收錄引用月報

SCI·EI·ESI INDEX DATABASE

November.~December. 2024 No.38

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2024.11.06-2024.12.25。

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

（2024.11.06-2024.12.25）

SCI 索引库共收录我校教师发表的 50 篇文献，图表后附录 50 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	2
Biotechnology & Applied Microbiology	生物工程学和应用微生物学	1
Immunology	免疫学	1
Chemistry	化学	9
Automation & Control Systems	自动化和控制系统	1
Engineering	工程学	2
Environmental Sciences& Ecology	环境科学与生态学	1
Food Science & Technology	食品科学与技术	3
Microbiology	微生物学	2
Plant Sciences	植物科学	10
Genetics & Heredity	遗传学和遗传性	1
Science & Technology - Other Topics	科技与技术-其他主题	5
Spectroscopy	光谱学	1
Veterinary Sciences	兽医学	1

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: Role of hypoxia-inducible-factor-1α (HIF-1α) in ferroptosis of adipose tissue during ketosis

作者: Fan, YH (Fan, Yunhui); Ma, L (Ma, Li); Fang, XX (Fang, Xinxin); Du, SY (Du, Shuyu); Mauck, J (Mauck, John); Loor, JJ (Loor, Juan J.); Sun, XD (Sun, Xudong); Jia, HD (Jia, Hongdou); Xu, C (Xu, Chuang); Xu, QS (Xu, Qiushi)

来源出版物: JOURNAL OF DAIRY SCIENCE 卷: 107 期: 12 页: 10611-10627
DOI: 10.3168/jds.2024-24822 **Published Date:** 2024 DEC

Web of Science 核心合集中的 "被引频次": 2

被引频次合计: 2

摘要: Postpartum cows experience lipolysis in adipose tissue due to negative energy balance, and accumulation of free fatty acids leads to metabolic stress in adipose tissue. Ferroptosis is a type of cell death triggered by excessive buildup of iron-dependent lipid peroxides and is involved in the occurrence and development of various metabolic diseases in nonruminants. However, whether ferroptosis occurs in the adipose tissue of ketotic cows and the regulatory mechanisms behind ferroptosis are still unclear. Despite multiple studies demonstrating the significant involvement of hypoxia-inducible-factor-1 alpha (HIF-1 alpha) in regulating cellular dysfunction, its specific function in the adipose tissue of ketotic dairy cows remains uncertain, particularly its regulation of oxidative stress and ferroptosis. This study aimed to explore the effect of HIF-1 alpha on oxidative stress and ferroptosis in bovine subcutaneous adipose tissue and isolated adipocytes. The adipose tissue of clinical ketosis cows (n = 15) with a serum BHB concentration of 3.13 mM (inter- quartile range = 0.14) and healthy cows (n = 15) with a serum BHB concentration of and 0.58 mM (interquartile range = 0.13) was collected. The results showed that the concentrations of lipid peroxidation malondialdehyde (MDA), reactive oxygen species (ROS), Fe2+, and total iron were increased in adipose tissue of cows with ketosis, but the contents of glutathione (GSH) were reduced. Furthermore, the protein levels of HIF-1 alpha, heme oxygenase 1 (HMOX1), catalase (CAT), superoxide dismutase 1 (SOD1), acyl-CoA synthetase 4, and nuclear factor erythroid-derived 2-like 2 (NFE2L2) exhibited higher abundance in adipose tissue obtained from cows with ketosis, whereas the protein abundance of solute carrier family 7 member 11 (SLC7A11), glutamate-cysteine ligase catalytic subunit (GCLC), kelch-like ECH-associated protein 1, glutamate-cysteine ligase regulatory subunit (GCLM), and glutathione peroxidase 4 (GPX4) were lower. To simulate the ferroptosis state of adipose tissue in ketotic cows, primary bovine adipocytes were isolated from the adipose tissue of healthy cows and cultured with erastin to construct the ferroptosis model. Adipocytes were cultured with either an adenovirus overexpressing HIF-1 alpha or small interfering RNA targeting HIF for 48 h, followed by exposure to erastin

(1 mu M) for 24 h. Treatment with erastin led to higher protein abundance of CAT, SOD1, NFE2L2 and HMOX1, and it inhibited the protein expression levels of GCLC, SLC7A11, GCLM, GPX4, and kelch-like ECH-associated protein 1. Furthermore, erastin treatment elevated the levels of ROS, MDA, Fe2+, and total iron and reduced the content of GSH. The overexpression of HIF-1 alpha reversed the erastininduced decreases in the protein abundance of GPX4 and SLC7A11, as well as the levels of MDA, ROS, Fe2+, and total iron, while significantly increasing protein abundance and content of CAT, SOD1, NFE2L2, HMOX1, GCLC, GCLM, GPX4, SLC7A11, and GSH. Conversely, the silencing of HIF-1 alpha further exacerbated the erastininduced levels of MDA, ROS, Fe2+, and total iron, while inhibiting the upregulation of SOD1, CAT, NFE2L2 and HMOX1. Collectively, these findings suggest that activation of HIF-1 alpha may function as an adaptive mechanism to mitigate ferroptosis and alleviate oxidative stress in adipose tissue.

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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: 2024-12-25

第 2 条

标题: Research on Soybean Seedling Stage Recognition Based on Swin Transformer

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来源出版物: AGRONOMY-BASEL **卷:** 14 **期:** 11 **文献号:** 2614
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摘 要 : Accurate identification of the second and third compound leaf periods of soybean seedlings is a prerequisite to ensure that soybeans are chemically weeded

after seedling at the optimal application period. Accurate identification of the soybean seedling period is susceptible to natural light and complex field background factors. A transfer learning-based Swin-T (Swin Transformer) network is proposed to recognize different stages of the soybean seedling stage. A drone was used to collect images of soybeans at the true leaf stage, the first compound leaf stage, the second compound leaf stage, and the third compound leaf stage, and data enhancement methods such as image rotation and brightness enhancement were used to expand the dataset, simulate the drone's collection of images at different shooting angles and weather conditions, and enhance the adaptability of the model. The field environment and shooting equipment directly affect the quality of the captured images, and in order to test the anti-interference ability of different models, the Gaussian blur method was used to blur the images of the test set to different degrees. The Swin-T model was optimized by introducing transfer learning and combining hyperparameter combination experiments and optimizer selection experiments. The performance of the optimized Swin-T model was compared with the MobileNetV2, ResNet50, AlexNet, GoogleNet, and VGG16Net models. The results show that the optimized Swin-T model has an average accuracy of 98.38% in the test set, which is an improvement of 11.25%, 12.62%, 10.75%, 1.00%, and 0.63% compared with the MobileNetV2, ResNet50, AlexNet, GoogleNet, and VGG16Net models, respectively. The optimized Swin-T model is best in terms of recall and F1 score. In the performance degradation test of the motion blur level model, the maximum degradation accuracy, overall degradation index, and average degradation index of the optimized Swin-T model were 87.77%, 6.54%, and 2.18%, respectively. The maximum degradation accuracy was 7.02%, 7.48%, 10.15%, 3.56%, and 2.5% higher than the MobileNetV2, ResNet50, AlexNet, GoogleNet, and VGG16Net models, respectively. In the performance degradation test of the Gaussian fuzzy level models, the maximum degradation accuracy, overall degradation index, and average degradation index of the optimized Swin-T model were 94.3%, 3.85%, and 1.285%, respectively. Compared with the MobileNetV2, ResNet50, AlexNet, GoogleNet, and VGG16Net models, the maximum degradation accuracy was 12.13%, 15.98%, 16.7%, 2.2%, and 1.5% higher, respectively. Taking into account various degradation indicators, the Swin-T model can still maintain high recognition accuracy and demonstrate good anti-interference ability even when inputting blurry images caused by interference in shooting. It can meet the recognition of different growth stages of soybean seedlings in complex environments, providing a basis for post-seedling chemical weed control during the second and third compound leaf stages of soybeans.

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文献类型: Article

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研究方向: Agriculture; Plant Sciences

输出日期: 2024-12-25

第 3 条

标 题： Design of a Contact-Type Electrostatic Spray Boom System Based on Rod-Plate Electrode Structure and Field Experiments on Droplet Deposition Distribution

作者: Sun, H (Sun, Hao); Liu, CX (Liu, Changxi); Li, YF (Li, Yufei); Shi, H (Shi, Hang); Zhao, SX (Zhao, Shengxue); Wu, M (Wu, Miao); Hu, J (Hu, Jun)

来源出版物: AGRONOMY-BASEL 卷: 14 期: 11 文献号: 2715
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被引频次合计: 0

摘 要： Spraying is currently one of the main methods of pesticide application worldwide. It converts the pesticide solution into fine droplets through a sprayer, which then deposit onto target plants. Therefore, in the process of pesticide application, improving the effectiveness of spraying while minimizing or preventing crop damage has become a key issue. Combining the advantages of electrostatic spraying technology with the characteristics of ground boom sprayers, a contact-type electrostatic boom spraying system based on a rod-plate electrode structure was designed and tested on a self-propelled boom sprayer. The charging chamber was designed based on the characteristics of the rod-plate electrode and theoretical analysis. The reliability of the device was verified through COMSOL numerical simulations, charge-to-mass ratio, droplet size, and droplet size spectrum measurements, and a droplet size prediction model was established. The deposition characteristics in soybean fields were analyzed using the Box-Behnken experimental design method. The results showed that the rod-plate electrode structure demonstrated its superiority with a maximum spatial electric field of 2.31 x 106 V/m. When the spray pressure was 0.3 MPa and the charging voltage was 8 kV, the droplet size decreased by 26.6%, and the charge-to-mass ratio reached 2.88 mC/kg. Field experiments showed that when the charging voltage was 8 kV, the spray pressure was 0.3 MPa, the traveling speed was 7 km/h, and the number of deposited droplets was 8517. This study provides some basis for the application of electrostatic spraying technology in large-scale field operations.

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研究方向: Agriculture; Plant Sciences

输出日期: 2024-12-25

第 4 条

标 题 : Diacylglycerol O-acyltransferase isoforms play a role in peridroplet mitochondrial fatty acid metabolism in bovine liver

作者: Wang, S (Wang, Shuang); Zhang, BB (Zhang, Bingbing); Mauck, J (Mauck, John); Loor, JJ (Loor, Juan J.); Fan, WW (Fan, Wenwen); Tian, Y (Tian, Yan); Yang, TJ (Yang, Tianjiao); Chang, YQ (Chang, Yaqi); Xie, M (Xie, Meng); Aernouts, B (Aernouts, Ben); Yang, W (Yang, Wei); Xu, C (Xu, Chuang)

来源出版物: JOURNAL OF DAIRY SCIENCE **卷:** 107 **期:** 11 **页:** 9897-9914
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被引频次合计: 1

摘要: Hepatocellular lipid accumulation characterizes fatty liver in dairy cows. Lipid droplets (LD), specialized organelles that store lipids and maintain cellular lipid homeostasis, are responsible for the ectopic storage of lipids associated with several metabolic disorders. In recent years, nonruminant studies have reported that LD-mitochondria interactions play an important role in lipid metabolism. Due to the role of diacylglycerol acyltransferase isoforms (DGAT1 and DGAT2) in LD synthesis, we explored mechanisms of mitochondrial fatty acid transport in ketotic cows using liver biopsies and isolated primary hepatocytes. Compared with healthy cows, cows with fatty liver had massive accumulation of LD and high protein expression of the triglyceride (TAG) synthesis-related enzymes DGAT1 and DGAT2, LD synthesis-related proteins perilipin 2 (PLIN2) and perilipin 5 (PLIN5), and the mitochondrial fragmentation-related proteins dynamin-related protein 1 (DRP1) and fission 1 (FIS1). In contrast, factors associated with fatty acid oxidation, mitochondrial fusion, and mitochondrial electron transport chain complex were lower compared with

those in the healthy cows. In addition, transmission electron microscopy revealed significant contacts between LD-mitochondria in liver tissue from cows with fatty liver. Compared with isolated cytoplasmic mitochondria, expression of carnitine palmitoyl transferase 1A (CPT1A) and DRP1 was lower, but mitofusin 2 (MFN2) and mitochondrial electron transport chain complex was greater in isolated peridroplet mitochondria from hepatic tissue of cows with fatty liver. In vitro data indicated that exogenous free fatty acids (FFA) induced hepatocyte LD synthesis and mitochondrial dynamics consistent with in vivo results. Furthermore, DGAT2 inhibitor treatment attenuated the FFA-induced upregulation of PLIN2 and PLIN5 and rescued the impairment of mitochondrial dynamics. Inhibition of DGAT2 also restored mitochondrial membrane potential and reduced hepatocyte reactive oxygen species production. The present in vivo and in vitro results indicated functional differences are present among different types of mitochondria in the liver tissue of dairy cows with ketosis. Activity of DGAT2 may play a key role in maintaining liver mitochondrial function and lipid homeostasis in dairy cows during the transition period.

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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: 2024-12-25

第 5 条

标题: Strategic interactions and market equilibrium in China's agricultural catastrophic insurance

作者: Wang, XL (Wang, Xiaolan); Wang, XL (Wang, Xinli); Liu, JD (Liu, Jundi); Wang, J (Wang, Jing)

来源出版物: AGRICULTURAL ECONOMICS-ZEMEDELSKA EKONOMIKA **DOI:** 10.17221/358/2023-AGRICECON **Early Access Date:** OCT 2024 **Published Date:** 2024 OCT 29

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摘要: In China's agricultural catastrophe insurance market, issues of non-equilibrium are prominent. To understand the causes of non-equilibrium in agricultural catastrophe insurance and to develop prevention strategies, this study employs an Evolutionary Game Model, incorporating disaster and insurance data for three types of cereal crops in Henan Province to analyse the Evolutionarily Stable Strategies in the agricultural catastrophe insurance market. The research also considers government policies and disaster reinsurance as implicit participants in the model. The findings reveal significant differences in the impact of non-equilibrium in the agricultural catastrophe insurance market and the choice of game strategies, dependent on the scale of farm operations, the type of crops cultivated, and regional variations. Significantly, decision-making evolutionary paths vary between small and medium-scale farmers, with rice growers emphasising income insurance more. In regions prone to frequent catastrophes, the insurance rates for agricultural catastrophe insurance exhibit greater flexibility. By scientifically delineating agricultural catastrophe risk zones, appropriately expanding the scale of cultivation, reducing insurance rates, and adjusting agricultural catastrophe insurance products, a balanced development in the agricultural catastrophe insurance market can be promoted.

