 10.1016/j.psj.2025.106302 **Early Access Date:** DEC 2025 **Published Date:** 2026 FEB

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: This study investigates the effects of dietary supplementation with Lactiplantibacillus plantarum LP18 on growth performance, immune function, gut microbiota, and serum metabolomics in Luhua chicks, as well as their resistance to Salmonella typhimurium (S. typhimurium) infection. Explore the feasibility of LP18 as an alternative to antibiotic growth promoters. Two hundred one-day-old Luhua chicks were randomly divided into four groups: Control group (Control), S. typhimurium-infection group (Sty), LP18 pretreatment group (LP18), and LP18 pretreatment + S. typhimurium infection group (LP18+Sty). The Control and Sty groups were fed a basal diet. The LP18 and LP18+Sty groups were pretreated with 1 x 109 CFU/g of LP18 for 28 days. Subsequently, the Sty and LP18+Sty groups were subjected to continuous S. typhimurium infection for 3 days and euthanized 4 days postinfection. The results demonstrated that LP18 pretreatment increased the average daily gain while reducing the feed conversion ratio of Luhua chicks ($P < 0.05$). The LP18 pretreatment increased the thymus ($P < 0.05$) and spleen indices ($P < 0.05$), as well as serum concentrations of IgA ($P < 0.05$) and IgG ($P < 0.05$). Microbiota analysis revealed that LP18 pretreatment modulated the diversity and composition of cecal microflora. Serum untargeted metabolomics revealed 16 significantly differential metabolites between the Control and LP18 groups, which were enriched in arachidonic acid metabolism, terpenoid backbone biosynthesis, and the citrate cycle. Significant correlations were observed between these serum differential metabolites and cecal differential phyla. Furthermore, compared to the Sty group, the LP18+Sty group attenuated S. typhimurium infection-induced pathological lesions in the liver and spleen, along with decreased diarrhea rate ($P < 0.001$), as well as reduced S. typhimurium colonization in the liver ($P < 0.001$), heart ($P < 0.001$), spleen ($P < 0.05$), and cecum content ($P < 0.05$). In summary, the study demonstrates that early intervention with LP18 significantly enhances growth performance and immune function in Luhua chicks, improves gut microbiota, modulates serum metabolic profiles, and increases resistance against S. typhimurium infection.

Accession Number: WOS:001651944900001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 6

Title: Research on Variable-Rate Spray Control System Based on Improved ANFIS

Author(s): Bao, DR (Bao, Derui); Liu, CX (Liu, Changxi); Li, YF (Li, Yufei); Shi, H (Shi, Hang); Yan, C (Yan, Chuang); Xue, H (Xue, Hang); Hu, J (Hu, Jun)

Source: AGRICULTURE-BASEL **Volume:** 15 **Issue:** 24 **Article Number:** 2607 **DOI:** 10.3390/agriculture15242607 **Published Date:** 2025 DEC 17

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: To optimize the flow stability and improve application accuracy of the PWM intermittent variable-rate spraying system, which suffers from insufficient flow stability and response delays during changes in travel speed, this study proposes an intelligent control method based on an improved Adaptive Neural Fuzzy Inference System (ANFIS). Flow characteristic data of the solenoid valve were collected under four pressure conditions (0.2-0.5 MPa), drive frequencies (5-20 Hz), and duty cycles (10-90%) using an indoor test system. An ANFIS controller architecture was constructed with target flow rate and actual travel speed as input variables and PWM frequency-duty cycle combinations as output variables. This controller enhances the traditional single-output mode of ANFIS by achieving multi-output collaborative optimization through shared premise parameters, thereby strengthening the system's nonlinear modeling and control capabilities. To validate the system's practical performance, a field simulation test platform based on a spraying robot was constructed. By analyzing preset prescription map information, the system achieved precise variable-rate spraying operations during movement. Test results demonstrate that the steady-state error remains within 5.03% under various speed-varying conditions. This research provides a high-precision intelligent control solution for variable-rate spraying systems, holding significant implications for reducing pesticide application rates and advancing precision agriculture.

Accession Number: WOS:001646036200001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 7

Title: Cladosporium Infection in a Captive Bottlenose Dolphin (Tursiops truncatus): A Rare Case Report from Quanzhou, China

Author(s): Jiang, K (Jiang, Kai); Zhao, PY (Zhao, Pengyu); Cheng, L (Cheng, Lin); Zhao, FY (Zhao, Feiyu); Bi, L (Bi, Lan); Li, B (Li, Bao); He, XJ (He, Xianjing); Guo, DH (Guo, Donghua)

Source: ANIMALS **Volume:** 15 **Issue:** 24 **Article Number:** 3607 **DOI:** 10.3390/ani15243607 **Published Date:** 2025 DEC 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: This case report describes a male bottlenose dolphin (Tursiops truncatus) from a republic aquarium in Quanzhou City, Fujian Province, China, in 2024. The dolphin exhibited prolonged vomiting that did not improve despite extended antibiotic treatment, followed by progressive deterioration in physical condition until death. Antemortem biochemical analyses indicated hepatic dysfunction (ALT: 269.8 IU/L, AST: 1357.5 IU/L, LDH: 2913.3 IU/L) and renal impairment (TBIL: 55.84 mu mol/L, BUN: 31.93 mmol/L, Cr: 200.2 mu mol/L). Necropsy showed atrophy of coronary fat in the heart, hepatomegaly with extensive yellow discoloration, splenomegaly with congestion, diffuse dark-red discoloration of the lungs, renal atrophy, segmental dark-red discoloration of the intestines, and dark-red enlargement of intestinal lymph nodes. Histopathological examination revealed hepatic steatosis with necrosis, extensive pulmonary hemorrhage with foreign bodies in the trachea and alveoli, intestinal necrosis with visible fungus, and congestion and necrosis of intestinal lymph nodes with visible fungus present; the fungus hyphae were periodic acid-Schiff (PAS)-positive. Fungal PCR targeting the fungus internal transcribed spacer (ITS) region identified the intestine fungus as Cladosporium. Infection with Cladosporium is extremely rare, and this report highlights the potential risks of emerging infectious diseases in marine mammals.

Accession Number: WOS:001646010500001

Document Type: Article

Addresses: [Jiang, Kai; Zhao, Pengyu; Zhao, Feiyu; Bi, Lan; Li, Bao; He, Xianjing; Guo, Donghua] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Daqing 163319, Peoples R China.
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Research Areas: Agriculture; Veterinary Sciences; Zoology

Output Date: 2026-01-27

Record 8

Title: EDM-UNet: An Edge-Enhanced and Attention-Guided Model for UAV-Based Weed Segmentation in Soybean Fields

Author(s): Gao, JX (Gao, Jiaxin); Tan, F (Tan, Feng); Li, XH (Li, Xiaohui)

Source: AGRICULTURE-BASEL **Volume:** 15 **Issue:** 24 **Article Number:** 2575 **DOI:** 10.3390/agriculture15242575 **Published Date:** 2025 DEC 12

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Weeds will compete with soybeans for resources such as light, water and nutrients, inhibit the growth of soybeans, and reduce their yield and quality. Aiming at the problems of low efficiency, high environmental risk and insufficient weed identification accuracy in complex farmland scenarios of traditional weed management methods, this study proposes a weed segmentation method for soybean fields based on unmanned aerial vehicle remote sensing. This method enhances the channel feature selection capability by introducing a lightweight ECA module, improves the target boundary recognition by combining Canny edge detection, and designs directional consistency filtering and morphological post-processing to optimize the spatial structure of the segmentation results. The experimental results show that the EDM-UNet method achieves the best performance effect on the self-built dataset, and the MIoU, Recall and Precision on the test set reach 89.45%, 93.53% and 94.78% respectively. In terms of model inference speed, EDM-UNet also performs well, with an FPS of 40.36, which can meet the requirements of real-time detection models. Compared with the baseline network model, the MIoU, Recall and Precision of EDM-UNet increased by 6.71%, 5.67% and 3.03% respectively, and the FPS decreased by 11.25. In addition, performance evaluation experiments were conducted under different degrees of weed interference conditions. The models all showed good detection effects, verifying that the model proposed in this study can accurately segment weeds in soybean fields. This research provides an efficient solution for

weed segmentation in complex farmland environments that takes into account both computational efficiency and segmentation accuracy, and has significant practical value for promoting the development of smart agricultural technology.

Accession Number: WOS:001646009000001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 9

Title: Design and Optimization of a Biomimetic Pineapple Harvester Device Based on the Mechanical Properties of the Stem-Fruit Junction

Author(s): Sun, HT (Sun, Haitian); Zhang, W (Zhang, Wei); Li, HL (Li, Hailiang); Zou, HF (Zou, Huafen); Sun, P (Sun, Peng); Lu, MG (Lu, Meigu); Xue, Z (Xue, Zhong)

Source: AGRICULTURE-BASEL **Volume:** 15 **Issue:** 24 **Article Number:** 2562 **DOI:** 10.3390/agriculture15242562 **Published Date:** 2025 DEC 11

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: In major pineapple-producing regions of China, conventional manual harvesting is challenged by high labor intensity and cost. Existing mechanical harvesters, still largely in the research and development stage, often suffer from low efficiency and high susceptibility to fruit damage, failing to meet large-scale production demands. This study focuses on the Tainung 16 pineapple, determining that the tensile force required to separate the fruit stem at the calyx ranges from 100.42 N to 165.38 N. Drawing on the biomimetic principles of manual stem-breaking, we designed a harvesting device featuring a curved fixed baffle and a rotating unit. Using theoretical analysis and ADAMS simulation, a mechanical model of the device-stem interaction was established to simulate the force application, bending, and separation processes. This led to the identification of optimal operational parameters: a forward speed of 1.5 m/s, a harvesting unit rotational speed of 37 r/min, and a motion trajectory parameter of 1.3. Field tests demonstrated an average harvesting success rate of 81.23% with a fruit damage rate as low as 9.35%. The device thus effectively

addresses the critical industry challenges of low efficiency and high damage. This work provides a direct technical reference and theoretical foundation for the engineering development, refinement, and standardized field operation of pineapple harvesters, facilitating the transition to mechanized large-scale harvesting.

Accession Number: WOS:001646003000001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 10

Title: Profile-scale differences in bacterial community traits of albic-derived soils under diverse land uses

Author(s): Wang, MY (Wang, Mingyu); Pu, WM (Pu, Wenmiao); Luo, RZ (Luo, Rongze); Qian, LL (Qian, Lili); Wu, JH (Wu, Jinhua); Zhang, DD (Zhang, Dongdong); Zhang, JY (Zhang, Junying); Jiao, F (Jiao, Feng); Sui, X (Sui, Xin)

Source: APPLIED SOIL ECOLOGY **Volume:** 217 **Article Number:** 106648 **DOI:** 10.1016/j.apsoil.2025.106648 **Early Access Date:** DEC 2025 **Published Date:** 2026 JAN

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Soil bacterial communities play a central role in biogeochemical cycles, yet their responses to land use change and soil depth in Albic soils remain poorly understood, despite the unique physicochemical characteristics of the soil type in cold

regions. To address this knowledge gap, we investigated bacterial community diversity, composition, and assembly processes across five land-use types: Uncultivated land (CK), Corn-Soybean rotation for 10 years (CS), Corn-Soybean rotation for 20 years (CI), Rice continuous cropping (RC), and Forest land (FL) at two soil depths (0-20 cm and 20-40 cm) using high-throughput Illumina MiSeq sequencing. Land use, depth, and their interaction significantly influenced soil chemical properties and bacterial community patterns. Bacterial alpha-diversity was consistently higher in FL and CK than in RC in the surface layer, with FL maintaining the highest diversity in the subsoil. beta-diversity analysis showed clear separation of bacterial communities among land use types and depths, particularly between RC and the other systems. Dominant genera included Sphingomonas, Bryobacter, and Candidatus_Solibacter, with variations across depths and land uses. Co-occurrence networks revealed higher topological complexity under FL in the surface layer and stronger positive correlations under CS in the subsoil. Community assembly was primarily deterministic in surface soils and stochastic in subsoils. Soil depth and land use exerted both direct and indirect effects on bacterial diversity and stability, as revealed by correlation and structural equation modeling. Overall, this study demonstrates that land-use type and soil depth jointly structure bacterial communities in Albic soils, advancing understanding of microbial ecological processes in this ecologically fragile and underexplored soil system and offering insights for soil health management and sustainable agriculture.

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Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 11

Title: Effects of TLR7/8 Activator on Sperm Quality, Energy Metabolism and the Separation Efficiency of Xand Y-Chromosome-bearing Sperm in Frozen-thawed Bull Semen

Author(s): Li, JC (Li, Jingchun); Song, YL (Song, Yulun); Dong, YY (Dong, Yingying); Guo, Q (Guo, Qing); Wang, HC (Wang, Hechuan); Li, YB (Li, Yanbing)

Source: INDIAN JOURNAL OF ANIMAL RESEARCH **Volume:** 59 **Issue:** 12 **Pages:** 2054-2060 **DOI:** 10.18805/IJAR.BF-1965 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Background: This study investigated the effects of Requimod (R848), a TLR7/8 activator on sperm quality, energy metabolism and the separation efficiency of Xand Y-chromosome-bearing sperm in frozen-thawed bull semen. Methods: Bull semen samples were divided into six groups: A control group and five experimental groups treated with different concentrations of R848 (0.05, 0.5, 1, 2 and 4 mu mol/L). Following incubation at 37 degrees C for 60 min by upstream methods, sperm quality parameters were assessed for upper-and lower-layer sperm. Further evaluations included acrosomal integrity, plasma membrane integrity, mitochondrial activity and ATP content. Result: The results demonstrated that treatment with 0.5 mu mol/L R848 significantly reduced sperm quality parameters in lower-layer X-sperm. This concentration also inhibited mitochondrial activity and ATP content in X-sperm. However, no significant differences in acrosomal or plasma membrane integrity were observed between the control and experimental groups. Additionally, the R848 treatment had no significant effects on sperm quality parameters, acrosomal integrity, or plasma membrane integrity of the upper-layer Y-sperm compared to the control group. Flow cytometric analysis of separated sperm indicated that 76.13% of the sperm in the upper layer were Y-sperm, while 61.78% of the sperm in the lower layer were X-sperm. These findings suggest that 0.5 mu mol/ LR 848 effectively enhances the separation of Xand Y-sperm in frozen-thawed bull semen.

Accession Number: WOS:001651125600012

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 12

Title: Effects of two-stage harvesting soil loosening mechanism rotary tillage blade on Fritillaria ussuriensis Maxim collision damage

Author(s): Song, J (Song, Jiang); Wang, YS (Wang, Yaoshen); Han, YY (Han, Yiyong); Ma, B (Ma, Bo); Bian, JY (Bian, Jingyang); Wang, SB (Wang, Sibo); Tian, S (Tian, Shuai)

Source: INTERNATIONAL JOURNAL OF AGRICULTURAL AND BIOLOGICAL ENGINEERING **Volume:** 18 **Issue:** 6 **Pages:** 83-93 **DOI:** 10.25165/j.ijabe.20251806.8990 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: A two-stage harvester is one method for achieving high-efficiency and low-loss mechanized harvesting of Fritillaria ussuriensis Maxim (FUM), a perennial herb. To address the poor performance of the soil breaking mechanism, the soil breaking performance can be improved by adding a rotary tillage blade set based on the existing soil breaking mechanism; however, it easily causes damage to the FUM. Therefore, in this study, a numerical simulation method was used to obtain the minimum FUM energy loss and minimum damage when the width of the rotary tillage blade cutter edge was 8 mm. A FUM rotary-tillage blade collision damage test bed was built, and the influence of the rotational speed, cutter edge width, and collision direction on the FUM mass loss ratio was analyzed using a random block test. The results of the random block test showed that the influencing factor model of the FUM mass loss ratio was significant. The rotational speed and width had a significant influence on the mass loss ratio, and the collision direction only had a significant influence on the free FUM. The results of the single-factor test showed that the mass loss ratio was proportional to the rotational speed, and that it increased as the rotational speed increased. The order of influence of the collision direction on the mass loss ratio was Y>X>Z. The variation in the mass loss ratio and cutter edge width indicated that the mass loss ratio of the 8 mm-wide cutter edge was the smallest. The minimum damage caused by the 8 mm-wide cutter edge was also determined. The results of this study can provide a theoretical reference for the appropriate rotational speed of the low-loss soil-loosening mechanism in FUM topsoil stripping machines and the structural design of the rotary tillage blade.

Accession Number: WOS:001657106300001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 13

Title: Bionic grinding machine design for thin shell removal from cassia seeds

Author(s): Yuan, XY (Yuan, Xinyu); Huang, CJ (Huang, Caojun); Gao, XW (Gao, Xuewen); Tong, SY (Tong, Shangyu); Li, YF (Li, Yifei); Yi, SJ (Yi, Shujuan)

Source: INTERNATIONAL JOURNAL OF AGRICULTURAL AND BIOLOGICAL ENGINEERING **Volume:** 18 **Issue:** 6 **Pages:** 269-280 **DOI:** 10.25165/j.ijabe.20251806.9532 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: In order to address the challenge of low efficiency in removing the thin shells from cassia seeds, a bionic grinding machine was developed for the removal of thin shells from cassia seeds during pharmaceutical processing, inspired by the hand-rubbing motion observed in traditional manual methods. The machine features a grinding-suction disk assembly integrated with a negative-pressure feeding system. Flow rate calculations were performed to support the design, although specific parameters require further elaboration. A single-chip microcontroller (SCM)-based control system enables real-time parameter adjustment via a human-machine interface, ensuring precise control throughout the grinding process. After prototype fabrication, single-factor experiments established parameter ranges for orthogonal testing. The optimal parameter combination was identified as a grinding layer gap of 2.4 mm, a rotational frequency of 170 r/min, and a grinding duration of 12 s, resulting in a grinding degree of 9.07% and a shell removal cleanliness of 4.51%. Image-based surface feature analysis confirmed the machine's effectiveness in removing thin shells, supporting its applicability in pharmaceutical seed processing. This study introduces a novel and efficient mechanized approach for cassia seed thin shell removal, which enhances the efficiency of thin shell removal and provides meaningful support for the advancement of pharmaceutical seed processing technologies.

Accession Number: WOS:001656886400001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 14

Title: The Impact of Digital Inclusive Finance on the Resilience of Green Grain Production: The Case of 30 Chinese Provinces, 2011-2023

Author(s): Hou, C (Hou, Chang); Chen, H (Chen, Hong); Zhou, C (Zhou, Chao)

Source: AGRICULTURE-BASEL **Volume:** 15 **Issue:** 23 **Article Number:** 2460 **DOI:** 10.3390/agriculture15232460 **Published Date:** 2025 NOV 27

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: This study selected 30 provinces in China from 2011 to 2023 as research samples; constructed an evaluation index system of green grain production resilience; and empirically tested the direct impact of digital inclusive finance on green grain production resilience, the transmission effect, with farmers' risk taking and agricultural socialized services as mediating variables, and the moderating effect, with traditional financial competition as a moderating variable. The results show that digital inclusive finance can significantly enhance green grain production resilience; this effect is more evident in major grain-producing areas and eastern regions. Farmers' risk taking and agricultural socialized services have a positive mediating effect on the influence of digital inclusive finance on green grain production resilience. Traditional financial competition exerts a negative moderating effect on the relationship between digital inclusive finance and green grain production resilience.

Accession Number: WOS:001633893200001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 15

Title: Design and Experiment of a Variable-Rate Spraying System Based on RBFNN-SMC Control

Author(s): Zhao, C (Zhao, Chen); Zhang, W (Zhang, Wei); Li, JY (Li, Jinyang); Yu, CT (Yu, Chuntao); Qi, LQ (Qi, Liqiang); Zhang, B (Zhang, Bo)

Source: AGRICULTURE-BASEL **Volume:** 15 **Issue:** 23 **Article Number:** 2444 **DOI:** 10.3390/agriculture15232444 **Published Date:** 2025 NOV 26

Times Cited in Web of Science Core Collection: 1

Total Times Cited: 1

Abstract: To address the issue of improving the accuracy and efficiency of variable-rate application under large-scale field conditions, an RBFNN-SMC variable-rate application control system was designed and experimentally verified. A first-order inertial pure lag model of the spray flow rate was identified through step tests. Based on this, three controllers, namely traditional SMC, fuzzy SMC, and RBFNN-SMC, were designed for comparison. The simulation results indicated that RBFNN-SMC had the shortest adjustment time and the smallest steady-state error under conditions of model uncertainty and time delay. Its maximum overshoot was reduced by 11.2% compared to traditional SMC, and the steady-state error was controlled within +/- 0.51%. The control strategy was implemented on a microcontroller and integrated with a prescription-based spray system. Field trials showed that the average absolute error of the proposed system in tracking the target flow rate was 3.2%, and it achieved a weed control effect comparable to that of traditional uniform spraying. These results suggest that the RBFNN-SMC-based variable spray rate system can enhance flow rate control performance and support more precise and potentially more sustainable herbicide application, providing a reference and ideas for the research on variable-rate application flow rate control based on prescription maps.

Accession Number: WOS:001633909200001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 16

Title: Soybean Seedling-Stage Weed Detection and Distribution Mapping Based on Low-Altitude UAV Remote Sensing and an Improved YOLOv11n Model

Author(s): Yue, YH (Yue, Yaohua); Zhao, AB (Zhao, Anbang)

Source: AGRONOMY-BASEL **Volume:** 15 **Issue:** 12 **Article Number:** 2693 **DOI:** 10.3390/agronomy15122693 **Published Date:** 2025 NOV 22

Times Cited in Web of Science Core Collection: 2

Total Times Cited: 2

Abstract: Seedling-stage weeds are one of the key factors affecting the crop growth and yield formation of soybean. Accurate detection and density mapping of these weeds are crucial for achieving precise weed management in agricultural fields. To overcome the limitations of traditional large-scale uniform herbicide application, this study proposes an improved YOLOv11n-based method for weed detection and spatial distribution mapping by integrating low-altitude UAV imagery with field elevation data. The second convolution in the C3K2 module was replaced with Wavelet Convolution (WTConv) to reduce complexity. A SENetv2-based C2PSA module was introduced to enhance feature representation and context fusion with minimal parameter increase. Soft-NMS-SIoU replaced traditional NMS, improving detection accuracy and robustness for dense overlaps. The improved YOLOv11n algorithm achieved a 3.4% increase in mAP@50% on the test set, outperforming the original YOLOv11n in FPS, while FLOPs and parameter count increased by only 1.2% and 0.2%, respectively. More importantly, the model reliably detected small grass weeds with morphology highly similar to soybean seedlings, which were undetectable by the original model, thus meeting agricultural production monitoring requirements. In addition, the pixel-level weed detection results from the model were converted into coordinates and interpolated using Kriging in ArcGIS (10.8.1) Pro to generate continuous weed density maps, resulting in high-resolution spatial distribution maps directly applicable to variable-rate spraying equipment. The proposed approach greatly improves both the precision and operational efficiency of weed detection and management across large agricultural fields, providing scientific support for intelligent variable-rate spraying using plant protection UAVs and ground-based sprayers, thereby promoting sustainable agriculture.

Accession Number: WOS:001646109300001

Document Type: Article

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Research Areas: Agriculture; Plant Sciences

Output Date: 2026-01-27

Record 17

Title: EDC-YOLO-World-DB: A Model for Dairy Cow ROI Detection and Temperature Extraction Under Complex Conditions

Author(s): Song, H (Song, Hang); Kang, ZW (Kang, Zhongwei); Xue, H (Xue, Hang); Hu, J (Hu, Jun); Norton, T (Norton, Tomas)

Source: ANIMALS **Volume:** 15 **Issue:** 23 **Article Number:** 3361 **DOI:** 10.3390/ani15233361 **Published Date:** 2025 NOV 21

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Body temperature serves as a crucial indicator of dairy cow health. Traditional rectal temperature (RT) measurement often induces stress responses in animals. Body temperature detection based on infrared thermography (IRT) offers non-invasive and timely advantages, contributing to welfare-oriented farming practices. However, automated detection and temperature extraction from critical cow regions are susceptible to complex illumination, black-and-white fur texture interference, and region of interest (ROI) deformation, resulting in low detection accuracy and poor robustness. To address this, this paper proposes the EDC-YOLO-World-DB framework to enhance detection and temperature extraction performance under complex illumination conditions. First, URetinex-Net and CLAHE methods are employed to enhance low light and overexposed images, respectively, improving structural information and boundary contour clarity. Subsequently, spatial relationship constraints between LU and AA are established using five-class text priors-lower udder (LU), around the anus (AA), rear udder, hind legs, and hind quarters-to strengthen the spatial localisation capability of the model for ROIs. Subsequently, a Dual Bidirectional Feature Pyramid Network architecture incorporating EfficientDynamicConv was introduced at the neck of the model to achieve dynamic weight allocation across modalities, levels, and scales. Task Alignment Metric, Gaussian soft-constrained centroid sampling, and combined IoU (CIoU + GIoU) loss were introduced to enhance sample matching quality and

regression stability. Results demonstrate detection confidence improvements by 0.08 and 0.02 in low light and overexposed conditions, respectively; compared to two-text input, five-text input increases P, R, and mAP50 by 3.61%, 3.81%, and 1.67%, respectively; Comprehensive improvements yielded P = 88.65%, R = 85.77%, and mAP50 = 89.33%-further surpassing the baseline by 2.79%, 3.01%, and 1.92%, respectively. Temperature extraction experiments demonstrated significantly reduced errors for TMax, TMin, and Tavg. Specifically, for the mean error of LU, TMax, TMin, and Tavg were reduced by 66.6%, 33.5%, and 4.27%, respectively; for AA, TMax, TMin, and Tavg were reduced by 66.6%, 25.4%, and 11.3%, respectively. This study achieves robust detection of LU and AA alongside precise temperature extraction under complex lighting and deformation conditions, providing a viable solution for non-contact, low-interference dairy cow health monitoring.

