收錄引用月報

SCI·EI·ESI INDEX DATABASE

December.~ February. 2025 No.39

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《收录引用月报》，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。

《收录引用月报》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2024.12.26-2025.02.19。

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

（2024.12.26-2025.02.19）

SCI 索引库共收录我校教师发表的 65 篇文献，图表后附录 65 篇文献详细题录信息。

RESEARCH FIELDS	研究领域	篇数
Agriculture	农业	10
Biochemistry & Molecular Biology	生物化学与分子生物学	3
Biotechnology & Applied Microbiology	生物工程学和应用微生物学	3
Immunology	免疫学	2
Chemistry	化学	9
Fisheries	渔业	1
Engineering	工程学	3
Environmental Sciences& Ecology	环境科学与生态学	3
Food Science & Technology	食品科学与技术	8
Microbiology	微生物学	1
Plant Sciences	植物科学	2
Genetics & Heredity	遗传学和遗传性	1
Science & Technology - Other Topics	科技与技术-其他主题	3
Spectroscopy	光谱学	2
Instruments & Instrumentation	仪器及仪表	1
Acoustics	声学	2
Materials Science	材料科学	1
Nutrition & Dietetics	营养和饮食学	1

Oncology	**肿瘤学**	**2**
Pharmacology & Pharmacy	**药理学和药剂学**	**2**
Toxicology	**毒物学**	**1**
Virology	**病毒学**	**4**

表 1　我校 23 个研究领域发文篇数及详细题录信息

Agriculture

第 1 条

标题: Calculation Method of Phenotypic Traits for Tomato Canopy in Greenhouse Based on the Extraction of Branch Skeleton

作者: Ma, Xiaodan; Jiang, Qiu; Guan, Haiou; Wang, Lu; Wu, Xia

来源出版物：AGRONOMY-BASEL **卷：**14 **文献号：**WOS:001384108300001
DOI：10.3390/agronomy14122837 **Published date：**2024
Web of Science 核心合集中的 "被引频次":1
被引频次合计: 1

摘要: Automatic acquisition of phenotypic traits in tomato plants is important for tomato variety selection and scientific cultivation. Because of time-consuming and labor-intensive traditional manual measurements, the lack of complete structural information in two-dimensional (2D) images, and the complex structure of the plants, it is difficult to automatically obtain the phenotypic traits of the tomato canopy. Thus, a method for calculating the phenotypic traits of tomato canopy in greenhouse was proposed based on the extraction of the branch skeleton. First, a top-view-based acquisition platform was built to obtain the point cloud data of the tomato canopy, and the improved K-means algorithm was used to segment the three-dimensional (3D) point cloud of branches. Second, the Laplace algorithm was used to extract the canopy branch skeleton structure. Branch and leaf point cloud separation was performed using branch local skeleton vectors and internal features. In addition, the DBSCAN clustering algorithm was applied to recognize individual leaf organs. Finally, phenotypic traits including mean leaf inclination, digital biomass, and light penetration depth of tomato canopies were calculated separately based on the morphological structure of the 3D point cloud. The experimental results show that the detection accuracies of branches and leaves were above 88% and 93%, respectively, and the coefficients of determination between the calculated and measured values of mean leaf inclination, digital biomass, and light penetration depth were 0.9419, 0.9612, and 0.9093, respectively. The research results can provide an effective quantitative basis and technical support for variety selection and scientific cultivation of the tomato plant.

入藏号:WOS:001384108300001

文献类型: Article

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研究方向: Agriculture; Plant Sciences

输出日期: 2025-02-19

第 2 条

标题: Major QTL Mapping and Candidate Gene Analysis of Branching Number Habits in Cucumis melo

作者: Wang, Ling; Yang, Limin; Zhang, Fan; Dai, Dongyang; Wang, Di; Sheng, Yunyan

来源出版物：AGRONOMY-BASEL **卷：**14 **文献号：**WOS:001384219700001
DOI：10.3390/agronomy14123012 **Published date：**2024

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被引频次合计: 0

摘要: Branching number (BN) is a crucial architectural trait in Cucumis melo. Because of its multiple branch habits, much more labour costs are needed in melon production. However, the genetic mechanism of branching numbers in melon is not clear. Here, a genetic population from multiple branching material S8 (only two branching number in the first node) as the female line and S7 (multiple branching numbers in each node; more than nine branch numbers) as the male parent is used to make a cross F2:3 generation. By performing QTL mapping based on bulked segregate analysis (BSA) after two years, a candidate QTL region of the BN was located on chromosome 3. For further QTL mapping, a genetic linkage map, which contained 16 SSR markers with a total length of 2.27 Mb, was constructed. One major QTL locus bnDQ-2022-3.1 was detected between CmSSR9556 and CmSSR9580, with a LOD threshold of 11.37 and a contribution rate of 49.11% in the spring of 2022 in Daqing City. Then, a consistent QTL bnSY-2022-3.1 was also investigated in Sanya, Hainan Province, in the autumn of 2022, with a LOD threshold of 10.85 and a contribution rate of 45.01%. Nine genes were investigated within the interval of the candidate region located in chromosome 3 between 22,723,436 and 22,807,889 of the melon's physical position within the 85.45 kb length region. Gene expression analysis showed significant differences between MELO3C019872.2.1, MELO3C030060.2.1, and MELO3C019871.2.1 in different development stages. Gene sequence different analysis revealed a C-to-T mutation in the 1280 bp site of MELO3C030060.2.1 in parental lines. Heterologous transformation of MELO3C030060.2.1 into cucumber revealed that overexpression of MELO3C030060.2.1 resulted in more and denser branches in cucumber plants, and the growth rate of lateral branches was significantly faster than that of the wild type. Transferring to antisense of MELO3C030060.2.1 had the opposite effect. To sum up, MELO3C030060.2.1 is related to melon branching initial habits. This study could provide a new insight into melon branching habits and provide a theoretical base for melon breeding.

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研究方向: Agriculture; Plant Sciences

输出日期: 2025-02-19

第 3 条

标题: Deep placement of controlled-release and common urea achieves the win-win of enhancing maize productivity and decreasing environmental pollution

作者: Wu, Peng; Yu, Jinyu; Wang, Qinhe; Liu, Zeyu; Huang, Hua; Wu, Qi; Ren, Liangqi; Zhang, Guangxin; Liu, Enke; Bangura, Kemoh; Sun, Min; Yang, Kejun; Gao, Zhiqiang; Zhang, Peng; Jia, Zhikuan; Xue, Jianfu

来源出版物：EUROPEAN JOURNAL OF AGRONOMY 卷：164
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Published date：2025

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摘要:The application of controlled-release urea or deep fertilization is effective for increasing crop yields. However, more research is needed to determine whether the deep placement of controlled-release and common urea can increase crop productivity and reduce environmental pollution. Between 2019 and 2021, we conducted field experiments in semi-humid and drought prone areas of the Loess Plateau region in China to study the effects of different controlled-release and common urea fertilization methods on maize productivity. Further experiments were conducted in semi-arid areas in 2022 and 2023 to verify the research results. We used the traditional fertilization strategy with common urea (TFC) as the control, deep placement of common urea (DFC), traditional fertilization with controlled-release and common urea (TFB), and deep placement with controlled-release and common urea (DFB) as optimized fertilizer management strategies. The results showed that the deep placement of controlled release and common urea changed the temporal and spatial distributions of the soil NO3--N and NH4+-N, which affected the N2O and NH3 emissions. The NH3 emissions under DFC, TFB, and DFB were lower by 29.78%, 32.77%, and 59.08% than TFC, and N2O emissions were lower by 38.21%, 40.96%, and 72.89%, respectively. Compared with TFC, the maize yields under DFC, TFB, and

DFB were 7.91 %, 8.41 %, and 15.11 % higher, respectively, and the nitrogen use efficiencies were 14.23%, 15.60%, and 27.83% higher, whereas the yield-scaled N2O emissions were 38.21 %, 40.96%, and 72.89% lower, and the yield-scaled NH3 emissions were 29.78%, 32.77%, and 59.08% lower. Overall, DFB obtained the highest maize yield (12013.35 kg ha-1) and nitrogen use efficiency (47.15 %), as well as the lowest gaseous nitrogen loss intensity (1.13 g N kg-1 grain), global warming potential (323.08 kg CO2-eq ha-1), and greenhouse gas emission intensity (GHGI, 27.13 g CO2-eq kg-1 grain). Therefore, deep placement of controlled-release and common urea is an effective fertilizer management strategy that can balance maize productivity and environmental pollution in the Loess Plateau region of China.

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文献类型: Article

地址: [Wu, Peng; Yu, Jinyu; Wang, Qinhe; Liu, Zeyu; Huang, Hua; Wu, Qi; Zhang, Guangxin; Sun, Min; Gao, Zhiqiang; Xue, Jianfu] Shanxi Agr Univ, Coll Agr, Collaborat Innovat Ctr high qual & efficient Prod, Taigu 030801, Shanxi, Peoples R China; [Wu, Peng; Yang, Kejun] Heilongjiang Bayi Agr Univ, Coll Agron, Minist Agr & Rural Affairs PR China, Key Lab Low carbon Green Agr Northeastern China, Daqing 163000, Heilongjiang, Peoples R China; [Wu, Peng; Ren, Liangqi; Zhang, Peng; Jia, Zhikuan] Northwest A&F Univ, Coll Agron, Yangling 712100, Shaanxi, Peoples R China; [Liu, Enke] Chinese Acad Agr Sci, Inst Environm & Sustainable Dev Agr, Beijing 100081, Peoples R China; [Bangura, Kemoh] Sierra Leone Agr Res Inst, SLARI Rokupr Agr Res Ctr RARC, PMB 1313, Freetown, Sierra Leone; [Xue, Jianfu] Shanxi Agr Univ, Coll Agr, Taigu 030801, Shanxi, Peoples R China.

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研究方向: Agriculture

输出日期: 2025-02-19

第 4 条

标题: Fatty acids promote migration of CD4+T cells through calcium release-activated calcium modulator ORAI1 sensitive glycolysis in dairy cows

作者: Zhang, Bingbing; Wen, Jianan; Li, Ming; Wang, Jingjing; Ji, Ziwei; Lv, Xinquan; Usman, Muhammad; Mauck, John; Loor, Juan J.; Yang, Wei; Wang, Guihua; Ma, Jinzhu; Xu, Chuang

来源出版物： JOURNAL OF DAIRY SCIENCE **卷：** 108

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Published date：2025

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被引频次合计: 0

摘要: Nutritional and metabolic state in dairy cows are important determinants of the immune response. During the periparturient period, a state of negative energy balance in the cow increases plasma concentrations of fatty acids (FA), which are associated with inflammation. Among immune cells, CD4+ T are able to function under high- FA conditions, but the underlying mechanisms regulating these events remain unclear. The objective of this study was to clarify the functional mechanisms of CD4+ T cells under high-FA conditions. The effects of glycolysis and calcium release-activated calcium modulator 1 (ORAI1) on migration of CD4+ T cells exposed to high FA were investigated in vivo and in vitro. The CD4+ T cells were isolated from peripheral blood of healthy (n = 9) and high-FA (n = 9) Holstein cows (average 2.5 +/- 0.2 lactations [SE], 12.3 +/- 0.8 DIM). In the first experiment, real-time quantitative PCR was used to assess chemokine receptors in isolated CD4+ T cells and migration capacity. The relative mRNA measurements results revealed downregulation of CCR] and CXCR2, and upregulation of CCR2, CCR4, CCR5, CCR7, CCR8, CCR]0, CXCR], CXCR3, CXCR4, and CX3CR]. Among them, the expression of CXCR4 was relatively high. Therefore, CXCL12, a ligand chemokine of CXCR4, was an inducer of CD4+ T cell migration. The CD4+ T cells were inoculated in the upper chamber and CXCL12 (100 ng/mL, Peprotech) in RPMI1640 was added to the lower chamber and transmigrated for 3 h at 37 degrees C and 5% CO2. The cell migration assay revealed that the migration capacity of CD4+ T cells from high-FA cows was greater. Real-time-qPCR indicated greater abundance of the glycolysis-related targets HIF]A, HK2, PKM2, Glut], GAPDH, and LDHA and Western blotting indicated greater abundance of the glycolysis-related targets HIF1A, HK2, PKM2, Glut1, GAPDH, and LDHA in CD4+ T cells of high-FA cows. To characterize specific mechanisms of CD4+ T cell migration in vitro, cells from the spleens of 3 newborn (1 d old, 40-50 kg) healthy female Holstein calves were isolated after euthanasia. Inhibition of glycolysis attenuated the migration ability of cells, but had no effect on the protein and mRNA abundance of store-operated Ca2+ entry (SOCE)-associated calcium release-activated calcium modulator 1 (ORAI1) and stromal interaction molecule 1 (STIM1). In contrast, ORAI1 was upregulated in CD4+ T cells of cows exposed to high FA. To explore the potential mechanisms whereby an active glycolytic metabolism affects CD4+ T cells under high-FA conditions, we knocked down ORAI1 using small interfering RNA (siORAI1). Isolated CD4+ T cells from high-FA cows with the siORAI1 had an attenuated glycolytic metabolism and migration capacity. Taken together, these data suggested that calcium ions in CD4+ T cells from cows with high FA regulate glycolytic metabolism and influence cell migration at least in part by modulating ORAI1. Thus, these studies identified a novel mechanism of Ca2+ regulation of CD4+ T cell glycolytic metabolism affecting their migration through the SOCE pathway.

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文献类型: Article

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研究方向: Agriculture; Food Science & Technology

输出日期: 2025-02-19

第 5 条

标题: The impact of dietary metabolizable energy levels on the performance of medium-sized geese: A systematic review

作者: Wang, Shuo; Wei, Chunbo; Yan, Jiaxin; Zhang, Ying

来源出版物：POULTRY SCIENCE 卷：104 文献号：WOS:001398629600001
DOI：10.1016/j.psj.2024.104743 **Published date**：2025

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摘要: This study aimed to investigate the effects of dietary metabolizable energy levels on various performance indicators of medium-sized geese, with the goal of predicting the optimal range of these energy levels. A comprehensive literature search was conducted across several databases, including Chinese National Knowledge Infrastructure, Wanfang, China Science and Technology Journal Database, PubMed, Web of Science, and ScienceDirect, covering the period from January 1, 2000, to July 1, 2024. The gathered studies focused on the impact of dietary metabolizable energy levels on the production performance of medium-sized geese. Following the literature review, a network meta-analysis was conducted by Stata software (StataCorp version 14.0). The analysis included tests for inconsistencies in the results by inconsistency model, assessment of publication bias by funnel plots, and data sorting through the robust error meta-regression model. Additionally, nonlinear doseresponse curves were plotted by the restricted cubic spline method to explore the relationships between metabolizable energy levels and production performance indicators. Out of 2267 identified studies, 25 met the inclusion criteria and were incorporated into the

systematic review, representing a total sample of 3538 geese. The production performance indicators examined included average daily gain, average daily feed intake, feed-togain ratio, and abdominal fat percentage. The results of the network meta-analysis revealed that both direct and indirect comparisons could be made across different dietary metabolizable energy levels reported in the studies. It was observed that increasing dietary metabolizable energy levels significantly impacted certain performance indicators of medium-sized geese. The findings were robust and reliable for further analysis. The dose-response meta-analysis indicated optimal dietary metabolizable energy levels within the existing ranges, specifically 13 to 13.5 MJ/kg for medium-sized geese during the brooding stage, and 12 to 13 MJ/kg during the growing stage. Future research should explore the effects of dietary metabolizable energy levels in large-sized geese, small-sized geese, and diets with higher energy levels to broaden the understanding of energy optimization across different goose sizes and developmental stages.

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文献类型: Review

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研究方向: Agriculture

输出日期: 2025-02-19

第 6 条

标题: Research on the Operational Parameters and Performance of Key Components of an Industrial Hemp Harvester and Drier

作者: Feng, Chao; Liu, Changxi; Wang, Bosheng; Shi, Hang; Sun, Hao; Li, Yufei; Hu, Jun

来源出版物：AGRICULTURE-BASEL **卷：**15 **文献号：**WOS:001403991100001
DOI：10.3390/agriculture15020141 **Published date：**2025

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摘要: Industrial hemp has significant utilization value, and China is the largest producer of industrial hemp in the world, primarily growing hemp for fiber. Heilongjiang Province is the largest area of hemp fiber cultivation in China. In response to issues such as inconsistent operating standards, low efficiency, and poor harvesting quality of industrial hemp harvesters in China, this study integrates the mechanical properties of the Hanma 5 hemp stalk and applies cutting platform design theory to analyze and

optimize the key components of existing hemp harvesters, aiming to obtain optimal operational parameters. First, by analyzing the motion laws of the cutting blade and the regression equations of shear power consumption and shear force, the relationship between cutting speed and time is established, and the cutting and conveying parameter ranges are derived, providing the basis for subsequent simulation analysis and field validation. Next, dynamic simulation analysis of the key components of the domestic 4GM-2.2 industrial hemp harvester for fiber is conducted using ADAMS and Workbench. The conveyor speed values and corresponding chain drive combinations under different conveyor speed ratios are obtained. Field experiments validated the optimal combination of key operational parameters for the industrial hemp harvester as follows: forward speed of 2.1 m/s, cutting speed of 2.5 m/s, conveyor speed ratio of 2.2, coefficient of variation for the laying angle of 6.88%, coefficient of variation for the laying thickness of 4.11%, and cutting height of 10.4 cm. Under the optimal operational parameter combination, the re-cut rate was 8.4%, with no missed cutting observed. This paper provides technical references for exploring the optimal operational parameters of industrial hemp harvesters for fiber to achieve high-quality harvesting operations.

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文献类型: Article

地址: [Feng, Chao; Liu, Changxi; Shi, Hang; Sun, Hao; Li, Yufei; Hu, Jun] Heilongjiang Bayi Agr Univ, Coll Engn, Daqing 163319, Peoples R China; [Liu, Changxi; Hu, Jun] Heilongjiang Prov Conservat Tillage Engn Technol R, Daqing 163319, Peoples R China; [Liu, Changxi; Hu, Jun] Minist Agr & Rural Affairs, Key Lab Soybean Mechanized Prod, Daqing 163319, Peoples R China; [Wang, Bosheng] Raohe Cty Agr & Rural Affairs Bur, Shuangyashan 155100, Peoples R China.