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文献类型: Article; Early Access

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研究方向: Agriculture; Business & Economics

输出日期: 2024-12-25

第 6 条

标题: Moulding Test and Process Parameter Optimization of Biomass Seedling Pots for Cow Dung and Corn Stover

作者: Chen, JQ (Chen, Jiaqi); Ma, YC (Ma, Yongcai); Wang, HY (Wang, Hanyang); Teng, D (Teng, Da); Qi, Y (Qi, Yan); Liu, D (Liu, Dan)

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摘要: In order to determine the optimal moulding process parameters of biomass seedling pots prepared from fermented cow dung mixed with corn stover, the moulding pressure, baking time, and baking temperature of biomass seedling pots were taken as the influencing factors, and the expansion rate, durability rate, wet swelling rate (48 h), and resistance to damage were taken as the evaluation indexes, and the Box-Behnken design of the response surface method was used to analyze the significance of interactions among the different influencing factors in the moulding process of biomass seedling pots and to optimize the moulding process. The experiment was conducted in the Biomass Laboratory of Heilongjiang Bayi Agricultural University. The response surface method Box-Behnken design was used to analyze the significance of the interaction between different influencing factors in the biomass seedling pots moulding process and optimize the moulding process. The results showed that the optimum moulding process conditions obtained using the Box-Behnken design were the following: a moulding pressure of 520.393 kN, baking temperature of 202.870 degrees C, and baking time of 8.573 min. The model was validated by testing and a response value of 10.522% was obtained for expansion, 99.598% for durability rate, 11.145% for wet swelling (48 h), and 4503.545 N for resistance to damage. The experimental verification showed that the deviation of the actual value obtained under this condition from the predicted value is less than 5%, indicating that the model reproduces well and meets the experimental requirements. Based on the optimal moulding process conditions determined in this experiment, the total porosity, EC, and pH of the Biomass seedling pots were determined to be 67.32%, 1.63 mS/cm, and 6.7, respectively, which met the seedling requirements.

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文献类型: Article

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研究方向: Agriculture; Plant Sciences

输出日期: 2024-12-25

第 7 条

标题: The Physiological Effect of Trichoderma viride on Melon Yield and Its Ability to Suppress Rhizoctonia solani

作者: Dou, JW (Dou, Jingwei); Liu, JY (Liu, Jingyi); Ma, GS (Ma, Guangshu); Lian, H (Lian, Hua); Li, M (Li, Mei)

来源出版物: AGRONOMY-BASEL 卷: 14 期: 10 文献号: 2318 **DOI:** 10.3390/agronomy14102318 **Published Date:** 2024 OCT

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摘要: Melon damping off, which has a negative impact on melon quality and yield, can be safely and effectively managed with Trichoderma. Melon cultivar 'Longtian No. 1' was evaluated at both the adult and seedling stages in a pot experiment. The Rs and PD liquids were utilized as CK1 and CK2, respectively. Trichoderma viride Tv286 treatments T1B, T2B, T3B, and T4B were used based on Rs at concentrations of 104, 105, 106, and 107 CFU<middle dot>g-1, respectively. The impact of several treatments on the antioxidant system and seedling quality of melon were assessed at 15, 25, and 35 days after sowing. We examined the effects of several treatments on melon quality, yield attributes, and physiological and biochemical markers during the adult stage at 10, 20, and 30 days after pollination. The effects of several treatments on melon damping off were also studied. Applying T. viride Tv286 at different rates effectively increased the activities of enzymes, including catalase (CAT), peroxidase (POD), superoxide dismutase (SOD), ascorbate peroxidase (APX), and polyphenol oxidase (PPO), in the leaves of melon seedlings, significantly reduced the malondialdehyde (MDA) content, and improved the root-shoot ratio and seedling strength index. In terms of its influence on promoting the effect of antioxidant system indicators, T3B performed well. Melon seedlings treated with T3B showed higher CAT, POD, SOD, APX, and PPO activities in their leaves 35 days after sowing compared to CK1 (189.74, 169.61, 175.36, 224.20, and 477.39%, respectively). The strong seedling index and root-shoot ratio showed improvements of 130.43 and 79.71%, respectively, and the MDA content dropped by 35.66% at 35 days after sowing compared to CK1. Varying the rates at which T. viride Tv286 was applied increased the nitrate reductase (NR) activity and nitrate nitrogen, proline (Pro), chlorophyll, soluble sugar, and soluble protein contents in mature melon leaves, increasing melon quality and yield. T3B is the most effective marketing campaign. Compared to CK1, mature T3B leaves had higher NR activity, nitrate nitrogen content,

chlorophyll content, soluble sugar content, soluble protein content, and Pro content 30 days after melon pollination (100.40, 135.17, 68.59, 93.65, 158.13, and 238.67%, respectively). The soluble solids, soluble protein, soluble sugar, vitamin C contents, and yield of melon fruit increased by 50.07, 126.82, 60.62, 70.79, and 61.45%, respectively, at 30 days after melon pollination compared to CK1. Optimal management of melon damping off can be accomplished with the application of T. viride Tv286 at different concentrations, with T3B exhibiting the best effect. The control effects reached 90.48 and 72.99% at the seedling and adult stages, respectively. Overall, T. viride Tv286 improved seedling quality, damping off control efficacy, melon yield and quality, and the antioxidant system during the seedling stage and enhanced physiological and biochemical characteristics during the adult stage. This study indicates the potential of T. viride Tv286 conidia as a biological control agent because it can prevent plant disease, increase yield, and improve quality.

入藏号: WOS:001343037800001

文献类型: Article

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研究方向: Agriculture; Plant Sciences

输出日期: 2024-12-25

第 8 条

标题: Mechanism of Eriochloa villosa (Thunb.) Kunth Resistance to Nicosulfuron

作者: Guo, J (Guo, Jing); Xu, ZQ (Xu, Zeqian); Jiao, T (Jiao, Ting); Gao, H (Gao, Hong); Wang, YC (Wang, Yuechao); Zhang, LG (Zhang, Liguo); Li, MK (Li, Mukai); Liu, XM (Liu, Xiaomin); Yan, CX (Yan, Chunxiu); Han, YJ (Han, Yujun)

来源出版物: AGRONOMY-BASEL **卷:** 14 **期:** 10 **文献号:** 2210
DOI: 10.3390/agronomy14102210 **Published Date:** 2024 OCT

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摘要: Eriochloa villosa (Thunb.) Kunth, the main weed in corn fields, has gradually developed resistance to nicosulfuron due to continuous and extensive application. We identified a biotype showing resistance to ALS inhibitor nicosulfuron with a resistant

index 13.83, but without any target spot mutation. Herein, transcriptome sequencing was used to analyze the differences in gene expression at the transcriptional level between nicosulfuron-resistant E. villosa HEK-40 varieties and sensitive E. villosa HEK-15 varieties. The resistant and sensitive varieties comparison revealed 9931 DEGs after nicosulfuron application, of which 5426 and 4505 genes were up-regulated and down-regulated, respectively. Some contigs related to metabolic resistance were identified based on differential expression via RNA-Seq, which includes ABC transporters (ko02010), glucosinolate biosynthesis (ko00966), 2-oxocarboxylic acid metabolism (ko01210), alanine, aspartate, and glutamate metabolism pathways (ko00250). Seven CYP450 genes, four GST genes, ten ABC transporter genes, and two GT genes related to metabolic resistance were identified. The 10 candidate genes screened were validated using q-PCR. This validation indicates that activities associated with P450 enzymes, ABC transporters, and glutathione S-transferases (GST) may play a role in conferring resistance, which is important for reducing the impact of weeds on corn fields and ensuring food security.

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研究方向: Agriculture; Plant Sciences

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第 9 条

标题: Trichoderma Rhizosphere Soil Improvement: Regulation of Nitrogen Fertilizer in Saline-Alkali Soil in Semi-Arid Region and Its Effect on the Microbial Community Structure of Maize Roots

作者: Li, YC (Li, Yicong); Cui, JM (Cui, Jianming); Kang, JR (Kang, Jiarui); Zhao, W (Zhao, Wei); Yang, KJ (Yang, Kejun); Fu, J (Fu, Jian)

来源出版物: AGRONOMY-BASEL 卷: 14 期: 10 文献号: 2340 **DOI:** 10.3390/agronomy14102340 **Published Date:** 2024 OCT

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摘要: In order to reduce the actual impact of a saline-alkali environment on maize production in semi-arid areas, it is particularly important to use the combined fertilization strategy of Trichoderma microbial fertilizer and nitrogen fertilizer. The purpose of this study was to investigate the effects of different concentrations of nitrogen fertilizer combined with Trichoderma on improving the structural characteristics and ecological functions of maize rhizosphere microbial community in semi-arid saline-alkali soil. Through the microbiome analysis of maize rhizosphere soil samples with 60 kg N<middle dot>ha-1 (N1) and 300 kg N<middle dot>ha-1 (N2) nitrogen fertilizer combined with Trichoderma (T1) and without Trichoderma (T0), we found that the combination of Trichoderma and different concentrations of nitrogen fertilizer significantly affected the structure of bacterial and fungal communities. The results of this study showed that the combination of Trichoderma and low-concentration nitrogen fertilizer (N1T1) could improve soil nutritional status and enhance its productivity potential, revealing the relationship between beneficial and harmful fungal genera, microbial diversity and abundance, and crop biomass, which is of great significance for improving agricultural production efficiency and sustainable development.

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研究方向: Agriculture; Plant Sciences

输出日期: 2024-12-25

第 **10** 条

标 题： Enhanced Soybean Growth and the Associated Ion Balance, Nutrient Accumulation, and Rhizosphere Bacterial Community When Intercropped with Suaeda salsa in Saline Soils

作者: Wang, SQ (Wang, Shiqi); Liu, JB (Liu, Jinbiao); Liu, YL (Liu, Yalan); Tian, CY (Tian, Changyan)

来源出版物: AGRONOMY-BASEL **卷:** 14 **期:** 10 **文献号:** 2181 **DOI:** 10.3390/agronomy14102181 **Published Date:** 2024 OCT

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摘 要： Halophyte-based desalinization is emerging as a promising technology for saline agriculture. However, few studies have integrated halophytes into intercropping systems. This study investigated Suaeda salsa and soybean intercropping and the associated mechanisms, including changes in salt, nutrients, and bacterial communities at three salt treatments (control, 3 parts per thousand, and 5 parts per thousand). The results showed that regardless of salt treatment, soybean biomass and P content significantly increased in intercropping compared with monocropping, by an average of 32% and 51%, respectively ($p < 0.05$), indicating interspecific facilitation. Under 5 parts per thousand salt, soybean mortality decreased from 37% in monocropping to 10% in intercropping, and shoot Na decreased by over 60% in intercropping; the rhizosphere Na+, Cl-, and NO3--N decreased in intercropping by over 75% compared with monocropping, and the response ratios correlated negatively with S. salsa biomass ($p < 0.01$). The soybean rhizosphere bacterial community in intercropping was enriched with the genera Sphingomonas, Salinimicrobium, Lysobacter, Allorhizobium-Neorhizobium-Pararhizobium-Rhizobium, and Ramlibacter, and the bacterial co-occurrence network exhibited increases in the number of nodes and edges, average degree, and average clustering coefficient. Considering the combined effects, the soybean biomass of intercropping correlated positively with bacterial co-occurrence network parameters, including average degree and number of edges, independent of tissue salt and nutrient content, and that of monocropping correlated negatively with tissue salt content. These results demonstrate that S. salsa intercropping could alleviate salt stress in soybean by creating a low-salt environment and improving its nutrient accumulation and rhizosphere bacterial community, and emphasize the importance of microbial communities in influencing soybean growth.

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研究方向: Agriculture; Plant Sciences

输出日期: 2024-12-25

Biochemistry & Molecular Biology

第 1 条

标题: Corrosion of carbon steel by Pseudomonas stutzeri CQ-Z5 in simulated oilfield water

作者: Zhang, S (Zhang, Shuang); Dong, BY (Dong, Boyu); Zhao, D (Zhao, Dan); Yang, JN (Yang, Jiani); Sun, XF (Sun, Xiufen); Yan, L (Yan, Lei)

来源出版物: BIOELECTROCHEMISTRY **卷:** 162 **文献号:** 108846
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摘要: Carbon steel, an important infrastructure material in the petroleum industry, experiences serious damage due to Microbially Influenced Corrosion (MIC) with untold economic impact. Pseudomonas stutzeri CQ-Z5 with solid biofilm formation and organic acid-producing ability was isolated from Changqing oilfield produced water. The corrosion behavior and mechanism of 20# carbon steel by P. stutzeri CQ-Z5 were explored in a simulated oilfield product water circulating device. Bacteria inoculation can hasten steel corrosion, the maximum corrosion rate reached 1.84 mm y-1. Pitting corrosion on rust layer was observed using SEM, and CLSM monitored the change in biofilm thickness. XRD displayed that oxides were the primary corrosion products, including Fe2O3, Fe3O4, and FeOOH. Analysis of contributions of corrosion types indicated that biofilm corrosion contributes 72 % to total corrosion, far higher than those of ion erosion and organic acid decay. Many genes involved in iron metabolism, biofilm synthesis, and organic acid production were annotated in the genome of P. stutzeri CQ-Z5. Accordingly, a hypothetical corrosion mechanism model of P. stutzeri CQ-Z5 for carbon steel involvement of initial ion erosion, then biofilm corrosion and organic acid decay was proposed. The work helped prevent carbon steel corrosion and improve corrosion mitigation strategies.

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

输出日期: 2024-12-25

第 2 条

标 题： Combination of Exogenous Spermidine and Phosphocreatine Efficiently Improved the Quality and Antioxidant Capacity of Cryopreserved Boar Sperm and Reduced Apoptosis-Like Changes

作者: Li, JC (Li, Jingchun); Wang, HC (Wang, Hechuan); Guo, MH (Guo, Minghui); Guo, Q (Guo, Qing); Li, YB (Li, Yanbing)

来源出版物: MOLECULAR REPRODUCTION AND DEVELOPMENT **卷: 91** **期:** 10 **文献号:** e70003 **DOI:** 10.1002/mrd.70003 **Published Date:** 2024 OCT

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摘 要： The low resistance of boar sperm to cryopreservation dictates that addition antioxidants and energetic substances to the diluent to improve sperm quality is necessary. This study evaluated the effect of spermidine and phosphocreatine in combination on the quality, antioxidant capacity, and antiapoptotic-like changes capacity of cryopreserved boar sperm based on previous reports. The results showed that the combined application of spermidine and phosphocreatine significantly enhanced the motility, average path velocity, straight-line velocity, curvilinear velocity, beat cross frequency, acrosome integrity, plasma membrane integrity, mitochondrial activity, and DNA integrity compared with the control group ($p < 0.05$). In addition, the combined application of spermidine and phosphocreatine significantly enhanced the total antioxidant capacity, superoxide dismutase activity, glutathione peroxidase activity, and catalase activity while significantly decreasing malondialdehyde content and hydrogen peroxide content ($p < 0.05$). Western Blot analysis further showed that spermidine and phosphocreatine significantly decreased the expression of CASP3 and BAX and significantly enhanced the expression of BCL2 ($p < 0.05$); therefore, the combination of spermidine and phosphocreatine has potentially positive implications for improving the quality of cryopreserved boar sperm.