Accession Number: WOS:001633925000001

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Research Areas: Agriculture; Veterinary Sciences; Zoology

Output Date: 2026-01-27

Record 18

Title: Effects of Polygonum plants on fermentation quality, antibacterial capacity of wet-Stored corn, and chicks' resistance to Salmonella infection

Author(s): Zhang, Y (Zhang, Yu); Zhao, JX (Zhao, Junxiang); Feng, YY (Feng, Yinyuan); Li, JC (Li, Jingchun); Cao, Y (Cao, Yang); Zhao, FF (Zhao, Fangfang); Li, MY (Li, Muyang); Zhao, L (Zhao, Lei); Miao, YY (Miao, Yangyang); Li, YB (Li, Yanbing)

Source: POULTRY SCIENCE **Volume:** 105 **Issue:** 1 **Article Number:** 106116 **DOI:** 10.1016/j.psj.2025.106116 **Early Access Date:** NOV 2025 **Published Date:** 2026 JAN

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Total Times Cited: 0

Abstract: This experiment aims to investigate the effects of adding Persicaria maculosa (P. maculosa) and Polygonum hydropiper (P. hydropiper) on the fermentation quality and antibacterial activity of wet-stored corn, as well as on the immune performance of chicks challenged with Salmonella. Experiment 1: Analyze effective metabolites using metabolomics. Experiment 2: The fermentation test included five treatments: control, 5 % and 10 % P. maculosa and 5 % and 10 % P. hydropiper, with regular detection of fermented products. Experiment 3: Dry cornmeal and the five treatments from Experiment 2 were inoculated with Salmonella after 30 days of fermentation, stored for varying periods, and the number of Salmonella was detected. Experiment 4: A total of 150 eight-day-old chicks were randomly divided into six groups, each receiving a different dietary treatment. The chicks were challenged with Salmonella at 19 days of age, and blood samples were collected 48 hours post-challenge to determine relevant indicators. Results: Flavonoids were identified as the most abundant metabolites in these two plants with all common metabolites exhibiting antibacterial effects. The addition of these plants could inhibit dry matter loss. Compared to the control group, the experimental groups showed lower contents of yeast and coliform bacteria but higher levels of lactic and acetic acid ($P < 0.05$). The anti-Salmonella capacity of the experimental groups was significantly enhanced ($P < 0.05$). The serum levels of IL-1 beta, IL-6, and TNF-alpha in the chicks from the 10 % P. maculosa challenged group were lower than those in the unfermented challenged group ($P < 0.05$). Furthermore, the serum levels of IgG, IgA, and IgM in the 10 % P. maculosa challenged group and the fermented challenged group were higher than those in the unfermented challenged group ($P < 0.05$). Conclusion: Polygonum plants can improve the fermentation quality and antibacterial capacity of wet-stored corn, as well as enhance chicks' resistance to Salmonella infection. This study establishes a foundation for the application of Polygonum plants and offers a novel direction for developing drugs against poultry diseases like diarrhea.

Accession Number: WOS:001627027200001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 19

Title: The Effects of Anthocyanins Added to Semen Diluent on Semen Quality, Semen Antioxidant Capacity, and Sperm Apoptosis in Zi Geese

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Source: ANIMALS **Volume:** 15 **Issue:** 22 **Article Number:** 3281 **DOI:** 10.3390/ani15223281 **Published Date:** 2025 NOV 13

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Simple Summary The protective effect and mechanism of anthocyanins on goose semen are not clear. This study aimed to explore the effects of anthocyanins on semen quality, semen anti-oxidant capacity, and sperm apoptosis of Zi geese. The addition of 30 mg/L of anthocyanins to the semen diluent improved semen quality and antioxidant capacity while reducing sperm apoptosis in Zi geese. These findings provide references for the large-scale breeding and industrial utilization of Zi geese. The Zi goose is an excellent local goose breed in China, characterized by strong tolerance to roughage, high cold resistance, and high egg production. Anthocyanins are natural water-soluble pigments with numerous biological functions such as growth promotion, antioxidant activity, and immune regulation. However, there are few reports on whether anthocyanins have an improving effect on Zi goose semen. This study aimed to explore the effects of anthocyanins on semen quality, semen antioxidant capacity, and sperm apoptosis of Zi geese, so as to provide references for the large-scale breeding and industrial utilization of Zi geese. Sixty 12-month-old Zi geese were selected for the experiment, and their semen was collected by the massage method. Semen diluent containing different concentrations of anthocyanins was added to the mixed semen, which was then stored at 37 degrees C for detections. The results showed that the sperm survival rate of Zi geese was the highest when 30 mg/L of anthocyanins was added to the diluent. Compared with the control group, the anthocyanin group showed significantly higher sperm survival rate, sperm motility, plasma membrane integrity rate, acrosome integrity rate, mitochondrial activity, and DNA integrity ($p < 0.05$), while the sperm mortality rate was significantly decreased ($p < 0.05$). There were no significant differences in semen pH value, sperm density, and sperm abnormality rate ($p > 0.05$). The contents of superoxide dismutase and glutathione peroxidase were significantly increased ($p < 0.05$), while the levels of reactive oxygen species and malondialdehyde were significantly decreased ($p < 0.05$) in the anthocyanin group. Anthocyanins significantly increased the mRNA and protein expression of Bcl-2 ($p < 0.05$), and

significantly decreased the mRNA and protein expression of Bax, Caspase-3, and P53 ($p < 0.05$). In conclusion, adding 30 mg/L anthocyanins to semen diluent can improve semen quality in Zi geese.

Accession Number: WOS:001625480700001

Document Type: Article

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Research Areas: Agriculture; Veterinary Sciences; Zoology

Output Date: 2026-01-27

Record 20

Title: Numerical Simulation and Orthogonal Test of Droplet Impact on Soybean Leaves Based on VOF Method and High-Speed Camera Technology

Author(s): Wu, SS (Wu, Shuangshuang); Liu, CX (Liu, Changxi); Sun, H (Sun, Hao); Hu, J (Hu, Jun); Li, YF (Li, Yufei); Guo, W (Guo, Wei)

Source: AGRONOMY-BASEL **Volume:** 15 **Issue:** 11 **Article Number:** 2578 **DOI:** 10.3390/agronomy15112578 **Published Date:** 2025 NOV 9

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: The multi-factor coupling mechanism of droplet impact dynamics remains unclear due to insufficient analysis of leaf structure-droplet interaction and inadequate integration of simulations and experiments, limiting precision pesticide application. To address this, we developed a droplet impact model using the Volume of Fluid (VOF) method combined with high-speed camera experiments and systematically analyzed the effects of impact velocity, angle, and droplet size on slip behavior via response surface methodology. Methodologically, we innovatively integrated 3D reverse modeling technology to reconstruct soybean leaf microstructures, overcoming the limitations of

traditional planar models that ignore topological features. This approach, coupled with the VOF method, enabled precise tracking of droplet spreading, retraction, and slip processes. Scientifically, our study advances beyond previous single-factor analyses by revealing the synergistic mechanisms of impact parameters through response surface methodology, identifying impact angle as the most critical factor (42.3% contribution), followed by velocity (28.7%) and droplet size (19.5%). Model validation demonstrated high consistency between simulation predictions and experimental observations, confirming its reliability. Practically, the optimized parameter combination (90 degrees impact angle, 1.5 m/s velocity, and 300 mu m droplet size) reduced slip displacement by over 50% compared to non-optimized conditions, providing a quantitative tool for spray parameter control. This work enhances the understanding of droplet-leaf interaction mechanisms and offers technical guidance for improving pesticide deposition efficiency in agricultural production.

Accession Number: WOS:001623403700001

Document Type: Article

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Research Areas: Agriculture; Plant Sciences

Output Date: 2026-01-27

Record 21

Title: Research on a Prediction Model for Northern Cold Climate Millet Yield per Unit Area Based on IWOA-BP

Author(s): Zhang, DM (Zhang, Dongming); Chen, YF (Chen, Yifu); Ma, PY (Ma, Pengyao); Wang, S (Wang, Song); Yi, SJ (Yi, Shujuan); Huang, ZY (Huang, Ziyang); Zhao, B (Zhao, Bin)

Source: AGRONOMY-BASEL **Volume:** 15 **Issue:** 11 **Article Number:** 2557 **DOI:** 10.3390/agronomy15112557 **Published Date:** 2025 NOV 4

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Total Times Cited: 0

Abstract: Millet yield per unit area in northern China's drylands is constrained by climate, soil, and management factors, complicating forecasts under limited, nonlinear, heterogeneous data. In order to enhance the accuracy and stability of operational

forecasting, this study utilised observational data from five locations in southwestern Heilongjiang Province spanning 2014 to 2023. Eight ground-based hydrothermal and meteorological factors were used as inputs to build an improved BP neural network optimised by IWOA, with enhancements to both algorithm and workflow. Adaptive inertia weight and EOBL were introduced to balance global exploration and local exploitation, enabling better hyperparameter solutions. Results show that IWOA-BP significantly outperforms baseline BP and WOA-BP on an annual scale. The RMSE was 2.74, the R2 was 0.94, the MAPE was 5.9, and the RPD was 4.16. The implementation of additional seasonal rolling forecasts for the 2024 validation period entailed the construction of cumulative information flows from January to August. Cross-regional validation in Fangzheng County produced error magnitudes consistent with the primary study area, thereby demonstrating the model's reliable generalization ability across both temporal and spatial dimensions.

Accession Number: WOS:001623484000001

Document Type: Article

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Research Areas: Agriculture; Plant Sciences

Output Date: 2026-01-27

Record 22

Title: Effects of Intercropping Long- and Short-Season Varieties on the Photosynthetic Characteristics and Yield Formation of Maize in High-Latitude Cold Regions

Author(s): Xiao, SS (Xiao, Shanshan); Ming, LW (Ming, Liwei); Zhang, YF (Zhang, Yifei); Wang, ZY (Wang, Zhongye); Li, FM (Li, Fengming); Wang, TH (Wang, Tonghao); Zhang, CY (Zhang, Chunyu); Yang, KJ (Yang, Kejun); Yu, S (Yu, Song); Li, MK (Li, Mukai); Yu, SQ (Yu, Shiqiang); Hou, JJ (Hou, Junjun); An, JY (An, Jinyu); Guo, MJ (Guo, Mingjia); Tian, XJ (Tian, Xinjie); Liu, JH (Liu, Junhao)

Source: AGRONOMY-BASEL **Volume:** 15 **Issue:** 11 **Article Number:** 2505 **DOI:** 10.3390/agronomy15112505 **Published Date:** 2025 OCT 28

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Total Times Cited: 0

Abstract: The high-latitude cold regions of northeastern China present scarce thermal

resources, exhibit a short frost-free period, and lack high-yielding maize (Zea mays L.) varieties suitable for dense planting. These factors have long constrained the realization of maize yield potential under dense planting conditions. This study investigated the effects of intercropping maize varieties with different growth periods on the photosynthetic performance, yield formation, and interspecific competition. The long-season varieties Zhengdan958 (ZD958) and Xianyu335 (XY335), which are representative of the region, were intercropped with the shorter-season variety Yinongyu10 (YNY10), six intercropping row ratios (6:6, 4:4, 2:2, 1:1, 0:1, and 1:0) were set, and monoculture plots (0:1 and 1:0) were used as the controls. The results indicated that as the row ratio decreased in the intercropped plots, the leaf area index, relative leaf chlorophyll content, photosynthetic rate, stomatal conductance, and transpiration rate increased while the intercellular CO2 concentration gradually decreased compared with those in the monoculture plots. Simultaneously, dry matter accumulation, allocation, transport efficiency, 100-kernel weight, number of kernels per ear, and grain yield progressively increased, reaching maximum values at a 1:1 intercropping row ratio. Conversely, YNY10 in the intercropped plots exhibited opposite trends in these parameters. The land equivalent ratios for all intercropped row ratios exceeded 1. During the 2023-2024 growing season, the composite population grain yield was significantly higher ($p < 0.05$) at an intercropping row ratio of 1:1 for ZD958 (4.11-4.26%) and XY335 (3.54-3.65%) compared with the monoculture treatments, demonstrating the strong yield advantage of intercropping. Furthermore, in the intercropping systems, ZD958 and XY335 exhibited positive aggressivity and a competitive ratio greater than 1, thus showing stronger competitive ability than YNY10. Moreover, the increased grain yield of ZD958 and XY335 effectively compensated for the ecological disadvantages of YNY10, thereby leveraging the synergistic effects of close planting and intercropping patterns to promote improvements in maize composite population productivity.

Accession Number: WOS:001625496400001

Document Type: Article

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Research Areas: Agriculture; Plant Sciences

Output Date: 2026-01-27

Record 23

Title: RESEARCH STATUS AND TREND OF GRAIN LOSS MONITORING SENSOR

Author(s): Dong, JX (Dong, Jiaxin); Zhao, SX (Zhao, Shengxue); Zhang, AQ (Zhang, Anqi); Meng, ZJ (Meng, Zhijun); Feng, W (Feng, Wang); Qin, WC (Qin, Wuchang); Li, MY (Li, Mingyang)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Pages:** 240-252 **DOI:** 10.35633/inmateh-77-19 **Published Date:** 2025 SEP-DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: To ensure food security and reduce harvest losses, improving the monitoring accuracy of grain combine harvester operation loss is of great importance. This paper systematically analyzes the technical progress of piezoelectric sensing applications in this field. In terms of materials, piezoelectric thin films (PVDF) exhibit faster response speeds (signal attenuation shortened by 30%), but are prone to short circuits in high-humidity environments. Piezoelectric ceramics (PZT), when combined with a double-layer vibration isolation structure, can effectively reduce vibration interference errors to below 5%, providing better stability. Regarding sensor structure, the array layout enhances multi-target recognition, while the innovative double-layer cross structure enables analytical positioning of the spatial distribution of grain collisions, offering a new approach for accurately calculating loss rates. In signal processing algorithms, support vector machines (SVM) and decision trees perform well with small sample sizes; however, combining them with discrete element simulation (EDEM) is necessary to optimize feature extraction. Among these methods, the WOA-BP algorithm can control monitoring error within 6.23% through adaptive parameter adjustment. Nevertheless, current technologies still face challenges such as insufficient adaptability to varying material environments and limited algorithm generalization under complex working conditions. In the future, multidisciplinary collaborative innovation is required to develop hybrid algorithm models that integrate weather-resistant composite materials, intelligent adaptive sensor structures, and physical mechanisms, thereby establishing a high-precision, low-cost monitoring system and providing theoretical support for the research and development of grain loss detection equipment.

Accession Number: WOS:001619276200014

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 24

Title: DETECTING EMERGENCE UNIFORMITY OF SOYBEAN SEEDLINGS ACROSS DIFFERENT CULTIVATION PATTERNS

Author(s): Jiao, YX (Jiao, Yanxu); Qiu, JK (Qiu, Jinkai); Liu, YT (Liu, Yiting); Zhu, LF (Zhu, Lingfeng); Bi, H (Bi, Hao); Xu, XY (Xu, Xiuying)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Pages:** 1 280-1290 **DOI:** 10.35633/inmateh-77-103 **Published Date:** 2025 SEP-DEC

Times Cited in Web of Science Core Collection: 0

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Abstract: Soybean emergence uniformity is critical for yield formation, and the early acquisition of this information provides valuable guidance for field management. However, regional variations in cultivation patterns restrict most existing detection models to a single pattern, thereby limiting their practical applicability. To overcome this limitation, this study developed a universal detection system for assessing soybean emergence uniformity across diverse cultivation patterns. The system employs unmanned aerial vehicles (UAVs) to acquire field images, after which the YOLOv12 model is used to detect seedlings and extract their center coordinates. A two-stage clustering algorithm (Elliptical DBSCAN + K-means) is applied to classify seedlings into rows, and plant spacing is calculated by integrating Euclidean distance with ground sampling distance (GSD). Emergence uniformity is subsequently evaluated using the ISO-standard Multiple and Miss Indices. Field validation across ridge-based double-row, triple-row, and quadruple-row cultivation patterns yielded coefficients of determination (R2) of 0.9919, 0.9887, and 0.9924, respectively, with no significant differences compared to manual measurements (all $p > 0.05$). The system achieved plant-spacing detection accuracies of 96-97% during the low-occlusion VE (Vegetative Emergence) and VC (Vegetative Cotyledon) stages; however, accuracy for the quadruple-row pattern decreased to 79% at the V1 (Vegetative 1) stage due to severe leaf occlusion. This study presents the first detection framework applicable across multiple soybean cultivation patterns, providing a high-accuracy and reliable tool to support informed field management decisions.

Accession Number: WOS:001651910800020

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 25

Title: PROGRESS ANALYSIS OF WEED IDENTIFICATION AND VARIABLE RATE HERBICIDE SPRAYING IN FARMLAND BASED ON BIBLIOMETRICS

Author(s): Li, JY (Li, Jin-yang); Yu, CT (Yu, Chun-tao); Zhang, B (Zhang, Bo); Qi, LQ (Qi, Li-qiang); Wang, CL (Wang, Cheng-long); Zhao, C (Zhao, Chen)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Page s:** 1260-1279 **DOI:** 10.35633/inmateh-77-102 **Published Date:** 2025 SEP-DEC

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Abstract: The identification of farmland weeds and variable rate herbicide spraying technology are core components of precision agriculture, playing a significant role in enhancing agricultural productivity, reducing pesticide usage, and protecting the ecological environment. Currently, global agriculture faces dual challenges of increasing resource constraints and rising environmental protection demands. This technology, by precisely locating weed distribution and adjusting pesticide application rates accordingly, has become a key approach to breaking the vicious cycle of "pesticide overuse-weed resistance-ecological pollution." Based on bibliometric methods and using the Web of Science database as the data source, this study retrieved literature related to farmland weed identification and variable rate herbicide spraying from 2005 to 2024. VOSviewer software was employed for visual analysis, systematically examining the temporal evolution characteristics, regional collaboration networks, institutional contributions, and keyword clustering patterns in this field. The results indicate that research in this area entered a rapid development phase after 2018, driven significantly by artificial intelligence technology. Research hotspots focus on image recognition algorithms, multi-source data fusion, variable rate herbicide spraying system design, and field application validation. Current studies face challenges in adaptability to complex environments and multi-scale data coordination. Future efforts should strengthen lightweight recognition model optimization, space-air-ground integrated data fusion, cost-effective smart equipment development, and interdisciplinary collaboration to provide technical support for the sustainable development of precision agriculture.

Accession Number: WOS:001651910800019

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 26

Title: RESEARCH ON CORN SEEDLING DETECTION AND COUNTING ALGORITHM BASED ON MEI-YOLOv11

Author(s): Liu, YT (Liu, Yiting); Xu, XY (Xu, Xiuying); Qiu, JK (Qiu, Jinkai); Ma, K (Ma, Kai); Jiao, YX (Jiao, Yanxu); Kang, Y (Kang, Ye)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Page s:** 443-453 **DOI:** 10.35633/inmateh-77-36 **Published Date:** 2025 SEP-DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Accurately counting the number of corn seedlings is the key to evaluating the growth status of corn. To address the problem of difficult detection and counting of corn seedlings in complex field environments, this study proposes an improved MEI-YOLOv11 model. By introducing MANet, EUCB module, and Inner-SIOU loss function, the ability to extract features and recognize small targets in complex environments is enhanced. The results showed that the mAP0.5, P, and R of the model reached 97.0%, 94.2%, and 95.7%, respectively, which were 2.8, 2.7, and 2.4 percentage points higher than YOLOv11, respectively. The parameter count and inference time only increased by 1.28 M and 0.4 ms, respectively, and the detection accuracy was better than other detection models. The accuracy of multi weather counting is above 90%, with the highest accuracy of 91.23% on sunny days (RMSE=4.5044, R-2=0.8508). This method can effectively identify corn seedlings in complex backgrounds, providing technical support for accurate detection and counting of corn seedlings in multiple weather conditions.

Accession Number: WOS:001619276200025

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 27

Title: EXPERIMENTAL STUDY ON THE DAMPING RATIO OF A FLAT-ELLIPTICAL PIPE GREENHOUSE FRAME STRUCTURE

Author(s): Wei, CX (Wei, Cunxing); Xie, HY (Xie, Hengyan); Zheng, X (Zheng, Xin); Xu, WB (Xu, Wenbao)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Page s:** 462-473 **DOI:** 10.35633/inmateh-77-38 **Published Date:** 2025 SEP-DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Plastic greenhouses, due to their lightweight structural characteristics, often exhibit limited resistance to strong winds. To improve their wind-resistant performance, this study applied a combined approach using finite element modeling and excitation testing. Dynamic response data of the greenhouse frame were collected through excitation experiments, and frequency-amplitude characteristics were obtained using fast Fourier transform (FFT). Modal analysis of the finite element model was then performed to verify the experimental results, and the structural damping ratio was subsequently calculated. The results show that the acceleration amplitudes at the excitation point in the x-and z-directions were 1.66 and 1.25 times higher than those measured at adjacent frame sections, respectively. The natural frequency of the greenhouse frame was determined to be 3.15 Hz, and the corresponding damping ratio was 0.018. These findings provide insight into the dynamic behavior of flat-elliptical pipe greenhouse structures and offer a methodological reference for future structural optimization and the development of relevant engineering design standards.

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Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 28

Title: STRESS ANALYSIS OF GREENHOUSE FILM CONSIDERING THE CONTACT BETWEEN THE FILM-TENSIONING STRAP, FILM, AND FRAME

Author(s): Wei, CX (Wei, Cunxing); Xie, HY (Xie, Hengyan); Zheng, X (Zheng, Xin); Xu, WB (Xu, Wenbao)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Page s:** 1200-1209 **DOI:** 10.35633/inmateh-77-97 **Published Date:** 2025 SEP-DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Frequent greenhouse collapses under strong wind conditions highlight the limitations of existing structural design methods. Although most previous studies have focused on the stability and load-bearing capacity of greenhouse frames, the dynamic interaction among the greenhouse film, tensioning straps, and structural frame remains insufficiently investigated. This study proposes a novel flat-elliptical pipe plastic greenhouse and derives its mechanical equilibrium equations to analyze the stress behavior of the greenhouse film under wind loading. Using ABAQUS finite element software, an advanced contact model was developed to examine the wind-induced response of the greenhouse system. The results indicate that the structural frame plays a critical role in governing film deformation. In particular, the contact pressure and shear stress between the frame and the film are significantly higher than those between the film and the tensioning straps, underscoring the necessity of explicitly considering contact effects in greenhouse structural design.

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Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 29

Title: WIND RESISTANCE PERFORMANCE ANALYSIS OF A FLAT-ELLIPTICAL PIPE GREENHOUSE FRAME

Author(s): Wei, CX (Wei, Cunxing); Xie, HY (Xie, Hengyan); Zheng, X (Zheng, Xin); Xu, WB (Xu, Wenbao)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Page s:** 1249-1259 **DOI:** 10.35633/inmateh-77-101 **Published Date:** 2025 SEP-DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: This study investigates the wind resistance performance of a novel flat-elliptical pipe greenhouse by developing a finite element model of the greenhouse frame using ABAQUS software. Based on the Davenport fluctuating wind speed spectrum and the Shiotani correlation coefficient, a MATLAB program was developed using an autoregressive (AR) model within a linear filtering method to simulate fluctuating wind speed time-history curves. Both static and full dynamic wind loads were applied to the model to evaluate the wind resistance performance of greenhouse frames with 5 arches and 50 arches. The results indicate that under static wind loading, the stresses in the frames did not exceed the elastic limit, and the deformations remained within the allowable range. However, under full dynamic wind loading, the stresses in the frames exceeded the elastic limit and entered the plastic stage. Although the lateral displacement in the plastic stage remained within permissible limits, the overall structure failed to meet the safety requirements of the greenhouse.

