2024年第21期 总434期

茶学研究专题

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相关专利

1. 驱虫剂组合物和驱虫方法

科技图书

1. 油菜素内酯信号：植物激素干预及其与植物适应非生物胁迫的关系

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学术文献

1. A geraniol synthase regulates plant defense via alternative splicing in tea plants（香叶醇合酶通过茶树的选择性剪接调节植物防御）

简介：Geraniol is an important contributor to the pleasant floral scent of tea products and one of the most abundant aroma compounds in tea plants; however, its biosynthesis and physiological function in response to stress in tea plants remain unclear. The proteins encoded by the full-length terpene synthase (*CsTPS1*) and its alternative splicing isoform (*CsTPS1-AS*) could catalyze the formation of geraniol when GPP was used as a substrate *in vitro*, whereas the expression of *CsTPS1-AS* was only significantly induced by *Colletotrichum gloeosporioides* and *Neopestalotiopsis* sp. infection. Silencing of *CsTPS1* and *CsTPS1-AS* resulted in a significant decrease of geraniol content in tea plants. The geraniol content and disease resistance of tea plants were compared when *CsTPS1* and *CsTPS1-AS* were silenced. Down-regulation of the expression of *CsTPS1-AS* reduced the accumulation of geraniol, and the silenced tea plants exhibited greater susceptibility to pathogen infection than control plants. However, there was no significant difference observed in the geraniol content and pathogen resistance between *CsTPS1*-silenced plants and control plants in the tea plants infected with two pathogens. Further analysis showed that silencing of *CsTPS1-AS* led to a decrease in the expression of the defense-related genes *PR1* and *PR2* and SA pathway-related genes in tea plants, which increased the susceptibility of tea plants to pathogens infections. Both *in vitro* and *in vivo* results indicated that *CsTPS1* is involved in the regulation of geraniol formation and plant defense via alternative splicing in tea plants. The results of this study provide new insights into geraniol biosynthesis and highlight the role of monoterpene synthases in modulating plant disease resistance via alternative splicing.

来源：Horticulture Research 期刊

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全文链接:http://agri.nais.net.cn/file1/M00/03/6D/Csgk0WYnJu2AChqHABMIbhzTs3k112.pdf

2. The role of long-distance mobile metabolites in the plant stress response and signaling（远距离移动代谢产物在植物胁迫反应和信号传导中的作用）

简介：Plants developed sophisticated mechanisms to perceive environmental stimuli and generate appropriate signals to maintain optimal growth and stress responses. A fascinating strategy employed by plants is the use of long-distance mobile signals which can trigger local and distant responses across the entire plant. Some metabolites play a central role as long-distance mobile signals allowing plants to communicate across tissues and mount robust stress responses. In this review, we summarize the current knowledge regarding the various long-distance mobile metabolites and their functions in stress response and signaling pathways. We also raise questions with respect to how we can identify new mobile metabolites and engineer them to improve plant health and resilience.

来源：Plant Journal 期刊

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3. Sound perception in plants: from ecological significance to molecular understanding（植物的声音感知：从生态学意义到分子认识）

简介：In addition to positive effects on plant growth and resilience, sound alerts plants of potential danger and aids in defense. Sound guides plants towards essential resources, like water, through phonotropic root growth. Sound also facilitates mutualistic interactions such as buzz pollination. Molecularly, sound induces Ca^{2+} signatures, K^{+} fluxes, and an increase in reactive oxygen species (ROS) levels in a mechanosensitive ion channel-dependent fashion. We review the two major open questions in the field of plant acoustics: (i) what is the ecological relevance of sound in plant life, and (ii) how is sound sensed and transduced to evoke a morphophysiological response? We highlight the clear need to combine the ecological and molecular perspectives for a more holistic approach to better understand plant behavior.

来源：Trends in Plant Science 期刊

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4. Electrical Wiring and Long-Distance Plant Communication（电极线路和远程植物通讯）

简介：Electrical signalling over long distances is an efficient way of achieving cell-to-cell communication in living organisms. In plants, the phloem can be considered as a ‘green cable’ that allows the transmission of action potentials (APs) induced by stimuli such as wounding and cold. Measuring phloem potential changes and separating them from secondary responses of surrounding tissues can be achieved using living aphids as bioelectrodes. Two glutamate receptor-like genes (GLR3.3 and 3.6) were identified as being involved in the propagation of electrical activity from the damaged to undamaged leaves. However, phloem APs are initiated and propagated independently of these glutamate receptors. Here, we propose new screening approaches to obtain further information on the components required for electrical signalling in phloem cables.

来源：Trends in Plant Science 期刊

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相关专利

1. Insect repellent composition and a method of repelling insects（驱虫剂组合物和驱虫方法）

简介：The invention relates to insect repellent compositions, in particular to insect repellent compositions comprising hexahydrofamesyl acetone (HFA), preferably HFA related substances, and a delivery vehicle. The invention also relates to the use of HFA as an insect repellent. Further objects of the invention are the use of oils and enriched extracts of Anisomeles species as insect

repellents, and a method of repelling insects and for preventing diseases caused or transmitted by insects. The insect repellent compositions of the invention can provide a prolonged period of protection to a minimum of 8 hours.

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科技图书

1. Brassinosteroids Signalling：Intervention with Phytohormones and Their Relationship in Plant Adaptation to Abiotic Stresses（油菜素内酯信号：植物激素干预及其与植物适应非生物胁迫的关系）

简介：本书介绍了理解油菜素内酯（BRs）信号和与植物激素串扰的作用状态，及其在植物适应非生物胁迫中的关系，包括生理、生化和分子发展。由于日益不利的环境条件和稀缺的自然资源，高效作物比以往任何时候都更加重要。为了成功地改良植物抗逆性，了解植物适应胁迫的确切信号状况，以及植物激素在多大程度上调节了这些机制，这一点是至关重要的。然而，从进化的角度来看，植物在哪些步骤上可以获得油菜素内酯（BRs）信号也存在争议。BRs参与调节植物整个生命周期的一系列重要功能。BRs被认为是最重要的植物甾体激素之一，在观察植物的广泛发育过程中发挥着不同的作用。在过去的二十年里，对油菜素内酯信号传导的研究迅速扩展，部分原因是信号转导过程中复杂成分的分离。

来源：SpringerLink 网站

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