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输出日期: 2024-12-25

Biotechnology & Applied Microbiology

第 1 条

标题: Basalt rock weathering by Peribacillus simplex from Wudalianchi volcanos in NE China and implications for Fe and Si biogeochemical cycling

作者: Zhang, S (Zhang, Shuang); Ying, GF (Ying, Gaofei); Liu, T (Liu, Tao); Yang, JN (Yang, Jiani); Zhu, EC (Zhu, Enci); Sun, XD (Sun, Xindi); Gu, JD (Gu, Ji-Dong); Yan, L (Yan, Lei)

来源出版物: INTERNATIONAL BIODETERIORATION & BIODEGRADATION
卷: 196 文献号: 105948 **DOI:** 10.1016/j.ibiod.2024.105948
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摘要: Bacteria have an important role in weathering the different rocks, but little is known about the mechanism of microbial weathering in basalt rocks. In the present study, Peribacillus simplex WS-L19 isolated from Wudalianchi volcanos exhibits the highest Fe and Si rock dissolution, which revealed unique weathering ability. The optimal weathering conditions of LB medium diluted at 30.9%, the rotation speed of 127.2 rpm, and temperature at 36.6 degrees C, resulted in the Fe and Si releases of 1.70 +/- 0.09 mu g/mL and 20.11 +/- 1.13 mu g/mL, respectively. Simultaneously, complex ligands such as organic acids (tartaric acid, formic acid, lactic acid and succinic acid), siderophores, and biofilm were also found to be involved in weathering processes by P. simplex WS-L19. Kinetics study of Fe and Si release indicated that the weathering processes of volcanic rocks mediated by P. simplex WS-19 fits a Hyperbl model. Mineralogical analysis showed a decrease in Fe releasing ratio by 44.65% and an increase in Si releasing ratio by 28.45%, showing that Fe is more accessible than Si. P. simplex WS-L19 had a significant weathering effect on biotite, and Si-O bonding vibration might contribute to weathering. The results suggest that indigenous P. simplex WS-L19 plays a role in weathering Wudalianchi volcanos and

provides new insights into the Fe and Si biogeochemical cycling of basalt rocks.

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文献类型: Article

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输出日期: 2024-12-25

Immunology

第 1 条

标 题 : Isolation and characterization of a novel S-gene mutation porcine deltacoronavirus with high pathogenicity from diarrhea piglet in Zhejiang Province, China, 2022

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来源出版物: MICROBIAL PATHOGENESIS **卷:** 197 **文献号:** 107095 **DOI:** 10.1016/j.micpath.2024.107095 **Early Access Date:** NOV 2024 **Published Date:** 2024 DEC

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摘要: Porcine deltacoronavirus (PDCoV) is a coronavirus that causes diarrhea in suckling piglets and has the potential for cross-species transmission. Monitoring PDCoV evolution and identifying potential vaccine candidates are crucial due to its high mutation rates in pig populations. In this study, a Chinese PDCoV strain named ZD2022 was successfully isolated from diarrhea piglets in Zhejiang province, followed by genetic evolutionary analysis, assessment of S proteins' biological functions, in vitro cellular adaptation analysis and pathogenicity evaluation. Phylogenetic analyses placed the PDCoV ZD2022 strain within the Southeast Asia Lineage. Sequence analysis revealed 23 mutations in the S protein of ZD2022 compared to most of other Chinese PDCoV strains, including 8 unique mutations (T529I, L579F, Q614H, V709G, S959L, P1010S, V1016F, A1068V). In addition, bioinformatic predictions indicated these mutations impact the hydrophilicity/hydrophobicity, antigenic epitopes and Nglycosylation sites of the ZD2022 S protein. The virus growth curve of ZD2022 showed good cellular adaptation, with peak viral titers of 8.92 +/- 0.31 Log10 TCID50/mL in ST cells. Furthermore, ZD2022 exhibited high virulence in suckling piglets, causing severe diarrhea in piglets at 60 h post-inoculation (hpi) and a mortality rate of 40 % (2/5) within 96 hpi. In summary, our findings indicate that the Chinese PDCoV strains continue to mutate, and the novel S gene mutation in strain ZD2022 offers strong cellular adaptation and high pathogenicity, making it a potential candidate strain for vaccine development.

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文献类型: Article

地址: [Xu, Xiangwen; Sun, Jing; Zheng, Huihua; Du, Xiaoxu; Wang, Yutao; Cheng, Jiongze; Liu, Yijia; Ying, Jiale; Zhao, Yulin; Wang, Ziqi; Yan, Junfang; Duan, Xing; Yang, Yongchun; Song, Houhui; Su, Mingjun] Zhejiang A&F Univ, Zhejiang Prov Engn Res Ctr Anim Hlth Diagnost & Ad, Coll Anim Sci & Technol,Zhejiang Int Sci & Technol, Key Lab Appl Technol Green Ecohlth Anim Husb Zheji, 666 Wusu St, Hangzhou 311300, Zhejiang, Peoples R China.

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研究方向: Immunology; Microbiology

输出日期: 2024-12-25

Chemistry

第 1 条

标题: Application of nutrition interventions strategy to enhance fish flesh quality

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来源出版物: JOURNAL OF FOOD COMPOSITION AND ANALYSIS **卷:** 138 **文献号:** 107010 **DOI:** 10.1016/j.jfca.2024.107010 **Published Date:** 2025 FEB

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摘要: With the increasing on consumers' requirements for the quality of aquatic products, the production of healthy, safe and high-quality meat products has become an important concern of researchers. However, the expansion of fish intensive farming scale has led to the deterioration of aquaculture water environment pollution, forcing the decline of fish quality. Furthermore, there are multiple aspects to fish quality assessment and it is difficult to harmonize standards to take all aspects into account, which seriously affects the healthy and sustainable development of aquaculture. Therefore, rationally regulating, formulating flesh quality evaluation standards, and improving and enhancing fish flesh quality are the strategic guidelines to promote the healthy and sustainable development of the entire aquaculture. According to previous reports, flesh quality is frequently defined by nutritional assessment metrics, but physicochemical quality, flavor compounds, healthy function and sensory evaluation are also important criterion, which need to be included in the evaluation scope. Additionally, opinions vary on the types and effects of flesh quality improvers. Taken together, this review is expected to generalize the current evaluation criteria of fish flesh quality, and summarize the practical application and potential mechanism of nutritional intervention in ameliorating fish flesh quality, which will provide a much-needed additional theoretical fundament for healthy aquaculture.

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研究方向: Chemistry; Food Science & Technology

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第 2 条

标题: Combination of near infrared spectroscopy with characteristic interval selection for rapid detection of rice protein content

作者: Xu, YH (Xu, Yonghua); Dong, Y (Dong, Ying); Liu, JM (Liu, Jinming); Wang, CQ (Wang, Chunqi); Li, ZJ (Li, Zhijiang)

来源出版物: JOURNAL OF FOOD COMPOSITION AND ANALYSIS **卷: 137** 文献号: 106995 **DOI:** 10.1016/j.jfca.2024.106995 **Published Date:** 2025 JAN **子辑:** B

Web of Science 核心合集中的 "被引频次": 0

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摘 要: Protein level significantly influences the nutritional quality of rice. For this reason, this study introduced a method to rapidly measure the rice protein content through a combination of near infrared spectroscopy (NIRS) with characteristic spectral interval (CSI) selection. Using the interval partial least squares (iPLS) concept as a basis, this study integrated genetic simulated annealing algorithm (GSA) with partial least squares (PLS) and support vector machine (SVM) to develop two CSI selection algorithms, namely GSA-iPLS and GSA-iSVM, respectively. The CSI selected by the above algorithms were compared with synergy iPLS and backward iPLS, and quantitative calibration models were established for PLS and SVM, respectively. The study revealed that the PLS calibration model for rice protein content, developed using CSI selected by GSA-iPLS, exhibited the highest regression accuracy. The optimal model achieved determination coefficients of 0.945 and 0.964, relative root mean square errors of 2.598% and 2.796%, and residual predictive deviations of 4.265 and 5.023 for the validation and the external test sets, respectively, which met practical detection requirements. The results indicate that the combination NIRS with GSA CSI intelligent search is a reliable approach for the rapid and accurate detection of rice protein content.

入藏号: WOS:001363669200001

文献类型: Article

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研究方向: Chemistry; Food Science & Technology

输出日期: 2024-12-25

第 3 条

标 题 : Metabolomics of black beans (Phaseolus vulgaris L.) during atmospheric pressure steaming and in vitro simulated digestion

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来源出版物: FOOD CHEMISTRY-X **卷:** 24 **文献号:** 101997
DOI: 10.1016/j.fochx.2024.101997 **Published Date:** 2024 DEC 30

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被引频次合计: 0

摘要: In the paper, metabolomics techniques based on UHPLC-QE-MS were used to study raw black beans, steaming black beans, and their in vitro digestion products. The results show that the three groups of raw black beans, atmospheric pressure-steamed black beans, and their in vitro digests comprised 922, 945, and 878 characteristic metabolites, respectively, dominated by amino acids, organic acids, polyphenols, and sugars. After screening the differential metabolites, content comparison, the content of amino acids, sugars, and phenolics in black beans was found to be increased after atmospheric steaming. During in vitro digestion, the amino acid content increased and the phenolic content decreased, with amino acid synthesis, phenolic degradation, and conversion predominating. This study provides data to support the changes in black beans metabolites during atmospheric steam processing and in vitro digestion.

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研究方向: Chemistry; Food Science & Technology

输出日期: 2024-12-25

第 4 条

标 题 : Fast detection of ammonia nitrogen concentration in biogas fluid using near-infrared spectroscopy combined with wavelength selection by coronavirus herd immunity optimizer

作者: Wang, YY (Wang, Yiyi); Liu, JM (Liu, Jinming)

来源出版物: MICROCHEMICAL JOURNAL 卷: 207 文献号: 112203
DOI: 10.1016/j.microc.2024.112203 **Early Access Date:** NOV 2024
Published Date: 2024 DEC

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Ammonia nitrogen, as an essential intermediate product during the process of anaerobic fermentation, is an important indicator for analyzing the nitrogen nutrient level, the specific gravity of different nitrogen in the substrate, and the extent of organic matter breakdown in the fermentation system. To achieve rapid detection of ammonia nitrogen concentration in biogas fluid during anaerobic fermentation, a partial least squares regression correction model of ammonia nitrogen concentration was constructed by integrating the near-infrared transmission spectroscopy fusion data of different optical path cuvettes with the wavelength selection of the binary coronavirus herd immunity optimizer (BCHIO). The effectiveness of BCHIO wavelength selection was proved by comparing the best and average modeling performance with classic intelligent wavelength selection methods, such as genetic algorithm, simulated annealing algorithm, and binary particle swarm optimization algorithm. To obtain a smaller amount of modeling wavelength variables with high correlation, the strategy of taking repeatedly selected wavelength variables in the results of the multiple runs as feature wavelengths was proposed, and 74 feature wavelengths were selected to construct the ammonia nitrogen concentration correction model. For the validation set, the determination coefficient of the quantitative model was 0.9961, the root mean square error was 12.4901 mg/L, and the average relative error was 4.2210 %, which could satisfy the requirements of rapid detection of ammonia nitrogen concentration in biogas fluid during anaerobic fermentation. By wavelength selection of ammonia nitrogen selected by BCHIO, the wavelength variables involved in the process of modeling are significantly reduced, the variable dimension and model complexity are effectively reduced, and the detection accuracy and predictive capability of the regression model are improved, which offers theoretical backing for the online detection of ammonia nitrogen concentration in biogas fluid by near-infrared spectroscopy.

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研究方向: Chemistry

输出日期: 2024-12-25

第 5 条

标题: Different effects of polyphenols on hydration, pasting and rheological properties of rice starch under extrusion condition: From the alterations in starch structure

作者: Huo, JJ (Huo, Jinjie); Wang, LS (Wang, Lishuang); Ma, JM (Ma, Jinming); Yue, XQ (Yue, Xiqing); Wang, KX (Wang, Kexin); Ma, XQ (Ma, Xiaoqi); Yu, XS (Yu, Xiaoshuai); Xiao, ZG (Xiao, Zhigang)

来源出版物: FOOD CHEMISTRY 卷: 465 文献号: 142002
DOI: 10.1016/j.foodchem.2024.142002 **Early Access Date:** NOV 2024
Published Date: 2025 FEB 15 子辑: 2

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Effects of polyphenols including caffeic acid (CA), ferulic acid (FA), epigallocatechin gallate (EG), tannic acid (TA) and resveratrol (R) on physicochemical and structural properties of rice starch (RS) under the extrusion condition were investigated. Extrusion altered the hydration, pasting and rheological properties of rice starch. Adding FA exhibited the best improvement effect on hydration properties of extruded rice starch (E-RS). All polyphenols possessed different inhibitory effects on short-term retrogradation of E-RS following the order of TA > EG > CA > FA > R. The FA and CA enhanced the viscoelasticity of E-RS, whereas the other polyphenols had opposite influences. Polyphenols mainly interacted with starch via hydrogen bonds, which transformed the crystalline structure to V-type and increased the molecular weight of E-RS. Above different effects were due to polyphenols exhibited varied microstructure and phenolic hydroxyl group content. These findings provided valuable information for preparing extruded starchy foods rich in polyphenols.