Accession Number: WOS:001651910800018

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 30

Title: IMPROVED YOLO11-BASED ALGORITHM FOR SOYBEAN SEEDLING RECOGNITION IN MECHANICAL WEEDING ROBOTS

Author(s): Zang, S (Zang, Shuai); Wan, L (Wan, Lin); Che, G (Che, Gang); Zhao, NC (Zhao, Nai-chen); Wu, CS (Wu, Chun-sheng); Wang, JY (Wang, Jia-yu)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Pages:** 1022-1033 **DOI:** 10.35633/inmateh-77-84 **Published Date:** 2025 SEP-DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Addressing issues such as high soybean seedling detection omission rates and inaccurate target recognition during mechanical weeding operations in soybean fields, which lead to low weeding efficiency, this paper proposes a lightweight convolutional model based on an improved YOLO11 model. Deployed on an intelligent mechanical soybean weeding robot, it utilizes precisely identified soybean seedling coordinates to perform mechanical weeding operations, thereby enhancing weeding efficiency. Building upon the original YOLO11 architecture, this model replaces standard convolutional blocks with Deep Separable Convolution (DWconv) modules. It performs channel pruning on the C3K2 lightweight convolutional module and employs Point-Shuffle operations for channel mixing to enhance feature map information flow, thereby improving edge feature recognition for small targets. The introduction of an Efficient Channel Attention (ECA) mechanism increases channel selectivity for large target features, enhancing sensitivity to critical semantic information. The original loss function is optimized by incorporating an improved bounding box loss function (SIOU), accelerating model convergence and strengthening generalization capabilities. The improved YOLO11 model achieved a 2.0 percentage point increase in mAP50% on the self-built soybean dataset compared to the original YOLO11, reaching 94%. Model parameters and floating-point operations were reduced from 2.59MB and 6.4x106 to 1.97MB and 5.0x106 respectively, representing decreases of 23.9% and 21.9%. This achieves synergistic optimization of model lightweighting and computational efficiency while maintaining detection accuracy.

Accession Number: WOS:001661184700001

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 31

Title: RESEARCH ON THE MECHANISM AND PARAMETER OPTIMIZATION OF STRATIFIED SCREENING OF MILLET THRESHING MIXTURE BASED ON BRAZIL NUT EFFECT

Author(s): Zhang, DM (Zhang, Dong-ming); Chen, YF (Chen, Yi-fu); Yi, SJ (Yi, Shu-juan); Wang, S (Wang, Song); Huang, ZY (Huang, Zi-yang)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Page s:** 301-315 **DOI:** 10.35633/inmateh-77-24 **Published Date:** 2025 SEP-DEC

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Total Times Cited: 0

Abstract: To address the challenges of millet threshing mixtures, namely their light mass, small volume, minimal differences in component suspension speeds, and susceptibility to interference from impurities during sorting, which lead to high loss and impurity rates, this study applies the Brazil Nut Effect (BNE) to optimize the operating parameters of an air-sieve-type grain sorting device. The discrete element method (DEM) was used to numerically simulate the sieving and segregation processes of the millet threshing mixture, to clarify the grain population structure most conducive to effective sieving, and to identify the main factors influencing segregation and stratification as well as the appropriate parameter ranges. A bench-scale multifactor performance test was conducted to establish regression equations describing the effects of amplitude, stepped jitter plate length, crank rotational speed, and fan shaft rotational speed on loss rate and impurity rate. Using a multi-objective optimization method, the optimal parameter combination was determined as follows: amplitude of 26 mm, stepped jitter plate length of 450 mm, crank rotational speed of 580 rpm, and fan shaft rotational speed of 645 rpm. Under these conditions, the loss rate was 2.68% (with coiling loss below 0.5%) and the impurity rate was 3.95%. The results of this study provide a reference for optimizing the operating parameters of millet cleaning devices.

Accession Number: WOS:001619276200018

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 32

Title: SIMULATION AND EXPERIMENTAL STUDY ON THE STABILITY OF AIRFLOW DISTRIBUTION ABOVE THE SCREEN IN AN AIR-SCREEN MILLET CLEANING DEVICE

Author(s): Zhang, DM (Zhang, Dong-ming); Huang, ZY (Huang, Zi-yang); Yi, SJ (Yi, Shu-juan); Wang, S (Wang, Song); Chen, YF (Chen, Yi-fu)

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Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: To investigate the influence of airflow distribution stability above the screen surface on the cleaning performance of an air-sieve millet cleaning device, this study employed the lattice Boltzmann method (LBM) to construct simulation models of screen surface flow fields with different screen types. The effects of airflow angle and airflow velocity on the distribution characteristics of airflow near and above the screen apertures were analyzed. The results showed that the flat square-hole screen exhibited high flow-field stability under various airflow conditions, whereas the perforated and fisheye screens were more susceptible to turbulent interference and had poorer uniformity. A simulation validation experiment was carried out using a selfdeveloped airflow velocity and volume monitoring system, and the simulated and measured results showed high consistency in both variation trends and magnitudes, confirming the model's accuracy. Further benchscale comparison tests indicated that the flat square-hole screen achieved the best cleaning performance, particularly when using the screen aperture combination of 10 mm (upper screen) and 8 mm (lower screen), resulting in the lowest loss rate and impurity rate. The findings of this study provide a theoretical basis and experimental reference for optimizing screen surface structures and improving the cleaning quality of millet cleaning devices.

Accession Number: WOS:001619276200019

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Record 33

Title: CONSTRUCTION AND PARAMETER CALIBRATION OF A DISCRETE ELEMENT MODEL OF BARLEY SEEDLING STEMS

Author(s): Zhang, X (Zhang, Xuan); Tao, GX (Tao, Gui-xiang); Xu, YY (Xu, Yuan-yu); Yu, CH (Yu, Cheng-hui)

Source: INMATEH-AGRICULTURAL ENGINEERING **Volume:** 77 **Issue:** 3 **Page s:** 30-43 **DOI:** 10.35633/inmateh-77-03 **Published Date:** 2025 SEP-DEC

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Total Times Cited: 1

Abstract: To address the issue of insufficient parameters in the simulation of processes such as barley seedling stem harvesting using the discrete element method, this study focused on barley seedling stems of the Plante variety. Based on EDEM software, rigid (Hertz-Mindlin no slip model) and flexible (Hertz-Mindlin with bonding model) discrete element models were established. Combined with the results of physical tests, including the angle of repose (20.42 degrees) and the average maximum load of three-point bending (2.62 N), parameters were screened and optimized through tests such as Plackett-Burman. The results showed that under the optimal contact parameter combination of the rigid model, the simulated average angle of repose was 20.31 degrees, with an error of 0.78% compared to the physical test. For the flexible model, under the optimal bonding parameter combination, the simulated maximum bending stress was 2.64 N, with an error of 0.76% compared to the three-point bending test, verifying the accuracy of the models. The study indicated that the established models and parameters can accurately reflect the physicomechanical properties of barley seedling stems, providing a theoretical basis for the design and optimization of their harvesting, conveying, and processing machinery.

Accession Number: WOS:001619276200002

Document Type: Article

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Research Areas: Agriculture

Output Date: 2026-01-27

Biochemistry & Molecular Biology

Record 1

Title: Aggregation mechanism of soybean protein isolate for the formation of plant protein-based meat analogs during high moisture extrusion

Author(s): Song, JQ (Song, Jiaqi); Yang, Z (Yang, Zhuang); Zeng, JK (Zeng, Jiangkai); Hassan, ME (Hassan, Mohamed E.); Cheng, SW (Cheng, Shiwen); Yu, F (Yu, Fan); Wang, YK (Wang, Yuankai); Yu, XS (Yu, Xiaoshuai); Wang, P (Wang, Peng); Wang, LS (Wang, Lishuang); Xiao, ZG (Xiao, Zhigang)

Source: INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES **Volume:** 337 **Article Number:** 149524 **DOI:** 10.1016/j.ijbiomac.2025.149524 **Early A**

ccess Date: DEC 2025 **Published Date:** 2026 JAN **Part:** 1

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: The aggregation behavior and interaction mechanisms modulating the fibrous structure of plant protein-based meat analogs during high-moisture extrusion (HME) of soybean isolate protein (SPI) are critical, but limited research. Therefore, soy protein isolate (SPI)-based plant-based meat analogs were collected and analyzed at each zone of a twin-screw extruder under a moisture content of 60 % via the dead-stop operation. The results showed that HME could improve the fibrous structure of SPI extrudates through protein aggregation behavior. Within the extruder barrel, the aggregated state of protein molecules transitioned to a dispersed state, and the relative crystallinity decreased from 13.96 % to 8.55 %. Additionally, the thermal stability, as reflected by the denaturation enthalpy, decreased from 175.8 J/g to 150.5 J/g. At the die zone, SPI molecular chains initiate reorganization, with the degree of aggregation enhanced through hydrogen bonding, hydrophobic interactions, and disulfide bonding, which further promoted the formation of a distinct three-dimensional structure. In addition, the beta-sheet structure was converted into alpha-helix, beta-turn, and random coil structures, with the random coil content significantly increasing from 14.41 % to 19.48 %. Meanwhile, protein chains became intertwined, and lamellar and fibrous structures emerged owing to the more flexible molecular conformation. For the final extrudate, the turbidity slightly increased from 4.38 TU to 4.39 TU, which was attributed to the formation of stable protein molecular chain assemblies. These results provide a theoretical basis for the production and quality enhancement of high-quality plant-based meat alternatives.

Accession Number: WOS:001639158400001

Document Type: Article

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Research Areas: Biochemistry & Molecular Biology; Chemistry; Polymer Science

Output Date: 2026-01-27

Record 2

Title: Synergistic effect of LTB and Mn2+adjuvants on immunogenicity of multi-epitope peptides from Staphylococcus aureus

Author(s): Ma, JZ (Ma, Jinzhu); Wei, SY (Wei, Shuyu); Xu, M (Xu, Ming); Liu, CQ (Liu, Changquan); Tao, MY (Tao, Mingyang); Fu, YX (Fu, Youxi); Liu, KX (Liu, Kexin); Wang, SQ (Wang, Siqi); Yu, SM (Yu, Simiao); Yu, LQ (Yu, Liquan); Wang, BY (Wang, Beiyan); Song, BF (Song, Baifen)

Source: PROTEIN EXPRESSION AND PURIFICATION **Volume:** 239 **Article Number:** 106862 **DOI:** 10.1016/j.pep.2025.106862 **Early Access Date:** NOV 2025 **Published Date:** 2026 MAR

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Here, a novel combined adjuvant of heat-labile enterotoxin B (LTB) as an intramolecular adjuvant plus Mn2+ was prepared to enhance the immunogenicity of multiepitope (MEP) peptides derived from Staphylococcus aureus (S. aureus). Initially, the mep and ltb-mep fragments were amplified and inserted into pET-28a vectors, respectively, to generate the recombinant plasmids pET28a-mep and pET28a-ltb-mep. Then, the expression of MEP and LTB-MEP was verified by Western blot. Subsequently, the MEP and LTB-MEP proteins were subjected to bioinformatics analysis. Kunming mice were immunized with the LTB-MEP proteins plus Mn2+ adjuvants. After the second immunization, the mice immunized with LTB-MEP plus Mn2+ exhibited significantly enhanced splenic lymphocyte proliferation, increased secretion of IFN-beta, IFN-gamma, IL-2, IL-6, and IL-17 by splenic lymphocytes, and significantly enhanced the generation of antibodies against MEP in serum, and improved survival rate following S. aureus challenge. The data showed that the novel LTB-Mn2+ combined adjuvant exerted a synergistic effect, significantly enhanced the immunogenicity of MEP, and provided a new strategy for improving the efficacy of vaccines against S. aureus.

Accession Number: WOS:001630577600002

Document Type: Article

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Research Areas: Biochemistry & Molecular Biology; Biotechnology & Applied Microbiology

Output Date: 2026-01-27

Record 3

Title: Adipose stem cells attenuate apoptosis by regulating C/EBP-homologous protein transcriptional activity in canines with acute pancreatitis

Author(s): Ge, YS (Ge, Yansong); Chen, MZ (Chen, Mingzhen); Ding, RX (Ding, Ruxin); Wan, ZY (Wan, Zhiying); Xu, ES (Xu, Enshuang); Zheng, JS (Zheng, Jiasan)

Source: INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES **Volume:** 334 **Article Number:** 148843 **DOI:** 10.1016/j.ijbiomac.2025.148843 **Early Access Date:** NOV 2025 **Published Date:** 2025 DEC **Part:** 1

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Total Times Cited: 0

Abstract: Background: Acute pancreatitis (AP) is a common and serious digestive disease in dogs, and its high recurrence rate and complications pose a serious impact on canine health. The aim of this study was to investigate the mechanism by which adipose-derived stem cells (ADSCs) alleviate apoptosis by regulating C/EBP-homologous protein (CHOP) transcriptional activity in dogs with AP and AR42J cells. Methods: Canine AP model was established using sodium taurocholate and trypsin, and treated with intravenous injection of ADSCs and conditioned medium (CM), pancreatic histopathological, ultrastructural changes, endoplasmic reticulum stress (ERS) and apoptosis markers, and apoptosis positivity rates were measured. In addition, the changing pattern of CHOP transcriptional activity was investigated by lipopolysaccharide (LPS) induced cellular inflammation model in vitro. Results: The results showed that AP induced significant hemorrhage, inflammatory cell infiltration, cellular chromatin sequestration in pancreatic tissues, resulting in a significant upregulation of ERS and apoptosis markers, in addition to promoting the nuclear translocation and activation of CHOP transcriptional activity ($P < 0.05$). In both in vitro and in vivo inflammatory models, ADSC treatment reduced the expression of ERS and apoptosis-related proteins and inhibited CHOP transcriptional activity ($P < 0.05$). Targeted regulation of CHOP transcriptional activity effectively alleviated pancreatic cell apoptosis. Conclusions: ADSCs alleviate pancreatic cell apoptosis by inhibiting

CHOP nuclear translocation and transcriptional activity. This finding provides a new strategy for the targeted medications for the treatment of canine AP.

Accession Number: WOS:001625417300001

Document Type: Article

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Research Areas: Biochemistry & Molecular Biology; Chemistry; Polymer Science

Output Date: 2026-01-27

Record 4

Title: Genetic Trends in General Combining Ability for Maize Yield-Related Traits in Northeast China

Author(s): Wang, HC (Wang, Haochen); Zhang, XC (Zhang, Xiaocong); Weng, JF (Weng, Jianfeng); Li, MS (Li, Mingshun); Hao, ZF (Hao, Zhuanfang); Zhang, DG (Zhang, Degui); Yong, HJ (Yong, Hongjun); Han, JN (Han, Jienan); Zhou, ZQ (Zhou, Zhiqiang); Li, XH (Li, Xinhai)

Source: CURRENT ISSUES IN MOLECULAR BIOLOGY **Volume:** 47 **Issue:** 11 **Article Number:** 877 **DOI:** 10.3390/cimb47110877 **Published Date:** 2025 OCT 23

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Abstract: Maize (Zea mays L.) is the most extensively cultivated food crop in China, and current studies on maize general combining ability (GCA) focus primarily on the genetic basis of traits. However, the dynamic trends and underlying genetic loci associated with GCA for yield-related traits during breeding remain underexplored. This study was designed to investigate the changing trends of the general combining ability (GCA) and the frequency of elite alleles among 218 major maize inbred lines from Northeast China, spanning the 1970s to the 2010s. PH6WC and PH4CV were used as testers to develop 436 hybrid combinations via the North Carolina design II (NCII) method, and these combinations were evaluated across three environments. We further analyzed the combining ability (particularly the GCA) of 16 yield-related traits and their dynamic trends during breeding, grouped into three age periods (AGE1: 1960s-1970s; AGE2: 1980s-1990s; AGE3: 2000s-2010s). We also screened for genetic loci associated with the GCA effects of these traits. Results show that breeding selection significantly affected the GCA of six yield-related traits (ear length (EL), tassel branch number (TBN), tassel main axis length (TL), kernel length (KL), stem diameter (SDR), and hundred kernel weight (HKW)). Specifically, the mean

TBNGCA value decreased from 2.51 in AGE1 to -1.28 in AGE3, and the mean HKWGCA increased from -1.58 in AGE1 to 0.36 in AGE3. Yield per plant GCA (YPPGCA) was positively correlated with the GCA values of EL, ear diameter (ED), kernel row number (KRN), kernel number per row (KNPR), and HKW. Association analysis identified 38 single nucleotide polymorphisms (SNPS) related to GCA. The T/T alleles for TBN were absent in AGE1, emerged in AGE2 (1980s-1990s), and persisted in AGE3-consistent with the decreasing trend of TBNGCA from AGE1 to AGE3. For HKW, the A/A alleles not only exhibited higher GCA (effectively improving the HKWGCA of inbred lines) but also showed an 11% increase in allelic frequency from AGE1 to AGE3. Taken together, these results suggest that the accumulation of elite alleles is the primary factor driving the GCA improvement during maize breeding in Northeast China.

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Document Type: Article

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Research Areas: Biochemistry & Molecular Biology

Output Date: 2026-01-27

Record 5

Title: Engineering spatially defined extracellular matrix gradients to govern self-organized multicellular aggregates in a glioblastoma-on-a-chip

Author(s): Li, JN (Li, Jianing); Gao, XH (Gao, Xinghua); Yang, XL (Yang, Xiaoling); Wang, HC (Wang, Hongcai); Sun, XD (Sun, Xindi); Xue, C (Xue, Chang); Ma, JY (Ma, Jingyun)

Source: LAB ON A CHIP **Volume:** 26 **Issue:** 1 **Pages:** 178-192 **DOI:** 10.1039/d5

lc01018g **Early Access Date:** JAN 2025 **Published Date:** 2026 JAN 6

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Abstract: The spatial heterogeneity of biochemical cues within the tumor microenvironment (TME) critically influences cancer progression and therapeutic resistance. However, existing models often lack the capacity to generate stable, quantitative concentration gradients in a high-throughput and biomimetic manner. Here, we present a glioblastoma-on-a-chip platform featuring a 48-microwell array that enables spontaneous formation of spatially defined extracellular matrix (ECM) gradients through a structure-guided solution replacement process. This integrated strategy combines gradient generation, sample arraying, and gel solidification into a single step, allowing one-step fabrication of gelatin methacryloyl (GelMA) microgel arrays with 48 discrete concentration conditions. We successfully generated continuous fibronectin (FN) gradients, quantitatively validated with a linear standard curve (R-2 = 0.9899) and categorized into five statistically distinct groups (**p < 0.01). Computational fluid dynamics simulations confirmed physiological flow perfusion in the microchannels, providing essential biophysical TME cues. When applied to 3D dynamic co-culture of U87 glioblastoma and vascular endothelial cells (HUVECs), the FN gradient critically regulated the formation of self-organized multicellular aggregates, showing strong concentration dependence in their probability, number, and size. These aggregates exhibited significant upregulation of cancer stem cell markers (CD133, Vimentin, alpha-SMA), with CD133 expression increased by over 559-fold compared to the control group. Compared to conventional 96-well plate MTT assays, the multicellular aggregates demonstrated enhanced resistance to temozolomide, highlighting its utility for drug response studies in a physiologically relevant context. This work establishes a robust platform for constructing quantitative ECM gradients and serves as a potential tool for investigating cell-ECM interactions and high-throughput drug screening within biomimetic TMEs.

Accession Number: WOS:001627005200001

Document Type: Article

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Research Areas: Biochemistry & Molecular Biology; Chemistry; Science & Technology - Other Topics; Instruments & Instrumentation

Output Date: 2026-01-27

Business & Economics

Record 1

Title: The corporate value of innovation: Evidence from China

Author(s): Wang, Q (Wang, Qiang); Gui, KY (Gui, Keyi); Hou, H (Hou, Hong); Zhao, YR (Zhao, Yanrong)

Source: ECONOMIC ANALYSIS AND POLICY **Volume:** 89 **Pages:** 73-89 **DOI:** 10.1016/j.eap.2025.11.033 **Early Access Date:** DEC 2025 **Published Date:** 2026 JAN

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: This study investigates the relationship between corporate innovation and firm value, a critical determinant of high-quality development. The significant impact of corporate innovation on corporate value warrants in-depth exploration. Drawing on a sample of A-share listed companies from 2012 to 2022, this study empirically assesses the effects of corporate innovation on both firm market valuation and book value. Crucially, it further investigates the mediating role of supply chain performance in this relationship. The findings reveal that corporate innovation not only directly boosts firm market valuation and book value but also indirectly enhances both by improving supply chain efficiency. A heterogeneity analysis indicates that this positive effect is more pronounced in state-owned enterprises (SOEs), firms operating in regions with higher technological intensity, and areas with stronger intellectual property (IP) protection. Further analysis indicates that media attention positively moderates the direct effect of corporate innovation and the first half of its mediating pathway. Specifically, exploratory innovation positively impacts both firm market valuation and book value, while exploitative innovation exhibits an inverted U-shaped relationship with both. These findings not only contribute to the literature on the mechanisms through which corporate innovation drives firm value but also provide practical insights for policymakers and managers seeking to stimulate innovation and leverage supply chain optimization to enhance corporate value.

Accession Number: WOS:001637599800001

Document Type: Article

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Research Areas: Business & Economics

Output Date: 2026-01-27

Chemistry

Record 1

Title: Efficient protein quantification method by near-infrared spectroscopy for multi-particle size rice samples

Author(s): Wang, SY (Wang, Shengye); Wu, ST (Wu, Siting); Liu, JM (Liu, Jinming); Wang, CQ (Wang, Chunqi); Li, ZJ (Li, Zhijiang)

Source: JOURNAL OF FOOD COMPOSITION AND ANALYSIS **Volume:** 150 **Article Number:** 108861 **DOI:** 10.1016/j.jfca.2026.108861 **Published Date:** 2026 FEB

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Protein, as a core parameter for assessing the rice nutritional quality, shows a close correlation between its content and cooking flavor characteristics. Aiming at complicated operation process, high time-cost and high reagent consumption of traditional chemical methods for detecting protein content, this study investigated the rapid detection method for protein content in milled rice with different particle sizes of pulverization (0.5 mm, 1.0 mm, 1.5 mm, and whole particle) using near-infrared spectroscopy. By combining wavelength selections with multivariate quantitative corrections, the optimal construction method of the spectral regression model for rice protein content with different particle sizes was explored. Following comparative analyses, it was determined that the 1.0 mm particle size model constructed by the uninformative variable elimination combined with the deep extreme learning mechanism exhibited optimal performance. Coefficients of determination for the validation and external test sets were found to be 0.9697 and 0.9641, with relative root mean square errors of 2.50 % and 3.01 %, and residual prediction deviations of 5.8383 and 5.4370, respectively. This method not only provides a reliable nonlinear modeling method for the analysis of grain quality, but also provides an innovative solution for the adaptation of multi-scale data and efficient algorithms in the spectral quantitative analysis of agricultural products.

Accession Number: WOS:001662717800001

Document Type: Article

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Research Areas: Chemistry; Food Science & Technology

Output Date: 2026-01-27

Record 2

Title: Self-assembly mechanisms of wheat gluten peptides: Modulating interfacial behavior and foaming properties

Author(s): Cao, JB (Cao, Jiabao); Fan, GQ (Fan, Guangqi); Lu, BX (Lu, Baoxin); Xiao, ZG (Xiao, Zhigang); Xin, G (Xin, Guang)

Source: FOOD CHEMISTRY-X **Volume:** 33 **Article Number:** 103486 **DOI:** 10.1016/j.fochx.2026.103486 **Published Date:** 2026 JAN

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Foam performance plays a critical role in food systems by influencing texture and stability. This study investigates how the self-assembly of wheat gluten protein peptides (WGPs) affects foaming behavior and interfacial properties. Self-assembled WGP gel nanoparticles (WGPM-NPs, 3-10 kDa) produced interfacial layers with higher interfacial expansion viscoelastic modulus (E) and elastic sub-modulus (Ed), resulting in enhanced foaming capacity (128.3 +/- 22.3 %) and foam stability (39.1 +/- 3.3 %). The interfacial layers stabilized by WGPMNPs also exhibited increased composite modulus and strain-hardening behavior during expansion and compression, forming a highly elastic, solid-like two-dimensional gel interface that combines rigidity and flexibility. These characteristics contributed to improved long-term foam stability. Overall, the findings demonstrate that leveraging WGP self-assembly is an effective strategy to improve foam performance and regulate interfacial behavior, offering new insights into the application of self-assembled peptide gel nanoparticles in functional food systems.