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研究方向: Agriculture

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第 7 条

标题: Effects of Different Intertillage Practices on Soil Biochemical Properties and Soybean Yield in Soybean Fields

作者: Zhang, Mingcong; Zhou, Yanhong; Li, Chenglin; Yuan, Cheng; Shan, Mingfen;

Fan, Yuxin; Yu, Zhongxia; Ren, Linfeng; Cui, Liu; Wang, Chen

来源出版物：AGRONOMY-BASEL 卷：15 文献号：WOS:001404032400001
DOI：10.3390/agronomy15010146 **Published date**：2025

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摘要: Heilongjiang Province, China, is a major soybean-producing area where low temperatures in early spring and poor soil moisture retention are the main limiting factors leading to low soybean yields. To improve land productivity, this study was conducted in Heilongjiang Province, China, from 2020-2021 via a field plot trial method, where four different intertillage treatments were set up in 2020: conventional intertillage (T1), early intertillage (T2), conventional subsoiling (T3), and early subsoiling (T4). In 2021, the effects of intertillage on soil biochemical characteristics and soybean yield formation were systematically analyzed under the T5 treatment (subsoiling at the stage of full development from the fourth to the fifth compound leaf) and the T6 treatment (soil culture at the stage of full development from the fourth to the fifth compound leaf). The results of the experiment revealed that deep loosening in advance improved the chemical properties of the soil. Compared with those of the T1 treatment, the contents of the organic carbon, total nitrogen, and available phosphorus and potassium in the early subsoiling treatments (T4, T5, and T6) were significantly increased. Intertillage time and depth had a strong influence on the soil microbial characteristics. Early medium intertillage could significantly increase the species abundance of bacteria and fungi in the soil, whereas subsoiling could increase the relative abundance ratio and uniformity of the dominant species. Compared with that in the T1 treatment, the yield of soybean in the T4 treatment was significantly greater, with yield increases ranging from 18.71% to 19.36%. In summary, the intertillage measures of one deep loosening and one medium soil cultivation at the stage of full development from the fourth to the fifth compound leaf and one large soil cultivation at the stage of full development from the sixth to the seventh compound leaf can be adopted on the basis of early deep loosening 4-5 d after soybean sowing to achieve high soybean yields. The results provide a theoretical basis for increasing the yield and efficiency of soybean fields under corn-soybean rotation, as well as innovation and development of cultivation systems.

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文献类型: Article

地址：[Zhang, Mingcong; Zhou, Yanhong; Li, Chenglin; Yuan, Cheng; Shan, Mingfen; Fan, Yuxin; Yu, Zhongxia; Ren, Linfeng; Cui, Liu; Wang, Chen] Heilongjiang Bayi Agr Univ, Coll Agron, Daqing 163000, Peoples R China; [Zhang, Mingcong] Minist Agr & Rural Affairs Peoples Republ China, Key Lab Low Carbon Green Agr Northeastern China, Beijing 100000, Peoples R China.

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研究方向:Agriculture

输出日期: 2025-02-19

第 8 条

标题:Improving cropland soil water management to promote soil organic carbon increase through organic material returning in cold black soil areas

作者:Pei, Hao; Miao, Yu; Liang, Anni; Liu, Qiang; Hou, Ruixing

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摘要:Manure returning (OMR) and straw returning (SWR) practices are widely adopted to enhance soil organic carbon (SOC) sequestration, whereas the effects are minimal in cold black soil areas. The issue may be a mismatch between environmental factors and the choice of returning material, which remains unclear. Here, six sites (each site process manure and straw returning croplands) in the western Northeast China Plain (Fuyu, Longjiang, Tailai, Baiquan, and Kedong Counties, and Nehe City) were chosen to investigate the impact of soil properties (soil clay content [Clay], initial soil pH values [pH], and initial soil organic carbon concentration [initial SOC]), management practices (years of fertilization [Year] and carbon input [C input]), and climate factors (mean annual temperature [MAT], mean annual precipitation [MAP] and mean annual wind speed [WS]) on soil organic carbon concentration (SOCc). The results showed that in Longjiang and Tailai Counties, OMR had a significantly higher than SWR on SOCc, whereas in the other four sites, OMR was significantly lower than SWR on SOCc. Redundancy analysis (RDA) and variance partitioning analysis (VPA) revealed that with OMR, climatic factors, management practices, and soil properties accounted for 40.8 %, 34.9 %, and 20.6 % of the SOCc, respectively. While with SWR, these factors explained 53.6 %, 12.6 %, and 31.2 %. Among variables, WS was the most influential variable affecting SOCc changes under OMR, with MAP ranked second in importance. For SWR, Clay and MAP were identified as the two most importance factors. Additionally, SOC is accrul in the part of silt and clay (<0.053 mm) under OMR. For SWR, SOC is accrul in the part of macro-aggregates (>0.25 mm). Thus, for organic materials returning, improving soil water management can promote increased SOCc. And matching sandy soils to SWR and controlling wind speed during OMR can increase SOCc effectively. Match organic material returning to multiple factors, emphasizing climate, can lead to more effective increases in SOCc.

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研究方向:Agriculture; Environmental Sciences & Ecology

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第 9 条

标题:Effects of Enterococcus faecalis Supplementation on Growth Performance, Hepatic Lipid Metabolism, and mRNA Expression of Lipid Metabolism Genes and Intestinal Flora in Geese

作者:Sun, Siyu; Zhao, Yujie; Pang, Zhen; Wan, Baoxia; Wang, Jiaqi; Wu, Zhenyu; Wang, Qiuju

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摘要:The effects of Enterococcus faecalis (E. faecalis) at a concentration of 1.0 x 10(8) CFU/mL on growth performance, hepatic lipid metabolism, and mRNA expression related to lipid metabolism, intestinal morphology, and intestinal flora were investigated in geese. A total of 60 male geese, aged 30 days and of similar weight, were randomly assigned to 2 groups. Each group was divided into six replicates, with five geese per replicate. During the 45-day experiment, the control group received a basal diet, while the experimental group was provided with the same basal diet supplemented with E. faecalis in drinking water at a concentration of 1.0 x 10(8) CFU/mL. E. faecalis significantly increased the half-eviscerated weight of geese and improved ileal intestinal morphology ($p < 0.05$). Serum triglyceride (TG) levels were significantly reduced on day 5, while serum total cholesterol (TC) and low-density lipoprotein cholesterol (LDL-C) levels were significantly decreased on day 25 ($p < 0.05$). By day 45, serum TG and free fatty acid (FFA) levels were also significantly reduced ($p < 0.05$). Additionally, E. faecalis significantly increased the HDL/LDL ratio and serum high-density lipoprotein cholesterol (HDL-C) levels ($p < 0.05$). Serum insulin levels were significantly elevated on day 25, and glucagon-like peptide-1

(GLP-1) levels were significantly increased on day 45 ($p < 0.05$). On day 25 of the trial, hepatic TG levels, FFA levels, and Oil Red O-stained areas in the liver were significantly reduced ($p < 0.05$), accompanied by significantly decreased mRNA expression of hepatic acetyl-CoA carboxylase (ACCA) ($p < 0.05$). Conversely, the mRNA expression levels of fatty acid synthase (FASN), farnesoid X receptor (FXR), sterol regulatory element-binding protein 1 (SREBP-1), and peroxisome proliferator-activated receptor-alpha (PPAR alpha) were significantly elevated ($p < 0.05$). A 16S rRNA diversity analysis of ileal contents on day 25 revealed significant differences in intestinal flora composition between the control and E. faecalis groups. The 16S rRNA data demonstrated a strong correlation between microbial communities and lipid-related physiological and biochemical indicators ($p < 0.05$). In conclusion, E. faecalis supplementation promoted fatty acid oxidation, reduced blood lipid levels, alleviated hepatic lipid accumulation, and improved ileal morphology and intestinal flora diversity, thereby enhancing growth performance and lipid metabolism in geese. These findings suggest that E. faecalis is a promising probiotic candidate for development as a feed additive.

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研究方向: Agriculture; Veterinary Sciences; Zoology

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第 10 条

标题: Lipidomic remodeling in Cannabis sativa L. under cold tolerance

作者: Yan, Bowei; Chang, Chuanyi; Gu, Yingnan; Sui, Yue; Zheng, Nan; Fang, Yuyan; Zhang, Yuanye; Zhang, Ming; Xu, Jingyu; Zhang, Liguo

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摘要: In order to explore the lipidomic remodeling mechanisms and biological basis of hemp response to cold stress, the physiological and biochemical indices of hemp were

analyzed, and a regulatory network for lipid metabolism under cold stress (4 degrees C) was constructed. The results revealed that cold stress, inhibited the growth and development of hemp, with the total fresh weight decreasing by 29 similar to 37 %, and the total dry weight decreasing by 17 similar to 22 %. Additionally, the photosynthesis system was damaged, prompting plants to produce osmotic regulators and activate protective enzymes. Lipidomic analysis revealed that galactolipids, including MGDG, DGDG, and SQDG, were the dominant membrane lipids in hemp leaves, accounting for 70% of the total membrane lipid components. Notably, some lipid remodeling was observed in hemp leaf tissue 3 d after cold stress treatment. Specifically, higher PC/PE and DGDG/MGDG ratios, along with a 53 % increase in PA levels, highlighted the critical role of membrane lipid remodeling and fatty acid unsaturation in hemp adaptation to cold stress. The transcriptomic analysis revealed that the lipid metabolism pathways were activated, with 732 genes associated with lipid metabolic pathways were identified. These genes were primarily enriched in the pathways related to TAG synthesis, fatty acid metabolism, and membrane lipid metabolism. A novel metabolic regulatory network for hemp lipids under cold stress was constructed, offering some insights into the molecular events underlying changes in membrane lipids during cold stress and identifies the key lipids and pathways responsible for resilience to such stress, thereby facilitating the development of new approaches for crop tolerance to stress.

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研究方向: Agriculture

输出日期: 2025-02-19

Biochemistry & Molecular Biology

第 1 条

标题: Interfacial behavior and emulsifying properties of coconut protein glycated by polygalacturonic acid with different molecular weight

作者: Chen, Yan; Zhu, Qianqian; He, Rongrong; Chen, Haiming; Fan, Xiaoyu; Hu,

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摘要: Glycosylation can be used to improve the emulsifying properties of protein by covalently binding with sugar. In this study, we prepared coconut protein (CP) -polygalacturonic acid (PA) conjugates by dry-heat method, studied the effect of PA with different molecular weight on the structure and functionality of CP, and characterized the interfacical behavior of CP at the oil-water interface to establish the relationship between interfacial behavior and emulsion stability. The results showed that different molecular weights of PA (28.4 f 2.01 kDa, 20.3 f 3.09 kDa, 16.3 f 3.07 kDa, 11.6 f 2.33 kDa) significantly affected the grafting degree between CP and PA (14.57 % f 0.98 %, 53.74 % f 0.1 %, 45.5 % f 1.81 %, 36.54 % f 0.38 %, respectively). The results of scanning electron microscopy (SEM) and Fourier infrared spectroscopy (FT-IR) confirmed the successful preparation of PA-CP conjugates. The dynamic interfacial tension of the conjugate was lowest (11.03 f 0.07 mN/m) at the lowest PA molecular weight (11.6 f 2.33 kDa), which increased with the increase of molecular weight. The diffusion, penetration and rearrangement rates of the conjugate were the highest when the molecular weight of PA was 20.3 f 3.09 kDa. Compared to mixtures, conjugates tended to form a more elastic and stable interfacial film at the oil-water interface. In addition, the glycosylation reaction could improve the emulsion stability, resulting in smaller droplets size and higher zeta potential. With the decrease of molecular weight of PA, the emulsifying performance of CP was also improved. In conclusion, this work can further expand the application of coconut protein in the food industry and indicate the direction for further development of pectin with different molecular weights in the food industry.

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

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第 2 条

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

作者:Li, Guanlong; Xie, Yongchao; Wang, Quanxin; Miao, Zhengfei; Liu, Xiaolan; Zheng, Xiqun

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摘要:This study investigated the potential effects of corn protein activity peptides (CPAPs) on inflammation response levels and gastrointestinal microbiota in Helicobacter pylori (H. pylori) infection mice. CPAPs significantly up-regulated the mRNA expression of the anti-inflammatory factor IL-10 and down-regulated the mRNA expression of the pro-inflammatory factors TGF-beta, TLR4, MyD88, and NF-kappa B, indicating that CPAPs may antagonize H. pylori-induced inflammatory responses by inhibiting NF-kappa B signaling pathways. Through the intervention of CPAPs, H. pylori colonization in the stomach was significantly reduced. Additionally, the structural composition of the gastrointestinal microbiota improved, with an increase in abundance and diversity. These changes positively regulate gastrointestinal microbiota disorders in mice. In addition, the PICRUST function prediction of intestinal microbiota revealed that CPAPs may prevent or reduce metabolic disorders brought about by H. pylori, which improve biometabolic pathways by modulating intestinal microbiota composition. In conclusion, these findings suggest that CPAPs may prevent or mitigate metabolic disorders induced by H. pylori, offering theoretical support for the development of corn-protein-based functional foods.

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研究方向:Biochemistry & Molecular Biology; Chemistry

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第 3 条

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

作者:Zhao, Lei; Yu, Jie; Liu, Yunzhuo; Liu, Yihan; Zhao, Yiran; Li, Mu-Yang

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

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

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Biotechnology & Applied Microbiology

第 1 条

标题:Multi-omics analysis identified the GmUGT88A1 gene, which coordinately regulates soybean resistance to cyst nematode and isoflavone content

作者:Jiang, Haipeng; Qu, Shuo; Liu, Fang; Sun, Haowen; Li, Haiyan; Teng, Weili; Zhan, Yuhang; Li, Yongguang; Han, Yingpeng; Zhao, Xue

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摘要: Soybean cyst nematode (SCN, Heterodera glycines) is a major pathogen harmful to soybean all over the world, causing huge yield loss every year. Soybean resistance to SCN is a complex quantitative trait controlled by a small number of major genes (rhg1 and Rhg4) and multiple micro-effect genes. Therefore, the continuous identification of new resistant lines and genes is needed for the sustainable development of global soybean production. Here, a novel disease-resistance quantitative trait locus Rscn-16 was identified and fine mapped to an 8.4-kb interval on chromosome 16 using an F2 population. According to transcriptome and metabolome analysis, a UDP-glucosyltransferase encoding gene, GmUGT88A1, was identified as the most likely gene of Rscn-16. Soybean lines overexpressing GmUGT88A1 exhibited increased resistance to SCN, higher isoflavone glycosides and larger seed size while the phenotype of RNA-interference and knockout soybean lines showed sensitivity to SCN and decreased in seed size compared to wild-type plants. GmMYB29 gene could bind to the promoter of GmUGT88A1 and coordinate with GmUGT88A1 to regulate soybean resistance to SCN and isoflavone accumulation. Under SCN infection, GmUGT88A1 participated in the reorientation of isoflavone biosynthetic metabolic flow and the accumulation of isoflavone glycosides, thus protecting soybean from SCN stress. GmUGT88A1 was found to control soybean seed size by affecting transcription abundance of GmSWEET10b and GmFAD3C,

which are known to control soybean seed weight. Our findings provide insights into the regulation of SCN resistance, isoflavone content and seed size through metabolic flux redirection, and offer a potential means for soybean improvement.

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文献类型:Article

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研究方向: Biotechnology & Applied Microbiology; Plant Sciences

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第 2 条

标题:Ultrasonic-catalyzed ozone degradation of dibutyl phthalate in camel's milk:Efficiency and oxidation profile

作者:Fan, Qiwen; Zhang, Jianqiang; Cao, Rongan; Dai, Congcong; Wang, Xinyuan; Zhou, Lan

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摘要:Dibutyl phthalate (DBP), often referred to as a plasticizer, is commonly used in the production of plastic products, food packaging, children's toys. However, it has been identified as an endocrine disruptor that is difficult to degrade in the environment, resulting in the accumulation of pollutants. The long term consumption of food containing excessive levels of DBP can lead to health problems, such as infertility or cancer. To solve the problem of DBP pollution from CM milk sources in dairy enterprises, eliminate the pollution and waste of CM raw materials, and reduce the cost of producing functional CM products based on milk in dairy enterprises, three cleaner processing methods, ultrasonic (US), ozone (O-3), and ultrasonic-catalyzed ozone (US/O-3), were used in this study. The results showed that the DBP degradation was 84.93 % when the O-3 concentration was 2333 mg/kg. The removal rate of DBP was 71.96 %, when the US power was 550 W, and the action time was 70

min. After treatment with US/O-3 for 60 min, the highest degradation rate was 90.82 %, which was consistent with the first-order reaction kinetics model. DBP residues in milk were lower than the regulatory limits in the European Union and China. This treatment method had no significant effect on the protein, lactose, and water contents (P > 0.05), but it reduced the fat content and displayed varying differences in ash content. The total milk particle size also decreased, with no significant change in soluble nitrogen content, and fatty acids generally showed a tendency to be oxidized.