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输出日期: 2024-12-25

第 6 条

标 题： Effect of γ -irradiation combined with enzymatic modification on the physicochemical properties of defatted rice bran dietary fiber

作者: Wei, XY (Wei, Xuyao); Jiang, CX (Jiang, Caixia); Liu, XL (Liu, Xiaolan); Liu, HD (Liu, Handong); Wang, JT (Wang, Juntong); Zheng, XQ (Zheng, Xiqun); Zhang, Z (Zhang, Zhi); Hu, H (Hu, Hao)

来源出版物: FOOD CHEMISTRY-X **卷:** 24 **文献号:** 101975
DOI: 10.1016/j.fochx.2024.101975 **Early Access Date:** NOV 2024
Published Date: 2024 DEC 30

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要： This study comprehensively examines how combining gamma-irradiation and enzymatic modification influences the microstructure and physicochemical properties of dietary fiber (DF) obtained from defatted rice bran. The resulting yields of soluble dietary fiber (SDF) and insoluble dietary fiber (IDF) were measured at 13.38 +/- 0.40 g/ 100 g and 52.19 +/- 0.97 g/100 g, respectively. The modifications led to a diminish in particle size, an increase in specific surface area, and an improvement in water-holding capacity, oil-holding capacity, swelling capacity, glucose adsorption capacity, and cholesterol adsorption capacity. Furthermore, the modified DF exhibited enhanced anti-digestive properties and probiotic activity. Cluster and principal component analysis results revealed that the modified SDF exhibited superior functional properties. Correlation analysis indicated a noticeable relationship between the monosaccharide composition of DF and its functional characteristics. These findings suggest that gamma-irradiation combined with enzymatic modification represents a viable approach for enhancing the quality of rice bran DF.

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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: 2024-12-25

第 7 条

标题: Effects of high-temperature stages on the physicochemical properties and oxidation products formation of rapeseed oil with carnosic acid

作者: Zhu, YD (Zhu, Ying-dan); Luan, YT (Luan, Yue-ting); Chai, CL (Chai, Cheng-liang); Xue, YL (Xue, Ya-lin); Duan, ZQ (Duan, Zhang-qun)

来源出版物: FOOD CHEMISTRY **卷:** 465 **文献号:** 141960
DOI: 10.1016/j.foodchem.2024.141960 **Early Access Date:** NOV 2024
Published Date: 2025 FEB 15 **子辑:** 1

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: With the extension of heat processing, the oxidation and formation of harmful substances in oils appeared. The effect of the high-temperature stages (180 degrees C, four stages I, II, III, and IV were divided according to the heating- up period) on the fatty acid profile, the thermal properties, the composition of total polar compounds, and the physicochemical properties of rapeseed oil (RSO) were investigated. As the heating processing, carnosic acid (CA) significantly reduces the peroxide value, p-anisidine value, trans-fatty acid, the action of alkyl radicals, and the formation of oxidized triglyceride monomers (Ox-TGM). The Tp of the RSO shifts towards the lower temperature, and the enthalpy exhibits a significant decrease in stages II, III, and IV. Stage II is the crucial period for the transformation of Ox-TGM into polymers. CA helps control the oxidation process of the oil. It is essential to maintain the quality and prolong the usage time of RSO.

入藏号: WOS:001359259100001

文献类型: Article

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

输出日期: 2024-12-25

第 8 条

标 题: A rapid method for assessing seed drought resistance using integrated ID-BOA-SVM

作者: Wu, QH (Wu, Qiaohan); Zhao, XY (Zhao, Xiaoyu); Zhou, BQ (Zhou, Biqing); Liao, JC (Liao, Jiangcheng); Luo, Q (Luo, Qian); Zhao, Y (Zhao, Yue); Cai, LJ (Cai, Lijing); Zhai, Z (Zhai, Zhe); Tong, L (Tong, Liang)

来源出版物: ANALYTICAL METHODS **卷:** 16 **期:** 47 **页:** 8224-8233
DOI: 10.1039/d4ay01455c **Early Access Date:** OCT 2024
Published Date: 2024 DEC 5

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: This study investigates the application of near-infrared spectroscopy (NIR) for assessing drought resistance in seeds, aiming to offer a rapid and efficient method suitable for large-scale primary screening. NIR spectroscopy is utilized to analyze four key factors (water, sugars, amino acids content, and genes) associated with maize seed drought responses. Signature NIR bands indicative of drought resistance-related molecules are identified using the Competitive Adaptive Reweighted Sampling (CARS) technique. Furthermore, an Improved Discrete Bayesian Optimization Support Vector Machine (ID-BOA-SVM) classification model is developed to address issues related to sparse features in traditional Bayesian Optimization Support Vector Machines (BOA-SVM). To enhance classification performance, a stacking model integrating Random Forest (RF), ID-BOA-SVM, Logistic Regression (LR), and Gradient Boosted Decision Trees (GBDT) classifiers is constructed, ensuring robustness and minimizing overfitting risks. The model achieves satisfactory recognition accuracy (94.28% accuracy, 94% precision, 94.61% recall, and 94.23% F1-score) even under conditions of substantial interference and dataset variability. This research demonstrates that NIR spectroscopy-derived data can support genetic and physiological studies of drought-resistant seed varieties, facilitating a deeper understanding of drought resistance mechanisms and optimizing breeding strategies.

入藏号: WOS:001347485100001

文献类型: Article

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

输出日期: 2024-12-25

第 9 条

标 题 : Efficient synthesis of halobenzothioamides from the hydrosulfuration of halobenzonitriles and mechanism investigation

作者: Chen, J (Chen, Juan); Li, SS (Li, Shanshan); Hong, HL (Hong, Hailong); Jia, HJ (Jia, Huijie); Zhu, N (Zhu, Ning)

来源出版物: PHOSPHORUS SULFUR AND SILICON AND THE RELATED ELEMENTS 卷: 199 期: 7-9 页: 667-674 **DOI:** 10.1080/10426507.2024.2416209
Early Access Date: OCT 2024 **Published Date:** 2024 SEP 2

Web of Science 核心合集中的 "被引频次": 1

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摘要: An efficient method for the synthesis of various halobenzothioamides from the hydrosulfuration of a variety of halobenzonitriles with NaHS under mild conditions was developed by adding auxiliary reagent MgCl2 <middle dot> 6 H2O. It was found that an excellent yield of benzothioamides is obtained from the hydrosulfuration of halobenzonitrile with inorganic sulfur reagents by adjusting the pH value of the reaction solution. Reaction condition optimization experiments revealed, that high yields of products were obtained in the pH range of 8-10.

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文献类型: Article

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研究方向: Chemistry

输出日期: 2024-12-25

Automation & Control Systems

第 1 条

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

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来源出版物: JOURNAL OF CHEMOMETRICS **DOI:** 10.1002/cem.3633
Early Access Date: NOV 2024 **Published Date:** 2024 NOV 25

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被引频次合计: 0

摘要: Variable selection is an effective method to enhance the modeling performance of near-infrared spectroscopy. Given the promising application prospects of intelligent optimization algorithms in spectral feature variable selection, this article combines the artificial bee colony algorithm with the simulated annealing algorithm to construct a simulated annealing bee colony algorithm (SABC). To explore the feasibility of SABC for spectral variable selection, SABC was applied to construct a partial least squares spectral quantitative detection model for corn stover cellulose and soil organic matter contents. The modeling performance was compared with that of the full spectrum, genetic algorithm, simulated annealing algorithm, and artificial bee colony algorithm; it was found that the model regression precision established by SABC was the best. For the cellulose and organic matter content detection models, the coefficients of determination of the validation set were 0.9433 and 0.9853, with the relative root mean squared error of 1.7901% and 0.8011%, and the residual prediction deviation of 4.1741 and 8.3931, respectively, which could meet the corresponding actual detection needs. SABC adopted the strategy of multiple runs to select the repeated wavelength variables, effectively reduced variable dimensions and model complexity, improved the prediction performance of the regression model, and provided a new approach for building a high-performance near-infrared spectroscopy (NIRS) quantitative calibration model.

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文献类型: Article; Early Access

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研究方向: Automation & Control Systems; Chemistry; Computer Science; Instruments & Instrumentation; Mathematics

输出日期: 2024-12-25

Engineering

第 1 条

标 题： Reduction of microbial load in soil by gas generated using non-thermal atmospheric pressure plasma

作 者： Ketya, W (Ketya, Wirinthip); Yu, NN (Yu, Nan-Nan); Acharya, TR (Acharya, Tirtha Raj); Choi, EH (Choi, Eun-Ha); Park, G (Park, Gyungsoon)

来 源 出 版 物： JOURNAL OF HAZARDOUS MATERIALS **卷：** 483 **文 献 号:** 136643 **DOI:** 10.1016/j.jhazmat.2024.136643 **Published Date:** 2025 FEB 5

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摘要: Elevation of the microbial load in soil resulting from contamination with organic wastes of biological origin increases the chances of emerging soil-borne pathogens and disturbance of nutrient cycling. We analyzed the potential of gas generated using atmospheric-pressure non-thermal plasma as a tool for reducing the microbial load in soil and its impact on the soil microbial community and fertility. The gas generated by a cylinder-type single pair of dielectric barrier discharge (DBD) electrode plasma inactivated over 90 % of bacterial cells and fungal spores after 5 and 20 min of treatment, respectively, in both suspension and vermiculite. Gas generated using four pairs of DBD electrode plasma eradicated approximately 50 % of bacterial cells and 40 % of fungal spores in nursery soil. It also eliminated approximately 10-29 % of aerobic natural microbiota in field soil after 60 min of treatment. The diversity of microbial species in the plasma gas-treated field soil was slightly lower than that in the untreated soil, and the relative abundances of the phyla Proteobacteria and Basidiomycota were reduced in the plasma gas-treated soil. Spinach plant growth and nitrate levels increased significantly in the plasma gas-treated field soil. Our data suggest that plasma-generated gases can be used for soil sanitation with no drastic changes to the soil microbial community and soil fertility enhancement.

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文献类型: Article

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研究方向: Engineering; Environmental Sciences & Ecology

输出日期: 2024-12-25

第 2 条

标 题 : Controllable construction of ratiometric fluorescent probe based on Ag/Au nanoclusters and silicon nanoparticles for multivariate detection of Ag+, Cu2+, and Hg2+

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来源出版物: JOURNAL OF ENVIRONMENTAL CHEMICAL ENGINEERING
卷: 12 **期:** 6 **文献号:** 114556 **DOI:** 10.1016/j.jece.2024.114556
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摘 要 : The determination of heavy metal ions is critical to both human health, ecosystems, and the environment because it is a prerequisite for separating heavy metal pollutants. Herein, a ratiometric fluorescent strategy based on bimetallic AuAg nanoclusters and Si nanoparticles (AuAg-SiNPs) was constructed and achieved multivariate detection of Ag+, Cu2+, and Hg2+, simultaneously. The AuAg-SiNPs exhibited dual emission centered at 456 nm and 631 nm, with quantum yield of 23.48%, and presented visual distinguishable signal for different ions. Notably, a smartphone visual platform was created to identify Ag+, Cu2+, and Hg2+ with portable and accurate capturing and recognizing changing RGB values. The quantitative evaluation can be confirmed by various noticeable ratiometric evolution responses to three ions, the limits of detection were 1.61 nM, 49.94 nM, and 1.44 nM for Ag+, Cu2+, and Hg2+, respectively. Excellent environmental tolerance as well as reliability and practicability of AuAg-SiNPs enabled their test in real water samples. The synergistic effect of aggregation-caused quenching, static quenching effect, internal filtration effect, and fluorescence resonance energy transfer were revealed in process of detection. Ratiometric fluorescent probes offer great advantages in multiple identification of heavy metals in real sample. Smartphone-assisted detection greatly improves the effectiveness of visual on-site detection and has a promising application in real samples.

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文献类型: Article

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研究方向: Engineering

输出日期: 2024-12-25

Environmental Sciences& Ecology

第 1 条

标 题 : Study on the spatio-temporal coupling and drivers of agricultural carbon emission efficiency and food security

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来源出版物: FRONTIERS IN ENVIRONMENTAL SCIENCE 卷: 12
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摘 要 : In light of global climate change and environmental challenges, reducing agricultural carbon emissions while maintaining food security has become a critical concern for sustainable agricultural development. This study examines 13 provinces in primary grain-producing regions, utilising data from 1999 to 2022 to analyse the spatio-temporal heterogeneity and driving factors of the coupled and coordinated development of agricultural carbon emission efficiency and food security. The findings indicate that: 1) The proportion of carbon emissions from agricultural inputs in primary grain-producing regions exceeds 80%, whereas the contribution of carbon sinks from rice, maise, and wheat surpasses 95%. Both agricultural carbon emissions and carbon sinks in the Yellow River Basin are significantly elevated; 2) The general trend of agricultural carbon emission efficiency and food security is increasing, spatially characterised by a pattern of high levels in the north and south, and low levels in the south and high levels in the north, respectively. The integration of the two systems is progressing positively, and the trailing form of food security has emerged as a developmental trend, with the degree of food security limiting the coordinated

advancement of both. 3) The overall spatial disparity exhibits a declining tendency, with hypervariable density being the primary contributor to this spatial difference. The overall polarisation of the primary grain-producing regions has diminished. The level of heterogeneity in the Songhua River basin progressively intensifies; 4) Rural human capital and financial support for agriculture, urbanisation rate and soil erosion control, agricultural machinery power and soil erosion control are the main interaction factors. The economic status and rural human capital will facilitate the integrated and harmonious development of the two systems, while the agricultural disaster rate will impede this integrated and harmonious development. Ultimately, policy solutions are proposed to optimise agricultural inputs and raise their utilisation efficiency, adopt diversified regional development strategies, promote regional connection and coordinated development, and reinforce the management of drivers and policy support.

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研究方向: Environmental Sciences & Ecology

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Food Science & Technology

第 1 条

标题: Structural and Aroma Profile Enhancement of Sorghum (Sorghum bicolour L. Moench) Through Lactobacillus plantarum Fermentation

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来源出版物: FOOD BIOPHYSICS **卷:** 20 **期:** 1 **文献号:** 18
DOI: 10.1007/s11483-024-09912-z **Published Date:** 2025 MAR

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摘 要： Sorghum (Sorghum bicolour L. Moench), as the world's fifth-largest cereal, possesses characteristics such as reducing cholesterol, anti-inflammatory, and antioxidant properties. However, sorghum-based food products suffer from drawbacks such as hardness, cooking challenges, and suboptimal texture. Lactobacillus plantarum, a beneficial bacterium, has the capacity to ferment sorghum, enhancing its palatability and flavor. This study aimed to evaluate alterations in dietary

fiber, protein, and starch resulting from L. plantarum fermentation of sorghum, alongside analyzing the flavor profile of the fermented sorghum grains using HS-GC-MS technology. The findings indicated that upon reaching saturation water absorption capacity, sorghum fermented by L. plantarum (3 x 106 CFU/mL, 36 h and 30 degrees C) enhanced the structural integrity of dietary fiber, protein, and starch, while the elevation of compounds such as ketones, alcohols, and free amino acids contributed to the improved aroma profile of sorghum grains. This research provides a theoretical foundation for enhancing the physicochemical structure and flavor of sorghum.