Accession Number: WOS:001662578700001

Document Type: Article

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Research Areas: Chemistry; Food Science & Technology

Output Date: 2026-01-27

Record 3

Title: Development of rapid-cooking red kidney beans via combined pretreatments: Insights into starch-driven mechanisms

Author(s): Li, ZJ (Li, Zhenjiang); Wu, YC (Wu, Yanchun); Hu, X (Hu, Xin); Liu, SL (Liu, Shilin); Lang, SJ (Lang, Shuangjing); Fu, TX (Fu, Tianxin); Wang, CY (Wang, Changyuan); Wang, LD (Wang, Lidong); Zuo, F (Zuo, Feng)

Source: FOOD CHEMISTRY **Volume:** 502 **Article Number:** 147661 **DOI:** 10.1016/j.foodchem.2025.147661 **Early Access Date:** DEC 2025 **Published Date:** 2026 FEB 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: This study investigated the development of rapid-cooking red kidney beans using a combination of pre-treatments, including soaking, freezing, steaming, and microwave vacuum drying, with a focus on the starch-related mechanisms responsible for the reduced cooking time. The results revealed that freezing prior to microwave vacuum drying induced the formation of a uniform porous surface structure, which significantly improved water absorption during cooking and increased the degree of starch gelatinization from 9.58 % to 84.32 %. Starch structural analysis showed that the combined pretreatments caused more extensive disruption to starch granules than microwave vacuum drying alone, including the breakdown of crystalline and short-range ordered structures, exposure of hydrophilic groups, and enhanced water-holding capacity. These structural changes led to a significant reduction in gelatinization enthalpy (Delta H), making the cooking time of red kidney bean comparable to that of rice. This study raises valuable insights for the development of quality instant coarse grains.

Accession Number: WOS:001650185500001

Document Type: Article

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Research Areas: Chemistry; Food Science & Technology; Nutrition & Dietetics

Output Date: 2026-01-27

Record 4

Title: Corn protein classification and detection method based on near infrared spectral features combined with TCN model

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

Source: JOURNAL OF FOOD COMPOSITION AND ANALYSIS **Volume:** 149 **Article Number:** 108813 **DOI:** 10.1016/j.jfca.2025.108813 **Early Access Date:** DEC 2025 **Published Date:** 2026 JAN

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: As a climate-smart crop, high-quality genetic improvement of corn plays an important strategic role in ensuring global food supply. Protein is a key indicator for evaluating corn quality. Therefore, accurate detection of corn protein content is of great significance for directional regulation of corn quality and smart cultivation decision-making. In view of the problems existing in the current corn protein detection research, such as damaged samples, low precision, and complicated procedures. This paper proposes a corn protein detection model based on near-infrared (NIR) spectroscopy combined with temporal convolutional networks. Firstly, Savitzky-Golay (SG) was applied to preprocess the data to effectively remove the spectral scattering information. Then, a Genetic Algorithm (GA) was used to extract eight effective characteristic wavenumbers from the 1845 preprocessed wavenumbers. Finally, the multivariate time analysis characteristics of the time series model Temporal

Convolutional Network (TCN) were used to construct a corn protein detection model with an accuracy of 95.35 %. Compared with Back Propagation neural network (BP), Support Vector Machine (SVM), Convolutional Neural Networks (CNN), Transform, and CNN-transform, the accuracy of this model was improved by 25.58 %, 21.45 %, 15.35 %, 41.86 %, and 39.54 %, respectively. This method provides a new idea and approach for the detection of corn protein and other crop proteins.

Accession Number: WOS:001649387200001

Document Type: Article

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Research Areas: Chemistry; Food Science & Technology

Output Date: 2026-01-27

Record 5

Title: Application of K-means ant colony optimization wavelength selection method combining similarity measures for soybean crude fat content detection

Author(s): Feng, XY (Feng, Xi-Yao); Chen, ZG (Chen, Zheng-Guang); Liu, JM (Liu, Jin-Ming); Wang, PH (Wang, Peng-Hui)

Source: FOOD CHEMISTRY **Volume:** 501 **Article Number:** 147614 **DOI:** 10.1016/j.foodchem.2025.147614 **Early Access Date:** DEC 2025 **Published Date:** 2026 FEB 1

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: To overcome the limitation of traditional Euclidean distance, which ignores the correlation of spectral variables, this paper proposes a wavelength selection strategy that integrates K-means and ant colony optimization (ACO) with similarity measurements (simKACO). The cosine similarity or correlation coefficient can constrain the clustering structure to highlight the wavelength region highly correlated with the target variable. Simultaneously, this metric guides the ant colony algorithm to heuristically search the key feature clusters to achieve efficient screening of

wavelengths related to fat content in soybean near-infrared spectroscopy. The results indicated that the cosine similarity is the most suitable similarity measurement for simKACO. The R2 of the KcosACOcos-PLS model's test set can reach 0.8665, demonstrating superior predictive performance and generalization capability compared to PLS models established using other feature selection methods (UVE, IRF, GA, ACO). This research provides a reference method for detecting food quality.

Accession Number: WOS:001645159000001

Document Type: Article

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Research Areas: Chemistry; Food Science & Technology; Nutrition & Dietetics

Output Date: 2026-01-27

Record 6

Title: Online identification of the blast-resistant seeds of Chinese japonica rice using an improved deep learning method based on the selected feature band of the NIR

Author(s): Tong, YC (Tong, Yuchen); Guan, CZ (Guan, Changzhuo); Sun, SY (Sun, Shengyong); Ding, JC (Ding, Jiancheng); Zhao, XY (Zhao, Xiaoyu); Liang, T (Liang, Tong); Xu, M (Xu, Ming)

Source: MICROCHEMICAL JOURNAL **Volume:** 219 **Article Number:** 115968 **DOI:** 10.1016/j.microc.2025.115968 **Early Access Date:** NOV 2025 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 1

Total Times Cited: 1

Abstract: Background: Rice blast (Magnaporthe oryzae) remains the most devastating fungal disease in global rice production. Current mitigation strategies primarily rely on cultivating blast-resistant varieties, yet newly developed cultivars often lose resistance within 3-4 years of deployment. Traditional breeding approaches-molecular marker-assisted selection and phenotypic field trials-are limited by subjective human judgment and prolonged cultivation cycles. To address these bottlenecks, we developed a rapid, non-destructive resistance detection method that significantly reduces identification time while maintaining high accuracy. Results: We present a near-infrared spectroscopy (NIRS)-based method for blast-resistant seed identification, implemented in two stages: Model Development: The hybrid AW-1DCNN-XGBoost classifier outperformed three benchmark models and five classic models (1DCNN, AW-1DCNN, XGBoost, BP, SVM, PNN, LDA, PLS-DA) in

comprehensive evaluations, achieving 92.28 % accuracy, 92.05 % Precision, 92.03 % Recall, 92.04 % F1-score, and 504.20s runtime using raw spectral data. Feature Optimization: By targeting Pi-ta gene-associated spectral bands (raw: 6557.857-7262.25 cm 1; first-derivative: 5107.879-5523.924 cm 1), the optimized AW-1DCNN-XGBoost model reduced runtime to 115.80s (77.05 % faster) with compromising 92.27 % accuracy, 92.19 % Precision, 88.01 % Recall, and 90.04 % F1-score. Conclusions: The feature-optimized AW-1DCNN-XGBoost model enables non-destructive, high-throughput screening of blast-resistant seeds, offering a scalable solution for industrial seed production pipelines.

Accession Number: WOS:001620429600006

Document Type: Article

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Research Areas: Chemistry

Output Date: 2026-01-27

Record 7

Title: Rapid detection of chlorpyrifos in miscellaneous beans based on nitrogen and phosphorus doped carbon quantum dots fluorescence probe

Author(s): Zhang, L (Zhang, Ling); Chen, JY (Chen, Jiayu); Zhang, LY (Zhang, Liyuan); Yu, RZ (Yu, Runzhong)

Source: JOURNAL OF FOOD COMPOSITION AND ANALYSIS **Volume:** 137 **Article Number:** 106884 **DOI:** 10.1016/j.jfca.2024.106884 **Early Access Date:** OCT 2025 **Published Date:** 2025 JAN

Times Cited in Web of Science Core Collection: 7

Total Times Cited: 7

Abstract: A fluorescent probe based on N, P-doped carbon quantum dots was established to detect chlorpyrifos. N, P-doped carbon quantum dots were prepared by one-step hydrothermal method with trisodium citrate, dipotassium hydrogen phosphate and urea. The sensing mechanism was based on the fluorescence quenching of N, P-doped carbon quantum dots by chlorpyrifos through internal filtering effect. The results indicated that the linear range was 0.025 similar to 25 mu g/mL with the detection limit of 0.0008 mu g/g under the optimal detection conditions. The

method was applied to different miscellaneous beans with the recoveries of 90.2 similar to 105.7 % and the relative standard deviations were less than 4.8 %. The fluorescent probe has the advantages of economy, high efficiency, easy preparation and specificity.

Accession Number: WOS:001618258200001

Document Type: Article

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Research Areas: Chemistry; Food Science & Technology

Output Date: 2026-01-27

Computer Science

Record 1

Title: A Privacy Protection Method for Trustworthy Traceability of Rice Supply Chain Based on Blockchain and Multilayer Encryption

Author(s): Yu, RZ (Yu, Runzhong); Yang, W (Yang, Wu); Zhang, LY (Zhang, Liyuan)

Source: CONCURRENCY AND COMPUTATION-PRACTICE & EXPERIENCE **Volume:** 37 **Issue:** 27-28 **Article Number:** e70413 **DOI:** 10.1002/cpe.70413 **Published Date:** 2025 DEC 25

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: To address the core challenges of information asymmetry, privacy leakage, and low storage efficiency in rice supply chains, this study proposes an enhanced traceability system that integrates blockchain, adaptive encryption, and lightweight zero-knowledge proofs. The system features a dynamic role-based encryption model, where encryption levels are determined by both data sensitivity and role-based weights. This model was designed and validated through surveys involving 50 stakeholders. By adopting an on-chain and off-chain collaborative storage architecture

that leverages Merkle trees and IPFS, the system achieves a 67% reduction in storage overhead. Furthermore, an optimized Groth16-based ZKP protocol ensures rapid verification in under 180 ms on ARM-based devices. Experimental results demonstrate that, at a scale of 100,000 records, the system attains a transaction processing capacity of 328 TPS and an information entropy of 3.87, representing a 51% improvement over single-layer encryption schemes. The monthly deployment cost remains affordable for smallholder farmers, ranging from $2 to $5. The system also supports interoperability with external traceability frameworks through cross-chain channels and adaptation to the GS1 EPCIS standard, facilitating trusted collaboration in transnational rice supply chains. By effectively balancing data integrity and privacy protection, this solution significantly enhances system scalability and offers a novel pathway for the digital transformation of agricultural supply chains.

Accession Number: WOS:001624343100013

Document Type: Article

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Research Areas: Computer Science

Output Date: 2026-01-27

Record 2

Title: PCA-XGBoost Combined With K-Anonymity and Random Forest Privacy-Protecting Clustering Algorithm

Author(s): Yu, RZ (Yu, Runzhong); Yang, W (Yang, Wu); Zhang, LY (Zhang, Liyuan)

Source: SECURITY AND PRIVACY **Volume:** 9 **Issue:** 1 **Article Number:** e70155 **DOI:** 10.1002/spy2.70155 **Published Date:** 2025 DEC 2

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: In response to the actual needs of privacy protection and cluster analysis of agricultural product traceability data, this work innovatively proposes a privacy-protecting clustering algorithm combining PCA, XGBoost, K-anonymity and Random Forest. Experiments were conducted on a constructed rice traceability dataset, with evaluations from three aspects: clustering accuracy, privacy protection effect, and computational efficiency. Results show that the algorithm achieves 0.836 in

Adjusted Rand Index and 0.782 in Silhouette Coefficient, representing significant improvements over traditional methods. Meanwhile, the privacy leakage risk was reduced to 6.7%, balancing privacy protection and clustering performance. This work provides a reliable technical solution for agricultural product quality supervision and supply chain optimization.

Accession Number: WOS:001630393700001

Document Type: Article

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Research Areas: Computer Science; Telecommunications

Output Date: 2026-01-27

Construction & Building Technology

Record 1

Title: Effect of Steel Slag and Ground Slag on the Properties of Cement-Based Greener Grouting Material in Sandy Strata

Author(s): Xu, H (Xu, Hang); Bai, Q (Bai, Qian); Xie, GL (Xie, Guoliang)

Source: BUILDINGS **Volume:** 15 **Issue:** 22 **Article Number:** 4138 **DOI:** 10.3390/buildings15224138 **Published Date:** 2025 NOV 17

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Grouting materials can be used for reinforcement and water plugging of underground engineering in sandy strata. This study examines the mechanism of alkali-activated cementitious materials by selecting steel slag and ground slag to replace cement in double-liquid grouting materials. Various retarders were used to adjust the gel time, making it controllable for grouting materials. The results show that when the sodium silicate volume is in the range of 20-40%, the W/B is in the range of 0.7-1.0, and the steel-slag-to-ground-slag ratio (SS:SL) is 3:7, the macroscopic properties of the grouting material reach the optimal value, the microstructure is denser, and the hydration products are calcium hydroxide, calcium-silicate-hydrate (C-S-H) gel, and ettringite. When the cement content is 40%, the W/B is 0.8, the

sodium silicate volume dosage is 30%, and the SS:SL ratio is 3:7, the 3 d compressive strength of the slurry reaches 14.57 MPa and the 28 d compressive strength reaches 21.14 MPa. To analyse the solidification effect of double-liquid grouting materials with mixed SS and SL on sandy soil, experiments were conducted to study the impacts of the soil moisture content, soil particle size distribution, and slurry quantity on the strength of consolidation. This study conducts an in-depth investigation into optimising the proportioning of industrial solid wastes and the multi-component synergistic mechanisms. This study provides a new method for the effective utilisation of industrial waste and a reference for the practical application of industrial waste as supplementary cementitious materials in the future.

Accession Number: WOS:001624163400001

Document Type: Article

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Research Areas: Construction & Building Technology; Engineering

Output Date: 2026-01-27

Energy & Fuels

Record 1

Title: Thermal insulation performance of cast-in-place foamed cement for pipeline insulation at medium and high temperatures

Author(s): Jiang, W (Jiang, Wei); Zhong, ZP (Zhong, Zhipeng); Shen, RH (Shen, Ruohan); Arici, M (Arici, Muslum); Liu, GL (Liu, Gongliang); Li, Q (Li, Qing); Li, D (Li, Dong)

Source: ENERGY SOURCES PART A-RECOVERY UTILIZATION AND ENVIRONMENTAL EFFECTS **Volume:** 47 **Issue:** 2 **Article Number:** 2589370 **DOI:** 10.1080/15567036.2025.2589370 **Published Date:** 2025 DEC 12

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Traditional pipeline insulation materials, such as polyurethane and aerogel, often experience performance degradation at temperatures above 150 degrees C, along with high costs and inadequate mechanical strength. To overcome these limitations, this study explores cast-in-place foamed cement for medium- to

high-temperature pipeline insulation (75 degrees C to 240 degrees C). The thermal performance was evaluated, focusing on thermal conductivity and cross-sectional heat transfer characteristics. Based on 90 test datasets, we quantified the thermal conductivity, which increased nonlinearly from 0.064 W<middle dot>(m<middle dot>K)-1 at 75 degrees C to 0.209 W<middle dot>(m<middle dot>K)-1 at 240 degrees C, resulting in an exponential prediction model. A strong linear relationship (R2 = 0.99331) was found between the insulation layer temperature difference Delta T and the inner wall temperature T2. Based on this relationship, a cross-sectional heat transfer linear equation was proposed to streamline engineering inspection procedures. The results confirm the exceptional thermal stability of cast-in-place foamed cement (up to 240 degrees C), effectively mitigating the risk of material failure in high-temperature zones such as pipeline welds. This research challenges the conventional perspective that foamed cement is limited to building insulation, offering a novel solution for industrial pipelines (e.g. petroleum, district heating). The developed models (114 mm pipeline diameter, 64 mm insulation thickness, during winter conditions) require further validation to ensure broader applicability.

Accession Number: WOS:001628980900001

Document Type: Article

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Research Areas: Energy & Fuels; Engineering; Environmental Sciences & Ecology

Output Date: 2026-01-27

Record 2

Title: Dynamic thermal stress analysis of PCM-glazed unit under intermittent solar irradiation

Author(s): Zhou, YM (Zhou, Yingming); Wu, GZ (Wu, Guozhong); Li, D (Li, Dong); Jiang, W (Jiang, Wei); Hussein, AK (Kadhim Hussein, Ahmed); Fu, SB (Fu, Shibo);

Wang, ZM (Wang, Zemei)

Source: ENERGY SOURCES PART A-RECOVERY UTILIZATION AND ENVIRONMENTAL EFFECTS **Volume:** 47 **Issue:** 1 **Pages:** 7730-7748 **DOI:** 10.1080/15567036.2021.1923871 **Early Access Date:** MAY 2021 **Published Date:** 2025 DEC 31

Times Cited in Web of Science Core Collection: 10

Total Times Cited: 10

Abstract: In this study, a multi-physics coupled mathematical model was established on thermal stress distribution of double-glazed units with phase-change material (PCM-glazed) for the transient temperature fields and non-uniform intermittent solar irradiation, and the mathematical calculations are in good agreement with the experimental results, which shows that the developed model in present work can solve the coupled thermal stress distribution problem between phase change and intermittent solar irradiation in the PCM-glazed. A case that is the thermal stress distribution on the surface of glazed unit filled with paraffin under the outdoor variable temperature and non-uniform intermittent solar irradiation was studied in autumn in cold region of China. The results show that the stress produced on the surface of glazed unit filled with paraffin varies obvious, PCM layer between the glass panes significantly affects the stress values at different time, which can, respectively, reach up to about 4.59MPa and down to -3.9MPa for tensile and compressive strains once the paraffin in liquid state, due to improved thermal conductivity of PCM throughout phase transition to liquid. Additionally, the frame is the key factor causing temperature gradient of PCM-glazed unit, and the biggest tensile stress appears at the edge. The influence range of the frame on the surface temperature and stress of the PCM-glazed unit is limited and different, and the largest influence distance of the surface temperature and stress from the edge is 0.1 m and 0.03 m, respectively.

Accession Number: WOS:000653522200001

Document Type: Article

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Research Areas: Energy & Fuels; Engineering; Environmental Sciences & Ecology

Output Date: 2026-01-27

Engineering

Record 1

Title: Tailoring properties of corn starch via active extrusion: Key role of feed moisture

Author(s): Yu, XS (Yu, Xiaoshuai); Zeng, JK (Zeng, Jiangkai); Huo, JJ (Huo, Jinjie); Ma, JM (Ma, Jinming); Song, JQ (Song, Jiaqi); Wang, L (Wang, Lin); Hassan, ME (Hassan, Mohamed E.); Peng, YX (Peng, Yixin); Bo, B (Bo, Bo); Xiao, ZG (Xiao, Zhigang); Duan, YM (Duan, Yumin)

Source: JOURNAL OF FOOD ENGINEERING **Volume:** 411 **Article Number:** 1 12946 **DOI:** 10.1016/j.jfoodeng.2025.112946 **Published Date:** 2026 MAY

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Corn starch (CS) was modified using a one-step citric acid (CA) active extrusion. Based on the changes of system parameters, the influence of feed moisture on structural, pasting and gel properties of modified starch (ECSCA) were investigated. Results showed that the residence time of material, die pressure, torque and specific mechanical energy (SME) were closely related to feed moisture. FTIR and density functional theory (DFT) analysis confirmed that esterification had occurred and there were ester bonds between CS and CA, which altered surface morphology and particle size of CS. The relative crystallinity and short-range ordered degree of ECSCA showed a decreasing trend when feed moisture increased from 30 % to 35 %, whereas the higher level of feed moisture (37.5 % and 40 %) led to an opposite effect. Compared with natural CS, ECSCA exhibited a lower gelatinization enthalpy (Delta H), peak viscosity (PV) and setback viscosity (SB). The Delta H and PV of ECSCA reduced from 1.53 J/g and 631 cp to 1.08 J/g and 466 cp when feed moisture enhanced from 30 % to 32.5 %, while there was an increasing trend for Delta H and PV when feed moisture further increased. Additionally, increasing feed moisture reduced strength of ECSCA gels as well as altered rheological properties and water distribution of ECSCA gels. These results demonstrated that feed moisture regulated the effect of CA on starch modification via affecting the extrusion environment, which was helpful to broaden the application of one-step active extrusion in starch modification.

Accession Number: WOS:001658217900001

Document Type: Article

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Research Areas: Engineering; Food Science & Technology

Output Date: 2026-01-27

Record 2

Title: Asymmetric Single-Channel Color Image Cryptosystem Based on an Iterative Phase-Truncation Scheme

Author(s): Luan, GY (Luan, Guangyu); Quan, CG (Quan, Chenggen)

Source: IEEE PHOTONICS TECHNOLOGY LETTERS **Volume:** 38 **Issue:** 5 **Pages:** 297-300 **DOI:** 10.1109/LPT.2025.3636567 **Published Date:** 2026 MAR 1

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Here, we report an asymmetric single-channel color image cryptosystem that employs phase retrieval based on an iterative phase-truncation (PT) scheme. For the proposed encryption process, colored plaintext is converted to the corresponding indexed image, and then the two-phase information is iteratively updated to construct one private key mask and one ciphertext mask. The scheme is an asymmetric single-channel encryption method for color image. In contrast to other PT-based techniques, there is no information leakage issue in our scheme. At the same time, with three sensitive additional keys, viz., the two diffraction distances and the illuminating wavelength, the encryption security is significantly strengthened. The scheme is also resistant to several attacks, and simulation results demonstrate its reliability and capability.

Accession Number: WOS:001635559800003

Document Type: Article

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Research Areas: Engineering; Optics; Physics

Output Date: 2026-01-27

Record 3

Title: Mudguard stamping springback control for agricultural tractors: Collaborative multi-strategy approach and experimental verification

Author(s): Wang, S (Wang, Shuo); Wang, HC (Wang, Hongchao); Zeng, RT (Zeng, Rutie); Wan, L (Wan, Lin); Che, G (Che, Gang)

Source: CIRP JOURNAL OF MANUFACTURING SCIENCE AND TECHNOLOGY **Volume:** 64 **Pages:** 187-202 **DOI:** 10.1016/j.cirpj.2025.12.008 **Early Access Date:** DEC 2025 **Published Date:** 2026 FEB

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: To effectively control the springback of agricultural tractor mudguards, this paper proposes an optimized design framework for springback control. The framework centers on stress path control and geometric reverse compensation, integrating process parameter optimization, theoretical modeling, auxiliary structure design, and geometric reverse mold compensation. This approach transitions from a single-method strategy to a combined approach of "process parameter control-drawbead setting-geometric reverse compensation". The results indicate a significant correlation between the thickness, blank holder force, stamping speed, friction coefficient, and die clearance with the springback amount. The semi-analytical model and response surface model developed have coefficients of determination of 0.921 and 0.917, respectively. A complex non-linear relationship exists between each parameter and the springback, with distinct mathematical variation curves observed. The primary and secondary effects of the parameters are ranked as follows: blank holder force, die clearance, thickness, friction coefficient, and stamping speed. By employing the "process parameter control-drawbead setting-geometric reverse compensation" strategy, the springback can be controlled to 5.37 degrees. Moreover, experimental validation yields a springback of 5.14 degrees, which results in a 0.23 degrees. This study provides a solid theoretical foundation and reliable numerical basis for the practical production and processing of mudguards.

Accession Number: WOS:001645906800001

Document Type: Article

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Research Areas: Engineering

Output Date: 2026-01-27

Record 4

Title: Clear Waters, Flourishing Growth: Decoupling Water Pollution From Economic Growth in Shanxi Province, China

Author(s): Ma, SL (Ma, Shenglin); Zeng, HJ (Zeng, Hongjun); Yan, H (Yan, Han); Li, D (Li, Ding)

Source: WATER ENVIRONMENT RESEARCH **Volume:** 97 **Issue:** 12 **Article Number:** e70231 **DOI:** 10.1002/wer.70231 **Published Date:** 2025 DEC 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Achieving decoupling between water pollution and economic growth is a critical governance challenge in resource-based economies (RBEs). The classic environmental Kuznets curve (EKC) hypothesis often fails in such regions due to "policy trade-offs," such as the conflict between energy security and environmental protection goals. Simultaneously, existing methodologies tend to bifurcate the analysis of long-term structures and short-term shocks. This paper, using data from China's Shanxi Province (2010-2024) as a typical case, constructs a "multi-scalar diagnostic framework" that integrates principal component analysis (PCA), the EKC, and the Tapio decoupling model. Empirical results show the following: (1) During the study period, the relationship between water pollution and economic growth in Shanxi was predominantly in a state of weak decoupling. However, the Tapio model also revealed recent "expansive negative decoupling" events, indicating that short-term pressures persist. (2) The EKC analysis reveals a "differentiated path": industrial pollution indicators, including industrial wastewater, COD, and ammonia nitrogen, exhibit an inverted U-shape, suggesting industrial governance is aligning with economic growth. (3) In contrast, the EKC curve for domestic ammonia nitrogen shows a distinct N-shape, indicating that pressure from domestic wastewater discharge continues unabated. (4) Notably, this N-shaped curve appears to have passed its second turning point, with domestic ammonia nitrogen emissions showing a downward trend after peaking. This study's theoretical contribution is the revelation that the N-shaped curve is the cumulative consequence of "policy trade-offs" in RBEs. These short-term policy shocks, captured by the Tapio model, constitute the micro-foundations for the distortion of the long-term (N-shaped) EKC structure, reflecting a governance model that prioritizes industrial and energy objectives while relatively neglecting municipal environmental governance.