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

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第 3 条

标题:Toxic effects of PFOA on Nitzschia palea and its apoptosis mechanism

作者:Zhu, Qiuna; Asimtul, Parizat; Bai, Jinyu; Sui, Fengyang; Lu, Xinxin; Mei, Xiaoxue; Liu, Yan; Jiang, Chunyu; Wang, Xuesong; Song, Chunhua; Fan, Yawen

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摘要:This study investigates the acute toxicity effects and apoptosis mechanisms of perfluorooctanoic acid (PFOA) on Nitzschia palea (N. palea), aiming to provide a theoretical foundation for the joint risk assessment of perfluorinated compounds (PFCs) in aquatic ecosystems. N. palea was exposed to PFOA concentrations ranging from 0 to 320 mg center dot L- 1, and the effects of exposure on cell density, Chl a, antioxidant systems, and cell morphology were analyzed. The results showed that the 96-h EC50 of PFOA-induced N. palea was 90 mg center dot L-1. PFOA concentrations of <= 40 mg center dot L- 1 promoted algal reproduction, while higher doses inhibited growth. Optical and scanning electron microscopy revealed that some N. palea cells had distinctly raised or depressed shell edges. The increase in reactive oxygen species (ROS) and antioxidant substances (SOD, CAT, and GSH) indicated that PFOA induced oxidative stress. Based on flow cytometry and AO/EB morphological observations, PFOA was found to induce

apoptosis in N. palea cells. Transcriptomic analysis and qRT-PCR results showed that PFOA promotes the expression of mitochondria-associated apoptosis-related genes (NpCyt C, NpCaspase-3, and NpCaspase-9) in N. palea. This indicates that PFOA enhances the production of ROS in N. palea. Moreover, it initiates the mitochondrial apoptosis pathway by upregulating the expression of NpCyt C.

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研究方向: Biotechnology & Applied Microbiology

输出日期: 2025-02-19

Immunology

第 1 条

标题: Luteolin inhibits BHV-1 replication and alleviates virus-induced inflammatory responses by regulating PI3K/AKT pathway

作者: Li, Chuang; Zhao, Zhicheng; Yuan, Xueying; Wang, Xingyuan; Wang, Hongrui; Fan, Jialin; Liu, Yu; Zhou, Yulong; Zhu, Zhanbo; Zhang, Zecai

来源出版物：MICROBIAL PATHOGENESIS **卷：**199 **文献号：** WOS:001401425600001 **DOI：**10.1016/j.micpath.2024.107258

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摘要: Bovine herpesvirus type 1 (BHV-1) seriously affects the production safety of the cattle industry and leads to epidemics worldwide. Luteolin (Lut), a flavonoid substance, can be found in vegetables, fruits, and herbs and possesses various biological properties. Here, we found that Lut can dose-dependently and significantly inhibit the cytopathic effects of BHV-1, decrease the viral titer, and suppress the BHV-1 gB gene and VP8 protein levels on bovine nasal turbinate osteoblasts (BT) and bovine kidney epithelial cells (MDBK). Mechanistic studies revealed that Lut can stably bind to the active sites of PI3K and AKT, and inhibit the PI3K/AKT pathway.

Interestingly, 740Y-P (an agonist of the PI3K/AKT pathway) significantly attenuated the anti-BHV-1 effects of Lut. Further studies on the anti-inflammatory effects of Lut revealed that it attenuated BHV-1-induced activation of the NF kappa B pathway, which significantly suppressed the expression of TNF-alpha, IL-1 beta, IL-6, and IL-8 and increased the expression levels of IL-4 and IL-10. The PI3K/AKT pathway was also found to be involved in the antiinflammatory effects of Lut. These results confirm the inhibitory effect of Lut on BHV-1 replication, which lays the foundation for further studies on the prevention and control of BHV-1.

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文献类型: Article

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研究方向: Immunology; Microbiology

输出日期: 2025-02-19

第 2 条

标题: Feature Variable Selection for Near-Infrared Spectroscopy Based on Simulated Annealing Bee Colony Algorithm

作者: Li, Chuang; Zhao, Zhicheng; Yuan, Xueying; Wang, Xingyuan; Wang, Hongrui; Fan, Jialin; Liu, Yu; Zhou, Yulong; Zhu, Zhanbo; Zhang, Zecai

来源出版物：MICROBIAL PATHOGENESIS **卷：**199 **文献号：**WOS:001401425600001 **DOI：**10.1016/j.micpath.2024.107258
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摘要: Bovine herpesvirus type 1 (BHV-1) seriously affects the production safety of the cattle industry and leads to epidemics worldwide. Luteolin (Lut), a flavonoid substance, can be found in vegetables, fruits, and herbs and possesses various biological properties. Here, we found that Lut can dose-dependently and significantly inhibit the cytopathic effects of BHV-1, decrease the viral titer, and suppress the

BHV-1 gB gene and VP8 protein levels on bovine nasal turbinate osteoblasts (BT) and bovine kidney epithelial cells (MDBK). Mechanistic studies revealed that Lut can stably bind to the active sites of PI3K and AKT, and inhibit the PI3K/AKT pathway. Interestingly, 740Y-P (an agonist of the PI3K/AKT pathway) significantly attenuated the anti-BHV-1 effects of Lut. Further studies on the anti-inflammatory effects of Lut revealed that it attenuated BHV-1-induced activation of the NF kappa B pathway, which significantly suppressed the expression of TNF-alpha, IL-1 beta, IL-6, and IL-8 and increased the expression levels of IL-4 and IL-10. The PI3K/AKT pathway was also found to be involved in the antiinflammatory effects of Lut. These results confirm the inhibitory effect of Lut on BHV-1 replication, which lays the foundation for further studies on the prevention and control of BHV-1.

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研究方向: Immunology; Microbiology

输出日期: 2025-02-19

Chemistry

第 1 条

标题: Exploring the ORR activity of S-doped CuN4 materials in vacuum and constant potential solvent environments

作者: Wang, Chunxiang; Ye, Xiang; Li, Shan

来源出版物：IONICS **卷：**31 **文献号：**WOS:001385119000001

DOI：10.1007/s11581-024-06045-8 **Published date：**2025

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摘要: The advancement of efficient and cost-effective electrocatalysts for fuel cells

and metal-air batteries holds significant commercial importance. Utilizing Density Functional Theory (DFT), we calculated various properties of CuN4SN catalysts, with the number of sulfur atoms (N) ranging from 0 to 3, including their formation energy, binding energy, state density, Bader charge, and redox reactions. Our findings revealed that CuN4SN catalysts possess a high formation energy, facilitating their ease of preparation. By studying the adsorption behavior of oxygen-containing intermediates on the catalyst surface, we observed that under vacuum settings, CuN4S1 exhibits the lowest eta ORR (overpotential for oxygen reduction reaction) and reaction energy barrier among the four models, with values of 0.95 V and 0.74 eV, respectively. Furthermore, we investigated the ORR activity of CuN4S1 under a constant potential implicit solvent model and found that CuN4S1 demonstrates superior performance in alkaline environments for ORR. Specifically, its eta ORR and reaction energy barrier were 0.36 V and 0.56 eV in alkaline conditions, respectively.

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研究方向: Chemistry; Electrochemistry; Physics

输出日期: 2025-02-19

第 2 条

标题: Self-assembling wheat gluten peptide nanoparticles: Pterostilbene encapsulation and interaction mechanism

作者: Cao, Jiabao; Fan, Guangqi; Wang, Changyuan; Lu, Baoxin

来源出版物： FOOD HYDROCOLLOIDS **卷：162**
文献号： WOS:001392836400001 **DOI：** 10.1016/j.foodhyd.2024.110960
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摘要: In this study, the wheat gluten protein peptide WGP-M (3697.86 Da) was used as a carrier to successfully prepare pterostilbene (PTE) composite nanoparticles (WGPM-PTE), and the self-assembly mechanism and structural characteristics were thoroughly investigated. The composite nanoparticles were systematically characterized using HPLC, SEM, SAXS, XRD, FTIR, and DLS. WGPM-PTE exhibited an excellent encapsulation efficiency of 90.89% and solubility of 113.56%. SEM images revealed that WGPM-PTE had a dense gel-like network structure with a smooth surface, while SAXS confirmed its highly ordered and stable internal structure,

showing a minimum radius of gyration (3.16 nm) and maximum rigidity. XRD analysis revealed that the crystalline peaks of PTE in WGPM-PTE disappeared completely, indicating an amorphous state. Furthermore, FTIR spectra, fluorescence spectra, and thermodynamic parameter analysis revealed that WGP-M and PTE primarily formed stable noncovalent interactions through hydrogen bonding, van der Waals forces, hydrophobic interactions, and electrostatic forces. Molecular dynamics simulations showed that PTE was encapsulated in the hydrophobic core of WGP-M. In conclusion, this study elucidates the interaction mechanism by which the self-assembly capacity of WGP-M facilitates the loading of PTE, offering new insights for the development of novel food-derived peptidebased nanoparticle carriers with significant potential for practical applications.

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文献类型: Article

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研究方向: Chemistry; Food Science & Technology

输出日期:2025-02-19

第 3 条

标题: Effects of highland barley (3-glucan on gut microbiota composition and metabolism in vitro fermentation

作者: Ge, Yinchen; Liu, Jiaci; Tang, Huacheng; Zang, Yanqing; Cao, Yang

来源出版物： FOOD CHEMISTRY-X **卷：** 25 **文献号：** WOS:001392955500001 **DOI：** 10.1016/j.fochx.2024.102089 **Published date：** 2025

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摘要: Highland barley (3-glucan (HBG) has attracted increasing attention due to its excellent biological activities. However, the effects of HBG on gut flora and metabolites are unknown. Therefore, the effects of HBG on the gut microbiota during fermentation were analyzed by 16 s rRNA sequencing and untargeted metabolomics. The results showed that HBG could enrich microbial diversity, increase the abundance of beneficial bacteria, and inhibit the biology of pathogenic bacteria. In addition, HBG increased the content of short-chain fatty acids and decreased fermentation broth pH. Metabolomics analyses showed that HBG also increased the content of beneficial metabolites such as taurine and affected amino acid metabolism, among other

pathways. This study lays the foundation for the application of HBG in functional foods.

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文献类型: Article

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研究方向: Chemistry; Food Science & Technology

输出日期: 2025-02-19

第 4 条

标题: Wavelength selection method for near-infrared spectroscopy based on the combination of mutual information and genetic algorithm

作者: Ma, Xiao-Hui; Chen, Zheng-Guang; Liu, Shuo; Liu, Jin-Ming; Tian, Xue-song

来源出版物：TALANTA **卷：**286 **文献号：**WOS:001400973500001
DOI：10.1016/j.talanta.2025.127573 **Published date：**2025

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摘要: Near-infrared (NIR) spectroscopy analysis technology has become a widely utilized analytical tool in various fields due to its convenience and efficiency. However, with the promotion of instrument precision, the spectral dimension can now be expanded to include hundreds of dimensions. This expansion results in time-consuming modeling processes and a decrease in model performance. Hence, it is crucial to carefully choose representative features before constructing models. This paper focuses on the limitations of filter algorithms, which can only sort features and cannot directly determine the best subset of features. A hybrid method of combination of the Max-Relevance Min-Redundancy (mRMR) algorithm and the Genetic Algorithm (GA), as well as filter and wrapper feature selection methods, are combined to select appropriate features automatically. This hybrid algorithm retains the features in each individual that are considered to have a strong correlation and low redundancy by the mRMR algorithms during each iteration of the GA. On the other hand, it deletes the features that are regarded as having little correlation or high redundancy. Through the process of iteration, the feature subset is continuously optimized. We use the proposed hybrid method to select features on two datasets and establish various models to verify our proposed method in this paper. The experimental results indicate

the feature selection approach, which combines mRMR with the GA, covers the advantages of both feature selection methods. This approach can select features that show good predictive performance. When compared with other common feature selection methods, such as the Uninformative Variable Elimination algorithm (UVE), Competitive Adaptive Reweighted Sampling algorithm (CARS), Successive Projections Algorithm (SPA), Iteratively Retains Informative Variables (IRIV), and GA, the hybrid algorithm can select a larger number of feature variables that are both representative and informative, additionally, it significantly enhances the predictive performance of the model.

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文献类型:Article

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研究方向: Chemistry

输出日期: 2025-02-19

第 5 条

标题:The stabilization mechanism of the pea protein and rutin complex at the gas/liquid interface and its application in low-fat cream

作者:Xia, Chunyang; Lou, Fangxiao; Zhang, Shuo; Cheng, Tianfu; Hu, Zhaodong; Guo, Zengwang; Ma, Ping

来源出版物：FOOD CHEMISTRY-X 卷：25 文献号：WOS:001402209700001

DOI：10.1016/j.fochx.2024.102140 **Published date**：2025

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摘要:The objective of this study was to substitute partially fat with pea protein isolate (PP)/rutin (Ru) complexes to produce a healthy and stable low-fat whipped cream. Ru enhanced the foam properties of PP. The Ru binding equivalent was the best at a mass ratio of PP/Ru of 64:4, the PP/Ru complexes particle size was the smallest. The synergistic adsorption of Ru reduced the interfacial tension of the complexes and accelerated their diffusion, permeation, and rearrangement at the air/water interface. The results of rheology and Lissajous plots suggested that PP/Ru complexes functioned as an interfacing stabilizer, enhanced the elastic strength of interface film, and improved the stability of foam. PP/Ru complexes as a fat substitute promoted the aggregation of fat globules and the formation of fat globule network structure. When the substitution rate is 10 %, the texture, stability, and microstructure of the sample are

nearly identical to those of full-fat cream.

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文献类型:Article

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研究方向: Chemistry; Food Science & Technology

输出日期: 2025-02-19

第 6 条

标题:Near-infrared activity analysis and identification of fungal and bacterial markers

作者:Zou, Biqing; Zhao, Xiaoyu; Liao, Jiangcheng; Zhao, Yue

来源出版物：MICROCHEMICAL JOURNAL 卷：208

文献号：WOS:001412505700001 **DOI**：10.1016/j.microc.2024.112552

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摘要:The investigation of fungal and bacterial biomarkers, along with the examination of their spectral detection mechanisms, is crucial for the diagnosis of fungal and bacterial diseases. This paper centers on the research and validation of distinctive substances found in bacterial cell walls, particularly the molecules N-acetylglucosamine and N-acetylmuramic acid present in peptidoglycan, as well as the stable conformations associated with the fungal cell wall biomarker N-acetylglucosamine, which correlate with near-infrared spectral peaks and vibrational modes. Additionally, the Shapley Additive Explanations (SHAP) method was utilized in a reverse manner to visualize the marginal contribution intensity of variables, facilitating the selection of fused variables from Continuous Projection (SPA) variables and biomarker variables. The support vector machine (SVM) model, based on these fused variables, exhibited outstanding identification performance, achieving Accuracy, Precision, Recall, and F1-score values of 0.98701, 0.98705, 0.98612, and 0.98713, respectively. This performance surpassed that of SVM models utilizing original data, SPA variables, PCA variables, and PCA and biomarker fused variables, as well as random forest (RF), K-nearest neighbors (KNN), and backpropagation neural network (BP) models. In practical and robustness tests, the model maintained strong performance, recording Accuracy, Precision, Recall, and F1-score values of 0.92684, 0.92735, 0.92583, and 0.92885 (based on original data) and 0.97079,

0.97251, 0.97080, and 0.97095 (based on fused data). This study contributes in two significant ways: first, it constructs the spatial structures of bacterial cell wall biomarkers, including N-acetylglucosamine and Nacetylmuramic acid, as well as the fungal cell wall biomarker N-acetylglucosamine, calculating their optimized geometric parameters and deriving theoretical infrared spectra through double scaling factor correction. This process validates the infrared spectral peaks and vibrational modes associated with molecular stable conformations, providing a theoretical foundation for identifying fungi and bacteria using near-infrared spectroscopy technology. It also offers essential data such as vibrational modes, vibrational intensity, bond angles, and dihedrals for further investigations into the infrared activity of these molecules. The second contribution involves the design of an SVM model based on SPA and biomarker fused variables, aimed at the efficient identification of fungi and bacteria, which is vital for the targeted application of fungicides and bactericides.

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文献类型: Article

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研究方向: Chemistry

输出日期: 2025-02-19

第 7 条

标题: Rapid detection of corn moisture content based on improved ICEEMDAN algorithm combined with TCN-BiGRU model

作者: Yang, Jiao; Guan, Haiou; Ma, Xiaodan; Zhang, Yifei; Lu, Yuxin

来源出版物：FOOD CHEMISTRY **卷：**465 **文献号：**WOS:001413444400001
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摘要: Rapid detection of corn moisture content(MC) during maturity is of great significance for field cultivation, mechanical harvesting, storage, and transportation management. However, cumbersome operation, timeconsuming and labor-intensive operation were the bottleneck in the traditional drying process and dielectric parameter method. Thus, to overcome the above problems, a rapid detection method for corn MC based on improved complete ensemble empirical mode decomposition with adaptive noise (ICEEMDAN) combined with temporal convolutional network-bidirectional gated recurrent unit (TCN-BiGRU) model. First, based on the 405 groups of NIR spectral data of corn seeds, the crested Porcupine Optimizer (CPO) algorithm was used to optimize ICEEMDAN to reduce the noise of the original spectral data. Then the Chaotic-Cuckoo Search (CCS)

algorithm was applied to extract 203 characteristic wavenumbers from the original spectrum, which were input into the constructed TCN-BiGRU network model to realize corn MC detection. Finally, the CPO-ICEEMDAN-CCS-TCNBiGRU corn MC classification detection model was constructed. The result showed that the model accuracy was 97.54 %, which was 9.22 %, 5.58 %, 2.34 %, 4.74 %, and 5.94 % higher than those of convolutional neural networks (CNN), long short-term memory networks (LSTM), temporal convolutional network (TCN), partial least squares (PLS), and support vector machine (SVM) models, respectively. The research results can provide a reliable basis for improving corn yield, quality and economic benefits.

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文献类型: Article

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

输出日期: 2025-02-19

第 8 条

标题: Improving the emulsification properties of corn starch by esterification combined with freeze-thawing and enzymatic treatment

作者: Ji, Run; Xu, Jieli; Yu, Yuhe; Song, Shuang; Zhang, Xiuling; Zhang, Wentao

来源出版物：FOOD CHEMISTRY **卷：**470 **文献号：**WOS:001413447200001
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摘要: In this study, high performance porous starch was prepared by combining freeze-thawing and enzymatic hydrolysis with the aim of evaluating its potential as a starch emulsifier in Pickering emulsions. The results indicate that the combined treatment significantly altered the specific surface area of starch (from 0.3257 m2/g to 1.5634 m2/g), pore volume (from 0.734 x 10-3 cm3/g to 3.967 x 10-3 cm3/g), crystallinity (from 23.35 % to 19.55 %), and the ratio of amylose to amylopectin content (from 3.44 % to 15.86 %). In comparison to native starch, the degree of substitution (DS) of the modified porous starch increased by 53.3 % to 127.6 %, and esterification was confirmed by Fourier transform infrared (FTIR) and X-ray diffraction (XRD) analyses. In particular, OFE (-80 degrees C) exhibited excellent emulsifying activity and emulsion stability due to its small particle size (6.06 mu m), near- neutral wettability (74.2 degrees) and high DS (0.034). These results demonstrate the potential of OSA-modified porous starches for emulsion stabilization.