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研究方向: Food Science & Technology

输出日期: 2024-12-25

第 2 条

标 题 : Biodegradable rice bran insoluble dietary fiber-chitosan blend films: Characterization and potential applications

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来源出版物: FOOD BIOSCIENCE **卷:** 63 **文献号:** 105599
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摘要: A composite film of insoluble dietary fiber (IDF) from rice bran (RB) blended with chitosan (IDF-CS film) was prepared and characterized. The thermal stability, thickness, tensile strength, colour, water vapor permeability (WVP) and oil permeability (PO) of the film were analysed. SEM micrographs revealed the porous

morphology of the film. XRD spectra suggested an amorphous crystalline nature of the film. FTIR spectra showed a 1600 cm- 1 peak in chitosan and dietary fiber, indicating C=O stretching, and TGA showed good thermal stability under various temperatures. The thickness increased to 0.104 mm in the film containing IDF -Chitosan2:2. The tensile strength (TS) was enhanced to 18.420 MPa in the film containing IDF -Chitosan2:2. The elongation at break (EB) was higher (12.65%) in films containing the low concentrations of IDF-Chitosan0.5:0.5. Water vapor permeability (WVP) was enhanced to 5.856 x 10-12 g cm/cm2 & sdot;Pa & sdot;s in the film containing IDF 2:2. The prepared film showed an excellent soil-degrading properties, with a degradation rate of 96% after 15 days. The IDF-CS film demonstrated a substantial inhibitory potential against Gram-positive bacteria. The scavenging capacities of the degradable film were 96.5% for DPPH and 98.8% for ABTS. Moreover, the viability of cervical HeLa cell line was 10% at 200 mu g/ml compared with that of the positive control (4%). Significant cytomorphological changes leading to necrosis in the treated cells were observed using light and fluorescence microscopy. The film (IDF-CS) developed is environmentally friendly and could be used as a novel therapeutic material for treating bacterial pathogens, scavenging free radicals, and inhibiting cancer cell proliferation.

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研究方向: Food Science & Technology

输出日期: 2024-12-25

第 3 条

标题: The Impact of Sample Quantity, Traceability Scale, and Shelf Life on the Determination of the Near-Infrared Origin Traceability of Mung Beans

作者: Chen, MM (Chen, Ming-Ming); Song, Y (Song, Yan); Li, YL (Li, Yan-Long); Sun, XY (Sun, Xin-Yue); Zuo, F (Zuo, Feng); Qian, LL (Qian, Li-Li)

来源出版物: FOODS 卷: 13 期: 20 文献号: 3234 **DOI:** 10.3390/foods13203234
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摘要: This study aims to address the gap in understanding of the impact of the sample quantity, traceability range, and shelf life on the accuracy of mung bean origin traceability models based on near-infrared spectroscopy. Mung beans from Baicheng City, Jilin Province, Dorbod Mongol Autonomous, Tailai County, Heilongjiang Province, and Sishui County, Shandong Province, China, were used. Through near-infrared spectral acquisition (12,000-4000 cm-1) and preprocessing (Standardization, Savitzky-Golay, Standard Normal Variate, and Multiplicative Scatter Correction) of the mung bean samples, the total cumulative variance contribution rate of the first three principal components was determined to be 98.16% by using principal component analysis, and the overall discriminatory correctness of its four origins combined with the K-nearest neighbor method was 98.67%. We further investigated how varying sample quantities, traceability ranges, and shelf lives influenced the discrimination accuracy. Our results indicated a 4% increase in the overall correct discrimination rate. Specifically, larger traceability ranges (Tailai-Sishui) improved the accuracy by over 2%, and multiple shelf lives (90-180-270-360 d) enhanced the accuracy by 7.85%. These findings underscore the critical role of sample quantity and diversity in traceability studies, suggesting that broader traceability ranges and comprehensive sample collections across different shelf lives can significantly improve the accuracy of origin discrimination models.

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研究方向: Food Science & Technology

输出日期: 2024-12-25

Microbiology

第 1 条

标题: PD-1 blockade synergizes with ascorbic acid to restore the activation and anti-viral immune functions of CD8+T cells in a mouse model of BVDV infection

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来源出版物: VETERINARY MICROBIOLOGY **卷:** 300 **文献号:** 110316
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摘要: Bovine viral diarrhea virus (BVDV) can cause typical peripheral lymphopenia and inhibit CD8+ T-cell activation and proliferation. Programmed death-1 (PD-1) blockade has been shown to increase CD8+ T-cell activation during cytopathic (CP) BVDV infection but not non-cytopathic (NCP) BVDV. Notably, ascorbic acid (AA) restores lymphocyte count and activation during SARS-CoV-2 and influenza virus infections and has a synergistic effect with PD-1 blockade to improve antitumor CD8+ T-cell activity. Nevertheless, it remains unclear whether AA exerts an immunomodulatory effect on the activation and proliferation of CD8+ T cells during BVDV infection, especially NCP BVDV infection, or whether PD-1 blockade and AA exert a synergistic effect in regulating CD8+ T cell antiviral activities. In this study, we found that BVDV infection significantly decreased AA levels in serum and CD8+ T cells in a BALB/c mouse model. Interestingly, AA supplementation dramatically downregulated PD-1 expression, restored the activation and proliferation of CD8+ T cells, inhibited viral replication, ameliorated BVDV-induced histological lesions, and upregulated the expression of CD25 and p-ERK. More importantly, we also found a synergistic effect of PD-1 blockade with AA in restoring the activation and proliferation of CD8+ T cells during CP BVDV infection. However, during NCP BVDV infection, a synergistic effect of PD-1 blockade and AA led to the inhibition of viral replication and the promotion of IFN-gamma production. Our findings provided new insights into the immunopathological mechanisms of BVDV and the potential value of anti-viral strategies based on AA treatment alone or in combination with PD-1 blockade.

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文献类型: Article

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研究方向: Microbiology; Veterinary Sciences

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第 2 条

标题: Genetic Variation and Population Structure of Clonorchis sinensis: An In Silico Analysis

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来源出版物: PATHOGENS 卷: 13 期: 11 文献号: 991

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摘要: Clonorchis sinensis is an important zoonotic parasite that is mainly prevalent in China, Korea, Vietnam and the Russian Far East. To explore the genetic variation and population structure of C. sinensis, an in silico analysis was conducted based on mitochondrial cytochrome c oxidase subunit 1 (COX1), ribosomal internal transcribed spacer 1 (ITS1) and ribosomal internal transcribed spacer 2 (ITS2) sequences. The sequences obtained from NCBI were truncated for further analyses, including haplotype network, phylogenetic, gene flow, diversity and neutrality analyses. The results showed that there were 20, 11 and 4 haplotypes for COX1, ITS1 and ITS2, respectively. The results of both the haplotype network and phylogenetic analyses indicated that the haplotypes for each type of sequence from the same country were not all clustered together. Haplotype diversity values were all lower than 0.5. Values of nucleotide diversity were higher than 0.005, except for ITS2. Tajima's D and Fu's Fs values were all negative, and p-values showed significant differences, indicating that the population of C. sinensis is growing. Fst values were all lower than 0.05. In conclusion, this study found that there are specific variations of C. sinensis in different countries, and the population of this parasite is growing with less genetic variation. The findings provide a crucial foundation for understanding the molecular epidemiology and population dynamics of C. sinensis.

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研究方向: Microbiology
输出日期: 2024-12-25

Plant Sciences

第 1 条

标题: AtAUEs, a Small Family of ABA Up-Regulated EAR Motif-Containing Proteins Regulate ABA Responses in Arabidopsis

作者: Wang, W (Wang, Wei); Wang, XT (Wang, Xutong); Liu, XY (Liu, Xiaoyu); Wang, YT (Wang, Yating); Li, YY (Li, Yingying); Hussain, S (Hussain, Saddam); Jing, XX (Jing, Xiaoxiao); Chen, SY (Chen, Siyu); Wang, SC (Wang, Shucai)

来源出版物: PLANTS-BASEL **卷:** 13 **期:** 23 **文献号:** 3282
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摘要: The abscisic acid (ABA) signaling pathway is crucial for regulating downstream ABA-responsive genes, which influence plant responses to ABA and abiotic stresses. However, many ABA-responsive genes remain poorly characterized. This study reports on the identification and characterization of ABA up-regulated EAR motif-containing proteins (AtAUEs), a novel family of EAR motif-containing proteins in Arabidopsis thaliana. From a previous transcriptome dataset, AtAUEs were identified as a family of unknown-function ABA-response genes with only five members, and the up-regulation of AtAUEs by ABA was further confirmed by quantitative RT-PCR (qRT PCR). All AtAUEs contain at least one LxLxL EAR motif and can repress reporter gene expression in Arabidopsis protoplasts. We generated CRISPR/Cas9 gene-edited ataue1, ataue2 and ataue3 single, ataue1 ataue2 (ataue12) double, and ataue1 ataue2 ataue3 (ataue123) triple mutants, as well as transgenic plants

overexpressing AtAUE1, and examined their ABA sensitivity. We found that the single and double mutants displayed wild-type responses to ABA treatment, while the ataue123 triple mutants showed increased sensitivity in seed germination and cotyledon greening assays but decreased sensitivity to ABA treatment in root elongation assays. Conversely, the 35S:AtAUE1 showed decreased sensitivity in seed germination and cotyledon greening assays but increased sensitivity to ABA treatment in root elongation assays. The qRT PCR results show that the expression level of ABI5 was increased in the ataue123 mutants and decreased in the 35S:AtAUE1 plants. These findings suggest that AtAUEs function redundantly to regulate ABA responses in Arabidopsis, likely by modulating the expression of key regulatory genes in ABA-signaling pathway.

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研究方向: Plant Sciences

输出日期: 2024-12-25

第 2 条

标题: Phosphatidylcholine Triggers Hydrogen Peroxide Signaling and Induces Pb Tolerance in Maize Seedlings

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来源出版物: JOURNAL OF PLANT GROWTH REGULATION
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摘要: This study aimed to investigate the effects of phosphatidylcholine (PC) on

maize seedlings exposed to lead (Pb) toxicity, focusing on antioxidant-system markers and Pb content analysis. A 7-d PC treatment resulted in improved plant growth, decreased lipid peroxidation and electrolyte leakage, increased activities of antioxidant enzymes (superoxide dismutase, catalase, glutathione reductase, and glutathione S-transferase), elevated levels of ascorbic acid and glutathione, and decreased accumulation of Pb. Furthermore, quantitative real-time PCR analysis demonstrated that exposure to Pb resulted in elevated expression levels of four genes encoding antioxidant enzymes (GR1, CSD1, gamma-ECS, and CAT1), with these levels being further augmented by the presence of PC. The activities of phospholipase D (PLD) and NADPH oxidase (NOX) induced by Pb, as well as the production of H2O2, were augmented by PC within the initial 24 h. However, the growth-promoting effects of PC and its elicitation of an antioxidant response were hindered by the inhibition of NOX and PLD. The decrease in Pb accumulation after treatment with PC appears to be related to activation of the glutathione detoxification system through reactive oxygen species signaling triggered by PC. Overall, this study shows that PC treatment can improve antioxidant capacity and lower Pb accumulation in maize seedlings by activating PLD- and NOX-mediated H2O2 signaling. This method could help boost crop growth and ensure food safety in Pb-contaminated soil.

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文献类型: Article; Early Access

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研究方向: Plant Sciences

输出日期: 2024-12-25

第 3 条

标 题: The maize gene ZmSBP17 encoding an SBP transcription factor confers osmotic resistance in transgenic Arabidopsis

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摘要: Among the major abiotic stresses, salt and drought have considerably affected agricultural development globally by interfering with gene expression profiles and cell metabolism. Transcription factors play crucial roles in activating or inhibiting the expression of stress-related genes in response to abiotic stress in plants. In this study, the Zea mays L. SQUAMOSA promoter-binding protein gene (ZmSBP17) was identified, and the molecular regulatory mechanism of osmotic stress tolerance was analyzed. Phylogenetic analysis confirmed that ZmSBP17 is part of the SBP gene family and is closely related to OsSBP17. The ZmSBP17-GFP fusion protein exhibited green fluorescence in the nucleus, as determined via tobacco epidermal transient transformation system. Acting as a transcriptional activator, the overexpression of ZmSBP17 in Arabidopsis significantly enhanced the expression of genes encoding superoxide dismutases (CSD1/2, MSD1), catalases (CAT1/2), ascorbate peroxidase 1 (APX1), and myeloblastosis transcription factors (AtMYB53/65), which increased the activity of reactive oxygen species (ROS)-scavenging enzymes and reduced ROS levels. Additionally, the expression of abiotic stress-related genes, such as AtDREB2A and AtNHX1, was significantly upregulated by ZmSBP17. Furthermore, ZmSBP17 specifically bound to cis-acting elements containing GTAC core sequences in the promoters of stress-related genes, suggesting that ZmSBP17 regulates the transcription of certain genes by recognizing these sequences. These results indicate that the overexpression of ZmSBP17 in Arabidopsis thaliana significantly increased tolerance to osmotic stress during the germination and seedling stages, which may enhance our understanding of the biological functions of SBPs in maize under abiotic stresses.

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研究方向: Plant Sciences
输出日期: 2024-12-25

第 4 条

标 题 : Genome-Wide Identification and Expression Profiling Analysis of the Mitochondrial Calcium Uniporter Gene Family Under Abiotic Stresses in Medicago sativa

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摘 要 : The mitochondrial calcium uniporters (MCUs) are a family of calcium unidirectional transporters important for cytoplasmic Ca2+ signals. Though the MCU proteins in several plant species have been investigated, genome-wide analysis of MCUs in alfalfa is lacking. Here, via genome-wide analysis, a total of 5, 20, and 6 MCU genes were identified in three different alfalfa cultivars, namely Medicago truncatula Jemalong A17, Medicago sativa XinJiangDaYe, and M. sativa Zhongmu No. 1, respectively. They were further phylogenetically classified into three subfamilies. Most MCU genes have only one intron, and gene duplication events of MCU genes were observed within each alfalfa accession and between different accessions. All alfalfa MCU proteins contained a highly conserved MCU domain and 10 conserved motifs, featuring two transmembrane domains and a DI/VME motif. According to the tissue expression data of M. sativa Zhongmu No. 1, MsMCU6.2 was the most abundant transcript with the highest expression in the leaf, and MsMCU5 and MsMCU1.2 showed higher expression levels in the stem than other tissues. We analyzed the expression profiles of five MCU genes (MsMCU1.1/1.2/5/6.1/6.2) under salt, drought, and cold stresses via qRT-PCR assays. All five MCU genes were induced by drought stress, except MsMCU5, whose expression was up-regulated by salt stress, while cold stress slightly altered MsMCU expression. Nine potential interacting proteins and three miRNAs targeting MtMCUs were predicted. These results provide detailed knowledge of alfalfa MCU genes and suggest their potential functions in abiotic stress response.