Accession Number: WOS:001638614600001

Document Type: Article

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Research Areas: Engineering; Environmental Sciences & Ecology; Marine & Freshwater Biology; Water Resources

Output Date: 2026-01-27

Record 5

Title: Biogas conversion of forestry waste enhanced by compound microbial pretreatment: Microbial and metabolomic insights during anaerobic digestion

Author(s): Sun, JJ (Sun, Jiajia); Tan, LN (Tan, Lina); Guo, A (Guo, Ao); Wang, XY (Wang, Xinyu); Wang, WH (Wang, Weihao); Zhang, Z (Zhang, Zhi); Liu, JS (Liu, Jiansheng); Zhang, SL (Zhang, Shenglong)

Source: JOURNAL OF ENVIRONMENTAL CHEMICAL ENGINEERING **Volume:** 13 **Issue:** 6 **Article Number:** 119288 **DOI:** 10.1016/j.jece.2025.119288 **Early Access Date:** SEP 2025 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: This study develops and applies a solid mixed microbial agent (SMMA) to enhance the anaerobic digestion of forestry waste, an abundant biomass resource. Challenges in lignocellulosic breakdown limit anaerobic digestion, which this study addresses by using SMMA pretreatment containing bacteria and fungi capable of degrading cellulose and hemicellulose. Results from a one-time batch anaerobic digestion experiment demonstrated that SMMA pretreatment of PPGL effectively shortened the hydrolysis phase, promoted the accumulation of intermediate compounds, and enabled methanogens to more efficiently utilize the substrate for methane production, resulting in a biogas yield approximately 1.9-fold higher than that from untreated waste. In addition, microbial community structure and metabolite profiles at different stages of anaerobic digestion of SMMA-pretreated PPGL were analyzed to characterize their dynamic features. These findings offer new insights into the resource utilization of forestry waste.

Accession Number: WOS:001619790100004

Document Type: Article

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Research Areas: Engineering

Output Date: 2026-01-27

Environmental Sciences & Ecology

Record 1

Title: Responses of soil enzyme activities to increasing salinity: A quantitative meta-analysis

Author(s): Hu, Y (Hu, Yang); Zhang, HS (Zhang, Hanshuo); Cui, L (Cui, Liu); Zhou, W (Zhou, Wei); Zhang, MC (Zhang, Mingcong)

Source: JOURNAL OF ENVIRONMENTAL MANAGEMENT **Volume:** 398 **Article Number:** 128578 **DOI:** 10.1016/j.jenvman.2026.128578 **Published Date:** 2026 JAN 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Soil salinization is a critical degradation process threatening global agricultural sustainability and ecosystem functioning. Soil extracellular enzymes, as key agents of microbial metabolism, play a central role in driving soil biogeochemical cycles; however, a large-scale and cross-regional synthesis understanding of their response patterns to increasing salinity and the underlying drivers remains limited. This study synthesized 1379 observations from 47 publications using meta-analysis to quantitatively assess the overall response of soil enzyme activities to increasing salinity and to explore the moderating effects of enzyme functional group, ecosystem type, plant growth form, and climatic conditions. The results revealed that increased salinity significantly suppressed overall soil enzyme activity by 9.1 %. However, responses varied dramatically among functional enzymes: Pcycling (-26.2 %) and S-cycling (-26.3 %) enzymes were the most sensitive, whereas no significant changes were detected at the group level for C- and N-cycling enzymes as well as oxidases,

although individual enzymes within these groups exhibited contrasting responses. Ecosystem type was a critical moderator, with forest ecosystems exhibiting unique resistance and a significant overall stimulation of enzyme activity (+69.3 %), while grasslands (-49.3 %) and wetlands (-23.3 %) were more vulnerable. Woody plants alleviated the suppression of, or even stimulated, C- and N-cycling enzyme activities, but exacerbated the inhibition of P-, S-cycling enzymes and oxidases compared to the widespread sensitivity observed under herbaceous plants. Increases in mean annual precipitation and mean annual temperature significantly intensified the suppressive effects of salinity on most enzyme activities. Furthermore, sensitivity analysis revealed that the magnitude of enzymatic responses depended critically on the salinity metric used (ECe vs. soil salt content), a pattern intrinsically linked to the ecosystem type predominantly associated with each metric. Our findings underscore the context-dependent nature of salinity effects, highlight the importance of methodological consistency in cross-study comparisons, and provide a critical theoretical basis for the ecological function assessment and adaptive management of saltaffected soils.

Accession Number: WOS:001663985400003

Document Type: Article

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Research Areas: Environmental Sciences & Ecology

Output Date: 2026-01-27

Record 2

Title: Estimation of the Relationship Between Urban Landscape Pattern and Crop Yield by Remote Sensing Data and Field Measurement

Author(s): Meng, FY (Meng, Fanyue); Ren, ZB (Ren, Zhibin); Zhang, P (Zhang, Peng); Wang, CC (Wang, Chengcong); Hong, SY (Hong, Shengyang); Geng, RX (Geng, Ruoxuan); Hong, WH (Hong, Wenhai); Wang, XY (Wang, Xinyu); Huang, BS (Huang, Baosen); Zhang, BY (Zhang, Boyang); Bai, YF (Bai, Yufeng)

Source: REMOTE SENSING **Volume:** 17 **Issue:** 22 **Article Number:** 3667 **DOI:** 10.3390/rs17223667 **Published Date:** 2025 NOV 7

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Exploring how urban landscape patterns and diversity affect crop yields is

critical for landscape optimization to increase food production under rapid urbanization. In this study, we used Landsat remote sensing data combined with field-measured crop yields to map the spatial distribution of yields in suburban Changchun, Northeast China, and to examine their relationships with urban landscape patterns and diversity indices. Our results showed that the urban landscape composition, such as impervious surface areas (ISA) or forest coverage, significantly affected crop yield, and the suburban crop yield decreased consistently with increasing impervious surface and decreasing forest coverage ($p < 0.001$). Additionally, crop yield exhibited a nonlinear increase as impervious surface edge density (ED_ISA) decreased, with a threshold identified at 200 m/ha. We also identified that the driving mechanisms of landscape patterns and diversity on crop yield varied across different levels of urbanization intensities. In the low-urbanization area (ISA coverage < 50%), the crop yield was mainly affected by the composition and pattern of the surrounding landscape, such as ISA or forest coverage, patch and edge density, and the largest patch index; In the medium-urbanization area (50% <= ISA coverage <= 80%), landscape diversity played a dominant role and had a strong positive effect on crop yield. In the heavy-urbanization area (ISA coverage > 80%), crop yield was mainly affected by indicators of the farmland itself, such as coverage, edge density, and the largest cropland patch index. These findings clarify the relationship between urban landscapes and crop yields, offering new insights into reconciling urban development with food security.

Accession Number: WOS:001625934500001

Document Type: Article

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Research Areas: Environmental Sciences & Ecology; Geology; Remote Sensing; Imaging Science & Photographic Technology

Output Date: 2026-01-27

Food Science & Technology

Record 1

Title: Physical stress induces metabolic changes in kidney bean: GABA, polyphenol spectrum, and antioxidant capacity

Author(s): Xu, QP (Xu, Qingpeng); Zhang, S (Zhang, Shu); Wang, Y (Wang, Ying); Jiang, P (Jiang, Peng); Zhang, JY (Zhang, Jiayu); Wang, XH (Wang, Xinhui); Zhang, DJ (Zhang, Dongjie)

Source: FOOD RESEARCH INTERNATIONAL **Volume:** 226 **Article Number:** 118194 **DOI:** 10.1016/j.foodres.2025.118194 **Early Access Date:** DEC 2026 **Published Date:** 2026 FEB 28

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Germination is a cost-effective way to enrich bioactives in legumes, yet the effects of novel physical stresses during germination remain underexplored. This study investigated the effects of germination under stress conditions (including ultrasound (US), ultraviolet irradiation (UV), cold plasma (CP), and hypoxic (vacuum, VC) treatments) on the nutritional content and antioxidant capacity of kidney beans. The research focuses specifically on the enrichment and accumulation mechanisms of gamma-aminobutyric acid (GABA) and polyphenols. Metabolomics combined with analyses of key metabolic enzyme activities revealed that all 4 physical treatments effectively promoted the conversion of glutamate to GABA. Specifically, US and VC treatments enhanced the polyamine-mediated GABA synthesis pathway, while the VC treatment additionally suppressed GABA degradation. Regarding polyphenol enrichment, UV treatment promoted the accumulation of phenolic acids and flavonoid glycosides by enhancing the downstream metabolism of caffeic acid and dihydroquercetin. Meanwhile, VC treatment promoted the enrichment of isoflavones by activating the kiveton metabolic pathway. Furthermore, 17 polyphenols showed a significant positive correlation with in vitro antioxidant capacity. Among them, licoisoflavone A, calendoflavobioside, lupiwighteone, and glycyrrhizaisoflavone B emerged as the core differential markers distinguishing the physical stress-treated groups from the control. The increased levels of these compounds significantly

contributed to the enhanced antioxidant activity observed in the physically treated germinated beans. This study provides novel insights for the high-value application of legumes.

Accession Number: WOS:001653994700006

Document Type: Article

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Research Areas: Food Science & Technology

Output Date: 2026-01-27

Record 2

Title: Impact of rice protein amyloid fibrils on texture, flavor, digestibility and structural properties of extruded soy protein isolate

Author(s): Ma, JM (Ma, Jinming); Pan, DY (Pan, Deyin); Wang, P (Wang, Peng); Ma, XQ (Ma, Xiaoqi); Wang, L (Wang, Lin); Hassan, ME (Hassan, Mohamed E.); Yu, XS (Yu, Xiaoshuai); Lu, BX (Lu, Baoxin); Xiao, ZG (Xiao, Zhigang)

Source: FOOD RESEARCH INTERNATIONAL **Volume:** 226 **Article Number:** 118197 **DOI:** 10.1016/j.foodres.2025.118197 **Published Date:** 2026 FEB 28

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: To enhance the quality of high-moisture extruded soy protein isolate (SPI) products, this study investigated the effects of rice protein amyloid fibril (RF) on texture, flavor, in vitro digestibility of extruded SPI from structural alterations of SPI. Besides, the interaction mechanism between RF and SPI during the extrusion process was clarified. Results showed that appropriate concentrations of RF (1 % and 3 %) increased the anisotropic index of SPI extrudate from 0.98 to 1.30 and 1.89, whereas the excessive RF (5 %, 7 % and 9 %) led to the opposite effect. Incorporating RF facilitated the formation of fiber-rich structures, which improved the textural properties and thermal stability but reduced water mobility of extruded SPI. The addition of 1 % and 3 % RF increased the beta-sheet content as well as reduced alpha-helix and random coil contents of extruded SPI, whereas higher RF concentrations were

unfavorable for beta-sheet formation. Furthermore, the addition of RF reduced the astringent, bitter flavors and digestibility of SPI extrudate, while improved the umami taste of SPI extrudates. In the extrudates, RF mainly interacted SPI via disulfide bonds, followed by hydrogen bonds and hydrophobic interaction. These findings provide technical support for the application of rice protein in plant-based meat analogs with desirable quality and nutritional properties.

Accession Number: WOS:001657965400001

Document Type: Article

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Research Areas: Food Science & Technology

Output Date: 2026-01-27

Record 3

Title: Quantitative Detection of Key Parameters and Authenticity Verification for Beer Using Near-Infrared Spectroscopy

Author(s): Wei, YS (Wei, Yongshun); Liu, JM (Liu, Jinming); Xi, GQ (Xi, Guiqing); Lu, YH (Lu, Yuhao)

Source: FOODS **Volume:** 14 **Issue:** 22 **Article Number:** 3936 **DOI:** 10.3390/foods14223936 **Published Date:** 2025 NOV 17

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Total Times Cited: 0

Abstract: Alcohol content and original wort concentration are key indicators of beer quality. The detection of these metrics and the authentication of beer authenticity are crucial for protecting consumer rights. To this end, this study investigates quantitative detection methods for beer alcohol content and original wort concentration based on near-infrared spectroscopy (NIRS), as well as authenticity verification methods for craft, industrial, and non-fermented beers. Convolutional neural networks combined with a long short-term memory networks (CNN-LSTM) feature extraction method was proposed for establishing multiple regression models and partial least squares discriminant analysis

(PLS-DA) model. The results indicate that the CNN-LSTM combined with the support vector machine regression demonstrates optimal performance, with coefficients of determination exceeding 0.99 for the alcohol content calibration, validation, and independent test sets, and all relative root mean square errors below 2.67%. For original wort concentration, the coefficients of determination exceeded 0.97 across the calibration, validation, and independent test sets, with relative root mean square errors below 4.05%. The CNN-LSTM combined with the PLS-DA approach exhibited the lowest variable dimension while achieving 100% classification accuracy. This method offers rapid, non-destructive, and efficient advantages, making it suitable for beer quality control and market regulation.

Accession Number: WOS:001624462000001

Document Type: Article

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Research Areas: Food Science & Technology

Output Date: 2026-01-27

Record 4

Title: Structural Characterization and Regulatory Effect on Gut Microbiota of Selenium-Enriched Polysaccharide of Auricularia auricula

Author(s): Shen, Q (Shen, Qin); Pan, P (Pan, Piao); Lu, LL (Lu, Lele); Wang, XC (Wang, Xiaochun); Zou, X (Zou, Xiao); Cao, DM (Cao, Dongmei); Li, ZJ (Li, Zhijiang)

Source: JOURNAL OF FOOD SCIENCE **Volume:** 90 **Issue:** 11 **Article Number:** e70619 **DOI:** 10.1111/1750-3841.70619 **Published Date:** 2025 NOV

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Auricularia auricula (AA) demonstrates potential as a natural source for human selenium supplementation. This study centered on the preparation of selenium-enriched polysaccharides of AA (SAA) from selenium-enriched AA, along with an analysis into their structural characteristics and influence on gut microbiota. The findings indicated that SAA exhibits an inorganic selenium conversion efficiency of 88.90%, is composed of six monosaccharides, and exhibits a molecular weight of 3621.63 kDa. Characteristic absorption peaks corresponding to Se & boxH;O and Se-O bonds were indicated in the FT-IR analysis of SAA, and its surface displayed an organized network structure. The SAA group showed 5.54 nmol/g lower malondialdehyde (MDA) content and 12.93% higher superoxide dismutase (SOD) activity than the polysaccharides of AA group. Moreover, SAA promoted the growth of particular gut microbiota, notably the phylum

Bacteroidetes, the family Bifidobacteriaceae, and the genus Bifidobacterium. In conclusion, SAA not only boosts the antioxidant capacity of Drosophila but also enhances the diversity and uniformity of their intestinal microbiota. This demonstrates SAA's regulatory actions on Drosophila microbial community structure.

Accession Number: WOS:001625838200012

Document Type: Article

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Research Areas: Food Science & Technology

Output Date: 2026-01-27

Record 5

Title: Enhancing the Nutritional Value and Antioxidant Activity of Auricularia polytricha Through Efficient Utilization of Agricultural Waste

Author(s): Qin, ZL (Qin, Zaili); Wu, N (Wu, Nan); Tarafder, E (Tarafder, Entaj); Mei, SH (Mei, Shihui); Xie, JT (Xie, Jiangtao); Li, CT (Li, Changtian); Tian, FH (Tian, Fenghua)

Source: INTERNATIONAL JOURNAL OF FOOD SCIENCE **Volume:** 2025 **Issue:** 1 **Article Number:** 7257263 **DOI:** 10.1155/ijfo/7257263 **Published Date:** 2025

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Abstract: Auricularia polytricha, a nutritious edible wood-rotting mushroom, faces cultivation challenges due to the limited availability of wood chips. It is urgent to find suitable flat substitutes to replace the current material. This study explores the use of

12 types of agricultural waste as alternative growth substrates, analyzing their effects on the physiological and biochemical characteristics of both mycelia and fruiting bodies. The agricultural waste that demonstrated greater suitability for the growth of A. polytricha was then selected as a substrate to evaluate its effect on the nutritional composition and antioxidant capacity of the fruiting bodies. The research findings have highlighted the potential for cotton straw, coix seed straw, and wheat straw to serve as the most efficient substrates in the cultivation of A. polytricha. The utilization of agricultural waste as a growth medium has been found to markedly enhance the activity of enzymes such as laccase, cellulase, and polyphenol oxidase within the mycelia, resulting in a significant reduction of the cultivation cycle by 16 days. These substrates also improved the nutritional composition of fruiting bodies, increasing crude fat, crude protein, total sugars, and mineral contents of iron (Fe) and zinc (Zn) in the fruiting bodies, with increases of 1.6-fold, 2.6-fold, 2.2-fold, fourfold, and sevenfold, respectively. Additionally, the in vitro antioxidant activity of A. polytricha was assessed, revealing an enhancement in the DPPH free radical scavenging ability by up to 36.06%. This study highlights the utilization of agricultural waste to enhance the nutrient profile of A. polytricha, providing innovative approaches for optimizing its production. Additionally, it offers significant insights into advancing technologies related to "transforming wood-rotting mushrooms into agents for straw degradation."

Accession Number: WOS:001633056000001

Document Type: Article

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Research Areas: Food Science & Technology; Nutrition & Dietetics

Output Date: 2026-01-27

Record 1

Title: The Role of CD36 and Its Regulatory Mechanisms in Metabolic Dysregulation and Tumorigenesis

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

Source: SCANDINAVIAN JOURNAL OF IMMUNOLOGY **Volume:** 102 **Issue:** 5 **Article Number:** e70065 **DOI:** 10.1111/sji.70065 **Published Date:** 2025 NOV

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Cluster of differentiation 36 (CD36) is a multifunctional membrane protein receptor widely expressed on the surface of various immune and nonimmune cells in the body, and it belongs to the class B scavenger receptor family (SR-B2). The extracellular domain of CD36 can recognise and bind to various ligands, mediating a range of biological functions and participating in various physiological and pathological processes, including immune responses, lipid metabolism, cancer and inflammation. This review summarises the gene and protein structure of CD36 and its ligand-mediated biological functions. It further elucidates the role of CD36 in regulating immune responses, various metabolic processes and mechanisms, as well as the involved signalling pathways, providing a theoretical foundation for related biological research.

Accession Number: WOS:001624350400011

Document Type: Review

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Research Areas: Immunology

Output Date: 2026-01-27

Materials Science

Record 1

Title: Magnetic-thermal dual-responsive nanoparticle emulsification and interfacial properties study and their microscopic processes in oil-water systems

Author(s): Lv, M (Lv, Man); Chu, JZ (Chu, Jinzhe); Cui, CY (Cui, Chunyue); Cao, LL (Cao, Lili); Tan, JY (Tan, Jinyan); Wang, J (Wang, Jun)

Source: MATERIALS TODAY COMMUNICATIONS **Volume:** 49 **Article Number:** 114348 **DOI:** 10.1016/j.mtcomm.2025.114348 **Early Access Date:** NOV 2025 **Published Date:** 2025 DEC

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Abstract: Most nanomaterials suffer from poor interfacial activity and difficult adjustment of hydrophilicity and lipophilicity, which hinder the popularization and use of nanomaterials in oilfield and other industrial fields, and usually require the modification of nanomaterials' surfaces. In this paper, single-electron transfer active radical polymerization technology was employed to conduct in-situ polymerization reactions on the surface of SiO2-coated Fe3O4 nanoparticles, successfully grafting poly(N-isopropylacrylamide) with temperature-sensitive properties. Ultimately, magnetic-thermal dual-responsive nanoparticles Fe3O4@SiO2@PNIPAM with a temperature response threshold of 32 degrees C were prepared. The experimental results showed that Fe3O4@SiO2@PNIPAM nanoparticles had good emulsion stability, interfacial tension reduction and wetting reversal ability at a lower concentration of 0.05 wt%. This results in a rapid reduction of the oil-water interfacial tension from 21.1 mN/m to 4.0 mN/m. The interfacial activity of Fe3O4@SiO2@PNIPAM nanoparticles increased significantly and the emulsion type was transformed when the temperature was increased to more than 32 degrees C, the surfactant activity of Fe3O4@SiO2@PNIPAM nanoparticles significantly increases, and the emulsion type shifts from water-in-oil to oil-in-water. Molecular simulation results indicate that Fe3O4@SiO2@PNIPAM nanoparticles adsorb at the oil-water interface. When the temperature rises above 32 degrees C, the thickness of the oil-water interfacial layer increases from 11.2 Å to 12.6 Å, and the interfacial formation energy increases from-864 kJ/mol to-900 kJ/mol. At the same time, this distribution effectively reduces the cohesive energy of oil droplets on the rock surface and weakens the adsorption between the oil droplets and the rock surface. The above results further reveal the microscopic mechanism of Fe3O4@SiO2@PNIPAM nanoparticles in enhancing interfacial activity and stripping oil droplets from the rock surface.

Accession Number: WOS:001628115400010

Document Type: Article

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Research Areas: Materials Science

Output Date: 2026-01-27

Microbiology

Record 1

Title: Third-generation sequencing reveals the spatial variation of microbial composition of airborne bacteria in an intensive dairy farm

Author(s): Zhang, QQ (Zhang, Qianqian); Ding, LY (Ding, Luyu); Xie, XY (Xie, Xueying); Ru, L (Ru, Lin); Li, QF (Li, Qifeng); Yao, CX (Yao, Chunxia); Solkner, J (Solkner, Johann); Jiang, RX (Jiang, Ruixiang)

Source: FRONTIERS IN MICROBIOLOGY **Volume:** 16 **Article Number:** 1688472 **DOI:** 10.3389/fmicb.2025.1688472 **Published Date:** 2025 DEC 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Introduction: The intensification of livestock farming has led to increased bacterial bioaerosol emissions, posing potential health risks to both animals and humans. This study aimed to investigate the bacterial community composition, abundance, diversity, and variation in different functional zones of cattle farms to assess their impact on public health and environmental quality. Methods: We employed third-generation sequencing on the PacBio platform to analyze 16S ribosomal RNA (rRNA) sequences from air samples, identifying a diverse range of bacterial phyla, including Proteobacteria, Firmicutes, Verrucomicrobia, Bacteroidetes, Fusobacteria, Actinobacteria, Deinococcus-Thermus, Cyanobacteria, and Acidobacteria. The phylogenetic tree was built using the microbiome abundance of these samples. Results: Notably, Firmicutes and Proteobacteria were predominantly enriched in the samples, with genera such as Staphylococcus, Acinetobacter, Enterococcus, and Bacillus, and the family Enterobacteriaceae, which was unknown, being particularly abundant. These bacteria are known to be associated with various infections and chronic diseases. Correlation and canonical correspondence analysis (CCA) revealed that environmental factors, particularly ultraviolet (UV) radiation and global horizontal irradiance (GHI), significantly influence microbial species distribution, with R-2 values of 0.774 ($p < 0.05$) and 0.769 ($p < 0.05$), respectively. We further

calculated the alpha and beta diversity of microbiome in these samples and observed that fermenting manure (F1), fresh manure (X2), and piled-up manure after fermentation (D3) samples have the highest alpha diversity, while PC1 from beta diversity, that is, weighted principal coordinates analysis (PCoA), explained 32.66% of the variance in the data. Interestingly, the relative abundance of the Kocuria genus was significantly different between the waste management area (FW) and the milking parlor (NT) (t-test, $p < 0.013$). Discussion: Our findings underscore the importance of understanding the complex microbial ecosystems in livestock farming environments and highlight the need for targeted interventions to mitigate public health risks associated with bacterial bioaerosols.

Accession Number: WOS:001650500900001

Document Type: Article

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Research Areas: Microbiology

Output Date: 2026-01-27

Record 2

Title: Resveratrol can inhibit porcine reproductive and respiratory syndrome virus infection in vitro and in vivo by inhibiting PI3K/Akt signaling pathway

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Source: VETERINARY MICROBIOLOGY **Volume:** 312 **Article Number:** 110823 **DOI:** 10.1016/j.vetmic.2025.110823 **Early Access Date:** DEC 2025 **Published Date:** 2026 JAN

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Porcine reproductive and respiratory syndrome virus (PRRSV) is one of the most economically costly pathogens in global pig industry, causes reproductive dysfunction in pregnant sows and respiratory distress in piglets. Resveratrol (RES), a polyphenolic compound, exhibits antiviral properties. Despite its recognized bioactivity, the potential antiviral efficacy against PRRSV remains underexplored. This research investigated the effect of RES in PRRSV infection and its underlying molecular mechanism. The animal attack tests showed that RES markedly improved clinical symptoms and reduced lung tissue damage in piglets infected with PRRSV. In vitro experiments further revealed RES suppress PRRSV replication within Marc-145 cells. Mechanistic investigations revealed that the PI3K/Akt signaling pathway was the crucial passage. RES directly acted on PRRSV particles by downregulating Nsp3, thereby effectively inhibiting viral replication in cells. Specifically, we identified the PYDP motif of Nsp3 as crucial for binding to the key protein p85 in the PI3K/Akt signaling pathway, highlighting a pivotal amino acid site for viral modulation of this pathway. Furthermore, in host cells, RES inhibited PRRSV replication by suppressing the PI3K/Akt pathway, involving coordinated regulation of autophagy and ferroptosis. Notably, RES directly suppressed viral replication by inhibiting autophagy and ferroptosis, with evident crosstalk between these processes. Collectively, our findings unveil a novel mechanism of the cross-talk between autophagy and ferroptosis in regulating PRRSV infection. RES exhibited inhibitory effects on PRRSV both in vivo and in vitro by targeting the PI3K/Akt pathway. These findings will provide important insights for developing prevention and treatment strategies against PRRS.