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

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第 9 条

标题:Resveratrol-derived carbon dots integrated into gelatin/chitosan multifunctional films for intelligent packaging

作者:Fu, Tianxin; Feng, Yuchao; Zhang, Shu; Sheng, Yanan; Wang, Changyuan

来源出版物：FOOD CHEMISTRY-X 卷：25 文献号：WOS:001416493200001

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摘要:In this study, multifunctional Resveratrol-derived carbon dots (Res-CDs) were prepared using a hydrothermal method. Res-CDs exhibited good free-radical scavenging activities, attributed to abundant surface hydroxyl groups, and effectively inhibited Staphylococcus aureus and Escherichia coli growth at a concentration of 2 mg/mL. Composite films were prepared by combining Res-CDs with gelatin/chitosan. As well as excellent mechanical properties, the prepared films exhibited smooth surfaces, thermal stability, and good antioxidant, ultraviolet- shielding, antibacterial, and pH-responsive properties. Furthermore, cell viability measurements showed that the films were safe. When applied to keeping pork fresh, the gelatin/chitosan/Res-CDs film significantly reduced the total viable bacterial count on the pork surface and effectively prevented pork discoloration. Additionally, pH, total volatile basic nitrogen, and weight loss measurements confirmed the preservative effects of the film on pork. This work provides a new approach for synthesizing bionanocomposite films with applicability in the food industry.

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文献类型:Article

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研究方向:Chemistry; Food Science & Technology

输出日期: 2025-02-19

Fisheries

第 1 条

标题: Astaxanthin ameliorates high-carbohydrate diet-induced ER stress , immunosuppression and hepatic glucose metabolism through AMPK/ autophagy pathway in Channa argus

作者: Li, Mu-Yang; Liu, Yun-Zhuo; Chen, Xiu-Mei; Niu, Xiao-Tian; Chen, Lu; Zhao, Lei; Wang, Gui-Qin

来源出版物：AQUACULTURE 卷：598 文献号：WOS:001391117300001
DOI：10.1016/j.aquaculture.2024.742010 **Published date**：2025

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摘要:Carbohydrates have the potential to save protein in feed, but a high carbohydrate diet (HCD) can easily lead to physiological metabolic abnormalities that seriously threaten the growth of aquatic animals. Astaxanthin could maintain blood glucose stability, promote antioxidant and immune functions, but whether it can alleviate HCDinduced liver glucose metabolism abnormalities in fish remains unknown. In this study, we examined the effects of astaxanthin on HCD-induced growth, glucose metabolism, serum biochemistry, immune, ER stress, autophagy and AMPK pathway in Channa argus. The results showed that astaxanthin promotes the accumulation of glycogen in muscle and liver, and blood glucose stability, thereby improving growth performance. Astaxanthin reduces hepatosomatic index and serum transaminase (ALT and AST), LDH activity. Further analysis indicated that astaxanthin activated autophagy and AMPK pathway inhibit ER stress. Besides, astaxanthin alleviated the immune suppression associated with ER stress. These results suggest that astaxanthin could alleviate ER stress, immunosuppression and hepatic glucose metabolism through AMPK/autophagy pathway in C. argus.

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文献类型: Article

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研究方向: Fisheries; Marine & Freshwater Biology

输出日期: 2025-02-19

Engineering

第 1 条

标题: Least Squares Support Vector Machines With Variable Selection and Hyperparameter Optimization for Complex Structures Reliability Assessment

作者: Dong, Xiaowei; Zhang, Hao; Li, Zhenao; Zhu, Chunyan; Yi, Shujuan; Chen, Changhai

来源出版物：QUALITY AND RELIABILITY ENGINEERING INTERNATIONAL

文献号：WOS:001399147000001 **DOI：**10.1002/qre.3726

Published date：2025

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摘要: For effectively estimating the reliability of complex structures, a least squares support vector machine with variable selection and hyperparameter optimization (SVMSO, short for) is proposed based on local linear embedding with Pearson coefficient and location density with particle swarm optimization (LDPSO) algorithm. In this proposed method, the local linear embedding with Pearson coefficient is used to select the variables that have a strong correlation with output responses, which are embedded in relatively low-dimensional space to avoid the negative influence of high-dimensional input parameters. The optimal hyperparameters of least squares support vector machines (LSSVM) are obtained by applying the LDPSO to improve the accuracy of LSSVM affected by the hyperparameters. Taking civil aircraft turbine blisk as a study case, the effectiveness and applicability of SVMSO are verified in aspects of modeling quality and simulation characteristics, by comparing direct simulation, support vector machine, and LSSVM. The case results and conclusions represent that the proposed method has good precision and efficiency under a high-dimensional data scale, and is suitable for reliability analysis of complex structures.

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文献类型:Article

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研究方向: Engineering; Operations Research & Management Science

输出日期: 2025-02-19

第 **2** 条

标题:Stacking ensemble surrogate modeling method based on decomposed-coordinated strategy for structural low-cycle fatigue life reliability estimation

作者:Li, Zhen-Ao; Li, Qing-Long; Liang, Jia-Hao; Dong, Xiao-Wei; Zhu, Chun-Yan; Wang, Ming

来源出版物：RELIABILITY ENGINEERING & SYSTEM SAFETY 卷：257
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Published date：2025

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摘要:Traditional reliability analysis methods for the low-cycle fatigue (LCF) of mechanical structures consistently adopt one-step modeling approach, which tends to lack satisfactory precision when dealing with highly nonlinear problems. To address above issue, the Stacking ensemble surrogate modeling method based on decomposedcoordinated strategy (DCS-SESMM) is proposed. In this study, the Manson-Coffin (M-C) formula serves as the foundation, and the LCF life estimation problem is transformed into a two-step data-driven modeling approach through the decomposed-coordinated strategy (DCS). Firstly, the sub-surrogate models are developed to accurately capture the stress-strain responses under random load variables. Then, the predictions of sub-surrogate models are combined with fatigue parameters to construct the main LCF life model based on the M-C formula. Additionally, the Stacking ensemble learning method is introduced to improve the robustness of surrogate model by integrating data features from different training rules. Finally, the general applicability of DCS-SESMM is validated through the

probabilistic analysis of a nested function and the LCF life reliability estimation of turbine blisk, demonstrating its excellent modeling characteristics and simulation performance. The proposed method can be applied to the LCF life reliability estimation of various mechanical structures, providing valuable insights for the LCF life reliability assessment.

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文献类型: Article

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研究方向: Engineering; Operations Research & Management Science

输出日期: 2025-02-19

第 3 条

标题: Research on Compound Fault Diagnosis of Bearings Using an Improved DRSN-GRU Dual-Channel Model

作者: Yin, Shuxin; Chen, Zengxu

来源出版物：IEEE SENSORS JOURNAL **卷：**24 **文献号：**WOS:001410610100146
DOI：10.1109/JSEN.2024.3462540 **Published date：**2024

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摘要: In practical engineering, noise often contaminates the fault signals of rolling bearings, making it difficult to accurately diagnose compound faults. To tackle this challenge, this article introduces a rolling bearing compound fault diagnosis model using an enhanced dual-channel deep residual shrinking network (DRSN)-GRU structure. The model improves the soft threshold function of the residual shrinkage building unit (RSBU), creating the progressive RSBU (PRSBU) module. It constructs a DRSN channel for initial feature extraction, while the gated recurrent unit (GRU) is integrated with convolutional pooling layers to form the GRU channel, designed for extracting linear features. By using a dual-channel connection approach, the model minimizes potential information loss or error accumulation that can occur in a single model structure. In the recognition module, a multilabel classification framework is established to identify compound faults. Experimental results show that, under strong noise conditions, the improved DRSN-GRU significantly outperforms the standard DRSN-GRU and other models, achieving 91.2% accuracy while effectively decoupling and recognizing compound faults.

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研究方向:Engineering; Instruments & Instrumentation; Physics

输出日期: 2025-02-19

Environmental Sciences& Ecology

第 1 条

标题: BENEFICIAL EFFECTS OF MILD WATER DEFICIENCY ON GROWTH AND YIELD IN THE SEEDLING STAGE OF SOYBEAN

作者: Wang, M. . X.; Chen, Q.; Jia, R.; Zhou, L.; Wang, C.; Jin, X. . J.; Zhang, Y. X.; Cao, L.; Wang, M. . Y.; Ren, C. . Y.

来源出版物：APPLIED ECOLOGY AND ENVIRONMENTAL RESEARCH 卷：23

文献号：WOS:001382752400001 **DOI**：10.15666/aeer/2301_215234

Published date：2025

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摘要: This experiment was conducted at Heilongjiang Bayi Agricultural University in China, using Sui Nong 26 soybeans and negative pressure water supply equipment. The study set different water control periods (V1, R1, and R5 stages) and varying degrees of water stress (normal, mild, moderate, severe) to analyze soybean yield, nutrient uptake, growth, and physiological and biochemical responses to drought and water compensation. The aim was to establish high-quality, high-yield, water-saving cultivation techniques for dryland soybeans. Results showed that increasing water stress decreased soybean plant height and stem diameter. At the V1 and R1 stages, root length initially decreased and then increased, while drought stress at R1 and R5 stages inhibited dry matter accumulation. Severe drought stress significantly reduced dry matter compared to mild stress. Mild drought stress at the seedling stage increased dry matter accumulation, but severe stress hindered recovery after rehydration. During the V1 stage, mild drought stress increased Pn, Tr, and Gs by 7.9%, 16.4%, and 1.0%, respectively. In the R1 stage, drought stress reduced Pn, Gs, Ci, and Tr, with greater reductions under more severe stress. Post-rehydration, Pn, Gs, and Ci under mild stress were higher than CK. At the R5 stage, rehydration failed to restore photosynthetic capacity. Mild drought stress increased grain yield by 5.0% at the seedling stage but reduced it during flowering and bulging stages, also increasing grain protein content while decreasing lipid content.

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文献类型: Article

地址: [Wang, M. . X.; Chen, Q.; Jia, R.; Zhou, L.; Wang, C.; Jin, X. . J.; Zhang, Y. X.; Cao, L.; Wang, M. . Y.; Ren, C. . Y.] Heilongjiang Bayi Agr Univ, Coll Agr, Daqing 163319, Peoples R China.

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研究方向: Environmental Sciences & Ecology

输出日期: 2025-02-19

第 2 条

标题: Adsorption properties and competitive adsorption mechanism exhibited by carbon-nanotube-modified biochar for removal of crude oil and Ni(II) pollutants from water

作者: Cao, Di; Niu, Ruiyan; Mo, Guanglu; Deng, Huiwen; Liu, Rui; Liu, Jie; Fan, Jialin

来源出版物：ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY 卷：290

文献号：WOS:001391664700001 **DOI**：10.1016/j.ecoenv.2024.117557

Published date：2025

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摘要: Carbon-nanotube-modified biochar (CNT3-CBC) with a nanostructured surface was prepared by using cattle manure as the raw material via the impregnation method. This modified biochar was then used to adsorb petroleum and Ni(II) from aqueous solutions. Various physicochemical characterization techniques were employed, including SEM, BET analysis, FTIR, and XPS. Kinetic and isothermal adsorption characteristics were analyzed. The influence of different biochar dosages, solution pH levels, and number of adsorption cycles on the efficiency of removal of crude oil and Ni(II) was meticulously evaluated. Results indicated that modified biochar had a higher surface area, a greater number of surface functional groups, and higher interaction forces compared to biochar. Adsorption kinetics and isotherms showed that modified biochar had a strong adsorption capacity. The experimental data conformed closely to the Elovich, Langmuir, and Freundlich adsorption models, underscoring the significant contributions of both physical and chemical adsorption mechanisms. Competitive adsorption of modified biochar in the co-sorption of petroleum and nickel solutions exists, and the modified biochar demonstrated high capacities for crude oil and Ni(II) in the competitive adsorption. The modified biochar prepared at a pyrolysis temperature of 800 degrees C exhibited a superior adsorption performance, and the adsorption capacities of crude oil and Ni(II) were 303.03 mg center dot g-1 and 32.87 mg center dot g-1 , respectively. Modified biochar has better regeneration potential after crude oil and Ni(II) adsorption, with the removal efficiency

remaining above 50 % in the fourth cycle. As an efficient and environmentally friendly adsorbent, modified biochar shows great potential for removing crude oil and Ni(II) pollutants from water.

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文献类型: Article

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研究方向: Environmental Sciences & Ecology; Toxicology

输出日期: 2025-02-19

第 3 条

标题: Comparative genomics analysis of the reason for 12C6+heavy-ion irradiation in improving Fe3O4 nanoparticle yield of Acidithiobacillus ferrooxidans

作者:Yang, Jiani; Zhang, Shuang; Geng, Lirong; Zhao, Dan; Xing, Siyu; Ji, Xinyue; Yan, Lei

来源出版物：ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY 卷：289

文献号：WOS:001398700000001 **DOI**：10.1016/j.ecoenv.2025.117668

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摘要: The Fe3O4 nanoparticle synthesized by Acidithiobacillus ferrooxidans have a broad practical value, while the low yield limits their commercial application. Herein, we employed a 12C6+ heavy-ion beam to induce mutagenesis of A. ferrooxidans BYM and successfully screened a mutant BYMT-200 with a 1.36 mg/L Fe3O4 nanoparticle yield, which could stably inherit over many generations based on assessing cell magnetism and Fe3O4 nanoparticle synthesis. Comparative genome analysis detected 14 mutation sites, causing six synonymous mutations, one missense mutation, and one nonsense mutation. We further annotated the genes involved in the

mutation, such as hcp, hsdM, yghU, K7B00_11365, and K7B00_11355, which are responsible for the substantial changes in the Fe3O4 nanoparticle yield of A. ferrooxidans. Additionally, we performed a pan-genome analysis to understand how these genes regulate Fe3O4 nanoparticle synthesis. The core genome of 2376 orthologous clusters was identified and visualized by progressive Mauve alignment and OrthoVenn. A total of 109 regulatory genes related to iron metabolism were identified, mainly involved in electron transport, iron acquisition, iron storage, and oxidative stress. The mutant genes are closely related to iron-sulfur clusters and oxidative stress. Accordingly, we proposed a hypothetical mechanism for increasing Fe3O4 nanoparticle production in A. ferrooxidans BYMT-200 to withstand high oxidative stress caused by heavy ion radiation. Our study offers significant theoretical guidance for further acquiring the high-yield Fe3O4 nanoparticle-producing bacteria and studying the mechanism of its synthesis.

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文献类型: Article

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研究方向: Environmental Sciences & Ecology; Toxicology

输出日期: 2025-02-19

Food Science & Technology

第 1 条

标题: Effectiveness of Differentiating Mold Levels in Soybeans with Electronic Nose Detection Technology

作者: Song, Xuejian; Qian, Lili; Zhang, Dongjie; Wang, Xinhui; Fu, Lixue; Chen, Mingming

来源出版物：FOODS **卷：**13 **文献号：**WOS:001384446500001
DOI：10.3390/foods13244064 **Published date：**2024

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摘要: This study employed electronic nose technology to assess the mold levels in soybeans, conducting analyses on artificially inoculated soybeans with five strains of fungi and distinguishing them from naturally moldy soybeans. Principal component analysis (PCA) and linear discriminant analysis (LDA) were used to evaluate inoculated and naturally moldy samples. The results revealed that the most influential sensor was W2W, which is sensitive to organic sulfur compounds, followed by W1W (primarily responsive to inorganic sulfur compounds), W5S (sensitive to small molecular nitrogen oxides), W1S (responsive to short-chain alkanes such as methane), and W2S (sensitive to alcohols, ethers, aldehydes, and ketones). These findings highlight that variations in volatile substances among the moldy soybean samples were predominantly attributed to organic sulfur compounds, with significant distinctions noted in inorganic sulfur, nitrogen compounds, short-chain alkanes, and alcohols/ethers/aldehydes/ketones. The results of the PCA and LDA analyses indicated that while both methods demonstrated moderate effectiveness in distinguishing between different dominant fungal inoculations and naturally moldy soybeans, they were more successful in differentiating various levels of moldiness, achieving a discriminative accuracy rate of 82.72% in LDA. Overall, the findings suggest that electronic nose detection technology can effectively identify mold levels in soybeans.

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文献类型: Article

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研究方向: Food Science & Technology

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第 2 条

标题: The evolution of precision agriculture and food safety: a bibliometric study

作者: Xu, Jiahui; Cui, Yuanpei; Zhang, Shuhan; Zhang, Meiping

来源出版物：FRONTIERS IN SUSTAINABLE FOOD SYSTEMS 卷：8

文献号：WOS:001386253900001 **DOI**：10.3389/fsufs.2024.1475602

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摘要: Introduction Food safety issues pose a significant threat to humanity. Precision agriculture leverages advanced technologies for real-time monitoring and management, improving agricultural productivity and sustainability while safeguarding food security. Nonetheless, acquiring a thorough comprehension of this continually shifting panorama remains of vital significance.Methods This study conducts a comprehensive bibliometric review of precision agriculture and food safety, utilizing quantitative methods to identify past, current, and future evolution. It includes citation, co-authorship, co-citation, and co-words analyses.Results Publications emerged in 1994 and began to rise significantly since 2019. Citation analysis verified influencing works and journals, whereas co-authorship analysis identified how authors, institutions, and countries collaborate in this field. Co-citation analysis then classified past and current hotspots into four clusters: remote vegetation monitoring techniques, technological innovations and agricultural decision-making, precision agriculture and sustainable development, and deep learning in agriculture. After that, the co-occurrence of keywords revealed emerging trends, such as precision cultivation and yield prediction, smart agricultural technology and food management, precision information for climate change adaptation, and precision agriculture and food security.Discussion The findings provide insights for scholars, policymakers, researchers, practitioners, and industry stakeholders. They guide future research directions and address pressing challenges in agriculture and food safety.