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研究方向: Plant Sciences

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第 5 条

标题: Optimizing Irrigation and Nitrogen Application to Enhance Millet Yield, Improve Water and Nitrogen Use Efficiency and Reduce Inorganic Nitrogen Accumulation in Northeast China

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摘 要: Enhancing irrigation and nitrogen fertilizer application has become a vital strategy for ensuring food security in the face of population growth and resource scarcity. A 2-year experiment was conducted to determine to investigate the effects of different irrigation lower limits and nitrogen fertilizer application amounts on millet growth, yield, water use efficiency (WUE), N utilization, and inorganic nitrogen accumulation in the soil in 2021 and 2022. The experiment was designed with four irrigation lower limits, corresponding to 50%, 60%, 70%, and 80% of the field capacity (FC), referred to as I-50, I-60, I-70, and I-80. Four nitrogen fertilizer application were also included: 0, 50, 100, and 150 kg center dot hm(-2) (designated as F-00, F-50, F-100, and F-150), resulting in a total of 16 treatments. Binary quadratic regression equations were established to optimize the irrigation and nitrogen application. The results demonstrated that the plant height, stem diameter, leaf area index, aboveground biomass, yield, spike diameter, spike length, spike weight, WUE, and nitrogen agronomic efficiency for millet initially increased before subsequently decreasing as the irrigation lower limit and nitrogen fertilizer application increased.

Their maximum values were observed in the I70F100. However, the nitrogen partial factor productivity (PFPN) exhibited a gradual decline with increasing nitrogen application, reaching its peak at F-50. Additionally, PFPN displayed a pattern of initial increase followed by a decrease with rising irrigation lower limits. The accumulation of NO3--N and NH4+-N in the 0 similar to 60 cm soil layer increased with the increase of nitrogen fertilizer application in both years, while they tended to decrease as the irrigation lower limit increased. An optimal irrigation lower limit of 64% FC to 74% FC and nitrogen fertilizer application of 80 to 100 kg ha(-1) was recommended for millet based on the regression equation. The findings of this study offer a theoretical foundation and technical guidance for developing a drip irrigation and fertilizer application for millet cultivation in Northeast China.

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研究方向: Plant Sciences

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第 6 条

标题: The Effect of Vegetation Ecological Restoration by Integrating Multispectral Remote Sensing and Laser Point Cloud Monitoring Technology

作者: Shi, MX (Shi, Mengxi); Xing, SH (Xing, Shuhan); Bai, H (Bai, He); Xu, DW (Xu, Dawei); Shi, L (Shi, Lei)

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摘要: This research aims to evaluate and monitor the effectiveness of vegetation ecological restoration by integrating Multispectral Remote Sensing (MRS) and laser point cloud (LPC) monitoring technologies. Traditional vegetation restoration monitoring methods often face challenges of inaccurate data and insufficient coverage, and the use of MRS or LPC techniques alone has its limitations. Therefore, to more accurately monitor the vegetation restoration status, this study proposes a new monitoring method that combines the advantages of the large-scale coverage of MRS technology and the high-precision three-dimensional structural data analysis capability of LPC technology. This new method was applied in the Daqing oilfield area of China, aiming to provide effective ecological restoration assessment methods through the precise monitoring and analysis of regional vegetation growth and coverage. The results showed that there was a negative correlation between the vegetation humidity index and vegetation growth in the Daqing oilfield in 2023. The estimated monitoring effect of the research method could reach over 90%, and the coverage area of hydrangea restoration in the monitoring year increased by 7509 km2. The research technology was closer to the actual coverage situation. The simulation image showed that the vegetation coverage in the area has significantly improved after returning farmland to forests. Therefore, the technical methods used can effectively monitor the ecological restoration of vegetation, which has great research significance for both vegetation restoration and monitoring.

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研究方向: Plant Sciences

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第 7 条

标题: Transcriptional and Metabolomic Analyses Reveal That GmESR1 Increases Soybean Seed Protein Content Through the Phenylpropanoid Biosynthesis Pathway

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摘要: Soybeans are an economically vital food crop, which is employed as a key source of oil and plant protein globally. This study identified an EREBP-type transcription factor, GmESR1 (Enhance of Shot Regeneration). GmESR1 overexpression has been observed to significantly increase seed protein content. Furthermore, the molecular mechanism by which GmESR1 affects protein accumulation through transcriptome and metabolomics was also identified. The transcriptomic and metabolomic analyses identified 95 differentially expressed genes and 83 differentially abundant metabolites during the seed mid-maturity stage. Co-analysis strategies revealed that GmESR1 overexpression inhibited the biosynthesis of lignin, cellulose, hemicellulose, and pectin via the phenylpropane biosynthetic pathway, thereby redistributing biomass within cells. The key genes and metabolites impacted by this biochemical process included Gm4CL-like, GmCCR, Syringin, and Coniferin. Moreover, it was also found that GmESR1 binds to (AATATTATCATTAAGTACGGAC) during seed development and inhibits the transcription of GmCCR. GmESR1 overexpression also enhanced sucrose transporter gene expression during seed development and increased the sucrose transport rate. These results offer new insight into the molecular mechanisms whereby GmESR1 increases protein levels within soybean seeds, guiding future molecular-assisted breeding efforts aimed at establishing high-protein soybean varieties.

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文献类型: Article; Early Access

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研究方向: Plant Sciences

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第 8 条

标题: MA-Res U-Net: Design of Soybean Navigation System with Improved U-Net Model

作者: Liu, QS (Liu, Qianshuo); Zhao, J (Zhao, Jun)

来源出版物: PHYTON-INTERNATIONAL JOURNAL OF EXPERIMENTAL BOTANY **卷:** 93 **期:** 10 **页:** 2663-2681 **DOI:** 10.32604/phyton.2024.056054

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摘要: Traditional machine vision algorithms have difficulty handling the interference of light and shadow changes, broken rows, and weeds in the complex growth circumstances of soybean fields, which leads to erroneous navigation route segmentation. There are additional shortcomings in the feature extractFion capabilities of the conventional U-Net network. Our suggestion is to utilize an improved U-Net-based method to tackle these difficulties. First, we use ResNet's powerful feature extraction capabilities to replace the original U-Net encoder. To enhance the concentration on characteristics unique to soybeans, we integrate a multi-scale high-performance attention mechanism. Furthermore, to do multi-scale feature extraction and capture a wider variety of contextual information, we employ atrous spatial pyramid pooling. The segmented image generated by our upgraded U-Net model is then analyzed using the CenterNet method to extract key spots. The RANSAC algorithm then uses these important spots to delineate the soybean seedling belt line. Finally, the navigation line is determined using the angle tangency theory. The experimental findings illustrate the superiority of our method. Our improved model significantly outperforms the original U-Net regarding mean Pixel Accuracy (mPA) and mean Intersection over Union (mIOU) indices, showing a more accurate segmentation of soybean routes. Furthermore, our soybean route navigation system's outstanding accuracy is demonstrated by the deviation angle, which is only 3 degrees between the actual deviation and the navigation line. This technology makes a substantial contribution to the sustainable growth of agriculture and shows potential for real-world applications.

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研究方向: Plant Sciences

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第 9 条

标题: Combination of maleic hydrazide and coumarin inhibits rice seed germination involving reactive oxygen species accumulation, ABA metabolism and starch degradation

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摘要: Pre-harvest sprouting (PHS) in cereal crops is a prevalent phenomenon that impacts grain yield and quality. Several PHS inhibitory compounds were screened and identified in previous studies, such as eugenol (EUG), maleic hydrazide (MH), coumarin (COU), etc. However, few studies have focused on the combination of PHS inhibitors, and the inhibitory mechanism remains unclear. Here, through combination tests of EUG, MH, and COU, the optimal combination of PHS inhibitors was selected as MH 20 mg L- 1 + COU 100 mg L- 1 , which presented the lowest germination percentages. The optimal combination treatment significantly decreased the germination rate, alpha-amylase activity, content of soluble sugar and soluble protein, enhanced ABA content and the activity of superoxide dismutase (SOD) and peroxidase (POD), inhibited the production of superoxide anion (O2- 2-) and hydrogen peroxide, and reduced the content of malondialdehyde (MDA); conversely, this trend is precisely the opposite in normal germination. Furthermore, gene expression analysis revealed that the optimal combination of MH and COU significantly decreased the expression level of OsAmy1A and OsAmy3D at 12 and 48 h after imbibition (HAI); and promoted the expression of OsRbohs (OsRbohA, OsRbohC, OsRbohD, OsRbohE, OsRbohH) and ABA biosynthetic genes OsNCED1, , OsNCED2, , and OsNCED5, , especially OsNCED2 at 12 HAI, but down-regulated expression of OsRbohs and ABA catabolic genes OsABA8ox1-3 at 48 HAI. These results demonstrated that the delay in seed germination induced by MH and COU involved in ROS, ABA, and sugars; the optimal combination of MH and COU inhibited the germination process by promoting ABA biosynthesis and reducing ABA

catabolism, and restraining the alpha-amylase activity to lower soluble sugar content. Intriguingly, although the expression of OsRbohs, which play a crucial role in generating ROS, increased in early imbibition (12h), the activity of the antioxidant enzymes SOD and POD also increased with the optimal combination treatment of MH and COU, which lead to the delay in ROS accumulation and inhibition of germination. These results have deepened our understanding of the regulatory mechanism of PHS inhibitors and provided theoretical support for the application of MH and COU in preventing sprouting before crop harvesting.

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研究方向: Plant Sciences

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第 10 条

标 题： Metabolic pathways regulated by strigolactones foliar spraying enhance osmoregulation and antioxidant defense in drought-prone soybean

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摘要: BackgroundDrought stress is a significant abiotic stressor that hinders growth, development, and crop yield in soybeans. Strigolactones (SLs) positively regulate plant resistance to drought stress. However, the impact of foliar application of SLs having different concentrations on soybean growth and metabolic pathways related to osmoregulation remains unknown. Therefore, to clarify the impact of SLs on soybean root growth and cellular osmoregulation under drought stress, we initially identified optimal concentrations and assessed key leaf and root indices. Furthermore, we conducted transcriptomic and metabolic analyses to identify differential metabolites and up-regulated genes.ResultsThe results demonstrated that drought stress had a significant impact on soybean biomass, root length, root surface area, water content and photosynthetic parameters. However, when SLs were applied through foliar application at appropriate concentrations, the accumulation of ABA and soluble protein increased, which enhanced drought tolerance of soybean seedlings by regulating osmotic balance, protecting membrane integrity, photosynthesis and activating ROS scavenging system. This also led to an increase in soybean root length, lateral root number and root surface area. Furthermore, the effects of different concentrations of SLs on soybean leaves and roots were found to be time-sensitive. However, the application of 0.5 mu M SLs had the greatest beneficial impact on soybean growth and root morphogenesis under drought stress. A total of 368 differential metabolites were screened in drought and drought plus SLs treatments. The up-regulated genes were mainly involved in nitrogen compound utilization, and the down-regulated metabolic pathways were mainly involved in maintaining cellular osmoregulation and antioxidant defenses.ConclusionsSLs enhance osmoregulation in soybean plants under drought stress by regulating key metabolic pathways including Arachidonic acid metabolism, Glycerophospholipid metabolism, Linoleic acid metabolism, and Flavone and flavonol biosynthesis. This study contributes to the theoretical understanding of improving soybean adaptability and survival in response to drought stress.

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Genetics & Heredity

第 1 条

标题: Investigation of the potential regulation of the UDP-glycosyltransferase genes on rice grain size and abiotic stress response

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Web of Science 核心合集中的 "被引频次": 0

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摘要: Uridine diphosphate (UDP) glycosyltransferases (UGTs) are widely involved in various metabolic processes. In the present study, we performed a genome-wide survey and identified 199 Oryza sativa UGT genes (OsUGTs), which were classified into 17 groups. We showed that tandem duplication played a major role in the expansion of the OsUGT family, which experienced purifying selection during the evolution process. 163 OsUGTs were expressed in at least one of the six tested tissues, and were clustered into three groups according to their tissue expression profiles. By using the RFGB database, we identified different haplotypes of seven OsUGTs that were highly expressed in seeds, and showed significant differences in grain size among different haplotypes. Moreover, our results also uncovered differential responses of OsUGTs expression to abiotic stresses and hormone treatments, including drought, salt, cold, heat, ABA, JA and AUXIN. By using quantitative real-time PCR, we further confirmed the differential expression of nine selected OsUGTs under ABA, JA, salt, drought and cold treatments, among which OsUGT5 and OsUGT182 were induced by all these five treatments. Our results provide insight into the role of several UGT genes for physiological responses, which will facilitate to investigate their function in regulating rice development and abiotic stress responses.

入藏号: WOS:001340969400001

文献类型: Article

地址: [Shen, Yang; Li, Jianwei; Cai, Xiaoxi; Jin, Jun; Li, Dongpeng; Wu, Hao; Dong, Weifeng; Sun, Mingzhe; Sun, Xiaoli] Heilongjiang Bayi Agr Univ, Crop Stress Mol Biol Lab, Daqing 163319, Peoples R China.
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研究方向: Genetics & Heredity

输出日期: 2024-12-25

Science & Technology - Other Topics

第 1 条

标题: Performance of mesophilic and thermophilic anaerobic digestion of food waste at varying organic loading rate: Methane production, pathogens reduction, and dominant microbial community dynamics

作者: Bi, SJ (Bi, Shaojie); Guo, LL (Guo, Lili); Wang, HP (Wang, Haipeng); Yu, XH (Yu, Xinhui); Wei, FT (Wei, Fangtong); Lei, LF (Lei, Lifan); Zhao, CJ (Zhao, Changjiang); Wang, YJ (Wang, Yanjie)

来源出版物: RENEWABLE ENERGY 卷: 239 文献号: 122094
DOI: 10.1016/j.renene.2024.122094 **Published Date:** 2025 FEB 1

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Anaerobic digestion (AD) is a promising technology for treating food waste by converting it into methane while mitigating environmental impacts. This study examined the impact of organic loading rate (OLR) on methane generation, pathogen reduction, and microbial community dynamics in thermophilic and mesophilic food waste AD. Results indicated that increasing the OLR from 2.5 to 5.5 g VS/(L center dot d) improved methane generation, with thermophilic reactor outperforming mesophilic one. However, an excessive OLR of 6.5 g VS/(L center dot d) inhibited the process. Pathogen removal efficiencies exhibited complex relationships with OLR, with higher removal rates for Escherichia coli at lower OLR and Salmonella at higher OLR. Additionally, thermophilic reactor exhibited advanced pathogen reduction compared to mesophilic reactor. Microbial community analysis revealed compositional variations linked to OLR changes, impacting both methane yield and pathogen levels. These findings offer insights for optimizing AD processes and provide valuable data support for safe treatment of food waste fermentation digestate.