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Document Type: Article

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Research Areas: Microbiology; Veterinary Sciences

Output Date: 2026-01-27

Record 3

Title: Vitamin C combined with anti-PD-1 antibody alleviates peripheral lymphopenia and enhances CD4+T-cell antiviral immunity during BVDV infection

Author(s): Li, Y (Li, Yang); Liang, Y (Liang, Yue); He, LR (He, Linru); Li, PL (Li, Peilong); Chen, RS (Chen, Ruosi); Wang, S (Wang, Shuang); Zhang, PY (Zhang, Pengyu); Xu, B (Xu, Bin); Zhou, YL (Zhou, Yulong); Zhu, ZB (Zhu, Zhanbo); Zhao, JJ (Zhao, Jianjun); Liu, Y (Liu, Yu)

Source: VETERINARY MICROBIOLOGY **Volume:** 312 **Article**

Number: 110825 **DOI:** 10.1016/j.vetmic.2025.110825 **Early Access Date:** JAN 2025 **Published Date:** 2026 JAN

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Bovine viral diarrhea virus (BVDV)-induced lymphopenia is associated with immune dysfunction. Vitamin C (VC) improves immune response by increasing peripheral blood lymphocyte (PBL) count, thereby promoting T-cell activation and release of IL-2 and IFN-gamma. However, it remains unclear whether VC plays a critical positive regulatory role in the antiviral activities of CD4+ T cells during BVDV infection, or whether the combined treatment with VC and programmed death-1 (PD-1) blockade demonstrates a stronger effect in alleviating BVDV-induced lymphopenia. In this study, we found that both cytopathic (CP) and non-cytopathic (NCP) BVDV infection caused significant reductions in VC in plasma and PBLs of mice. VC supplementation alone or combined with PD-1 blockade significantly increased lymphocyte count and proliferation and upregulated the expression of CD25 and p-ERK in PBLs during CP and NCP BVDV infection. Furthermore, VC supplementation dramatically downregulated PD-1 expression, ameliorated CD4+ T-cell activation and proliferation, and inhibited apoptosis. We further investigated the effect of combined treatment with VC and PD-1 blockade on promoting CD4+ T-cell activation, increasing IFN-gamma production, upregulating p-JAK2/p-STAT1 expression, and inhibiting viral replication during NCP BVDV infection. Remarkably, VC supplementation significantly increased IFN-gamma production, upregulated p-JAK2/p-STAT1 expression, and reduced viral load in CD4+ T cells after NCP BVDV infection but not after CP BVDV infection. Our findings confirmed an essential regulatory role for VC in alleviating BVDVinduced lymphopenia and enhancing CD4+ T-cell antiviral immunity, as well as the combination's effect on VC and anti-PD-1 antibody during BVDV infection, thereby providing new insights to explore potential therapeutic strategies to control BVDV infection.

Accession Number: WOS:001633554900001

Document Type: Article

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Output Date: 2026-01-27

Optics

Record 1

Title: Simple OFT with yeast particles summoning for enhanced mulitple particles capture

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Source: OPTICS AND LASERS IN ENGINEERING **Volume:** 196 **Article Number:** 109442 **DOI:** 10.1016/j.optlaseng.2025.109442 **Early Access Date:** NOV 2025 **Published Date:** 2026 JAN

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Total Times Cited: 0

Abstract: Conventional optical fiber tweezers (OFTs) often suffer from limited trapping range, low multi-particle capture efficiency, and high power demand, which hinder their scalability in biological and microfluidic applications. To overcome these limitations, we present a novel optical-fiber-tweezer (OFT) probe employing a single-mode fiber for efficient trapping and aggregation of yeast particles. The probe incorporates two major innovations. First, an LP01-LP11 mode conversion followed by orbital-angular-momentum (OAM) generation creates a hollow annular trap that enhances trapping stability. Second, the tapered fiber tip is coated with a carbon-based colloid that amplifies the local electromagnetic field and improves optical trapping efficiency. These two effects act synergistically: the OAM-generated halo provides a geometrically stable annular trap, while the micro-packed colloid intensifies the local gradient field through Mie scattering and multi-path interactions, enabling robust multi-particle manipulation. Experimental and simulation results confirm that the probe captures yeast particles under a 980 nm laser without mechanical translation of the fiber. The device achieves approximately 5 times higher trapping efficiency, 3 times larger capture area, and 10 times lower power consumption than conventional fiber tweezers, demonstrating the effectiveness of the dual-enhancement strategy. This cost-effective and scalable design opens up new opportunities for advanced multiparticle manipulation and paves the way for energy-efficient optical trapping systems in biophysics and chemical sciences. This approach not only advances optical manipulation techniques but also paves the way for scalable, energy-efficient optical systems for future photonic and biomedical applications.

Accession Number: WOS:001619303500003

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Research Areas: Optics

Output Date: 2026-01-27

Parasitology

Record 1

Title: Transcriptomic profiling of Kupffer cells exposed to Clonorchis sinensis extracellular vesicles: Unraveling the role of CSF3 in hepatic fibrosis

Author(s): Lan, Z (Lan, Zhuo); Wang, X (Wang, Xue); Zhang, YX (Zhang, Yuxi); Zhou, L (Zhou, Lu); Bai, X (Bai, Xue); Zhang, XH (Zhang, Xinhui); Zhang, HK (Zhang, Haokun); Qiu, HY (Qiu, Hongyu); Gao, JF (Gao, Junfeng); Cheng, GF (Cheng, Guofeng); Wang, CR (Wang, Chunren)

Source: FOOD AND WATERBORNE PARASITOLOGY **Volume:** 41 **Article Number:** e00304 **DOI:** 10.1016/j.fawpar.2025.e00304 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC

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Abstract: Clonorchiasis, caused by Clonorchis sinensis, is a significant public health issue in China and East Asia. However, understanding its pathological mechanisms underlying this disease remains limited. Here, we isolated and characterized C. sinensis extracellular vesicles (CsEVs) and evaluated their uptake by Kupffer cells

(KCs) in vitro in immortalized KC (ImKC) line and in vivo in a model of C. sinensis infection, investigating genes with altered gene expression after treatment with CsEVs and during progression to liver fibrosis. CsEVs were successfully taken up by KCs to regulate gene expression. RNA-sequencing analysis identified 694 differentially expressed genes (DEGs), including upregulation of those encoding colony-stimulating factor 3 (CSF3), IL1b, and others. Further validation showed increased expressions of these genes in mice infected with C. sinensis. Gene ontology and Kyoto Encyclopedia of Genes and Genomes pathway analyses suggested that these DEGs were involved in pathways such as TNF signaling, and NF-kappa B signaling. During liver fibrosis progression, CSF3 expression positively correlated with alpha smooth muscle actin (alpha-SMA) levels in the liver, both of which were higher compared with negative controls. CSF3 inhibition caused a significant decrease in alpha-SMA expression. This study was the first to report differential gene expression changes in ImKCs stimulated by CsEVs, with CSF3, the most significantly upregulated gene, having a potential role in liver fibrosis. These findings provide important data for the pathology of clonorchiasis and could identify new targets for treatment.

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Document Type: Article

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Research Areas: Parasitology; Veterinary Sciences

Output Date: 2026-01-27

Plant Sciences

Record 1

Title: Why leaf N : P is not reliable for diagnosing nutrient limitation of productivity: answer from leaf phosphorus fractions

Author(s): Liang, XS (Liang, Xiao-Sa); Ning, Y (Ning, Yu); Wang, HY (Wang, Hong-Yi); Wang, ZW (Wang, Zheng-Wen); Ding, C (Ding, Cong); Zhang, XR (Zhang, Xiao-Ru); Wu, YX (Wu, Yuan-Xiu); Zhang, ZW (Zhang, Zhi-Wei); Sardans, J

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Source: NEW PHYTOLOGIST **Article Number:** PMID 9882884 **DOI:** 10.1111/nph.70893 **Early Access Date:** JAN 2026 **Published Date:** 2026 JAN 9

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Nitrogen (N) enrichment is expected to exacerbate plant phosphorus (P) limitation, yet this assumption has seldom been empirically tested. We investigated the effects of 7-9 yr of N and P addition on grassland aboveground net primary productivity (ANPP), leaf N : P, and P fractions. Nitrogen addition more than doubled ANPP and increased community leaf N : P from 9.3 to 17.2, a shift traditionally interpreted as indicating N-induced P limitation under the stoichiometric framework. However, subsequent P addition following N enrichment did not increase ANPP, despite decreasing leaf N : P, directly challenging the predicted P limitation. Plants in N-enriched communities exhibited increased nucleic acid P and residual P concentrations. Phosphorus addition following N enrichment increased metabolic P and lipid P concentrations, but not nucleic acid P or residual P. Allocation to nucleic acid P was more tightly linked to plant growth, indicating that plants in N-enriched communities can adapt to low total P by reallocating P toward nucleic acid P. Our results provide a novel mechanism that explains the uncertainties of leaf N : P as a sole indicator of nutrient limitation for primary productivity, and highlight the critical role of leaf P fraction allocation in mediating plant adaptation to stoichiometric imbalance.

Accession Number: WOS:001657834100001

Document Type: Article; Early Access

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Research Areas: Plant Sciences

Output Date: 2026-01-27

Record 2

Title: The transcription factor AtVIP1 promotes sorghum root development by interacting with the SbARF7 promoter

Author(s): Dai, LY (Dai, Lingyan); Chai, SY (Chai, Siyu); Gao, J (Gao, Jing); Kong, LX (Kong, Lingxin); Zhuang, XY (Zhuang, Xinyu); Wu, ZH (Wu, Zenghui); Xiao, T (Xiao, Tong); Zhao, YY (Zhao, Youyin); Cao, N (Cao, Ning); Wang, HY (Wang, Hongyu)

Source: PLANT CELL REPORTS **Volume:** 45 **Issue:** 1 **Article Number:** 22 **DOI:** 10.1007/s00299-025-03699-0 **Published Date:** 2026 JAN 8

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Key messageThe AtVIP1-SbARF7 module controls root development via auxin signaling, offering insights into root regulatory networks and crop improvement.AbstractPlant root development is regulated by the auxin signaling pathway. It has been found that AtVIP1 (Arabidopsis thaliana VirE2-interacting Protein 1) gene overexpression promotes lateral root growth in sorghum, but its mechanism of action is not clear. The purpose of this study is to analyze the molecular mechanism by which AtVIP1 regulates sorghum root development through the auxin pathway, By constructing AtVIP1 overexpressing and silencing lines, it was found that overexpressing plants had a more developed root system (increased number of lateral root primordia and increased root volume), whereas silencing lines had suppressed growth. Expression analysis showed that AtVIP1 was enriched in root tips and lateral root primordia with subcellular localization in the nucleoplasm. Hormone treatment confirmed that AtVIP1 promoted auxin accumulation through the IAA pathway and stably up-regulated the expression of downstream genes such as SbYUCCA2 and SbIAA14. Y1H and EMSA confirmed that AtVIP1 directly binds to the SbARF7 promoter. The Dual-Luciferase Reporter constructed shows that AtVIP1 increases the promoter activity of SbARF7 by 2.3 times. After silencing SbARF7 in the background of AtVIP1-OE, the root branches decreased, indicating that AtVIP1 promotes root

development by activating SbARF7 transcription. This study reveals the molecular mechanism by which the AtVIP1-SbARF7 module regulates root development through the auxin signaling pathway, providing new insights into the transcriptional regulatory network of root development and potential targets for the genetic improvement of crop root traits.

Accession Number: WOS:001656688500001

Document Type: Article

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Research Areas: Plant Sciences

Output Date: 2026-01-27

Record 3

Title: Effects of Maize Straw Incorporation on Soil Water-Soluble Organic Carbon Fluorescence Characteristics

Author(s): Kuang, EJ (Kuang, Enjun); Zhang, JM (Zhang, Jiuming); Colinet, G (Colinet, Gilles); Zhu, P (Zhu, Ping); Zhu, BG (Zhu, Baoguo); Sun, L (Sun, Lei); Hao, XY (Hao, Xiaoyu); Zhu, YX (Zhu, Yingxue); Yuan, JH (Yuan, Jiahui); Liu, L (Liu, Lin); Ji, JH (Ji, Jinghong)

Source: PLANTS-BASEL **Volume:** 15 **Issue:** 1 **Article Number:** 4 **DOI:** 10.3390/plants15010004 **Published Date:** 2025 DEC 19

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Total Times Cited: 0

Abstract: Farmland soil water-soluble organic carbon (WSOC), serving as a labile carbon substrate for microbial utilization, demonstrates pronounced sensitivity to land-use modifications and agricultural management practices. This study systematically investigated the impacts of long-term straw incorporation frequencies-including annual (S-1), biennial (S-2), and triennial (S-3) return patterns-on WSOC distribution across 0-20 cm and 20-40 cm soil profiles. Through the integration of three-dimensional excitation-emission matrix (EEM) fluorescence spectroscopy with parallel factor analysis (PARAFAC), we elucidated structural

characteristics and humification dynamics associated with different incorporation regimes. The results showed a depth-dependent WSOC distribution pattern with higher concentrations in surface soils (0-20 cm: 261.2-368.9 mg/kg) compared to subsurface layers (20-40 cm: 261.8-294 mg/kg). Straw incorporation significantly increased WSOC content in the 0-20 cm of 16.9%similar to 21.7% and 20-40 cm soil layers of 6.2%similar to 12.3%. Biennial return had the lowest WSOC/SOC ratio, indicating enhanced stability of the soil organic carbon pool. Spectral indices-including the fluorescence index (FI, 1.59 similar to 1.69), biological index (BIX, 0.90 similar to 0.95), and humification index (HIX, 0.64 similar to 0.74)-collectively indicated that WSOC predominantly consisted of microbially processed organic matter with a low degree of humification. PARAFAC modeling resolved two fluorescent components: C1 (humic acid-like substances, 47.4-50.4%), C2 (soluble microbial metabolites, 49.6-52.6%). This systematic investigation provides mechanistic insights into how straw management temporality regulates both quantity and quality of labile carbon pools in agricultural ecosystems.

Accession Number: WOS:001658501700001

Document Type: Article

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Research Areas: Plant Sciences

Output Date: 2026-01-27

Record 4

Title: The Function of RcAG2 and RcFUL in the Flower Shape Change of Rosa chinensis 'Viridiflora'

Author(s): Zhang, JF (Zhang, Jinfeng); Liao, H (Liao, Hui); Yang, YP (Yang, Yipeng); Zhang, XX (Zhang, Xixi); Yi, CJ (Yi, Caijie); Song, LN (Song, Lina); Li, ZJ (Li, Zijing);

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Source: PLANTS-BASEL **Volume:** 15 **Issue:** 1 **Article Number:** 11 **DOI:** 10.3390/plants15010011 **Published Date:** 2025 DEC 19

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Total Times Cited: 0

Abstract: The floral morphology of Rosa chinensis significantly influences its ornamental value. However, the molecular mechanisms underlying specific floral types remain poorly understood. Viridiflora, a stable genetic variant of R. chinensis, exhibits homeotic transformation of floral organs into sepal-like structures, providing a valuable model for studying floral organ identity and development. In this study, Viridiflora was compared with Old Blush to elucidate floral development through morphological observation, transcriptomic profiling, and functional genetics. Four distinct developmental stages were defined, encompassing the formation of sepal, petal, stamen, and pistil primordia. Transcriptome analysis identified candidate genes associated with the Viridiflora phenotype, among which RcAGAMOUS2 (RcAG2) and RcFRUITFULL (RcFUL) were selected for in-depth functional characterization. The proteins encoded by these two genes are hydrophilic, lack signal peptides and transmembrane domains, and contain multiple phosphorylation sites. They feature typical MADS-box family domains and show close phylogenetic affinity to Rosa rugosa. Subcellular localization showed their nuclear presence. Heterologous overexpression of RcAG2 and RcFUL in Arabidopsis resulted in notable phenotypic alterations: RcAG2 caused petal reduction and stamen exposure, while RcFUL led to greenish, leaf-like petals with pigmentation gradients, increased sepal number, and failed seed set. Conclusion: These results suggest that RcAG2 and RcFUL play key roles in floral organ development through genetic regulation, providing a theoretical foundation for further research on floral development in R. chinensis.

Accession Number: WOS:001657337900001

Document Type: Article

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Research Areas: Plant Sciences

Output Date: 2026-01-27

Record 5

Title: RcLOG7-1 of castor bean plays dual roles in enhancing drought and salt stress tolerance

Author(s): Li, YX (Li, Yanxiao); Shen, Y (Shen, Yang); Li, WH (Li, Wanhong); Wang, Y (Wang, Yue); Dong, WF (Dong, Weifeng); Sun, MZ (Sun, Mingzhe); Xiang, DJ (Xiang, Dianjun); Sun, XL (Sun, Xiaoli); Liu, P (Liu, Peng)

Source: PLANT CELL REPORTS **Volume:** 45 **Issue:** 1 **Article Number:** 9 **DOI:** 10.1007/s00299-025-03670-z **Published Date:** 2025 DEC 16

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Key messageHeterologous overexpression, transcriptomics, and physiology confirm RcLOG7-1 enhances plant drought and salt tolerance.AbstractThe specific phosphohydrolase LONELY GUY (LOG) is involved in various biological processes of plant growth and development. However, research on the regulatory role of castor bean LOG under drought and salt stresses is limited. Here, we report the dual positive regulatory effects of the RcLOG7-1 gene under both drought and salt stresses in genetically modified Arabidopsis thaliana. Drought and salinity conditions significantly induced the transcription of RcLOG7-1. Subcellular localization results indicate that RcLOG7-1 was located in the cytoplasm. Overexpression of RcLOG7-1 in Arabidopsis enhanced drought and salt stresses tolerance. Through RNA-seq and physiological assessments, RcLOG7-1 modulated the expression of genes involved in glutathione metabolism, phenylpropanoid biosynthesis, and proline synthesis under drought and salt stresses, thereby enhancing antioxidant enzyme activity and lignin content in transgenic Arabidopsis. This resulted in improved scavenging of active oxygen free radicals. Furthermore, RcLOG7-1 influenced plant hormone signal transduction, particularly cytokinin synthesis (CTK), leading to elevated CTK levels in transgenic Arabidopsis compared to wild type. In summary, this study provides data supporting the function of LOG genes in stressed conditions, facilitating and accelerating molecular breeding for stress tolerance in castor bean.

Accession Number: WOS:001640439100001

Document Type: Article

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Research Areas: Plant Sciences

Output Date: 2026-01-27

Record 6

Title: The alfalfa AP2/ERF transcription factor MsCBF4 enhances frost tolerance in Arabidopsis thaliana

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Source: BMC PLANT BIOLOGY **Volume:** 25 **Issue:** 1 **Article Number:** 1763 **DOI:** 10.1186/s12870-025-07778-y **Published Date:** 2025 NOV 24

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Background Alfalfa (Medicago sativa L.) is globally important forage crop whose survival and productivity at higher latitudes depend on cold-stress tolerance. However, the molecular mechanisms of how alfalfa defends against freezing stress remain unclear. Results In this study, the candidate gene MsCBF4 was cloned from the cold-tolerant alfalfa genotype "Dongnong NO.1". MsCBF4 belongs to the APETALA2/Ethylene Response Factor (AP2/ERF) transcription factor family and functions as a transcriptional activator via a C-terminal activation domain. The encoded protein localized to the nucleus. MsCBF4 is induced by cold and freezing conditions and is expressed in roots, stems, leaves, flowers, and pods, with the highest expression levels in roots and leaves. Overexpression of MsCBF4 in Arabidopsis thaliana seedlings significantly enhanced root length, lateral root number, and fresh weight under cold stress. Lines overexpressing MsCBF4 demonstrated enhanced frost tolerance at both the seedling and mature stages, likely through improved physiological scavenging of reactive oxygen species (ROSs), thereby limiting membrane damage. Furthermore, under freezing stress, the expression levels of key genes involved in abiotic stress resistance were upregulated in transgenic Arabidopsis. The MsCBF4 promoter exhibits transcriptional activity and can be directly activated by cold responses. Yeast one-hybrid (Y1H) and dual-luciferase reporter (Dual-LUC) assays showed that MsERF6 specifically binds to the MsCBF4 promoter and positively regulates its expression. Conclusion MsCBF4 enhances frost tolerance in Arabidopsis by alleviating oxidative stress, protecting membrane integrity, and upregulating stress-responsive genes.

Accession Number: WOS:001651157500002

Document Type: Article

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Research Areas: Plant Sciences

Output Date: 2026-01-27

Record 7

Title: Mechanisms of root exudates and soil microbial responses to nitrogen reduction and companion cropping for tomato yield increase and quality improvement

Author(s): Liu, DY (Liu, Deyang); He, XJ (He, Xingjia); Liu, YX (Liu, Yingxue); Sun, CF (Sun, Chaofan); Su, CJ (Su, Chunjie); Lang, YS (Lang, Yishan); Wu, X (Wu, Xia)

Source: FRONTIERS IN PLANT SCIENCE **Volume:** 16 **Article Number:** 1642078 **DOI:** 10.3389/fpls.2025.1642078 **Published Date:** 2025 NOV 18

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: The utilization of nitrogen fertilizer in excess over an extended period in facility cultivation has been demonstrated to engender a decline in tomato yield and quality, thus becoming a bottleneck issue that restricts production. In order to explore the biological mechanisms of nitrogen reduction and companion planting patterns on tomato yield and quality, this study conducted a two-year pot experiment under different nitrogen application levels and planting patterns, multisystem analysis of tomato rhizosphere soil microbial communities and root secretions was performed using 16S Illumina MiSeq sequencing and LC-MS/MS mass spectrometry. Over two years, the yield of tomatoes grown using reduced nitrogen and companion planting increased by 34.26% and 35.54% compared to monoculture, and by 1.23% and 3.57% compared to the application of conventional nitrogen and companion planting. Nitrogen use efficiency increased by 9.81% and 11.36%, respectively. The nitrogen reduction and companion planting model increased the content of soluble sugars and lycopene, improved soil dehydrogenase and protease activity, and changed the composition of rhizosphere bacterial communities and root exudates. At all nitrogen application rates, companion planting increased the abundance of Pseudomonas. In the 30% nitrogen reduction and conventional nitrogen application systems, the abundance of differential metabolites such as methionine and pipecolic acid was significantly higher in companion crops than in tomato monoculture. On the other side, soil bacteria and root exudates form a complex network of interactions, in which

rhizosphere bacteria such as MND1 are positively correlated with Sphingomonas. In summary, the cultivation model of nitrogen reduction and companion planting of potato onions changed the composition of the tomato soil bacterial community and the metabolic pathways of root exudates, enhanced the activity of nitrogen conversion-related enzymes, and promoted the absorption and utilization of nitrogen nutrients by tomatoes, which provides a theoretical basis for increasing the yield and quality of tomatoes cultivated with 30% nitrogen reduction and companion planting of onions.

Accession Number: WOS:001629360800001

Document Type: Article

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Research Areas: Plant Sciences

Output Date: 2026-01-27

Record 8

Title: Manure substitution for chemical nitrogen enhances soil quality without compromising maize yield: a short-term field experiment in Northeast China

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Source: FRONTIERS IN PLANT SCIENCE **Volume:** 16 **Article Number:** 1694608 **DOI:** 10.3389/fpls.2025.1694608 **Published Date:** 2025 NOV 17

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Introduction Manure substitution for chemical nitrogen has the potential to enhance crop yield, improve soil quality, and reduce environmental risks. Soil microorganisms perform critical functions in mediating soil nutrient cycling after the organic manure application. Nonetheless, how organic manure substitution regulates microbial communities to influence soil quality and crop yield remains unclear.Methods A one-year field experiment comprising four organic manure substitution rates (25%, 50%, 75%, and 100%) along with a no-substitution control was conducted.Results and disscussion Compared to CK, only 25% substitution rate maintained maize yield, while 50-100% manure substitution decreased maize yield by 15.9-67.2%. This is primarily due to the decrease in root biomass (13.5-29.1%), length (14.8-43.3%), surface area (14.1-48.8%) and volume (17.9-53.4%). Manure substitution only increased soil quality index by 44-55% in the 0-20 cm depth, mainly

as a result of increased contents of soil organic C, total nitrogen, microbial biomass C and N, and enzyme activities. Moreover, manure substitution significantly increased the abundance of Actinobacteriota, Acidobacteriota, Gemmatimonadota, and Methylomirabiliota, with increases ranging from 12% to 101%. The strong correlations between these bacterial taxa and soil nutrient and C/N acquiring enzyme activities highlight their pivotal roles in boosting soil nutrients and enhancing soil quality. Therefore, organic manure substitution can be a sustainable fertilizer regime to enhance soil quality and maintain maize yield in Northeast China, and the optimal substitution rate is 25%.