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文献类型: Article

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研究方向: Food Science & Technology

输出日期: 2025-02-19

第 3 条

标题: Short-term high-fat diet post-ACLT surgery activates chondrocyte AMPK pathway and slows articular cartilage degeneration in rats

作者: Ruan, Hongri; Zhu, Tingting; Ma, Tianwen; Liu, Yun; Zheng, Jiasan

来源出版物：JOURNAL OF FUNCTIONAL FOODS 卷：124
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Published date：2025

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摘要: Osteoarthritis is often exacerbated by obesity and metabolic syndrome, which are frequently associated with high-fat diets (HFD). This study investigates the direct effects of HFD on articular cartilage following anterior cruciate ligament transection (ACLT) in rats, while also examining the role of free fatty acids (FFA) on chondrocyte activity. Our findings indicate that short-term HFD treatment after ACLT reduces pain sensitivity, alleviates knee swelling, and mitigates cartilage damage. Joint imaging studies, along with serum analyses of inflammatory markers and extracellular matrix (ECM) degradation, further underscore the protective role of post-surgical HFD in maintaining cartilage integrity. Notably, HFD significantly enhances AMP-activated protein kinase (AMPK) phosphorylation in cartilage. In vitro experiments reveal that low concentrations of FFAs stimulate chondrocyte proliferation and energy metabolism, whereas AMPK inhibition leads to elevated expression of inflammatory mediators and ECM-degrading enzymes in chondrocytes. Collectively, these results suggest that short-term HFD following ACLT surgery exerts protective effects on cartilage, primarily through AMPK activation.

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文献类型: Article

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

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第 4 条

标题: Epigallocatechin Gallate Alleviates Cisplatin Induced Intestinal Injury in Rats via Inhibiting NRF2/Keap1 Signaling Pathway and Regulating Gut Microbiota and Metabolites

作者: Xu, Enshuang; Sun, Yue; Yu, Zhiying; Zheng, Jiasan

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文献号：WOS:001389888300001 **DOI**：10.1002/mnfr.202400784
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摘要: Cisplatin (CIS) is a broad-spectrum anticancer drug widely used in the clinic; however, one of its side effects is that it can cause intestinal damage such as loss of appetite, vomiting, and diarrhea in patients. Epigallocatechin gallate (EGCG) is one of the main active substances in green tea, which has the effects of antitumor multiple drug resistance, antioxidation, and antiinflammatory properties. The aim of this study was to explore the protective effect of EGCG on CIS-induced intestinal injury in rats. First, physiological indices and HE staining indicated that compared with the control group, the physiological state of rats in the CIS group was worse, and the intestinal tissue was damaged, especially the ileum. In contrast, pretreatment with EGCG (20, 40, and 80 mg/kg) effectively alleviated the intestinal damage induced by CIS, with the 40 mg/kg dose demonstrating the most substantial protective effect. Additionally, 40 mg/kg EGCG pretreatment mitigated CIS-induced morphological and ultrastructural damage to intestinal tissues, reduced bacterial translocation, and preserved the integrity of the intestinal barrier. This treatment also altered the abundance of 19 bacterial species, including Lactobacillus and Shigella, and influenced amino acid metabolism and 15 metabolic pathways, including vitamin B6 metabolism by 16S RNA and metabolome sequencing. Furthermore, the expression of proteins associated with autophagy and the NRF2/Keap1 signaling pathway was inhibited. Lastly, ML385 (NRF2 signaling pathway inhibitor) reversed the protective effects of EGCG. Taken together, our findings indicate that EGCG ameliorates CIS induced hepatoenteric toxicity in rats by regulating the intestinal flora and targeting the Nrf2/Keap1 signal axis.

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研究方向: Food Science & Technology

输出日期:2025-02-19

第 5 条

标题: Identification and mechanistic investigation of novel adhesion inhibitory peptides against Helicobacter pylori from corn protein hydrolysates

作者: Li, Guanlong; Wang, Quanxin; Miao, Zhengfei; Liu, Xiaolan; Zheng, Xiqun

来源出版物：LWT-FOOD SCIENCE AND TECHNOLOGY **卷：**215

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摘要: According to the World Gastrointestinal Organization, the infection rate of Helicobacter pylori in the global population is more than 50%. Intervening H. pylori adhesion and colonization through functional food components is an effective strategy to inhibit H. pylori infection. This study is the first to evaluate the antagonistic mechanism of corn protein hydrolysates against H. pylori from multiple paths based on the process of H. pylori infection. In this study, corn protein hydrolysates with adhesion inhibitory activity against H. pylori were prepared by Protease P (Protease P-CPH). The antagonistic potential of Protease P-CPH against H. pylori was analyzed from multi-perspective. Thereafter, potential adhesion inhibitory peptides in the Protease P-CPH were isolated and characterized. The results demonstrated that Protease P-CPH could bond to H. pylori to inhibit its adhesion to human gastric mucosal epithelial cells (GES-1 cells). Protease P-CPH also inhibited H. pylori urease activity, and kinetic analysis revealed that its inhibition of urease was a mixed-type inhibition. In addition, the Protease P-CPH intervention significantly down-regulated the mRNA expression levels of adhesin and ureaserelated genes ($P<0.05$). These results indicated that Protease P-CPH antagonized H. pylori infection through the synergistic combination from a multi-perspective. Two novel adhesion inhibitory peptides (LPPPFY and VPWCPQ) antagonizing H. pylori were further identified. Molecular docking results showed two novel peptides could bind to adhesins mainly through hydrogen bonding and hydrophobic interactions, and their activity and binding effect have also been demonstrated in vitro. This study helps to elucidate the antagonism mechanism of H. pylori infection of corn protein hydrolysates, while highlights the potential application of its as a more economical and effective functional food.

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研究方向: Food Science & Technology

输出日期: 2025-02-19

第 6 条

标题: Effect of plasma manipulation on the developing quick-cooking and the hydration promotion of adzuki bean

作者: Liang, Jiaxin; Yu, Shibo; Li, Zhenjiang; Wu, Yanchun; Lu, Lele; Liu, Lijuan; Lang, Shuangjing; Wang, Lidong

来源出版物: INTERNATIONAL JOURNAL OF FOOD SCIENCE AND TECHNOLOGY **卷:** 60 **文献号:** WOS:001392593200006 **DOI:** 10.1093/ijfood/vvae023 **Published date:** 2025

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摘要: Adzuki bean (Vigna angularis) typically requires a long soaking time during processing, which limits its scope and potential applications. To address this issue, this study systematically investigated the effects of plasma technology on promoting hydration and enhancing the cooking quality of adzuki beans. The results showed that plasma treatment made the surface of the adzuki beans rough and uneven, with cracks and holes, and changed the contact angle from hydrophobic to hydrophilic, resulting in an increase in the water absorption rate from 2.19 to 2.85. Additionally, plasma treatment reduced the optimal soaking time required for adzuki beans from 8 to 4 hr before steaming, and the treated bean seeds were less hard and brighter in colour. Overall, this study provides a theoretical basis for the application of plasma technology in the deep processing of adzuki beans in the food industry and increases the added value of products.

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文献类型: Article

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研究方向: Food Science & Technology

输出日期: 2025-02-19

第 7 条

标题: Discriminating Mung Bean Origins Using Pattern Recognition Methods: A Comparative Study of Raman and NIR Spectroscopy

作者: Chen, Mingming; Quan, Zhigang; Sun, Xinyue; Li, Yanlong; Qian, Lili; Zhang, Dongjie

来源出版物：FOODS 卷：14 文献号：WOS:001393621900001

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摘要: The feasibility of the two methodologies was confirmed to compare the results of determining mung bean origins using Raman and Near-Infrared (NIR) spectroscopy. Spectra from mung beans collected in Baicheng City, Jilin Province; Dorbod Mongol Autonomous, Tailai County, Heilongjiang Province; and Sishui County, Shandong Province, China, were analyzed. We established a traceability model using Principal Component Analysis combined with the K-nearest neighbor method to compare the efficacy of these methods in discriminating the origins of the mung beans. The total cumulative variance explained by the first three principal components from the NIR of mung beans from different origins was 99.01%, which is 6.71% higher than that derived from Raman. Additionally, the discrimination rate for mung bean origins based on NIR spectral data reached 98.67%, outperforming the Raman-based approach by 22.67%. These findings indicate that NIR spectroscopy is more effective than Raman spectroscopy is in tracing the provenance of mung beans.

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文献类型: Article

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研究方向: Food Science & Technology

输出日期: 2025-02-19

第 8 条

标题:A novel analytical strategy for rapid detection of antibiotic dregs adulteration in feed protein materials by headspace gas chromatography-ion mobility spectrometry

作者:Li, Shouxue; Feng, Yuchao; Zhang, Yushu; Fan, Xia; Fan, Xia

来源出版物：QUALITY ASSURANCE AND SAFETY OF CROPS & FOODS 卷：17
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摘要: The recognized shortage of feed protein materials (FPM), together with their high prices, has almost inevitably led to economically motivated adulteration. In this study, a rapid and accurate headspace gas chromatography-ion mobility spectrometry (HS-GC-IMS) method was applied to detect soybean meal (SM) and cottonseed meal (CM) adulteration with oxytetracycline dregs (OD). A total of 98 volatile compounds were detected in the 14 samples (5 SM, 5 CM, and 4 OD). FPMs and adulterated FPMs in different proportions (0.1, 0.5, 1, and 5%, w/w) were classified based on their volatile compounds using principal component analysis (PCA) and orthogonal partial least squares discriminant analysis (OPLS-DA). The OPLS-DA model could identify SM-adulterated samples with an OD content of 0.5-5% and CM-adulterated samples with an OD content of 1-5%. More importantly, 18 volatile compounds (ether and heterocycle [1 each], acids and terpenes [2 each], and ketones, alcohols, aldehydes, and esters [3 each]) were proposed as volatile markers for OD authentication from FPMs. These results confirmed the potential of HS-GC-IMS to evaluate volatiles in FPMs and are meaningful for FPMs quality. The environmental factors and sample differences will be investigated in future studies to improve the robustness and reliability of HS-GC-IMS.

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研究方向:Food Science & Technology

输出日期: 2025-02-19

Microbiology

第 1 条

标题: Paeonol Inhibits the Replication of Bovine Herpesvirus Type 1 In Vitro Through Regulating the PI3K/AKT Pathway

作者:Yuan, Xueying; Wang, Hongrui; Zhao, Zhicheng; Li, Chuang; Wang, Xingyuan; Liu, Yu; Zhou, Yulong; Zhu, Zhanbo; Zhang, Zecai

来源出版物：CURRENT MICROBIOLOGY 卷：82 文献号：WOS:001410947100001
DOI：10.1007/s00284-025-04085-5 **Published date**：2025

摘要: The bovine herpesvirus type I (BHV-1) is a significant pathogen that poses a threat to the healthy development of the cattle industry and has a global prevalence. Paeonol is a phenolic constituent extracted from the dried root bark of peony in the buttercup family. Although paeonol has anti-inflammatory and antioxidant effects, its antiviral capacity remains unclear. Here, we conducted a cytotoxicity assay to screen the safe concentration of the paeonol using bovine turbinate (BT) cells as a model. Antiviral studies showed that paeonol inhibited BHV-1 gB gene and VP8 protein expression, and reduced cytopathic effect and viral titer. Furthermore, paeonol also demonstrated a potent effect on BHV-1 replication with an EC50 of 18.54 mu g/mL and a Selectivity Index (SI) of 28.64. Mechanistic analysis revealed that the PI3K/AKT pathway might be involved in the antiviral mechanism of paeonol. Molecular docking combined with western blot assay further confirmed that paeonol was able to bind stably to the active sites of PI3K and AKT proteins, and significantly inhibited the activation of PI3K/AKT pathway. Interestingly, 740Y-P (a PI3K/AKT pathway agonist) significantly attenuated the anti-BHV-1 effect of paeonol. The above experiments are the first to confirm the inhibitory effect of paeonol on BHV-1 replication, which not only adds evidence to the biological function of paeonol as an antiviral agent, but also lays the foundation for the prevention and control of this disease and the development of feed additives.

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研究方向: Microbiology

输出日期: 2025-02-19

Plant Sciences

第 1 条

标题: Melatonin Enhances Maize Germination, Growth, and Salt Tolerance by Regulating Reactive Oxygen Species Accumulation and Antioxidant Systems

作者: Li, Wei-Qing; Li, Jia-Yu; Bi, Shao-Jie; Jin, Jia-Yue; Fan, Zhong-Ling; Shang, Zi-Lin; Zhang, Yi-Fei; Wang, Yan-Jie

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DOI：10.3390/plants14020296 **Published date：**2025

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摘要: Melatonin (MT) is a crucial hormone that controls and positively regulates plant growth under abiotic stress, but the biochemical and physiological processes of the combination of melatonin seed initiation and exogenous spray treatments and their effects on maize germination and seedling salt tolerance are not well understood. Consequently, in this research, we utilized the maize cultivars Zhengdan 958 (ZD958) and Demeiya 1 (DMY1), which are extensively marketed in northeastern China's high-latitude cold regions, to reveal the modulating effects of melatonin on maize salinity tolerance by determining the impacts of varying concentrations of melatonin on maize seedling growth characteristics, osmoregulation, antioxidant systems, and gene expression. The findings revealed that salt stress (100 mM NaCl) significantly inhibited maize seed germination and seedling development, which resulted in significant increases in the H2O2 and O2- content and decreases in the antioxidant enzyme activity and photosynthetic pigment content in maize seedlings. However, exogenous melatonin considerably reduced the development inhibition caused by salt stress in maize seedlings. Moreover, exogenous melatonin alleviated NaCl-induced membrane damage and oxidative stress, and reduced Na+ content and excessively large quantities of reactive oxygen species (ROS). In addition, exogenous melatonin increased antioxidant enzyme activity and the expression of the antioxidant enzyme genes ZmSOD4, ZmCAT2, and ZmAPX2. This study demonstrates the potential role of combined melatonin seed initiation and foliar spray treatments in mitigating the detrimental effects of salt stress on maize growth, giving a theoretical foundation to future research on the possible advantages of exogenous regulating chemicals in attaining sustainable production in salt-alkaline soils.

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文献类型: Article

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研究方向: Plant Sciences

输出日期: 2025-02-19

第 2 条

标题: Exogenous γ-aminobutyric acid (GABA) provides a carbon skeleton to promote the accumulation of sugar and unsaturated fatty acids in vegetable soybean seeds

作者: Chen, Fengqiong; Wang, Yating; Liu, Yiyang; Chen, Qiusen; Liu, Hanlin; Tian, Jin; Wang, Mengxue; Ren, Chunyuan; Zhao, Qiang; Yang, Fengjun; Wei, Jinpeng; Yu, Gaobo; Zhang, Yuxian

来源出版物：ENVIRONMENTAL AND EXPERIMENTAL BOTANY **卷：**229
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摘要:gamma-aminobutyric acid (GABA) influences various physiological processes in plants, particularly in carbon and nitrogen metabolism. However, the mechanism underlying carbon (sucrose and unsaturated fatty acid) metabolism in vegetable soybeans was still unknown. In this study, a foliar spray of GABA (10 mM) elevated the level of Ca2+ by up-regulating the expression of calmodulin (GmCaM), which increased glutamate decarboxylase (GAD) activity and boosted endogenous GABA content. This, in turn, enhanced the expression of coding genes of GABA transferase (GmGABA-T) and succinic semialdehyde dehydrogenase (GmSSADH), as well as the activity of GABA transferase (GABA-T), activated the GABA shunt to supply carbon to the tricarboxylic acid (TCA) cycle, thus improved carbon metabolism. The gene expression and activity of sucrose metabolism-related enzymes were also enhanced, leading to the increased accumulation of total soluble sugars, sucrose, glucose, etc. Additionally, exogenous GABA treatment elevated the level of unsaturated fatty acids, including omega-3 arachidonic acid, linoleic

acid, alpha-linolenic acid, etc. However, these effects were attenuated by 3-mercaplopropionic acid (3MP), an inhibitor of GABA synthesis. In summary, exogenous GABA provides a carbon skeleton that promotes the accumulation of sugar and unsaturated fatty acids in vegetable soybean seeds. This research provides a valuable theory for further improving the yield and quality of vegetable soybeans.

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文献类型:Article

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研究方向:Plant Sciences; Environmental Sciences & Ecology

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Genetics & Heredity

第 1 条

标题: Characterization of the Mitochondrial Genome of Cambaroides schrenckii (Astacidea: Cambaridae) and Its Phylogenetic Implications

作者: Liu, Xuewei; Li, Ben; Yang, Yan; Zhang, Jun; Hu, Chunbo; Zhang, Yuxi; Zhou, Jiawang; Liu, Yinlong; Qiu, Hongyu; Wang, Chunren; Gao, Junfeng

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摘要: Cambaroides schrenckii is an endangered freshwater crayfish in China, belonging to the genus Cambaroides, that can act as a complementary host for paragonimus. The objective of this study was to examine the complete mitochondrial genome characteristics and their evolutionary relationships within the Astacidea. Methods: The analysis of gene rearrangements and evolutionary relationships was conducted through the sequencing of the mitochondrial genome of C. schrenckii. Results: C. schrenckii mitochondrial genome length was 15,572, comprising thirteen PCGs, two rRNAs, 22 tRNAs, and one d-loop region of C. schrenckii. The mitochondrial genome of C. schrenckii exhibits an A + T content of 69.61% and a G +

C content of 30.39%. Among the thirteen PCGs, cytb, nad3, and nad6 have a start codon of ATT, while the other ten PCGs have ATC, ATA, and ATG start codons. All 22 tRNA genes displayed a typical cloverleaf secondary structure. Gene rearrangement analysis showed that seven gene arrangements were identified based on PCGs in the infraorder Astacidea, with type I being the most common. Conclusions: The relationship between the American Cambaridae is closer to Astacidae than the Asian Cambaridae. The present study provides a theoretical basis for further discussions of developmental relationships in the infraorder Astacidea.