入藏号: WOS:001377992300001

文献类型: Article

地址: [Bi, Shaojie; Guo, Lili; Wei, Fangtong; Lei, Lifan; Wang, Yanjie] Heilongjiang Bayi Agr Univ, Coll Life Sci & Biotechnol, Heilongjiang Prov Key Lab Environm Microbiol & Rec, Daqing 163319, Peoples R China.
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研究方向: Science & Technology - Other Topics; Energy & Fuels

输出日期: 2024-12-25

第 2 条

标题: Improving prediction accuracy in agricultural markets through the CIMA-AttGRU model

作者: Jiang, YK (Jiang, Yankun); Liu, JH (Liu, Jinhui); Li, XT (Li, Xiaotuan)

来源出版物: PLOS ONE 卷: ***19*** 期: 12 文献号: e0313066
DOI: 10.1371/journal.pone.0313066 **Published Date:** 2024 DEC 2

Web of Science 核心合集中的 **"被引频次":** 0

被引频次合计: 0

摘要: In the Chinese futures market, agricultural product futures play a crucial role. While previous studies have primarily relied on historical price data and fundamental financial indicators of agricultural product futures, there is a growing recognition of the value that lies within the vast amounts of textual data generated in the financial domain. Our study specifically focuses on the limitations of existing methods in capturing the complex relationships and rich semantic information embedded in these textual sources. This article designs a CIMA AttGRU (CIMA-AttGRU) model for soybean futures, which is a forecasting method for the agricultural product market. This model uniquely integrates Collective Intrinsic Mode Analysis (CIMA) with an Attention-Gated Recurrent Unit (AttGRU), leveraging the strengths of both techniques to enhance predictive accuracy and adaptability. The rationale behind employing the CIMA-AttGRU model lies in its ability to effectively tackle the inherent challenges of financial market analysis. By incorporating CIMA, the model adeptly filters out market

noise, directly addressing the challenge of high volatility. Additionally, with its attention mechanism, the CIMA-AttGRU targets the issue of non-linear patterns by allowing dynamic adjustment to temporal dependencies, offering differential learning capabilities crucial for capturing the nuanced fluctuations in futures prices. Complementing the CIMA and AttGRU, the integration of Class-wise Adversarial Domain Adaptation (CADA) further refines the model's robustness, addressing the critical challenge of domain adaptivity. This aspect is particularly vital for edamame futures, where price determinants can vary significantly over time and across regions. Our empirical results demonstrate a significant improvement in forecasting precision, with the CIMA-AttGRU model achieving a Mean Absolute Error (MAE) reduction of 15% and a Mean Squared Error (MSE) reduction of 20% compared to conventional models. This superior performance, especially in terms of prediction accuracy and handling market fluctuations, highlights the improve of the model compared to existing methods and has made significant explorations in agricultural market forecasting.

入藏号: WOS:001371910800111

文献类型: Article

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研究方向: Science & Technology - Other Topics

输出日期: 2024-12-25

第 3 条

标题: Resistance characterization and transcriptomic analysis of imipenem-induced drug resistance in Escherichia coli

作者: Tong, CY (Tong, Chunyu); Liang, YM (Liang, Yimin); Liu, Q (Liu, Qi); Yu, HH (Yu, Honghao); Feng, WZ (Feng, Wenzhi); Song, BC (Song, Bocui)

来源出版物: PEERJ **卷:** 12 **文献号:** e18572 **DOI:** 10.7717/peerj.18572 **Published Date:** 2024 NOV 29

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘 要 : Background. Bacteria can develop resistance to various antibiotics under selective pressure, leading to multifaceted changes in resistance mechanisms. Transcriptomic sequencing allows for the observation of transcriptional level alterations in cells under antibiotic stress. Understanding the bacterial response to such stress is essential for deciphering their strategy against drug-resistant antibiotics

and identifying potential targets for antibiotic development. Methods. This study using wild-type (WT) Escherichia coli (E. coli) discovered that continuous in vitro induction screening for imipenem-resistant strains resulted in bacteria with enhanced biofilm-forming ability and mutations in antibiotic target sites. Transcriptomic sequencing of the resistant bacteria revealed significant changes in carbon and amino acid metabolism, nutrient assimilation, substance transport, nucleotide metabolism, protein biosynthesis, and cell wall biosynthesis. The upregulated drug efflux genes were disrupted using gene knockout technology. Drug sensitivity tests indicated that drug efflux has a minimal effect on imipenem resistance. Results. This suggests a strategy for E. coli drug resistance involving the reduction of unnecessary substance synthesis and metabolism, coupled with an increase in activities that aid in resisting foreign threats.

入藏号: WOS:001376489200004

文献类型: Article

地址: [Tong, Chunyu; Liang, Yimin; Liu, Qi; Yu, Honghao; Feng, Wenzhi; Song, Bocui] Heilongjiang Bayi Agr Univ, Coll Life Sci & Technol, Daqing, Heilongjiang, Peoples R China.

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研究方向: Science & Technology - Other Topics

输出日期: 2024-12-25

第 4 条

标题: Genome-wide exploration of the CONSTANS-like(COL) gene family and its potential role in regulating plant flowering time in foxtail millet (Setaria italica)

作者: Jiang, LL (Jiang, Lili); Li, GX (Li, Guangxin); Shao, CG (Shao, Chenguang); Gao, K (Gao, Ke); Ma, N (Ma, Ning); Rao, JH (Rao, Jinghui); Miao, XF (Miao, Xingfen)

来源出版物: SCIENTIFIC REPORTS **卷:** 14 **期:** 1 **文献号:** 24518 **DOI:** 10.1038/s41598-024-74724-7 **Published Date:** 2024 OCT 18

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: In photoperiod-sensitive plants, the CO-like gene (CONSTANS-like, COL) has a crucial function in regulating the timing of flowering. The blooming period in foxtail millet is greatly influenced by the duration of daylight; however, there is a scarcity of data regarding the molecular properties of the COL genes in the foxtail millet. In this study, we conducted a comprehensive analysis of the COL gene family in foxtail millet at the genome-wide level. We identified 11 SiCOL genes and performed gene structure analysis, which showed pronounced variation in gene length and intron number among the genes. The examination of COL proteins in foxtail millet and other

plant species using phylogenetic analysis revealed that they could be clustered into three distinct groups. Cis-element analysis identified elements related to light-responsiveness, hormones, and abiotic stress in the promoter region of the SiCOL gene. Furthermore, tissue-specific expression analysis showed widespread expression of all 11 SiCOL genes in various foxtail millet tissues and organs, particularly in leaves and panicles. Collinearity analysis identified 14 syntenic gene pairs in both foxtail millet and rice. The results also revealed diurnal oscillations in the transcription levels of SiCOL genes under different light conditions. Moreover, among the 11 genes, SiCO, SiCOL1, and SiCOL6 expression levels were negatively correlated with flowering time variation in two foxtail cultivars. Additionally, upon constructing a network of predicted molecular interactions, FLOWER LOCUS-like (FTL) and Phytochromea A (PHY A) were suggested to potentially interact with SiCO, SiCOL1, and SiCOL6. SiCO, SiCOL1, and SiCOL6 have the potential for flowering and heading in foxtail millet. This research enhances our comprehension of the role and control of the SiCOL gene family constituents in foxtail millet, establishing a basis for future investigations.

入藏号: WOS:001339153400083

文献类型: Article

地址: [Jiang, Lili; Li, Guangxin; Shao, Chenguang; Gao, Ke; Ma, Ning; Rao, Jinghui; Miao, Xingfen] Heilongjiang Bayi Agr Univ, Coll Agr, Daqing, Peoples R China.
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研究方向: Science & Technology - Other Topics

输出日期: 2024-12-25

第 5 条

标题: Four-party evolutionary game analysis of enterprise environmental behavior

作者: Zhai, XJ (Zhai, Xujun); Zheng, L (Zheng, Lian); Lin, H (Lin, Hong)

来源出版物: PLOS ONE **卷:** 19 **期:** 10 **文献号:** e0310280
DOI: 10.1371/journal.pone.0310280 **Published Date:** 2024 OCT 9

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: With the implementation of the "Rural Revitalization Strategy" in China, it is common for enterprises to go to the countryside to develop business. However, enterprises often neglect the local environmental protection in rural areas while

developing the economy to pursue profits. As the end of the national administrative system and the villagers' autonomous organization, the village committee needs to participate in monitoring enterprises' environmental behavior. With this in mind, this paper builds a game model of enterprises, grass-roots governments, farmers, and village committees and analyzes the impact of village committees, grass-roots governments, and farmers on enterprise environmental behavior. The conclusions are as follows: (i) it is difficult for the village committee to promote the positive environmental behavior of enterprises, which needs the supervision of the grass-roots government; (ii) Improving the coordination ability of village committees is conducive to reducing the burden of government supervision; (iii) Farmers' awareness of environmental protection can affect the environmental behavior of enterprises through the rights protection mechanism and reputation mechanism.

入藏号: WOS:001336858900019

文献类型: Article

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研究方向: Science & Technology - Other Topics

输出日期: 2024-12-25

Spectroscopy

第 1 条

标题: A Universal Model for Quantitative Analysis of Near-Infrared Spectroscopy Based on Transfer Component Analysis

作者: Wang, X (Wang, Xue); Wang, ZW (Wang, Zi-wen); Zhang, GY (Zhang, Guang-yue); Ma, TM (Ma, Tie-min); Chen, ZG (Chen, Zheng-guang); Yi, SJ (Yi, Shu-juan); Wang, CY (Wang, Chang-yuan)

来源出版物: SPECTROSCOPY AND SPECTRAL ANALYSIS **卷:** 44 **期:** 11 **页:** 3213-3221 **DOI:** 10.3964/j.issn.1000-0593(2024)11-3213-09
Published Date: 2024 NOV

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: There are differences in spectral data acquisition equipment and environmental

conditions. In near-infrared spectroscopy quantitative analysis, low prediction accuracy was found in the models established. To enhance the universality and generalizability of near-infrared spectroscopy quantitative analysis models and improve their predictive accuracy, a universal model strategy is proposed based on the transfer component analysis method improved by the transfer matrix (TM-TCA). The TM-TCA method adopts a two-step correction strategy to correct the slave spectral data, reducing the spectral differences caused by instrument offsets, drifts, or instabilities. It can make the characteristics of the corrected slave spectral data similar to the master's to the maximum extent, eliminate the deviation caused by different instruments or external conditions, and enhance the prediction ability of the model to the slave spectral data. Firstly, the spectral transfer matrix between the master and the slave is obtained. The transfer matrix converts the master-slave spectral data matrix, which is then used as the input for the transfer component analysis method. Subsequently, the kernel function and the number of eigenvalues in transfer learning are chosen using iterative optimization of multiple indicators. The RBF kernel function is selected, and the number of eigenvalues is 52. Comparative experiments are conducted with other methods to verify the effectiveness of TM-TCA. The experimental results show that the spectral correction rate based on TM-TCA reaches 97.1%, with a reduction of 82.9% in the average relative mean squared (ARMS). The ARMS value surpasses that achieved by the transfer matrix and TCA methods, 46.5% and 30.2%, respectively. To validate the effectiveness of the model construction strategy, a universality quantitative analysis model is established based on TM-TCA and partial least squares regression (PLSR) under different device conditions. Compared to the prediction performance, the TCA-PLSR model's coefficient of determination of the TM-TCA-PLSR model reaches 0.872 9, which is improved by 41%. The root-mean-square error of prediction (RMSEP) and the mean absolute error (MAE) are 0.154 3 and 0.115 9, respectively, reduced by more than 90%. Furthermore, the relative prediction determination (RPD) of the TM-TCA-PLSR model exceeds 2.5, indicating that the model has practical application value. The experimental results demonstrate that the TM-TCA transfer method reduces the difference between the master and slave spectra. The master model established based on TM-TCA exhibits a certain degree of universality capability.

入藏号: WOS:001362315400005

文献类型: Article

地 址： [Wang, Xue; Wang, Zi-wen; Zhang, Guang-yue; Ma, Tie-min; Chen, Zheng-guang] Heilongjiang Bayi Agr Univ, Coll Elect & Informat, Daqing 163319, Peoples R China.

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研究方向: Spectroscopy

输出日期: 2024-12-25

Veterinary Sciences

第 1 条

标题: lncRNA NONRATT021477.2 Interference Aggravates H2O2-Induced Oxidative Stress in BRL Cells

作者: Ji, H (Ji, Hong); Hua, Y (Hua, Yue); Liu, CW (Liu, Chun-Wei); Shao, ZY (Shao, Zi-Yi); Zhang, JJ (Zhang, Jia-Jun); Yu, SQ (Yu, Shui-Qing)

来源出版物: KAFKAS UNIVERSITESI VETERINER FAKULTESI DERGISI
DOI: 10.9775/kvfd.2024.32247 **Early Access Date:** NOV 2024
Published Date: 2024 NOV 6

Web of Science 核心合集中的 "被引频次": 0

被引频次合计: 0

摘要: Long non-coding RNA (lncRNA) plays important biological regulatory functions at different levels. lncRNA NONRATT021477.2 (lncRNA77.2) was identified as a key gene under cold stress conditions in rats. From the literature, lncRNA77.2 may have important roles during antioxidant, but this conjecture requires investigation. To address this knowledge gap, we investigated the effects of lncRNA77.2 interference on H_2O_2- induced oxidative stress in rat liver cells (Buffalo rat liver, BRL).In the current study, H_2O_2 treatment simulated BRL cell oxidative stress. H_2O_2 treatment led to a significant increase in oxidative stress levels in BRL cells, whereas the gene expression levels of antioxidase and lncRNA 77.2 and cell viability were significantly reduced. Additionally, the expression of Nrf_2 and Keap1 proteins decreased significantly compared to the control group. BRL cells were transfected with antisense oligonucleotides (ASO) or a negative control ASO (ASO-NC) and then treated with H_2O_2 . The results showed lncRNA77.2 interference increased oxidative stress levels, reduced gene expression of antioxidant enzymes, Nrf2 and Keap1 expression levels. The results indicated that lncRNA77.2 interference aggravated H_2O_2-induced oxidative stress in BRL cells, which suggested that lncRNA77.2 is an antioxidant factor that plays an important role in the regulation of oxidative stress in BRL cells.