Accession Number: WOS:001627556600001

Document Type: Article

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Research Areas: Plant Sciences

Output Date: 2026-01-27

Reproductive Biology

Record 1

Title: Mitoquinone mesylate enhances bovine oocyte in vitro maturation efficiency by modulating oxidative stress and enhancing mitochondrial function

Author(s): Li, YX (Li, Yongxin); Li, MM (Li, Mengman); Wang, HT (Wang, Hongtao); Chen, XX (Chen, Xiaoxin); Luan, H (Luan, Hu); Lv, JW (Lv, Junwei); Li, XT (Li, Xintao); Li, JC (Li, Jingchun); Zhang, LC (Zhang, Lichun)

Source: THERIOGENOLOGY **Volume:** 253 **Article Number:** 117798 **DOI:** 10.1016/j.theriogenology.2025.117798 **Published Date:** 2026 MAR 15

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Total Times Cited: 0

Abstract: This study probed the regulatory role of mitoquinone mesylate (MitoQ) on oxidative stress (OS) and mitochondrial function during the in vitro maturation (IVM) of bovine oocytes. To this end, MitoQ was added to the IVM medium at concentrations of

0, 50, 100, and 150 nmol/L. Compared with untreated controls, supplementation with 50 nmol/L MitoQ significantly improved the first polar body extrusion (PBE) rate, cleavage rate, and blastocyst formation rate (P < 0.05). Biochemical and cellular analyses further revealed that treatment with 50 nmol/L MitoQ led to a marked reduction in apoptotic death and intracellular reactive oxygen species (ROS) content (P < 0.01), accompanied by significant increases in glutathione (GSH) content and adenosine triphosphate (ATP) production (P < 0.05). In addition, mitochondrial membrane potential (MMP) was significantly elevated in the 50 nmol/L MitoQ group compared to controls (P < 0.01). Gene expression analysis indicated that antioxidant-related genes (SOD, SIRT2, SIRT3) and mitochondrial dynamics-associated genes (DNM1, DNM2, MFN2) were significantly upregulated (& lowast;P < 0.05, & lowast;& lowast;P < 0.01, & lowast;& lowast;& lowast;P < 0.001). Conversely, the pro-apoptotic gene BAX was significantly downregulated (& lowast;& lowast;P < 0.01), whereas expression of the anti-apoptotic gene BCL-2 was significantly increased (& lowast;P < 0.05). Collectively, these findings demonstrate that supplementation of IVM medium with 50 nmol/L MitoQ effectively alleviates OS-induced injury, enhances mitochondrial energy metabolism, and substantially improves oocyte maturation quality and subsequent embryonic developmental potential.

Accession Number: WOS:001659559000001

Document Type: Article

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Research Areas: Reproductive Biology; Veterinary Sciences

Output Date: 2026-01-27

Science & Technology - Other Topics

Record 1

Title: Integrating genomics and transcriptomics reveals candidate genes affecting loin muscle area in Huaxi cattle (vol 20, e0322026, 2025)

Author(s): Xue, QQ (Xue, Qingqing); Du, LL (Du, Lili); Deng, TY (Deng, Tianyu);

Liang, M (Liang, Mang); Li, KN (Li, Keanning); Qian, L (Qian, Li); Qiu, SY (Qiu, Shiyuan); Chen, Y (Chen, Yan); Gao, X (Gao, Xue); Xu, LY (Xu, Lingyang); Wang, ZZ (Wang, Zezhao); Zheng, CH (Zheng, Caihong); Zhang, LP (Zhang, Lupei); Li, JY (Li, Junya); Gao, HJ (Gao, Huijiang)

Source: PLOS ONE **Volume:** 20 **Issue:** 12 **Article Number:** e0339330 **DOI:** 10.1371/journal.pone.0339330 **Published Date:** 2025 DEC 19

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Accession Number: WOS:001643598800009

Document Type: Correction

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Research Areas: Science & Technology - Other Topics

Output Date: 2026-01-27

Record 2

Title: Optimization of a Passive Solar Heating System for Rural Household Toilets in Cold Regions Using TRNSYS

Author(s): Fan, SY (Fan, Shengyuan); Wang, ZY (Wang, Zhenyuan); Wang, HH (Wang, Huihui); Su, BW (Su, Bowei); Shen, YJ (Shen, Yujun); Ding, JT (Ding, Jingtao); Shu, SY (Shu, Shangyi); Jia, YM (Jia, Yiman)

Source: SUSTAINABILITY **Volume:** 17 **Issue:** 24 **Article Number:** 11269 **DOI:** 10.3390/su172411269 **Published Date:** 2025 DEC 16

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: To address the poor thermal insulation and freeze resistance of rural outdoor toilets in cold regions-key obstacles to achieving the UN Sustainable Development Goal (SDG) 6.2 and popularizing rural sanitary toilets-this study fills the literature gap of insufficient research on passive solar heating systems tailored for rural toilets in cold climates. Using TRNSYS simulation, Plackett-Burman key factor screening, single-factor experiments, and Box-Behnken response surface

methodology, we optimized the system with building envelope thermal parameters and Beijing's typical meteorological year data as inputs, taking January's average indoor temperature as the core evaluation index. Results indicated six parameters (solar wall area, air cavity thickness, vent area ratio, vent spacing, exterior wall insulation thickness, and heat-gain window-to-wall ratio) significantly influence indoor temperature ($p < 0.05$). The optimal configuration was as follows: solar wall area 3.45 m(2), window-to-wall ratio 30%, exterior wall insulation thickness 200 mm, vent spacing 1800 mm, air cavity thickness 43 mm, and vent area ratio 5.7%. Post-optimization, the average temperature during the heating season reached 10.81 degrees C (79.5% higher than baseline), with January's average, maximum, and minimum temperatures at 7.95 degrees C, 20.47 degrees C, and -1.42 degrees C, respectively. This solution effectively prevents freezing of flushing fixtures due to prolonged low temperatures, providing scientific support for the application of passive rural toilets in China's cold regions.

Accession Number: WOS:001648638500001

Document Type: Article

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Research Areas: Science & Technology - Other Topics; Environmental Sciences & Ecology

Output Date: 2026-01-27

Spectroscopy

Record 1

Title: Study on the Rheological Properties, Aeration Performance, and Flavor Quality of Whipping Cream With Different Lipid Composition

Author(s): Hou, YF (Hou, Yi-fei); Liang, C (Liang, Chao); Cao, HF (Cao, Hong-fang); Li, F (Li, Feng); Lu, JP (Lu, Jia-ping); Pang, XY (Pang, Xiao-yang); Zhang, SW

(Zhang, Shu-wen); Xie, N (Xie, Ning); Li, X (Li, Xu); Wang, XD (Wang, Xiao-dan); Du, XY (Du, Xin-yu); Liu, YY (Liu, Yan-yan); Wang, YN (Wang, Yun-na)

Source: SPECTROSCOPY AND SPECTRAL ANALYSIS **Volume:** 45 **Issue:** 10 **Pages:** 2968-2977 **DOI:** 10.3964/j.issn.1000-0593(2025)10-2968-10 **Published Date:** 2025 OCT

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: As a typical polymorphic emulsion, the lipid composition of whipping cream played a crucial role in determining its Theological properties, aeration performance, and flavor quality. However, the mechanisms by which different lipids influenced polymorphic behavior and texture remained unclear. This study systematically investigated the effects of milk fat, vegetable fat. And their mixtures on the polymorphism, emulsion stability, flavor characteristics, and aeration performance of whipping cream. The results showed that whipping creams with different lipid compositions primarily consisted of fine, needle-like beta ' crystals stacked vertically in a triple-chain length (3L) structure. Among them, whipping creams containing mixed milk/vegetable fat and vegetable fat alone exhibited higher crystallization degrees, leading to beta-crystal recrystallization during heating (0 similar to 35 degrees C). This process caused fat globule coalescence, increased average particle size, bimodal or multimodal particle size distribution, and higher degree of fat coalescence. Despite this, the average particle size (1 similar to 3 mu m) of whipping cream remained small, with a unimodal distribution and enhanced emulsion stability (TSI=1 similar to 3). Whipping cream with vegetable fat demonstrated higher viscosity, with G ' > G '', indicating a stronger fat crystal network. This contributed to improved aeration performance, as Evidenced by shorter whipping time (130 similar to 170 s), increased overrun (150%similar to 200%), and greater foam hardness (900 similar to 1 400 g). The primary flavor compounds in whipping cream included heptanone, pentanone, acetone, and butanone, Notably. the flavor profile of mixed milk/vegetable fat cream more closely resembled that of vegetable fat cream and differed significantly from pure milk fat cream, Additionally, the main volatile compounds in milk/vegetable fat cream-such as methanol, and ethyl Butyrate-contributed distinct aroma characteristics. Overall, this study provided essential theoretical insights for quality control in whipping cream production.

Accession Number: WOS:001632664000035

Document Type: Article

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Research Areas: Spectroscopy

Output Date: 2026-01-27

Thermodynamics

Record 1

Title: The optimized design and heat transfer characteristics of helical groove tubes: A study based on parameter estimation, continuous adjoint optimization, and physics-informed neural networks

Author(s): Wang, S (Wang, Shuo); Wan, L (Wan, Lin); Wang, HC (Wang, Hongchao); Che, G (Che, Gang); Li, Y (Li, Yan); Du, TB (Du, Tingbo); Wang, CF (Wang, Chaofan)

Source: INTERNATIONAL JOURNAL OF HEAT AND FLUID FLOW **Volume:** 119 **Article Number:** 110251 **DOI:** 10.1016/j.ijheatfluidflow.2026.110251 **Published Date:** 2026 APR

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: To enhance the heat transfer performance of heat exchange tubes and address the research gap in the coupling of structural parameters, operating parameters, and energy efficiency indicators between Parameter Estimation (PE) and Continuous Adjoint Optimization (CADJ) in heat exchange tubes, this study focuses on the helical groove tube in a novel gas-phase rotary shell-and-tube heat exchanger. The study sequentially applies PE and CADJ methods for optimization design, resulting in a new type of highly efficient heat exchange tube. Based on the thermal performance-to-pressure drop loss ratio, Computational Fluid Dynamics software is used to quantitatively assess the heat exchange tube's energy efficiency and systematically analyze its heat transfer characteristics. Additionally, a physics-informed neural network (PINN) is employed to solve the Navier-Stokes equations and reconstruct the two-dimensional temperature field, thereby cross-validating the CFD results in the absence of experimental validation and enhancing the robustness of the optimized design conclusions. The results indicate a strong correlation between various parameters, including tube inner diameter, groove

depth, pitch, air velocity, inlet fluid temperature, and tube wall temperature, and the heat transfer characteristics, with correlation coefficients of 0.9799, 0.9957, 0.9897, and 0.9989, respectively. It was found that enhancing the Nusselt number comes at the cost of increased pressure drop. Compared to the helical groove tube, the novel heat exchanger tube exhibits superior performance in both heat transfer efficiency and energy efficiency, with improvements in the Nusselt number, pressure drop, and the ratio of thermal efficiency to pressure drop by 22.03 %, 22.88 %, and 58.51 %, respectively. The superior performance of the new heat exchanger tube is attributed to the continuous optimization of the helical groove tube's inner wall morphology using the CADJ method, which maintains the basic structure of the internal helical ribs. This optimization strengthens the vortex flow structure while effectively preserving the smooth flow path of the fluid. Additionally, in the absence of experimental validation, the discrepancy between the PINN-reconstructed temperature field and the CFD solution remains on the order of 10(-1), indicating that employing PINN for cross-validation and auxiliary assessment of CFD results provides a simple yet efficient alternative approach. This study presents a reasonable, novel, and practical optimization strategy to improve the heat transfer performance and energy efficiency of heat exchange tubes, offering significant practical application value.

Accession Number: WOS:001664692800001

Document Type: Article

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Research Areas: Thermodynamics; Engineering; Mechanics

Output Date: 2026-01-27

Record 2

Title: Hybrid density-level set topology optimization with dynamic hole generation for enhanced thermal-fluid performance of microchannel heat sinks

Author(s): Yu, SX (Yu, Shaoxuan); Ma, JY (Ma, Jingyao); Wang, JK (Wang, Jiankai); Cui, YF (Cui, Yifan); Wang, LF (Wang, Lifu); Zhang, XL (Zhang, Xingli)

Source: APPLIED THERMAL ENGINEERING **Volume:** 284 **Article Number:** 129128 **DOI:** 10.1016/j.applthermaleng.2025.129128 **Early Access**

Date: NOV 2025 **Published Date:** 2026 JAN 30 **Part:** 1

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: As electronic systems continue to scale in integration and thermal density, managing high heat fluxes poses a persistent challenge. Here we propose a hybrid topology optimization framework for microchannel heat sinks (MCHS), integrating node-based density parameterization, a three-field Heaviside projection (expansion, erosion, baseline), and density-to-level-set mapping, augmented by a temperature-gradient-driven dynamic hole generation mechanism. This approach enables sharply resolved structural boundaries and adaptively improves coolant distribution. Compared to conventional straight microchannel designs under identical thermal loads and flow rates, the optimized configurations reduce the average surface temperature by 5.7-9.5 % and enhance the convective heat transfer coefficient by 71-104 %, while incurring a 176-219 % increase in pressure drop. To assess the thermal-hydraulic trade-off, a figure of merit (FOM)-defined as the normalized ratio of heat transfer enhancement to pumping power penalty-is employed. Across all tested conditions, FOM values exceed unity, peaking at approximately 1.65, indicating an overall gain in system-level performance. Experimental measurements agree closely with numerical predictions, with average temperature deviations confined within 1-5 % under multiple operating conditions.

Accession Number: WOS:001622670000001

Document Type: Article

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Research Areas: Thermodynamics; Energy & Fuels; Engineering; Mechanics

Output Date: 2026-01-27

Veterinary Sciences

Record 1

Title: Comprehensive serum, follicular fluid, and ovarian tissue profiling reveals systemic metabolic alterations in high-yielding dairy cows with postpartum inactive ovaries

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

Source: BMC VETERINARY RESEARCH **Volume:** 22 **Issue:** 1 **Article Number:** 2 **DOI:** 10.1186/s12917-025-05153-5 **Published Date:** 2026 JAN 5

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Background Inactive ovaries (IO) commonly cause postpartum anestrus in high-yielding dairy cows. Despite the widespread reporting of single-metabolic characteristics of postpartum IO, a comprehensive metabolic profile is lacking. Liquid chromatography-tandem mass spectrometry was used to compare the metabolic changes in the serum, follicular fluid (FF), and ovarian tissue of six multiparous Holstein cows from each of the IO and healthy control (HC) groups. Results Cows with IO had a higher milk yield during the previous lactation, poorer BCS, smaller largest follicle (LF) diameter at 63 +/- 3 days in milk, and slower LF growth rate than HC cows ($p < 0.01$). They also exhibited higher serum levels of non-esterified fatty acids and aspartate aminotransferase and lower levels of estradiol, progesterone, insulin-like growth factor 1, calcium, and phosphorus ($p < 0.01$). Under IO conditions, 40, 51, and 14 differential metabolites were identified in serum, FF, and ovarian tissues, respectively. 12-Methyltridecanoic acid was consistently upregulated in cows with IO compared to HC cows across all samples ($p < 0.01$). Metabolomic pathway analysis identified significant alterations in six, three, and two metabolic pathways related to IO in the serum, FF, and ovarian tissues, respectively, affecting amino acid, energy, carbohydrate, lipid, and nucleotide metabolism. Valine, leucine, and isoleucine biosynthesis showed significant changes ($p < 0.05$) in all samples. Conclusion In summary, these metabolic changes in cows with IO reflect a complex response to metabolic, oxidative, and inflammatory stresses. Our study provides the most comprehensive metabolic profile for cows with postpartum IO.

Accession Number: WOS:001654549400004

Document Type: Article

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Research Areas: Veterinary Sciences

Output Date: 2026-01-27

Record 2

Title: Whole-genome characterization and phylogenetic analysis of pigeon circovirus in racing pigeons from Heilongjiang, China

Author(s): Sun, J (Sun, Jia); Miao, Y (Miao, Yan); Lan, SJ (Lan, Shijie); Zhao, JJ (Zhao, Jingjing); Dong, WY (Dong, Wenying); Hu, J (Hu, Jia); Li, HS (Li, Hansong); Li, HN (Li, Huinan); Li, XR (Li, Xinran); Wang, M (Wang, Ming); Xu, YR (Xu, Yaru); Li, CQ (Li, Chunqiu); Xing, XX (Xing, Xiaoxu); Yang, D (Yang, Dan); Zhu, QH (Zhu, Qinghe)

Source: FRONTIERS IN VETERINARY SCIENCE **Volume:** 12 **Article Numbe r:** 1685178 **DOI:** 10.3389/fvets.2025.1685178 **Published Date:** 2026 JAN 5

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Pigeon circovirus (PiCV), a globally distributed pathogen, is associated with immunosuppression and high mortality in racing pigeons. Despite its endemicity in Chinese pigeon populations, molecular epidemiological data on PiCV in Northeast China remain scarce. This study reports the first complete genome sequence of PiCV isolated from racing pigeons in Heilongjiang Province. Through next-generation sequencing (NGS) for whole-genome assembly and systematic PCR-Sanger sequencing for validation, we obtained the complete 2,035-bp genome (designated HLJ2024). Homology analysis revealed nucleotide identities of 72.9-97.7% with other PiCV reference strains; notably, the cap (Capsid) protein of HLJ2024 exhibited a signature mutation (isoleucine [I]-leucine [L]) at residue 222 relative to its closest relative strain TF4/SN/2016, with predicted structural alterations proximal to this site. Phylogenetic analysis indicated that strain HLJ2024 forms an independent clade (GI) and is closely related to strains of clade GII (TF4/SN/2016, QD6/SN/2018). Recombination analysis suggested that HLJ2024 likely arose from recombination between two Chinese parental strains-GF17/GuangDong/2014 (major parent) and TY2/SN/2016 (minor parent). Our findings reveal active PiCV evolution in Northern China driven by point mutations and inter-regional recombination, providing critical insights into viral adaptability and transmission dynamics in Northeast China. These results provide a foundation for molecular epidemiology-based surveillance of PiCV in this understudied region and hold significant implications for developing targeted prevention strategies tailored to locally circulating strains.

Accession Number: WOS:001662976900001

Document Type: Article

Addresses: [Sun, Jia; Miao, Yan; Zhao, Jingjing; Dong, Wenying; Hu, Jia; Li, Hansong; Li, Huinan; Li, Xinran; Wang, Ming; Xu, Yaru; Li, Chunqiu; Xing, Xiaoxu; Yang, Dan; Zhu, Qinghe] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Daqing, Peoples R China.
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Research Areas: Veterinary Sciences

Output Date: 2026-01-27

Record 3

Title: Development of a core streptavidin-bridging amplified ELISA based on p54 epitope for high-sensitivity detection of african swine fever virus antibodies

Author(s): Sun, J (Sun, Jing); Zhou, YS (Zhou, Yingshan); Liu, XB (Liu, Xingbo); Du, XX (Du, Xiaoxu); Cheng, JZ (Cheng, Jiongze); Zheng, HH (Zheng, Huihua); Pan, SN (Pan, Shuonan); Yan, JF (Yan, Junfang); Zhou, XD (Zhou, Xingdong); Wang, XD (Wang, Xiaodu); Zhu, ZX (Zhu, Zixiang); Sun, DB (Sun, Dongbo); Song, HH (Song, Houhui); Su, MJ (Su, Mingjun)

Source: VETERINARY JOURNAL **Volume:** 314 **Article Number:** 106486 **DOI:** 10.1016/j.tvjl.2025.106486 **Early Access Date:** NOV 2025 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Abstract: Infection with the African swine fever virus (ASFV) causes a highly acute and lethal disease in pigs, emphasizing the urgent need for early detection to manage outbreaks effectively. While indirect enzyme-linked immunosorbent assays (ELISAs) based on antigenic epitopes provide high sensitivity, conventional adsorption of epitopes onto ELISA plates can hinder antibody recognition. In this study, we developed an indirect ELISA for ASFV antibody detection by integrating the identified p54 antigenic epitope into a core-streptavidin (cSA)-based immobilization system. Using the 6G9 monoclonal antibody (mAb), generated against the recombinant p54 protein (GST-rp54), we confirmed its specific recognition of ASFV-positive serum. A highly conserved linear epitope within p54, spanning amino acids 60-79 (A(60)AIEEEDIQFINPYQDQQQWV(79); p54(60-79)), was identified as the 6G9 mAb binding region. Immobilization of biotin-PEG4-p54(60-79) via cSA significantly enhanced immunoreactivity, increasing the OD450 value by 0.22 (1:800 dilution) and 0.28 (1:400 dilution) for the 6G9 mAb and ASFV-positive serum, respectively. After optimizing key assay parameters, we established a cSA-based indirect ELISA using the p54(60-79) epitope (cSA-p54(60-79)-inELISA). The assay exhibited high reproducibility (coefficient of variation 3.29-8.76 %) and strong specificity, showing no cross-reactivity with antisera against CSFV, PCV2, PRRSV, PRV, PEDV, TGEV, or PDCoV. It also demonstrated superior sensitivity, detecting ASFV-positive serum diluted up to 1:1600 (OD450 > 0.43), outperforming a commercial ELISA kit (limit 1:400). Receiver operating characteristic (ROC) analysis revealed 95.5 % sensitivity and 96.2 % specificity based on samples of known status (n = 100). In conclusion, we developed a novel, specific, and highly sensitive serological method for ASF

detection, providing an effective tool for early diagnosis.

Accession Number: WOS:001619307000001

Document Type: Article

Addresses: [Sun, Jing; Zhou, Yingshan; Du, Xiaoxu; Cheng, Jiongze; Zheng, Huihua; Pan, Shuonan; Yan, Junfang; Zhou, Xingdong; Wang, Xiaodu; Song, Houhui; Su, Mingjun] Zhejiang A&F Univ, Zhejiang Int Sci & Technol Cooperat Base Vet Med &, Belt & Rd Int Joint Lab One Hlth & Food Safety,Key, Zhejiang Engn Res Ctr Vet Diagnost & Adv Technol, 666 Wusu St, Hangzhou 311300, Zhejiang, Peoples R China.
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[Sun, Dongbo] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Lab Prevent & Control Swine Infect Dis, 5 Xinfeng Rd, Daqing 163319, Peoples R China.
[Liu, Xingbo] Coastal Times Int Biomed Technol Beijing Co Ltd, Beijing, Peoples R China.

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Sun, DB (corresponding author), Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Lab Prevent & Control Swine Infect Dis, 5 Xinfeng Rd, Daqing 163319, Peoples R China.