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研究方向: Genetics & Heredity

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Science & Technology - Other Topics

第 1 条

标题: Chromosome-level genome assembly of Monolepta hieroglyphica, two-spotted leaf beetle (Coleoptera: Chrysomelidae)

作者: He, Hao; Zhao, Yongxin; Zheng, Dengyu; Kuang, Huiyun; Shen, Fei; He, Kang; Zhang, Haiyan; Zhao, Changjiang; Jiang, Lu; Xiao, Da; Wang, Su; Wang, Zhenying; Zhan, Shuai; Wei, Jianhua; Yang, Xiaozeng; Wu, Zhongyi; Zhang, Chun

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摘要: Monolepta hieroglyphica, in view of its wide-ranging host and highly polyphagous characteristics, has become an important agricultural pest in East and Southeast Asian countries. To better understand its biology and develop control strategies, we present a high-quality chromosome-level genome assembly of M. hieroglyphica, with contig N50 of 18.62 Mb and scaffold N50 of 241.916 Mb. Using 156x Hi-C data, we anchored a total length of 2,313 Mb (91.9% of the genome) to nine chromosomes. We predicted 46,561 genes using an integrated approach. The completeness of the final reported genome and proteome were assessed by BUSCO and show high values of 99.4% and 95.2%, respectively. The high-quality chromosome-level genome assembly of M. hieroglyphica will be a useful molecular resource for the communities of both beetle and crop protection.

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文献类型: Article

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研究方向: Science & Technology - Other Topics

输出日期: 2025-02-19

第 2 条

标题: Regulation of photosynthetic characteristics carbon and nitrogen metabolism and growth of maize seedlings by graphene oxide coating

作者: Zhang, Xu; Huang, Weidong; Kong, Deyong; Guo, Wei; Sun, Haiyan

来源出版物：SCIENTIFIC REPORTS **卷：**15 **文献号：**WOS:001404842900020
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摘要: Maize seedlings in cold regions and high latitude often face abiotic stress. As a result, weak seedlings affect maize production, The commonly used seed coating agents in production are mainly to prevent biological stress of pests and diseases, and have little effect on seedling vigor and abiotic resistance. In this experiment, the combination of graphene oxide (GO) and seed coating agent can effectively prevent pests and diseases and increase the growth of seedlings.The effects of different concentrations of composite GO seed coating agent on photosynthetic carbon and nitrogen metabolism activity of maize were verified by pot experiments. It provides a reference for the application of nanomaterials in maize seed adjuvant technology and the improvement of maize seedling quality. Using maize as a model plant, the study evaluates, 22 g/L(T1), 44 g/L(T2), 66 g/L(T3), and 88 g/L(T4), GO were add respectively. Commercial seed coating agent as control (Con). Under the conditions of this experiment, GO thickened the stem by regulating the nutrients absorption of the roots in maize seedlings. The leaf thickness and vascular bundle area were increased, the photosynthetic efficiency of leaves were improved. Finally, it promoted the carbon and nitrogen metabolism of maize seedling leaves. Therefore, 44 g/L GO is the most suitable concentration as a coating agent in this experiment.

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文献类型: Article

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研究方向:Science & Technology - Other Topics
输出日期: 2025-02-19

第 3 条

标题:The impact of combined application of The impact of combined application of biochar and fertilizer on the biochemical biochar and fertilizer on the biochemical properties of soil in soybean fields properties of soil in soybean fields

作者:Zhang, Mingcong; Xie, Wei; Zhong, Xingjie; Wang, Yuqing; Li, Siyan; Zhou, Yanhong; Wang, Chen

来源出版物：PEERJ 卷：12 文献号：WOS:001420133200005
DOI：10.7717/peerj.18172 **Published date**：2024
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摘要: Heilongjiang Province is a major soybean production area in China. To improve soil structure and increase soybean yield, this study examined the effects of combined biochar and chemical fertilizer application on the biochemical properties of soil in a maize-soybean rotation system. Methods: The research were conducted from 2021 to 2022 at Heshan Farm Science Park in Heilongjiang Province, this fi eld plot experiment utilized two soybean varieties, Heihe 43 (a high-protein variety) and Keshan 1 (a high-oil variety). In 2021, two plots with similar fertility levels were selected for planting soybeans and maize. In 2022, a maize-soybean rotation was implemented with fi ve treatments: conventional fertilization (CK), increased biochar+reduced fertilizer 1 (F1+B), reduced fertilizer 1 (F1), increased biochar+reduced fertilizer 2 (F2+B), and reduced fertilizer 2 (F2). The study systematically analyzed the effects of combined biochar and chemical fertilizer application on soil chemical properties and microbial characteristics. Results: Over 2 years, results showed that combined application effectively improved soil chemical traits. Compared to conventional fertilization (CK) and reduced fertilization (F1, F2), t he combined application of biochar and chemical fertilizer (F1 +B, F2+B) increased soil pH, EC and the absolute value of zeta potential of soil surface, the CEC of soil significantly increased by 15.6-44.3%, the soil surface charge density and the soil surface charge quantity significantly increased by 16.4-73.5%. The combined application of biochar and chemical fertilizer also effectively enhanced the abundance and diversity of soil microbes. Dominant bacterial groups in soybean fi eld soils under different treatments included Actinobacteria, Acidobacteria, Chloroflexi, and Proteobacteria; while dominant fungal groups were Ascomycota, Basidiomycota, and Mortierellomycota. Alpha and Beta diversity analyses revealed that the F1+B treatment significantly enhanced the species richness and diversity of bacteria and fungi in the soil, increasing the proportion and evenness of dominant and beneficial genera.

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文献类型:Article

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研究方向:Science & Technology - Other Topics

输出日期: 2025-02-19

Spectroscopy

第 1 条

标题: Spectral Characterization of Refined Oils and Their Binary Mixtures at Unconventional Temperatures

作者: Li, Chenxi; Qi, Hanbing; Zhang, Xiaoxue; Zhu, Hang; Wang, Qiushi

来源出版物：JOURNAL OF APPLIED SPECTROSCOPY 卷：91

文献号：WOS:001395755300001 **DOI**：10.1007/s10812-025-01862-9

Published date：2025

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摘要: The aim of this study is to address the problems of oil mixing during the sequential transportation of refined oil and the influence of temperature on the quality detection of refined oil. To better detect the quality of refined oil, UV-Visible transmission spectroscopic experiments of 92# gasoline, diesel oil, and their mixtures at different temperatures are performed. Then, the influence of temperature on the transmission spectrum is analyzed, and the transmittance-temperature compensation equations are obtained. Based on the double-thickness inversion model, the optical constants of the mixed refined oil at UV-Visible wavelengths are obtained, and the effect of temperature on the optical constants is analyzed. For a specified optical range, the transmittance of the mixed refined oil gradually increases with increasing temperature. The temperature has a certain effect on the optical constant of the refined oil; moreover, the relationships between the transmittance of the refined oil and the change in temperature are obtained at 364, 378, and 394 nm; these wavelengths are selected based on a combination of characteristic spectra calculated by a genetic algorithm. The obtained relationship can effectively remove the influence of temperature changes on the transmittance spectra of refined oil to improve the accuracy of detection.

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研究方向: Spectroscopy

输出日期: 2025-02-19

第 2 条

标题:Outlier detection method based on multi-model consensus

作者:Wang, Yujing; Chen, Zhengguang; Liu, Shuo; Liu, Jinming; Wang, Quan

来源出版物:SPECTROSCOPY LETTERS 文献号:WOS:001408695500001 **DOI:** 10.1080/00387010.2025.2455471 **Published date:** 2025

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摘要:Accurately detecting and removing outliers is the foundation for building robust models. However, a single identification method may not effectively recognize all outliers, leading to missed detections or false alarms, which diminishes the reliability and robustness of the outlier detection system. This study introduces a multi-model consensus method for detecting outliers. This approach combines four distinct modeling methods (partial least squares [PLS], Gaussian Process Regression [GPR], support vector regression [SVR], and BP) with the Monte Carlo random sampling method. For the residuals generated by each modeling method, different weights are assigned using linear weighting to compute the final sample residuals and anomaly detection is performed through the mean-variance plot of the residuals. The experimental data set used in this study consisted of 245 spectral data samples of maize germination rates, which were gathered by our research team. After removing outliers using four different single models and the consensus method, the data was used to build models. The results indicate that the sample set obtained from the outlier removal method based on a specific modeling approach is suitable for modeling with the same method but not for modeling with other methods. The average R2 values on the test set for the multi-model consensus approach and the single model recognition results are 0.9139 and 0.8914, respectively. It explains that the utilization of a multi-model consensus method demonstrates that the detection of outliers in near-infrared spectroscopy (NIRS) may be more accurate. The multi-model consensus provides a dependable method for detecting outliers in NIRS datasets. It effectively addresses the problems of misjudgment and missing judgment that often occur during the detection process. Additionally, it improves the performance of the

calibration model in spectral quantitative analysis.

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文献类型:Article

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研究方向:Spectroscopy

输出日期: 2025-02-19

Instruments & Instrumentation

第 1 条

标题:Rapid non-destructive identification of blueberry origin based on near infrared spectroscopy combined with wavelength selection

作者:Wang, Guannan; Wang, Na; Dong, Ying; Liu, Jinming; Gao, Peng; Hou, Rui

来源出版物：INFRARED PHYSICS & TECHNOLOGY 卷：145 文献号：WOS:001400157500001 **DOI**：10.1016/j.infrared.2024.105688 **Published date**：2025

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摘要: To realize the nondestructive identification of blueberry origin, near-infrared spectroscopy was used to obtain the original spectral data of blueberry. Given the problems of spectral bandwidth, severe overlap, and complicated information analysis in the collection of near-infrared spectral data, we integrated successive projection algorithm (SPA) and sparrow search algorithm (SSA) with partial least squares regression (PLS) and support vector machine (SVM), respectively, resulting in the construction of two wavelength selection (WS) models: SPAPLS and SSA-SVM for WS from blueberry spectral data, 30 and 148 wavelength variables were selected respectively. To further enhance the accuracy of blueberry origin identification, we incorporated SSA into both Optimal Latin hypercube idea and Osprey algorithm, creating a multi-strategy hybrid sparrow search algorithm (ZOSSA). This approach reduced the number of selected wavelengths from 148 to 36. Using wavelengths selected from three different techniques as input subsets, a blueberry origin recognition model is constructed by placing them separately into a support vector machine. The experimental results prove that the performance of the wavelength-optimized model is higher than that of the full spectra performance, and the wavelength variables screened by ZOSSA have the best effect. The wavelength

variables identified by ZOSSA exhibit superior performance with an accuracy rate of 96.21%, precision rate of 95.12 %, recall rate of 94.78 %, and F1 score of 94.94 % on the test set; surpassing those obtained using SPA (89.39 %, 87.43 %, 88.72 %, and 88.08 %) as well as SSA (90.15 %, 87.90 %, 88.16 %, and 88.02 %). The method strikes a balance between selecting an appropriate number of wavelengths while maintaining high model performance levels; thus meeting requirements for fast, accurate, nondestructive origin identification not only for blueberries but also providing novel insights for identifying origins in other agricultural products.

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文献类型:Article

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研究方向: Instruments & Instrumentation; Optics; Physics

输出日期: 2025-02-19

Acoustics

第 1 条

标题:Effects of hydrodynamic cavitation combined with snail enzyme treatment on the structure and functional properties of water-soluble dietary fiber in rice husks

作者:Quan, Zhigang; Chen, Mingming; Zhang, Dongjie

来源出版物：ULTRASONICS SONOCHEMISTRY 卷：113

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摘要:In this study, we adopted the synergistic modification technology of hydrodynamic cavitation and snail enzyme, to improve the yield and activity of soluble dietary fibers (SDFs) of rice husk. The physicochemical properties, structural changes, and inhibition of alpha-glucosidase and alpha-amylase of SDFs were examined in vitro. This synergistic treatment significantly increased the yield of SDFs to 18.64 % f 0.16 %, significantly reduced the particle size to 122.33 f 0.26 nm, and significantly increased the specific surface area to 1.718 f 0.002 m2/g. The absolute value of the zeta potential significantly increased to -36.39 f 0.12 mV, indicating an excellent

solution stability and gel-forming ability. At the same time, the water-holding, oil-holding, and swelling capacities were significantly enhanced, reaching 8.52 f 0.09 g/g, 4.85 f 0.29 g/g, and 7.29 f 0.25 mL/g, respectively. Structural analysis showed that the synergistic treatment destroyed the fiber structure, produced a large number of small molecule fragments, and significantly changed the monosaccharide components and functional group distribution. Functional evaluation showed that the inhibitory effect of CE-SDF on alpha-glucosidase and alpha-amylase was significantly enhanced, and enzymatic reaction kinetic analysis revealed that both enzymes were competitive inhibitors, with IC50 values of 2.893 and 1.727 mg/mL, respectively. In summary, the synergistic modification of hydrodynamic cavitation and snail enzyme greatly optimized the structural and functional properties of rice husk SDFs, providing a theoretical basis for its application in the field of hypoglycemic drugs and functional foods.

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文献类型: Article

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研究方向: Acoustics; Chemistry

输出日期: 2025-02-19

第 2 条

标题: The response mechanism of high-quality grass to typical poisonous weed root exudates and litter: Using Leymus chinensis and Stellera chamaejasme as examples

作者: Zhang, Ruohui; Qu, Shanmin; Zhang, Bin; Gao, Ying; Xing, Fu

来源出版物：APPLIED SOIL ECOLOGY **卷：**206 **文献号：**WOS:001412373500001
DOI：10.1016/j.apsoil.2024.105858 **Published date：**2025

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摘要: Poisonous weeds growing and spreading on degraded grasslands can not only impose allelopathic effects on neighboring plants through root exudates, but also change the nutritional status of soil through litter input. However, it still remains unclear how interactions between the root exudates and litter of poisonous weeds affect their neighboring plants. Stellera chamaejasme is a typical poisonous weed with allelopathic effects, distributed alongside the dominant species Leymus chinensis in the gradually degrading Songnen Grasslands, China. In the current study, a two-factor randomized

block experiment was designed, where S. chamaejasme root exudates and litter were added to potted L. chinensis. Then, the effects of S. chamaejasme root exudates (SRE), litter, and their interactions on the biomass, rhizosphere soil nutrients, and bacterial community structure of L. chinensis were tested. The results indicated that SRE can inhibit the aboveground biomass of L. chinensis by increasing the pH and reducing the total carbon of the rhizosphere soil; litter addition did not significantly affect the biomass of L. chinensis. In addition, SRE and litter significantly altered the bacterial community structure; they also impacted the biomass of L. chinensis by enriching bacterial functional groups of nitrogen cycle or inhibiting carbon cycle in the rhizosphere soil. Therefore, SRE and litter can affect the growth of L. chinensis by changing the soil pH, as well as carbon and nitrogen nutrients, while litter addition might weaken the allelopathic effects induced by SRE. In this process, specific bacterial functional groups are key mediating factors. This study partially reveals the complex interaction between SRE and litter for L. chinensis and clarifies the mediating role of bacterial functional groups. This knowledge unlocks a better understanding of the allelopathic mechanism of poisonous weeds and the regulatory role of soil bacteria in degraded grasslands.

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文献类型:Article

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研究方向:Acoustics; Chemistry

输出日期: 2025-02-19

Materials Science

第 1 条

标题:Effect of Recovery Treatment on the Microstructure and Tribological Properties of Ultrasonic Impacted Al2FeCoNiCrW0.5 High-Entropy Alloy Coatings

作者:Zhang, Chong; Li, Qingda; Hu, Jun; Zhao, Shengxue; Zheng, Xin; Wang, Hao; Liu, Hongyuan

来源出版物：COATINGS 卷：15 文献号：WOS:001405701500001

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摘要: To investigate the effect of recovery treatment on the microstructure and tribological properties of ultrasonic impact-treated Al2FeCoNiCrW0.5 high-entropy alloy coatings, laser cladding technology was used to fabricate coatings on a G10450 steel substrate, followed by ultrasonic impact treatment (UIT) and recovery treatment (HR, 300 degrees C). The results showed that the Al2FeCoNiCrW0.5 high-entropy alloy coating consisted of BCC and FCC phases. Ultrasonic impact treatment slightly broadened the XRD diffraction peaks, while the recovery treatment had minimal effect on them. Ultrasonic impact also refined the coating grains. Ultrasonic impact treatment increased the coating hardness from 738 HV0.5 to 856 HV0.5. Although the subsequent post-annealing slightly reduced the hardness to 806 HV0.5, it significantly improved wear resistance, with wear loss decreasing from 3.273 mm3 to 2.881 mm3, representing a 15% reduction in wear rate. The improvement in wear resistance was attributed to a change in the wear mechanism of the high-entropy alloy coating. Before and after post-annealing, the mechanism transitioned from abrasive wear, adhesive wear, and oxidative wear to primarily abrasive wear and oxidative wear. Additionally, the recovery treatment transformed the surface from hard and brittle to ductile and resilient.