入藏号: WOS:001359019200001

文献类型: Article; Early Access

地址: [Ji, Hong; Hua, Yue; Liu, Chun-Wei; Shao, Zi-Yi; Zhang, Jia-Jun; Yu, Shui-Qing] Heilongjiang Bayi Agr Univ, Coll Anim Sci & Vet Med, Daqing 163319, Heilongjiang, Peoples R China.

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研究方向: Veterinary Sciences

输出日期: 2024-12-25

3 EI 收录情况

（2024.11.06-2024.12.25）

3.1 EI Compendex

EI 索引库共收录我校教师发表的 32 篇文献，文献详细题录信息如下。

1. Recovery of Solid Oxide Fuel Cell Waste Heat by Thermoelectric Generators and Alkali Metal Thermoelectric Converters (*Open Access*)

Zhu, Wenxia (College of Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Chen, Baishu; Wang, Lexin; Wang, Chunxiang

Source: Frontiers in Heat and Mass Transfer, v 22, n 5, p 1559-1573, 2024

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

Database: Compendex

Data Provider: Engineering Village

2. Efficient Task Scheduling for Large-scale Graph Data Processing in Cloud Computing: A Particle Swarm Optimization Approach (*Open Access*)

Shang, Rui (Editorial office, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China)

Source: Journal of Combinatorial Mathematics and Combinatorial Computing, v 122, p 135-148, 2024

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

Database: Compendex

Data Provider: Engineering Village

3. A rapid method for assessing seed drought resistance using integrated ID-BOA-SVM

Wu, Qiaohan (Heilongjiang Bayi Agricultural University, China); Zhao, Xiaoyu; Zhou, Biqing; Liao, Jiangcheng; Luo, Qian; Zhao, Yue; Cai, Lijing; Zhai, Zhe; Tong, Liang

Source: Analytical Methods, 2024 Article in Press

Database: Compendex

Data Provider: Engineering Village

4.Influence of rice straw ash on compressive properties and microstructure of concrete

Wang, Fu-Cheng (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhao, Xin-Rong; Tian, Jia-Bing; Xie, Guo-Liang; Zhou, Li-Ming

Source: Jilin Daxue Xuebao (Gongxueban)/Journal of Jilin University (Engineering and Technology Edition), v 54, n 9, p 2620-2630, September 1, 2024

Language: Chinese

Database: Compendex
Data Provider: Engineering Village

5. Structural Optimization and Performance Test of Gas-phase Rotating Spiral Grooved Tube Heat Exchanger

Wan, Lin (College of Engineering, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Huang, Yujia; Che, Gang; Wang, Hongchao; Li, Junpeng; Zheng, Yu; Tian, Jinkai
Source: Nongye Jixie Xuebao/Transactions of the Chinese Society for Agricultural Machinery, v 55, n 10, p 422-432, 2024
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

6. Simulation Analysis and Experimental Research on Wear Resistance of Bionic Plowshare

Li, Qingda (Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Liu, Minghui; Wang, Hao; Wang, Yifeng; Hu, Jun; Zhao, Shengxue; Yin, Changfeng
Source: Surface Technology, v 53, n 19, p 107-116, 2024
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

7. 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: SSRN, October 29, 2024
Database: Compendex
Data Provider: Engineering Village

8. A Universal Model for Quantitative Analysis of Near-Infrared Spectroscopy Based on Transfer Component Analysis

Wang, Xue (College of Electrical and Information, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, ZiWen; Zhang, Guang-Yue; Ma, Tie-Min; Chen, Zheng-Guang; Yi, Shu-Juan; Wang, Chang-Yuan
Source: Guang Pu Xue Yu Guang Pu Fen Xi/Spectroscopy and Spectral Analysis, v 44, n 11, p 3213-3221, November 2024
Language: Chinese

Database: Compendex
Data Provider: Engineering Village

9. 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: SSRN, November 4, 2024
Database: Compendex
Data Provider: Engineering Village

10. Processing Method and Risk Control of Precooked Coarse Cereals

Zhao, Yuetong (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhang, Shicheng; Cao, Dongmei
Source: Science and Technology of Food Industry, v 45, n 21, p 397-408, November 2024
Language: Chinese
Database: Compendex
Data Provider: Engineering Village

11. Extraction of Aquaculture Cages from High-Resolution Remote Sensing Images Based on Deep Learning

Yuan, Ying (School of Computer and Information Technology, Northeast Petroleum University, Daqing, China); Li, Fei; Zhou, Dan; Bai, Lu; Jurek-Loughrey, Anna; Wang, Zhibao
Source: International Geoscience and Remote Sensing Symposium (IGARSS), p 9556-9560, 2024
Database: Compendex
Data Provider: Engineering Village

12. Controllable construction of ratiometric fluorescent probe based on Ag/Au nanoclusters and silicon nanoparticles for multivariate detection of Ag^{+}, Cu^{2+}, and Hg^{2+}

Pang, Jingyu (Key Laboratory for Photochemical Biomaterials and Energy Storage Materials of Heilongjiang Province, Key Laboratory for Photonic and Electronic Bandgap Materials of Ministry of Education, College of Chemistry and Chemical Engineering, Harbin Normal University, Heilongjiang, Harbin; 150025, China); Zhou, Linan; Liang, Zhuang; Li, Tingting; Yan, Rui; Chai, Fang
Source: Journal of Environmental Chemical Engineering, v 12, n 6, December 2024
Database: Compendex

Data Provider: Engineering Village

13. Optimization of Bran-koji Production and Its Impact on Huangjiu Quality 黄

Xiu, Yuyang (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Zhao, Guoliang; Li, Zhijiang; Mao, Jian

Source: Science and Technology of Food Industry, v 45, n 21, p 148-156, November 2024

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

14. Basalt rock weathering by Peribacillus simplex from Wudalianchi volcanos in NE China and implications for Fe and Si biogeochemical cycling

Zhang, Shuang (Heilongjiang Provincial Key Laboratory of Environmental Microbiology and Recycling of Argo-Waste in Cold Region, College of Life Science and Biotechnology, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Ying, Gaofei; Liu, Tao; Yang, Jiani; Zhu, Enci; Sun, Xindi; Gu, Ji-Dong; Yan, Lei

Source: International Biodeterioration and Biodegradation, v 196, January 2025

Database: Compendex

Data Provider: Engineering Village

15. Exploring Selectivity of Supercritical-CO2 for Vitamin E Extraction from Canola Seeds (*Open Access*)

Shi, John (Guelph Research and Development Center, Agriculture and Agri-Food Canada, Guelph; ON; N1G 5C9, Canada); Xue, Sophia; Sun, Qingrui; Scanlon, Martin; Yao, John; Li, Xiaoyu

Source: Food and Bioprocess Technology, 2024 Article in Press

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

Database: Compendex

Data Provider: Engineering Village

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

Yang, Jiao (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, DaQing; 163319, China); Guan, Haiou; Ma, Xiaodan; Zhang, Yifei; Lu, Yuxin

Source: Food Chemistry, v 465, February 15, 2025

Database: Compendex

Data Provider: Engineering Village

17. Deep mining of e-commerce consumer behaviour data based on concept hierarchy tree

Han, Yingchun (College of Marxism, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China)

Source: International Journal of Web Based Communities, v 20, n 3-4, p 323-339, 2024

Database: Compendex

Data Provider: Engineering Village

18. Screening and Whole-Genome Sequencing Analysis of Fructofuranose-Metabolizing Lactiplantibacillus plantarum

Sun, Daqing (National Coarse Cereals Engineering Research Center, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Qi, He; Di, Ziqing; Ge, Xianglin; Hong, Qingping; Du, Xinrui; Yao, Yuxi; Li, Hongfei

Source: Shipin Kexue/Food Science, v 45, n 23, p 113-122, December 15, 2024

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

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

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

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

Open Access type(s): All Open Access

Database: Compendex

Data Provider: Engineering Village

20. Performance of mesophilic and thermophilic anaerobic digestion of food waste at varying organic loading rate: Methane production, pathogens reduction, and dominant microbial community dynamics

Bi, Shaojie (Heilongjiang Provincial Key Laboratory of Environmental Microbiology and Recycling of Argo-Waste in Cold Region, College of Life Science and Biotechnology, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Guo, Lili; Wang, Haipeng; Yu, Xinhui; Wei, Fangtong; Lei, Lifan; Zhao, Changjiang; Wang, Yanjie

Source: Renewable Energy, v 239, February 1, 202**5**

Database: Compendex

Data Provider: Engineering Village

21. Screening of Fermentation Strains of Quinoa and Lonicera caerulea and Optimization of Complex Fermentation Process

Zhang, Zhihui (College of Food, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Pang, Weiqiao; Xu, Bingzheng; Wang, Ying; Wang, Jia; Zuo, Zhaohang; Sun, Wei; Xu, Kaiyuan; Li, Sinan

Source: Science and Technology of Food Industry, v 45, n 24, p 204-213, December 2024

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

22. Effect of γ-irradiation combined with enzymatic modification on the physicochemical properties of defatted rice bran dietary fiber

(*Open Access*)

Wei, Xuyao (College of Food, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Jiang, Caixia; Liu, Xiaolan; Liu, Handong; Wang, Juntong; Zheng, Xiqun; Zhang, Zhi; Hu, Hao

Source: Food Chemistry: X, v 24, December 30, 2024

Open Access type(s): All Open Access

Database: Compendex

Data Provider: Engineering Village

23. Metabolomics of black beans (Phaseolus vulgaris L.) during atmospheric pressure steaming and in vitro simulated digestion

Bai, Lu (College of Food, Heilongjiang Bayi Agricultural University, Xingfeng Road 5, Daqing 163319, Heilongjiang Province, China); Li, Zhiming; Zhang, Shu; Feng, Yuchao; Yu, Miao; Wu, Tong; Wang, Changyuan

Source: Food Chemistry: X, v 24, December 30, 2024

Database: Compendex

Data Provider: Engineering Village

24. Feature Variable Selection for Near-Infrared Spectroscopy Based on Simulated Annealing Bee Colony Algorithm

Shi, Jianfei (College of Information and Electrical Engineering, Heilongjiang Bayi Agricultural University, Daqing, China); Tong, Baihong; Liu, Jinming; Chen, Zhengguang; Li, Pengfei; Tan, Chong

Source: Journal of Chemometrics, 2024 Article in Press

Database: Compendex

Data Provider: Engineering Village

25. Structural and Aroma Profile Enhancement of Sorghum (Sorghum bicolour L. Moench) Through Lactobacillus plantarum Fermentation

Yang, Mingzhe (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang; 163319, China); Wang, Wenhao; Wang, Changyuan; Tang, Huacheng; Li, Zhijiang

Source: Food Biophysics, v 20, n 1, March 2025

Database: Compendex

Data Provider: Engineering Village

26. Effects of high-temperature stages on the physicochemical properties and oxidation products formation of rapeseed oil with carnosic acid

Zhu, Ying-dan (Institute of Cereal & Oil Science and Technology, Academy of National Food and Strategic Reserves Administration, Beijing; 100037, China); Luan, Yue-ting; Chai, Cheng-liang; Xue, Ya-lin; Duan, Zhang-qun

Source: Food Chemistry, v 465, February 15, 2025

Database: Compendex

Data Provider: Engineering Village

27 . Preparation of Xanthine Oxidase Inhibitory Peptide from Black Bean Protein by Enzymatic Hydrolysis and Its Uric Acid-Lowering Activity in Vitro

Sun, Jingru (College of Food Science, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Sun, Mingshuang; Lü, Wenqing; Cao, Rong'an; Diao, Jingjing; Wang, Changyuan

Source: Shipin Kexue/Food Science, v 45, n 23, p 72-80, December 15, 2024

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

28. Corrosion of carbon steel by Pseudomonas stutzeri CQ-Z5 in simulated oilfield water

Zhang, Shuang (Heilongjiang Provincial Key Laboratory of Environmental Microbiology and Recycling of Argo-Waste in Cold Region, College of Life Science and Biotechnology, Heilongjiang Bayi Agricultural University, Heilongjiang, Daqing; 163319, China); Dong, Boyu; Zhao, Dan; Yang, Jiani; Sun, Xiufen; Yan, Lei

Source: Bioelectrochemistry, v 162, April 2025

Database: Compendex

Data Provider: Engineering Village

29. Establishment of ERA Visual Rapid Detection Methods for Salmonella

Yang, Yange (Key Laboratory of Food Quality and Safety for State Market Regulation, Chinese Academy of Inspection and Quarantine, Beijing; 100176, China); Wang, Shuai; Li, Hongna; Li, Tao; Wu, Zhanwen; Sun, Dongmei; Yuan, Fe

Source: Journal of Chinese Institute of Food Science and Technology, v 23, n 10, p 261-272, October 2023

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

30. Reduction of microbial load in soil by gas generated using non-thermal atmospheric pressure plasma

Ketya, Wirinthip (Plasma Bioscience Research Center, Department of Plasma-Bio Display, Kwangwoon University, Seoul; 01897, Korea, Republic of); Yu, Nan-Nan; Acharya, Tirtha Raj; Choi, Eun-Ha; Park, Gyungsoon

Source: Journal of Hazardous Materials, v 483, February 5, 2025

Database: Compendex

Data Provider: Engineering Village

31. Different effects of polyphenols on hydration, pasting and rheological properties of rice starch under extrusion condition: From the alterations in starch structure

Huo, Jinjie (College of Food, Shenyang Agricultural University, Shenyang; 110866, China); Wang, Lishuang; Ma, Jinming; Yue, Xiqing; Wang, Kexin; Ma, Xiaoqi; Yu, Xiaoshuai; Xiao, Zhigang

Source: Food Chemistry, v 465, February 15, 2025

Database: Compendex

Data Provider: Engineering Village

32. Research Progress on Synergistic Regulation of Endogenous Gamma-aminobutyric Acid Enrichment in Plants by Environmental Stress and Germination

Xu, Kaiyuan (College of Food, Heilongjiang Bayi Agricultural University, Daqing; 163319, China); Wang, Mohan; Zheng, Xiaoyang; Li, Sinan; Wang, Jia; Zhang, Zhihui; Xu, Bingzheng; Liu, Jia; Wang, Ying; Zhang, Lu

Source: Science and Technology of Food Industry, v 45, n 22, p 361-370, November 2024

Language: Chinese

Database: Compendex

Data Provider: Engineering Village

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