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Affiliations: Zhejiang A&F University; Lanzhou University; Chinese Academy of Agricultural Sciences; Lanzhou Veterinary Research Institute, CAAS; Heilongjiang Bayi Agricultural University

Research Areas: Veterinary Sciences

Output Date: 2026-01-27

3 EI 收录情况

（2025.11.27-2026.1.27）

3.1 EI Compendex

EI 索引库共收录我校教师发表的 57 篇文献，文献详细题录信息如下。

1. Pepper root exudate attenuates snap bean root rot by mediating microbial community remodeling

Li, Ying (College of Horticulture and Landscape Architecture, Heilongjiang Bayi Agricultural University, Daqing, China); Liu, Le; Teng, Huaiyuan; Zhao, Liqin; Fan, Bowen; Yang, Fengjun

Source: Applied and Environmental Microbiology, v 91, n 11, November 2025

Database: Compendex

Data Provider: Engineering Village

2. The integration of artificial intelligence and moral education: an innovative way to improve the moral quality of college students

Zhou, Kai (Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing, China); Li, Qing; Liu, Haoxuan; Pan, Qi; Wang, Yongbing; Tian, Li

Source: Proceedings of 2025 3rd International Conference on Educational Knowledge and Informatization, EKI 2025, p 511-515, November 1, 2025, Proceedings of 2025 3rd International Conference on Educational Knowledge and Informatization, EKI 2025

Database: Compendex

Data Provider: Engineering Village

3. Estimating Maize Canopy Nitrogen and Chlorophyll Content Using CNN-GRU-CBAM and Hyperspectral Imagery

Kong, Haoquan (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Da Qing, China); Tian, Li; Yi, Shujuan; Jia, Yuhui; Guo, Weiwei; Xu, Hanlin; Liu, Yongzhi

Source: Journal of Chemometrics, v 39, n 12, December 2025

Database: Compendex

Data Provider: Engineering Village

4. DEM-CFD simulation and optimization of an air-assisted seed gui de tubes with guided-groove for high-speed maize delta-row dense-p lantings planter

Sun, Wensheng (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Yi, Shujuan; Qi, Hailong; Li, Yifei; Zhang, Yupeng; Yuan, Jiasha; Wang, Song

Source: Powder Technology, v 470, March 2026

Database: Compendex

Data Provider: Engineering Village

5. PCA-XGBoost Combined With K-Anonymity and Random Forest Privacy-Protecting Clustering Algorithm

Yu, Runzhong (College of Computer Science and Technology, Harbin Engineering University, Harbin, China); Yang, Wu; Zhang, Liyuan

Source: Security and Privacy, v 9, n 1, January/February 2026

Database: Compendex

Data Provider: Engineering Village

6. Silage Production and Livestock Feeding in China

Wang, Peng (Jilin University, Changchun, China); Cao, Yang

Source: Cultural History and Modern Production Technology of Silage, p 233-244, January 1, 2025

Database: Compendex

Data Provider: Engineering Village

7. Effects of Three Strains of Lactic Acid Bacteria on Physicochemical Property and Protein Advanced Structure of Fermented Beef Jerky (三株乳酸菌对发酵牛肉干理化性质及蛋白质高级结构的影响)

Yu, Xiao (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Ma, Kexin; Pan, Deyin; Li, Changbo; Chen, Hongsheng; Diao, Jingjing

Source: Science and Technology of Food Industry, v 46, n 23, p 98-107, December 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

8. Machine learning combining quantitative omics pinpoint anti-helicobacter pylori potential of gastricreleased flavonoids from microwave-sorghum

Xu, Lei (College of Food and Biological Engineering, Qiqihar University, Qiqihar; 161006, China); Xu, Xingda; Dai, Anna; Li, Zhijiang; Wang, Yan

Source: SSRN, November 6, 2025

Database: Compendex

Data Provider: Engineering Village

9. Preparation and Functional Characteristics Analysis of Black Bean Protein α-Glucosidase Inhibition Peptide (黑豆蛋白 α-葡萄糖苷酶抑制肽的制备及功能特性分析)

Zhou, Lan (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319,

China); Li, Hongbin; Sun, Man; Diao, Jingjing; Cao, Rong'an; Wang, Changyuan

Source: Science and Technology of Food Industry, v 46, n 24, p 389-397, December 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

10. Metaheuristic-optimized LSSVM integrated with multi-modal sensing for intelligent nutrient monitoring in saline-alkali soils

Wang, Song (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Yi, Shujuan; Zhao, Bin; Li, Yifei; Zhang, Dongming; Chen, Tao; Sun, Wensheng

Source: Journal of Environmental Chemical Engineering, v 13, n 6, December 2025

Database: Compendex

Data Provider: Engineering Village

11. Screening of trans-3-methyl-2-hexenoic acid-degrading bacteria and analysis of their degradation pathways (反式-3-甲基-2-己烯酸降解菌的筛选及其降解途径解析)

Sui, Jinghong (College of Life Science, Northeast Forestry University, Heilongjiang, Harbin; 150000, China); Wang, Xun; Wang, Jinghong; Cheng, Yan; Wang, Yumei; Li, Xiaohan; Wang, Weidong

Source: Shengwu Gongcheng Xuebao/Chinese Journal of Biotechnology, v 41, n 11, p 4364-4374, November 25, 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

12. Safety analysis of plant-based meat analogs from raw materials to processing techniques: Potential factors and countermeasures

(*Open Access*)

Huang, Xiaolong (College of Food Science and Engineering, Jilin Agricultural University, Changchun; 130118, China); Xu, Honghan; Amin, Khalid; Qi, Chuming; Liu, Huize; Zhao, Zili; Li, Bing; Wang, Ying; Yu, Hansong; Lyu, Bo

Source: LWT, v 238, December 15, 2025

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

Database: Compendex

Data Provider: Engineering Village

13. Asymmetric Single-Channel Color Image Cryptosystem Based on an Iterative Phase-Truncation Scheme

Luan, Guangyu (Heilongjiang Bayi Agricultural University, College of Electrical and Information, Heilongjiang, Daqing; 163319, China); Quan, Chenggen

Source: IEEE Photonics Technology Letters, v 38, n 5, p 297-300, March 2026
Database: Compendex
Data Provider: Engineering Village

14. Engineering spatially defined extracellular matrix gradients to govern self-organized multicellular aggregates in a glioblastoma-on-a-chip

Li, Jianing (Materials Genome Institute, Shanghai University, Shanghai; 200444, China); Gao, Xinghua; Yang, Xiaoling; Wang, Hongcai; Sun, Xindi; Xue, Chang; Ma, Jingyun
Source: Lab on a Chip, 2025 Article in Press
Database: Compendex
Data Provider: Engineering Village

15. Rapid detection of ammonia nitrogen concentration in biogas liquid using near-infrared spectroscopy combined with cascade wavelength selection

Wang, Weida (College of Electrical and Information Engineering, Heilongjiang Bayi Agricultural University, No.5, Xinfeng Road, High-tech zone, Heilongjiang, Daqing; 163319, China); Wang, Yiyi; Liu, Jinming; Tan, Chong
Source: Journal of Engineering and Applied Science, v 72, n 1, December 2025
Database: Compendex
Data Provider: Engineering Village

16. Detoxification of Pesticide Residue for Safe Vegetable Production

Yu, Gao-Bo (College of Horticulture and Landscape Architecture, Heilongjiang Bayi Agricultural University, Daqing, China); Ahammed, Golam Jalal
Source: Growth Regulation and Quality Improvement of Vegetable Crops: Physiological and Molecular Features, p 389-421, January 1, 2025
Database: Compendex
Data Provider: Engineering Village

17. Detoxification of Pesticide Residue for Safe Vegetable Production

Yu, Gao-Bo (College of Horticulture and Landscape Architecture, Heilongjiang Bayi Agricultural University, Daqing, China); Ahammed, Golam Jalal
Source: Growth Regulation and Quality Improvement of Vegetable Crops: Physiological and Molecular Features, p 389-421, January 1, 2025
Database: Compendex
Data Provider: Engineering Village

18. Preparation of Hypoglycemic Functional Peptides from Corn Germ Meal and Its Hypoglycemic Activity in Vitro (玉米胚芽粕降血糖功能肽的制备及其体外降血糖活性)

Gao, Xiang (College of Food and Bioengineering, Qiqihar University, Qiqihar; 161006, China); Liu, Xiaolan; Li, Guanlong; Zheng, Xiqun

Source: Science and Technology of Food Industry, v 46, n 23, p 11-22, December 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

19. Thermal insulation performance of cast-in-place foamed cement for pipeline insulation at medium and high temperatures

Jiang, Wei (College of Civil Engineering and Water Conservancy, Heilongjiang Bayi Agricultural University, Daqing, China); Zhong, Zhipeng; Shen, Ruohan; Arıcı, Müslüm; Liu, Gongliang; Li, Qing; Li, Dong

Source: Energy Sources, Part A: Recovery, Utilization and Environmental Effects, v 47, n 2, 2025

Database: Compendex

Data Provider: Engineering Village

20. Entangled value: actor–network configurations and ESG pathways in China's textile value chain

Ma, Shenglin (School of Economics and Management, North University of China, Taiyuan, China); Li, Ding; Yan, Han

Source: Journal of the Textile Institute, 2025 Article in Press

Database: Compendex

Data Provider: Engineering Village

21. Lightweight Detection Method of Rice Panicles Based on CBLP YOLO 11n (基于 CBLP YOLO 11n 的无人机稻穗轻量化检测方法)

Wang, Xue (College of Information Technology, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Gao, Ya; Tao, Guixiang; Ma, Tiemin; Zhang, Nan; Xu, Shanxiang; Yu, Qing

Source: Nongye Jixie Xuebao/Transactions of the Chinese Society for Agricultural Machinery, v 56, n 11, p 461-470, November 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

22. Simple OFT with yeast particles summoning for enhanced mulitple particles capture

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

Source: Optics and Lasers in Engineering, v 196, January 2026

Database: Compendex

Data Provider: Engineering Village

23. Surface Functional Optimization Based on Biomimetic Principles: Applications in Wear Resistance, Drag Reduction, and Superhydrophobic Interfaces

Le, Song (Heilongjiang Bayi Agricultural Reclamation University, No. 5 Xinfeng Road Longfeng District, Daqing City; 163000, China); Qingda, Ling; Changrong, Sheng

Source: Journal of Physics: Conference Series, v 3138, n 1, November 1, 2025

Database: Compendex

Data Provider: Engineering Village

24. Hybrid density-level set topology optimization with dynamic hole generation for enhanced thermal-fluid performance of microchannel heat sinks

Yu, Shaoxuan (College of Mechanical and Electrical Engineering, Northeast Forestry University, Harbin; 150040, China); Ma, Jingyao; Wang, Jiankai; Cui, Yifan; Wang, Lifu; Zhang, Xingli

Source: Applied Thermal Engineering, v 284, January 30, 2026

Database: Compendex

Data Provider: Engineering Village

25. Effect of Steel Slag and Ground Slag on the Properties of Cement-Based Greener Grouting Material in Sandy Strata

Xu, Hang (School of Civil Engineering and Water Conservancy, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Bai, Qian; Xie, Guoliang

Source: Buildings, v 15, n 22, November 2025

Database: Compendex

Data Provider: Engineering Village

26. Application of an ECAM-ConvNeXt Model With Multichannel Spectrogram Based on Vis–NIR for Soil Property Prediction

Shuai, Qinghao (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Daqing, China); Chen, Zhengguang; Liu, Shuo; Wang, Quan

Source: Journal of Chemometrics, v 39, n 12, December 2025

Database: Compendex

Data Provider: Engineering Village

27. Aggregation mechanism of soybean protein isolate for the formation of plant protein-based meat analogs during high moisture extrusion

Song, Jiaqi (College of Food Science and Technology, Bohai University, Jinzhou; 121013, China); Yang, Zhuang; Zeng, Jiangkai; Hassan, Mohamed E.; Cheng, Shiwen; Yu, Fan; Wang, Yuankai; Yu, Xiaoshuai; Wang, Peng; Wang, Lishuang; Xiao, Zhigang

Source: International Journal of Biological Macromolecules, v 337, January 2026

Database: Compendex

Data Provider: Engineering Village

28. Magnetic-thermal dual-responsive nanoparticle emulsification and interfacial properties study and their microscopic processes in oil-water systems

Lv, Man (College of Science, Heilongjiang Bayi Agricultural University, Daqing; 163318, China); Chu, Jinzhe; Cui, Chunyue; Cao, LiLi; Tan, JinYan; Wang, Jun

Source: Materials Today Communications, v 49, December 2025

Database: Compendex

Data Provider: Engineering Village

29. Estimation of the Relationship Between Urban Landscape Pattern and Crop Yield by Remote Sensing Data and Field Measurement

Meng, Fanyue (College of Geographical Science and Tourism, Jilin Normal University, Siping; 136000, China); Ren, Zhibin; Zhang, Peng; Wang, Chengcong; Hong, Shengyang; Geng, Ruoxuan; Hong, Wenhai; Wang, Xinyu; Huang, Baosen; Zhang, Boyang; Bai, Yufeng

Source: Remote Sensing, v 17, n 22, November 2025

Database: Compendex

Data Provider: Engineering Village

30. Optimization of Extraction Process and in Vitro Hypolipidemic Activity of White Kidney Bean Protein Source Lipid-lowering Peptide (白芸豆蛋白源降脂肽的提取工艺优化及体外降血脂活性研究)

Zhang, Yunxi (College of Food, Heilongjiang Bayi Agricultural University, Daqing; 163000, China); Liu, Tong; Wang, Ying; Xie, Xiaoyan; Li, Sinan; Pang, Weiqiao; Zuo, Zhaohang; Zhang, Lu; Guan, Xiao; Zhao, Zili; Li, Bing

Source: Science and Technology of Food Industry, v 46, n 23, p 271-282, December 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

31. Preventive Effects of Modified Okara Insoluble Dietary Fiber on Colitis (改性豆渣不溶性膳食纤维对结肠炎的预防作用)

Fu, Tianxin (College of Food Science, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163000, China); Tian, Yu; Sheng, Yanan; Wu, Tong; Li, Lina; Wang, Changyuan
Source: Journal of Chinese Institute of Food Science and Technology, v 25, n 11, p 78-95, 2025
Database: Compendex
Data Provider: Engineering Village

32.Variation Patterns of Mung Bean Polyphenols during Cooking Processes and Their Regulatory Effects on Heat Stress-induced Apoptosis in Caco-2 Cells(绿豆多酚在煮制加工中的变化规律及其对热应激诱导的Caco-2 细胞凋亡的调控作用)

Yu, Fei (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wu, Tong; Feng, Yuchao; Fu, Tianxin; Zhang, Shu; Wang, Changyuan
Source: Science and Technology of Food Industry, v 47, n 1, p 1-15, January 2026
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

33.Responses of soil enzyme activities to increasing salinity: A quantitative meta-analysis

Hu, Yang (College of Agriculture, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhang, Hanshuo; Cui, Liu; Zhou, Wei; Zhang, Mingcong
Source: Journal of Environmental Management, v 398, January 15, 2026
Database: Compendex
Data Provider: Engineering Village

34. Development of rapid-cooking red kidney beans via combined pretreatments: Insights into starch driven mechanisms

LI, Zhenjiang (College of Food Science, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); WU, Yanchun; HU, Xin; Liu, Shilin; Lang, Shuangjing; FU, Tianxin; Wang, Changyuan; Wang, Lidong; Zuo, Feng
Source: Food Chemistry, v 502, February 15, 2026
Database: Compendex
Data Provider: Engineering Village

35. Design and experiment of air-assisted spiral seed-supply device for high-speed narrow-row dense planting of maize

Sun, Wensheng (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Yi, Shujuan; Qi, Hailong; Li, Yifei; Dai, Zhibo; Zhang, Yupeng; Wang, Song; Liu, Yunxiao
Source: Biosystems Engineering, v 263, March 2026

Database: Compendex

Data Provider: Engineering Village

36. Application of photovoltaic-air source heat pump heating systems in goose houses in severe cold regions (光伏-空气源热泵供热系统在严寒地区鹅舍中的应用)

Deng, Shuhui (College of Civil Engineering and Water Conservancy, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Li, Yiming; Zhang, Hao; Ru, Lin; Li, Jiawei; Cui, Weiguo

Source: Nongye Gongcheng Xuebao/Transactions of the Chinese Society of Agricultural Engineering, v 41, n 19, p 227-234, October 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

37. Early detection of vitamin E and selenium deficiency in dairy cows during parturition and the postpartum transition using plasma metabolites

Bai, Yun-Long (Animal Metabolic Disease Lab, College of Animal Science and Technology, Heilongjiang Bayi Agricultural University, Daqing, China); Qian, Wen-Xin; Liu, Jia-Jing; Jia, Xiao-Chen; Yu, Ke-Ya; Ma, Guang-Chang; Han, Sheng-Yu; Wang, Lian-Ying; Shao, Guang; Xia, Cheng; Song, Yuxi; Ren, Wan-Xia

Source: SSRN, January 2, 2026

Database: Compendex

Data Provider: Engineering Village

38. Debranching and OSA Esterification of Waxy Maize Starch: Effects on Nanoparticle Properties and Emulsion Performance

Liu, Chang (College of Food Science, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Liang, Jiaxin; Chu, Yangyang; Li, Zhenjiang; Wang, Zhen; Lu, Lele; Wang, Lidong; Li, Changsheng

Source: SSRN, December 23, 2025

Database: Compendex

Data Provider: Engineering Village

39. Modifying Wheat Bran Dietary Fiber Using High-temperature Steaming with Ultrasound-assisted Compound Enzymatic Method: Process Optimization and Effects on in Vitro Probiotic Activity (高温蒸煮联合超声复合酶法改性麦麸膳食纤维工艺优化及体外益生活性)

Wang, Meng (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Liu, Quan; Zheng, Xiqun; Jiang, Caixia; Wang, Juntong; Hu, Hao; Zhang, Zhi

Source: Science and Technology of Food Industry, v 47, n 2, p 266-276, January 2026
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

40. Storage Quality Variation, Evaluation Model, and Correlation with Volatile Compounds of Embryo Rice (留胚米储藏品质变化、评价模型及其与挥发性化合物的相关性)

Yang, Xiyuan (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Mu, Xindi; Su, Tingting; Ma, Lixue; Yu, Qiaoru; Wang, Lidong; Zhai, Aihua; Wang, Baijun; Yao, Di; Wang, Changyuan; Zhang, Liyuan
Source: Science and Technology of Food Industry, v 47, n 2, p 375-386, January 2026
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

41. Influence of film-tensioning lines on the wind-induced responses of flat-elliptical pipe greenhouse

Xie, Hengyan (College of Civil Engineering and Water Conservancy, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wei, Cunxing; Zheng, Xin; Xu, Wenbao
Source: Biosystems Engineering, v 263, March 2026
Database: Compendex
Data Provider: Engineering Village

42. Divergent responses of soil particulate and mineral-associated organic carbon to climate gradients in managed croplands of Northeast China

Feng, Wenhao (State Key Laboratory of Efficient Utilization of Arid and Semi-arid Arable Land in Northern China, the Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, Beijing; 100081, China); SánchezRodríguez, Antonio Rafael; Zhou, Jie; Gong, Liang; Qian, Chunrong; Wang, Jia; Bai, Xiaolong; Deng, Pengzhi; Wang, Jing; Jiang, Yuzhou; Zhang, Hongyuan; Li, Yuyi
Source: Environmental Research, v 293, March 15, 2026
Database: Compendex
Data Provider: Engineering Village

43. A Study on γ-Aminobutyric Acid (GABA) Enrichment and Its Metabolic Mechanism in Germinating Mung Beans Under the Stress of Ultrasound Combined with Slightly Acidic Electrolyzed Water

Zhu, Rong (College of Food Science, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Zhang, Guifang; Li, Nuo; Li, Jiling; Zhang, Dongjie

Source: SSRN, January 12, 2026
Database: Compendex
Data Provider: Engineering Village

44.Enzymatic Preparation and Characterization of DPP-IV Inhibitory Peptides Derived from Corn Protein(玉米蛋白源 DPP-IV 抑制肽的酶法制备及其性质研究)

Tao, Li (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, Juntong; Li, Guanlong; Jiang, Caixia; Zheng, Xiqun; Liu, Xiaolan
Source: Science and Technology of Food Industry, v 47, n 1, p 289-299, January 2026
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

45.Classification of Fat Substitutes and Their Application and Prospects in Baked Foods(脂肪替代物的分类及其在烘焙食品中的应用及展望)

Sun, Huajun (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhu, Sijing; Qian, Lili; Liu, Ying; Cui, Fangzheng; Liu, Mingxin; Zhou, Xuan; Yue, L.I.
Source: Shipin Kexue/Food Science, v 46, n 21, p 338-345, November 10, 2025
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

46.Polystyrene microplastics modulation of hexavalent chromium toxi city in quails: transcriptomic and toxicological insights (*Open Access*)

Liu, Dongfang (College of Veterinary Medicine, Northeast Agricultural University, 600 Changjiang Road, Harbin; 150030, China); Song, Kaiwei; Li, Miaomiao; Han, Biqi; Lv, Zhanjun; Li, Jiayi; Li, Siyu; Lu, Jingjing; Ji, Shuke; Ma, Jiatong; Zhang, Zhigang
Source: Environmental Chemistry and Ecotoxicology, v 8, p 794-809, 2026
Open Access type(s): All Open Access, Gold
Database: Compendex
Data Provider: Engineering Village

47. Physical stress induces metabolic changes in kidney bean: GABA, polyphenol spectrum, and antioxidant capacity

Xu, Qingpeng (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang; 163319, China); Zhang, Shu; Wang, Ying; Jiang, Peng; Zhang, Jiayu; Wang, Xinhui; Zhang, Dongjie
Source: Food Research International, v 226, February 28, 2026
Database: Compendex

Data Provider: Engineering Village

48. Self-assembly mechanisms of wheat gluten peptides: Modulating interfacial behavior and foaming properties (*Open Access*)

Cao, Jiabao (College of Food Science, Shenyang Agricultural University, Shenyang, China); Fan, Guangqi; Lu, Baoxin; Xiao, Zhigang; Xin, Guang

Source: Food Chemistry: X, v 33, January 2026

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

Database: Compendex

Data Provider: Engineering Village

49. Construction and Application of Comprehensive Evaluation Model for the Quality of Commercially Available Puff Bread (市售起酥面包品质综合评价模型的构建与应用)

Cong, Zhongxiao (College of Food Science, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Sun, Huajun; Zhao, Xue; Wang, Xiaochun; Liu, Mingxin; Zhang, Tao; Qian, Lili

Source: Journal of Chinese Institute of Food Science and Technology, v 25, n 11, p 373-388, 2025

Database: Compendex

Data Provider: Engineering Village

50. Biogas conversion of forestry waste enhanced by compound microbial pretreatment: Microbial and metabolomic insights during anaerobic digestion

Sun, Jiajia (College of Life Sciences, Northeast Forestry University, China); Tan, Lina; Guo, Ao; Wang, Xinyu; Wang, Weihao; Zhang, Zhi; Liu, Jiansheng; Zhang, Shenglong

Source: Journal of Environmental Chemical Engineering, v 13, n 6, December 2025

Database: Compendex

Data Provider: Engineering Village

51. Seismic Performance of Space Steel Frame Structure with Energy Dissipating Walls and Concrete Filled Steel Tube Swing Trusses (空间钢框架-耗能墙-钢管混凝土桁架消能摇摆结构的抗震性能)

Liu, Wen-Yang (College of Civil Engineering and Water Conservancy, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Cai, Zi-Han; Bai, Na; Zhang, Rong-Hua

Source: Science Technology and Engineering, v 25, n 34, p 14808-14816, 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

52. The optimized design and heat transfer characteristics of helical groove tubes: A study based on parameter estimation, continuous adjoint optimization, and physics-informed neural networks

Wang, Shuo (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wan, Lin; Wang, Hongchao; Che, Gang; Li, Yan; Du, Tingbo; Wang, Chaofan

Source: International Journal of Heat and Fluid Flow, v 119, April 2026

Database: Compendex

Data Provider: Engineering Village

53. A new global-local higher order model for laminated composite beams (种新型整体与局部高阶层合 梁模型)

Si, Junling (College of Engineering, Heilongjiang Bayi Agriculture University, Daqing; 163319, China); Yang, Shengqi; Zhang, Ying

Source: Hangkong Xuebao/Acta Aeronautica et Astronautica Sinica, v 12, n 9, p 1-10, 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

54. Target detection algorithm of seed-slots based on YOLOv11

Wang, Yige (Heilongjiang Bayi Agricultural University, Daqing; 163000, China); Wang, Xue; Ma, Tiemin

Source: Proceedings of SPIE - The International Society for Optical Engineering, v 13967, November 24, 2025, Fifth International Conference on Advanced Algorithms and Signal Image Processing, AASIP 2025

Database: Compendex

Data Provider: Engineering Village

55. Screening of Composite Starter and Its Effects on the Physicochemical Properties of Proso Millet Niandoubao in Northeast China (复合菌发酵剂的筛选及其对东北黄米黏豆包理化性质的影响)

Di, Ziqing (National Coarse Cereals Engineering Research Center, College of Food Science, Heilongjiang Key Laboratory of Agroproducts Processing and Quality Safety, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Sun, Daqing; Hong, Qingping; Du, Xinrui; Li, Hongfei

Source: Science and Technology of Food Industry, v 47, n 2, p 14-24, January 2026

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

56. Impact of rice protein amyloid fibrils on texture, flavor, digestibility and structural properties of extruded soy protein isolate

Ma, Jinming (College of Food Science and Technology, Bohai University, Jinzhou; 121013, China); Pan, Deyin; Wang, Peng; Ma, Xiaoqi; Wang, Lin; Hassan, Mohamed E.; Yu, Xiaoshuai; Lu, Baoxin; Xiao, Zhigang

Source: Food Research International, v 226, February 28, 2026

Database: Compendex

Data Provider: Engineering Village

57. Tailoring properties of corn starch via active extrusion: Key role of feed moisture

Yu, Xiaoshuai (College of Food Science and Technology, Bohai University, Jinzhou; 121013, China); Zeng, Jiangkai; Huo, Jinjie; Ma, Jinming; Song, Jiaqi; Wang, Lin; Hassan, Mohamed E.; Peng, Yixin; Bo, Bo; Xiao, Zhigang; Duan, Yumin

Source: Journal of Food Engineering, v 411, May 2026

Database: Compendex

Data Provider: Engineering Village

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