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文献类型: Article

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研究方向: Materials Science; Physics

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Nutrition & Dietetics

第 1 条

标题: Integrating Metabolomics and Transcriptomics to Analyse and Reveal the Regulatory Mechanisms of Mung Bean Polyphenols on Intestinal Cell Damage Under Different Heat Stress Temperatures

作者: Feng, Yuchao; Zhang, Shu; Suo, Decheng; Fu, Tianxin; Li, Ying; Li, Zetong; Wang, Changyuan; Fan, Xia

来源出版物：NUTRIENTS **卷：**17 **文献号：**WOS:001393771400001
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摘要: Polyphenols represent a new strategy of dietary intervention for heat stress regulation. Methods: The metabolic and genetic effects of three heat stress-regulated mung bean polyphenols on mouse small intestinal epithelial Mode-k cells were investigated by metabolomics-transcriptomics correlation analysis at different heat stress levels. Results: Lipid metabolism, energy metabolism, and nervous system pathways were the key metabolic regulatory pathways. Under the heat stresses of 39 degrees C, 41 degrees C, and 43 degrees C, the key pathways regulated by mung bean polyphenols on intestinal epithelial Mode-k cells were choline metabolism, pyrimidine metabolism, and the retrograde endorphin signalling pathway in cancer, respectively. FoxO, Rap1, and PI3K-Akt signalling pathways were the key environmental regulatory signalling pathways. Mung bean polyphenols can alleviate heat stress-induced cells at 39 degrees C by inhibiting cell apoptosis and promoting lipid and amino acid accumulation. Mung bean polyphenols can alleviate the threat of cell death caused by heat stress at 41 degrees C by regulating heat shock proteins, inhibiting mitochondrial function and some nerve disease-related genes. The threat of cell death by heat stress at 43 degrees C can be alleviated by regulating nerve-related genes. Conclusions: This study confirmed that mung bean polyphenols can regulate heat stress. The results provide a reference for analysing the mechanism of dietary polyphenol regulating heat stress.

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文献类型: Article

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研究方向: Nutrition & Dietetics

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Oncology

第 1 条

标题:TGF-β secreted by cancer cells-platelets interaction activates cancer

metastasis potential by inducing metabolic reprogramming and bioenergetic adaptation

作者:Zhong, Chunlian; Wang, Weiyu; Yao, Yinyin; Lian, Shu; Xie, Xiaodong; Xu, Judan; He, Shanshan; Luo, Lin; Ye, Zhouzhou; Zhang, Jiajie; Huang, Mingqing; Wang, Guihua; Wang, Yanhong; Lu, Yusheng; Fu, Chengbin

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摘要:Metastasis is the leading cause of cancer-related deaths and poses a treatment challenge. Although studies have shown the importance of epithelial-mesenchymal transition (EMT) and metabolic reprogramming during cancer metastasis, the link between EMT and metabolic reprogramming, as well as the underlying molecular mechanisms by which both mediate cancer cell invasion and metastasis have not been elucidated. Here, we observed that interactions between platelets and cancer cells promote the secretion of TGF-beta, thereby initiating EMT, promoting the invasion, and altering the metastatic and metabolic potential of colon cancer cells. TGF-beta activates the AKT signaling pathway to enhance HK1 and HK2 expression in cancer cells, leading to increased glucose consumption, ATP production, and precise modulation of cell cycle distribution. In an energy-deficient model induced by oxidative phosphorylation (OXPHOS) inhibition with oligomycin A, TGF-beta-induced highly metastatic HCT116 (H-HCT116) cells adapt by upregulating HK expression and glycolytic metabolism, while concurrently decreasing cell proliferation to conserve energy for survival. Mechanistically, H-HCT116 cells regulate cell division rates by downregulating CDK2, CDK4, and Cyclin D1 protein expression and upregulating p21 expression. Furthermore, H-HCT116 cells display enhanced motility, which is linked to increased mitochondrial metabolic activity. These findings indicated that cancer cells-platelets interaction secreted TGF-beta activates cancer metastasis potential by inducing metabolic reprogramming and bioenergetic adaptation. The present study provides new insights into the adaptive strategies of highly metastatic cancer cells under adverse conditions and indicates that targeting glycolysis and metabolic reprogramming could serve as a viable approach to prevent cancer metastasis.

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研究方向: Oncology

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第 2 条

标题: Unveiling two new species of Trichoderma (Hypocreales, Hypocreaceae) that cause green mold disease on Stropharia rugosoannulata from Guizhou Province, China

作者: Tarafder, Entaj; Wenjun, Zhang; Karunarathna, Samantha C.; Elgorban, Abdallah M.; Huilian, Man; Nan, Wu; Zeng, Xiangyu; Yong, Wang; Tian, Feng-Hua

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摘要: Stropharia rugosoannulata is an important edible mushroom in China, but green mold disease has caused significant production and economic losses. In this study, two new pathogens Trichoderma strophariensis and T. viridistromatis were identified as the causal agents of this disease. During October-November 2023, six strains of the fungal pathogen were isolated from infected fruiting bodies of S. rugosoannulata and identified based on morphological characteristics and molecular phylogenetic analyses of internal transcribed spacer (nrITS), the second largest RNA polymerase II subunit (rpb2) and the partial translation elongation factor 1-alpha (tef1-alpha) region. The representative isolates of the pathogenic green mold Trichoderma species were used to perform a pathogenicity test with spore suspensions, resulting in symptoms similar to those observed in the cultivated field. The same pathogens were successfully re-isolated, thereby fulfilling

Koch's postulates. Detailed morphological descriptions, illustrations, culture characteristics, and comparisons with morphologically similar and closely related species are provided.

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研究方向:Oncology

输出日期: 2025-02-19

Pharmacology & Pharmacy

第 1 条

标题:Synthesis and antibacterial activity of environmentally friendly sulfonium compounds

作者:Li, Jing; Chen, Wenyang; Bi, Xinrui; Lin, Yue; Liu, Chengcai; Sun, Yan; Shen, Guinan

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摘要: The abuse and overuse of antibacterial drugs have caused the increasing drug resistance of pathogenic bacteria, which threats human health and environmental health. Therefore the development of new environmentally friendly antibacterial drugs is of great urgency. The purpose of this study is to develop novel sulfonium compounds and evaluate their antibacterial activities. The sulfonium compounds were obtained by substitution reactions of methionine. The antimicrobial activities of the compounds were evaluated by measurement of minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) against S. aureus and E. coli. A total of fifteen sulfonium compounds were synthesized and all of them showed antibacterial activity that varied with the substitution chain length. These compounds were highly sensitive to S. aureus with the lowest MIC and MBC at 0.39 mu mol/L and 1.56 mu mol/L, respectively, which are lower than that of commercial quaternary ammonium compounds. An extra group of eight sulfonium compounds were also constructed to study the relationship between compound structures and their antibacterial abilities. A preferred structure with one longer hydrophobic alkyl chain at the amine position has been demonstrated for better antibacterial activity.Methionine based sulfonium compound as environmentally friendly antibacterial agent.

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研究方向: Pharmacology & Pharmacy

输出日期: 2025-02-19

第 2 条

标题: Negative regulation of SREBP-1/FAS signaling molecules activates the RIG-1/TBK1-mediated IFN-I pathway to inhibit BVDV replication

作者: Liu, Shanshan; Luo, An; Que, Taolin; Liang, Yuxin; Song, Yuxin; Liu, Tianyi; Li,

Jing; Li, Nan; Zhang, Zechen; Liu, Yu; Zhang, Zecai; Zhou, Yulong; Wang, Xue; Zhu, Zhanbo

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摘要: For many viruses, controlling the process of infection is largely dependent on the enzymes of the fatty acid synthesis (FAS) pathway. An appealing therapeutic target in antiviral research is fatty acid synthetase (FASN), a crucial enzyme in the FAS pathway. Bovine viral diarrhea, caused by the Bovine viral diarrhea virus (BVDV), is a significant viral infectious disease posing a substantial threat to global animal husbandry. Our study revealed that BVDV infection not only upregulates the expression of FAS-related enzymes in BT cells and the blood, liver, and spleen of mice but also markedly enhances the accumulation of lipid droplets, free fatty acids, and triglycerides. The FAS pathway plays a pivotal role throughout the entire BVDV replication cycle. Additionally, administration of the FASN inhibitor C75 and Acetyl CoA carboxylase-1 (ACC-1) inhibitor TOFA significantly reduced the viral content in both serum and organs of BVDV-infected mice, exhibiting inhibitory effects across diverse viral strains. Intriguingly, We found that RIG-1/TBK1-mediated IFN-I signaling inhibits SREBP-1/FAS and reduces BVDV replication. Conversely, targeting a few essential enzymes of SREBP-1/FAS also activates IFN-I signaling. More importantly, FASN inhibitor led to heightened expression of ISGs in mouse spleens by activating the RIG-1/TBK-1 pathway. These findings highlight that FASN inhibitors inhibit BVDV replication through the activation of the RIG-1/TBK-1 pathway to induce ISGs, and offering a novel therapeutic approach for combating BVDV. Thus, it is crucial to negatively regulate SREBP-1/FAS signaling molecules in order to create novel antiviral drugs that are safe, effective, and broad-spectrum.

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研究方向:Pharmacology & Pharmacy; Virology

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Toxicology

第 1 条

标题:Exposure of pregnant and lactating parental mice to aflatoxin B1 promotes hepatotoxicity in offspring mice

作者:Liu, Bingxue; Xia, Shijie; Xiao, Wanzhe; Yu, Xiaoqing; Zhang, Jiexing; Wei, Xiangjian; Long, Wenyuan; Shen, Binglei; Lv, Hongming

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摘要:Aflatoxin B1 (AFB1) taints feeds stuffs, endangering livestock's health and resulting in the liver and breast damage. At the same time, while breastfeeding, AFB1 crosses the mammary glands and enters the milk, harming the offspring. This study investigated the liver damaging effects of maternal AFB1 exposure during pregnancy and lactation in offspring mice. The livers of 8-day-old offspring mice were obtained from female mice who were administered AFB1 (2 mg/kg) 1 week prior to and 1 week following birth. The results showed that AFB1 increased the levels of malondialdehyde (MDA), alanine aminotransferase (ALT), aspartate aminotransferase (AST), pro-inflammatory-related proteins (iNOS, COX-2, IL-6), and apoptosis-related proteins (Caspase-3, Caspase-9, Bax) by AFB1-induced in liver of offspring mice. Furthermore, the use of F40/80, HE, and TUNEL staining further demonstrated the existence of inflammation and apoptosis in the liver. Intriguingly, in the liver of offspring mice, AFB1 increased antioxidant protein and inhibit ferroptosis-related protein activity (FTH, GPX4), mitochondrial function-associated proteins (UQCRC2, COX IV, Cyt C), lipid metabolism-associated proteins (HMGCR, SPEBE1, FAS), and autophagy-related proteins (Atg7, Beclin-1, LC3I/II) in the liver of mice. In conclusion, AFB1 enters the liver of offspring mice through milk, which in turn causes liver injury. This outcome explains how AFB1 exposure affects female animals and their progeny and lays the strategy for livestock prevention.

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研究方向: Toxicology

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Virology

第 1 条

标题: Antiviral mechanism of Fuzhengjiedu San against porcine reproductive and respiratory syndrome virus

作者: Song, Xin-Qi; Zhao, Xin-Yi; Chen, Wen-Shuang; Yang, Li; Liu, Dong-Yu; Chen, Ya-Ping

来源出版物：VIROLOGY **卷：**603 **文献号：**WOS:001397564600001

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摘要: Porcine reproductive and respiratory syndrome virus (PRRSV) is a viral infectious disease that can cause infection in pigs of different ages. The condition known as porcine reproductive and respiratory syndrome poses a serious risk to the world's pig business and results in significant financial losses. Fuzhengjiedu San (FZJDS) is a traditional Chinese medicine compound, the main components include:Radix Isatidis, Radix Astragali and Herba Epimedii. It has been widely used in clinical and experimental studies, showing a wide range of biological activity. However, it is not clear whether FZJDS has anti-PRRSV activity. We observed that FZJDS had significant antiviral activity in Marc-145 cells. And FZJDS could inhibit viral infection in the stages of viral internalization and replication. Furthermore, FZJDS can inhibit PRRSV replication by inhibiting the p53 signaling pathway to affect autophagy, and FZJDS can also inhibit PRRSV replication by inhibiting the PI3K/Akt pathway.We showed in this work that FZJDS inhibits PRRSV replication in vitro and offers a novel therapeutic approach for PRRSV infection.

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文献类型: Article

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研究方向: Virology

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第 2 条

标题:Enteric pathogenicity characterization of emerging parainfluenza virus 5 in western China

作者:Ni, Minting; Lin, Shengyu; Shao, Yongheng; Tang, Jiao; Li, Shuxian; Tan, Chen; Gong, Zhenli; Li, Hongbo; Wang, Jintao; Liu, Guangliang; Chen, Jianing

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摘要:Parainfluenza virus 5 (PIV5) is a member of the Paramyxoviridae family and causes respiratory symptoms in various animal species. Although the virus has been frequently detected among fecal samples, no study has described its infection of the intestine. Recently, diarrhea with low mortality has spread on pig farms in Gansu, China. Next-generation sequencing confirmed the emergence of PIV5 among the samples. The PIV5 strain was then successfully isolated and characterized in vitro. Further animal tests revealed that PIV5 can result in respiratory symptoms and mild diarrhea in piglets. Immunohistochemical staining confirmed PIV5 infection resulted in steatosis and contributed to diarrhea. A retrospective investigation revealed that the number of cases of PIV5 infection has increased since 2020. Overall, our study is the first to present data indicating that PIV5 infection leads to diarrhea. Although it has low pathogenicity, PIV5 may pose a potential threat to pig production in China.

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研究方向: Virology

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第 3 条

标题: Ethyl caffeate as a novel targeted inhibitor of 3CLpro with antiviral activity against porcine epidemic diarrhea virus

作者: Jiang, Limin; Gu, Minghui; Xiao, Jiawei; Zhao, Yingying; Shen, Fanbo; Guo, Xingyang; Li, Hansong; Guo, Donghua; Li, Chunqiu; Zhu, Qinghe; Yang, Dan; Xing, Xiaoxu; Sun, Dongbo

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摘要: Porcine epidemic diarrhea virus (PEDV) can cause severe diarrhea death in newborn piglets, resulting in significant economic losses for the pig industry. Therefore, the advancement of safe and effective anti-PEDV drugs for the treatment of PEDV is of paramount importance. In this study, molecular docking was used to screen natural drugs that can target PEDV 3C like protease (3CLpro). As well, the anti-PEDV effects of the screened drugs were evaluated in vitro and in vivo. Molecular docking and molecular dynamics (MD) simulation results showed that ethyl caffeate (EC) could efficiently bind to the active cavity of PEDV 3CLpro. Biolayer interferometry (BLI) and fluorescence resonance energy transfer (FRET) analyses demonstrated that EC directly interacts with PEDV 3CLpro (KD = 1650 mu M) and inhibits the activity of 3CLpro (IC50 = 33.87 mu M). EC has been shown to significantly inhibit the replication of PEDV in Vero E6 cells. The half maximal inhibitory concentration (CC50) and half-effective concentration (EC50) were determined to be 283.1 mu M and 8.641 mu M, respectively, yielding a selectivity index as high as 32.7. Furthermore, EC was evaluated using a piglet infection model for PEDV. It demonstrated the ability to inhibit PEDV infection in vivo and improve the survival rate of piglets (3/5, 60%). Compared to the control group, oral administration of EC significantly reduced intestinal pathological damage and viral load. Our study indicated that EC, targeting PEDV 3CLpro, is a safe and effective anti-PEDV drug with promising clinical application prospects.

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研究方向: Virology

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第 4 条

标题: Genetic Epidemiology of Porcine Epidemic Diarrhea Virus Circulating in China From 2010 to 2024: Characterization of Phylogenetic and Genetic Diversity of S1-Based Genes

作者: Sun, Jing; Cheng, Jiongze; Shi, Da; Xu, Xiangwen; Liu, Yijia; Ying, Jiale; Zhao, Yulin; Zheng, Huihua; Yan, Junfang; Sun, Dongbo; Song, Houhui; Su, Mingjun

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摘要: As a porcine alphacoronavirus, porcine epidemic diarrhea virus (PEDV) frequently undergoes mutations that significantly reduce the effectiveness of current prevention and control strategies, leading to recurrent outbreaks in China. This study investigates the genetic evolution and mutation patterns of the S1 protein to characterize PEDV variation in China. Genetic evolutionary analysis of 804 PEDV S1 genes, including 620 Chinese PEDV strains, revealed that 78.06% of the Chinese PEDV strains belong to the G2a-subgroup, further divided into seven branches (G2a-Clade 1-7), with the predominant strains from 2020 to 2024 being in G2a-Clade 4 (68.00%). From 2021 to 2024, 32 novel substitutions, 25 deletions, and 8 insertions were identified in the S1 protein of Chinese strains compared to those from 2010 to 2011. Notably, complete mutations were observed at amino acid sites N139D, H189Y, L229P, I287M, F345L, A361T, T499I, and A520S. Moreover, protein homology modeling analysis displayed that these deletion-insertion mutations significantly altered the surface structure of the S protein, particularly in the N-terminal domain (NTD) and receptor-binding domain (RBD) regions of S1 protein. The predictive analysis using AlphaFold3 indicated that deletion-insertion mutations in the S1-RBD region notably affected the binding affinity of the S protein to porcine DC-SIGN. These findings enhance our understanding of the genetic evolution of PEDV in China.

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Zheng, Huihua; Yan, Junfang; Song, Houhui; Su, Mingjun] Zhejiang A&F Univ, Zhejiang Prov Engn Res Ctr Anim Hlth Diagnost & Ad, Key Lab Appl Technol Green Ecohlth Anim Husb Zheji, Zhejiang Int Sci & Technol Cooperat Base Vet Med &, Hangzhou, Peoples R China; [Sun, Jing; Cheng, Jiongze; Xu, Xiangwen; Liu, Yijia; Ying, Jiale; Zhao, Yulin; Zheng, Huihua; Yan, Junfang; Song, Houhui; Su, Mingjun] Coll Vet Med Zhejiang A&F Univ, Hangzhou, Peoples R China; [Shi, Da] Chinese Acad Agr Sci, State Key Lab Vet Biotechnol, Harbin Vet Res Inst, Harbin, Peoples R China; [Sun, Dongbo] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Lab Prevent & Control Swine Infect Dis, Daqing, Peoples R China.

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3 EI 收录情况

（2024.12.26-2025.02.19）

3.1 EI Compendex

EI 索引库共收录我校教师发表的 44 篇文献，文献详细题录信息如下。

1. Self-assembling wheat gluten peptide nanoparticles: Pterostilbene encapsulation and interaction mechanism

Cao, Jiabao (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing, China); Fan, Guangqi; Wang, Changyuan; Lu, Baoxin

Source: Food Hydrocolloids, v 162, May 2025

Database: Compendex

Data Provider: Engineering Village

2. Research Progress in Bioactive Components and Health Benefits of Red Raspberry

Sun, Huajun (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Cui, Fangzheng; Liu, Ying; Zhu, Sijing; Li, Yue

Source: Shipin Kexue/Food Science, v 46, n 2, p 268-279, January 25, 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

3. Effects of highland barley β-glucan on gut microbiota composition and metabolism in vitro fermentation

Ge, Yinchen (College of Food Science and Engineering, Heilongjiang Bayi Agriculture University, Heilongjiang, Daqing; 163319, China); Liu, Jiaci; Tang, Huacheng; Zang, Yanqing; Cao, Yang

Source: Food Chemistry: X, v 25, January 2025

Database: Compendex

Data Provider: Engineering Village

4. Effects of Vacuum Processing Treatment on the Structure and Physical and Chemical Properties of Fresh Waxy Corn Starch

Xu, Ruihang (Food College, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhu, Libin; Zhu, Dan; Wei, Wenyi; Niu, Guangcai; Zhao, Chenyu; Zhang, Yufan

Source: Science and Technology of Food Industry, v 46, n 1, p 97-103, January 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

5. Effects of Different Concentrations of Eugenol on the Structure and Emulsion Gel Properties of Myofibrillar Protein

Li, Jiaqi (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Pan, Deyin; Ma, Jinming; Diao, Jingjing; Chen, Hongsheng

Source: Science and Technology of Food Industry, v 46, n 1, p 144-151, January 2025
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

6. DESIGN OF DRIVE CONTROL SYSTEM FOR SEED DISCHARGER BASED ON FUZZY PID CONTROL

Shi, Jiamin (Faculty of Agricultural Engineering and Information Technology, Heilongjiang Bayi Agricultural University, 5 Xin Feng Street Gao Xin District, Heilongjiang, Daqing; 163319, China); Zhang, Shihao; Ren, Shouhua

Source: UPB Scientific Bulletin, Series D: Mechanical Engineering, v 86, n 4, p 343-356, 2024
Database: Compendex
Data Provider: Engineering Village

7. Two Kinds of Proteases Improved the Water-holding Capacity and Quality of Phosphorus-reduced Steak

Jiang, Xiaojuan (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Pan, Deyin; Li, Bing; Chen, Hongsheng; Diao, Jingjing

Source: Science and Technology of Food Industry, v 45, n 24, p 59-67, December 2024
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

8. Effects of Microwave Treatment on the Structure and Physicochemical Properties of Three Kinds of Starches

Li, Jiayu (College of Food, Heilongjiang Bayi Agricultural University, Daqing; 163000, China); Zhao, Jinlong; Wang, Xuechun; Yin, Ze; Wang, Shixin; Zhai, Aihua

Source: Science and Technology of Food Industry, v 45, n 24, p 90-97, December 2024
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

9. Design of citrus picking robot based on YOLOv5 improved model

Zhang, Chenyu (College of Engineering, Heilongjiang Bayi Agricultural University, China); Liu, Tianxiang; Zhu, Shihao; Zheng, Yangyang; Lian, Hongru

Source: ACM International Conference Proceeding Series, p 109-115, November 18, 2024, Proceedings of 2024 4th International Conference on Control and Intelligent Robotics, ICCIR 2024

Database: Compendex

Data Provider: Engineering Village

10. The stabilization mechanism of the pea protein and rutin complex at the gas/liquid interface and its application in low-fat cream

Xia, Chunyang (College of Food Science, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Lou, Fangxiao; Zhang, Shuo; Cheng, Tianfu; Hu, Zhaodong; Guo, Zengwang; Ma, Ping

Source: Food Chemistry: X, v 25, January 2025

Database: Compendex

Data Provider: Engineering Village

11. Exploring the ORR activity of S-doped CuN4 materials in vacuum and constant potential solvent environments

Wang, Chunxiang (College of Letters and Science, Heilongjiang Bayi Agricultural University, Daqing; 163000, China); Ye, Xiang; Li, Shan

Source: Ionics, 2024 Article in Press

Database: Compendex

Data Provider: Engineering Village

12. Improving the emulsification properties of corn starch by esterification combined with freezethawing and enzymatic treatment

Ji, Run (College of Food Science, Northeast Agricultural University, Heilongjiang, Harbin; 150030, China); Xu, Jieli; Yu, Yuhe; Song, Shuang; Zhang, Xiuling; Zhang, Wentao

Source: Food Chemistry, v 470, April 1, 2025

Database: Compendex

Data Provider: Engineering Village

13. Design and Test of Hydraulic Active Profiling Mechanism for High-speed No-till Com Planter 玉米高

Yi, Shujuan (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Li, Yikai; Li, Yifei; Chen, Tao; Sun, Tinghan; Yang, Hongyu

Source: Nongye Jixie Xuebao/Transactions of the Chinese Society for Agricultural Machinery, v 55, n 12, p 110-120 and 133, December 2024

Language: Chinese
Database: Compendex
Data Provider: Engineering Village

14. Infrared Performance Monitoring System of Belt-type High-speed Seed Guide Device for High-speed Precision Seeder

Wang, Song (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Yi, Shujuan; Zhao, Bin; Li, Yifei; Wang, Guangyu; Sun, Wensheng
Source: Nongye Jixie Xuebao/Transactions of the Chinese Society for Agricultural Machinery, v 55, n 12, p 160-168, December 2024
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

15. Identification and mechanistic investigation of novel adhesion inhibitory peptides against Helicobacter pylori from corn protein hydrolysates

Li, Guanlong (Heilongjiang Provincial Key Laboratory of Corn Deep Processing Theory and Technology, College of Food and Bioengineering, Qiqihar University, Qiqihar; 161006, China); Wang, Quanxin; Miao, Zhengfei; Liu, Xiaolan; Zheng, Xiqun
Source: LWT, v 215, January 1, 2025
Database: Compendex
Data Provider: Engineering Village

16. Lipidomic remodeling in Cannabis sativa L. under cold tolerance

Yan, Bowei (Heilongjiang Academy of Agricultural Sciences, Institute of Industrial Crops, Harbin; 150086, China); Chang, Chuanyi; Gu, Yingnan; Sui, Yue; Zheng, Nan; Fang, Yuyan; Zhang, Yuanye; Zhang, Ming; Xu, Jingyu; Zhang, Liguo
Source: Industrial Crops and Products, v 224, February 2025
Database: Compendex
Data Provider: Engineering Village

17. Research Progress on the Application of Elemental Fingerprinting in Tea Origin Traceability and the Influencing Factors Thereof

Li, Yanlong (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Qian, Lili; Chen, Mingming; Song, Yan; Liu, Yi; Wang, Yongsheng; Liu, Hongyan
Source: Shipin Kexue/Food Science, v 45, n 24, p 293-301, December 25, 2024
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

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18. Rapid non-destructive identification of blueberry origin based on near infrared spectroscopy combined with wavelength selection

Wang, Guannan (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, Na; Dong, Ying; Liu, Jinming; Gao, Peng; Hou, Rui

Source: Infrared Physics and Technology, v 145, March 2025

Database: Compendex

Data Provider: Engineering Village

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19. Corrigendum to "An amorphous calcium phosphate for drug delivery: ATP provides a phosphorus source and microwave - assisted hydrothermal synthesis"

Feng, Wenpo (Medical College, Pingdingshan University, Henan, Pingdingshan; 467000, China); Feng, Chenxi; Wang, Binbin; Jing, Aihua; Li, Guangda; Xia, Xichao; Liang, Gaofeng

Source: Materials Today Communications, 2024 Article in Press

Database: Compendex

Data Provider: Engineering Village

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20. Effect of Ultrasonic Treatment on the in Vitro Digestibility Properties of Black Bean Protein

Cao, Rong'an (College of Food, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhang, Xuemin; Diao, Jingjing; Chen, Yunhua; Li, Meiqi; Zhang, Jiamiao; Wang, Changyuan

Source: Science and Technology of Food Industry, v 46, n 3, p 143-150, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

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21. Stacking ensemble surrogate modeling method based on decomposed- coordinated strategy for structural low-cycle fatigue life reliability estimation

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

Source: Reliability Engineering and System Safety, v 257, May 2025

Database: Compendex

Data Provider: Engineering Village

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22. DESIGN AND EXPERIMENT OF LARGE HER WITH CYLINDER FEEDING HAMMER (*Open Access*)

Chen, Tao (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing, China); Yi, Shu-Juan; Wang, Song; Sun, Wen-Sheng

Source: INMATEH - Agricultural Engineering, v 74, n 3, p 592-602, 2024

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

Database: Compendex

Data Provider: Engineering Village

23.Ultrasonic-catalyzed ozone degradation of dibutyl phthalate in camel's milk:Efficiency and oxidation profile

Fan, Qiwen (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhang, Jianqiang; Cao, Rongan; Dai, Congcong; Wang, Xinyuan; Zhou, Lan

Source: Environmental Technology and Innovation, v 37, February 2025

Database: Compendex

Data Provider: Engineering Village

24.An enhanced IWCARS method for measuring soil available potassium

Pan, Zhaoxuan (Heilongjiang Bayi Agricultural University, China); Zhao, Xiaoyu; Zhao, Yue; Cai, Lijing; Tong, Liang; Zhai, Zhe

Source: Chemometrics and Intelligent Laboratory Systems, v 258, March 15, 2025

Database: Compendex

Data Provider: Engineering Village

25.Biochar promotes the dissolution of inorganic inactive phosphorus by mediating the bacterial community during corn stover and cattle manure composting

Zhao, Linqin (College of Horticulture and Landscape Architecture, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Li, Ying; Fan, Bowen; Wang, Mengmeng; Sun, Ning; Yang, Fengjun

Source: Chemosphere, v 373, March 2025

Database: Compendex

Data Provider: Engineering Village

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

Dai, Anna (College of Food Science, Heilongjiang Bayi Agricultural University, Heilongjiang Province, Daqing; 163319, China); Chi, Xiaoxing; Wang, Helin; Zhang, Dongjie

Source: LWT, v 218, February 15, 2025

Database: Compendex

Data Provider: Engineering Village

27.Outlier detection method based on multi-model consensus

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

Source: Spectroscopy Letters, 2025 Article in Press

Database: Compendex

Data Provider: Engineering Village

28. Least Squares Support Vector Machines With Variable Selection and Hyperparameter Optimization for Complex Structures Reliability Assessment

Dong, Xiaowei (School of Engineering, Heilongjiang Bayi Agricultural University, Heilongjiang Province, Daqing, China); Zhang, Hao; Li, ZhenAo; Zhu, Chunyan; Yi, Shujuan; Chen, Changhai

Source: Quality and Reliability Engineering International, 2025 Article in Press

Database: Compendex

Data Provider: Engineering Village

29. Wavelength selection method for near-infrared spectroscopy based on the combination of mutual information and genetic algorithm

Ma, Xiao-Hui (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Chen, Zheng-Guang; Liu, Shuo; Liu, Jin-Ming; Tian, Xue-song

Source: Talanta, v 286, May 1, 2025

Database: Compendex

Data Provider: Engineering Village

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

Zhao, Lei (College of Animal Science and Veterinary Medicine, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Yu, Jie; Liu, Yunzhuo; Liu, Yihan; Zhao, Yiran; Li, Mu-Yang

Source: International Journal of Biological Macromolecules, v 296, March 2025

Database: Compendex

Data Provider: Engineering Village

31. Preparation and characterization of highly stable pH-sensitive multifunctional films based on copigment-anthocyanin conjugate system for pork monitoring and preservation

Song, Shuang (College of Food Science, Northeast Agricultural University, Heilongjiang, Harbin; 150030, China); Ji, Run; Xu, Jieli; Yang, Xiyue; An, Qiyun; Zhang, Xiuling; Zhang, Wentao

Source: Food Hydrocolloids, v 164, July 2025

Database: Compendex

Data Provider: Engineering Village

32. Preparation and characterization of chitosan / corn starch based films loaded with Vaccinium vitisidaea anthocyanin nanocomplexes and the application in shrimp preservation

Yu, Yuhe (College of Food Science, Northeast Agricultural University, Heilongjiang, Harbin; 150030, China); Xu, Jieli; Xu, Jian; Li, Yingying; Zhang, Xiuling; Zhang, Wentao

Source: International Journal of Biological Macromolecules, v 303, April 2025

Database: Compendex

Data Provider: Engineering Village

33. Liquid Chromatography-Mass Spectrometry-Based Metabolomic Analysis of Metabolites and Metabolic Pathways of Selenium-Enriched Auricularia auricula

Yue, Shibo (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Cui, Hang; Shen, Qin; Cao, Dongmei

Source: Shipin Kexue/Food Science, v 46, n 3, p 162-168, February 15, 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

34. Effects of hydrodynamic cavitation combined with snail enzyme treatment on the structure and functional properties of water-soluble dietary fiber in rice husks

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

Source: Ultrasonics Sonochemistry, v 113, February 2025

Database: Compendex

Data Provider: Engineering Village

35. Protective Effect of Black Bean-Whey Double Protein Diet on Intestinal Barrier Injury Induced by Lipopolysaccharide in Rats

Meng, Weihong (Heilongjiang Bayi Agricultural University, College of Food Science and Technology, Daqing; 163319, China); Li, Zhiming; Zhang, Jiayu; Shu, Xin; Liang, Defu; Zhuang, Kejin; Zhang, Dongjie

Source: Science and Technology of Food Industry, v 46, n 2, p 324-333, January 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

36. A novel analytical strategy for rapid detection of antibiotic dregs adulteration in feed protein materials by headspace gas chromatography–ion mobility spectrometry

Li, Shouxue (Jiangsu Vocational College of Agricultural and Forestry, Jiangsu, Jurong, China); Feng, Yuchao; Zhang, Yushu; Fan, Xia

Source: Quality Assurance and Safety of Crops and Foods, v 17, n 1, p 30-41, 2025

Database: Compendex

Data Provider: Engineering Village

37.Resveratrol-derived carbon dots integrated into gelatin/chitosan multifunctional films for intelligent packaging

Fu, Tianxin (College of Food Science, Heilongjiang Bayi Agricultural University, Xinfeng Lu 5, Daqing; 163319, China); Feng, Yuchao; Zhang, Shu; Sheng, Yanan; Wang, Changyuan

Source: Food Chemistry: X, v 25, January 2025

Database: Compendex

Data Provider: Engineering Village

38. ImprovedCatch Fish Optimization Algorithm with Personalized Fishing Strategy for Global Optimization

Xue, Bowen (School of Electrical and Information Engineering, Northeast Petroleum University, Daqing, China); Jia, Heming; Rao, Honghua; Zhang, Jinrui; Du, Yilong; Ai, Zekai

Source: 2024 14th International Conference on Information Science and Technology, ICI ST 2024, p 520-525, 2024, 2024 14th International Conference on Information Science a nd Technology, ICIST 2024

Database: Compendex

Data Provider: Engineering Village

39. Beta Random Restart Strategy-Based Remora Optimization Algorithm for Global Optimization

Ai, Zekai (College of Design and Engineering, National University of Singapore, Singapore); Shi, Xiaoming; Jia, Heming; Yang, Jie; Xue, Bowen; Du, Yilong

Source: 2024 14th International Conference on Information Science and Technology, ICI ST 2024, p 724-729, 2024, 2024 14th International Conference on Information Science a nd Technology, ICIST 2024

Database: Compendex

Data Provider: Engineering Village

40. A case study of the effect of a living wall on the indoor acoustic environment

Yan, Feng (School of Architecture and Civil Engineering, Northeast Petroleum University, Daqing, China); Ma, Lingyong; Jiang, Wei; Zhao, Xin; Zheng, Yizhi; Zhao, Chenxuan; Zhao, Jianguo; Li, Dong

Source: Architectural Science Review, 2025 Article in Press

Database: Compendex

Data Provider: Engineering Village

41. Research Progress on the Preparation, Physiological Activity and Action Mechanism of Plant Derived Bioactive Peptides

Li, Sinan (College of Food, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, Xi; An, Yu; Yu, Jun; Xu, Kaiyuan; Wang, Jia; Zhang, Zhihui; Wang, Meng; Wang, Aqin; Wang, Ying; Zhang, Lu

Source: Science and Technology of Food Industry, v 46, n 3, p 394-402, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

42. Process Optimization and Antioxidant Activity Analysis of White Kidney Bean Polypeptides Prepared by Composite Strain Fermentation

Li, Sinan (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, Meng; An, Yu; Wang, Qing; Xu, Kaiyuan; Wang, Jia; Zhang, Zhihui; Wang, Xi; Wang, Ying; Zhang, Lu

Source: Science and Technology of Food Industry, v 46, n 3, p 213-221, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

43. Optimization of Preparation Process and Antioxidant Activity of Kidney Bean-Haskap Composite Fermentation Liquid

Wang, Jia (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Ding, Fangli; An, Yu; Zeng, Xueying; Zhang, Zhihui; Li, Sinan; Xu, Kaiyuan; Zhou, Fang; Wang, Ying;Zhang, Lu; Xu, Bingzheng; Sun, Zekun

Source: Science and Technology of Food Industry, v 46, n 3, p 222-231, February 2025

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

44. Interfacial behavior and emulsifying properties of coconut protein glycated by polygalacturonic acid with different molecular weight

Chen, Yan (Hainan University, School of Food Science & Engineering, Hainan, Haikou; 570228, China); Zhu, Qianqian; He, Rongrong; Chen, Haiming; Fan, Xiaoyu; Hu, Xiaosong; Liu, Gang

Source: International Journal of Biological Macromolecules, v 298, April 2025

Database: Compendex

Data Provider: Engineering Village