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1．抗植物胁迫的微生物和信号生物分子

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前沿资讯

1．The Regenerative Tea Scorecard Aims to Support Regenerative Farming（再生茶记分卡旨在支持再生农业）

简介：Kirin控股有限公司（以下简称“Kirin控股”）和Kirin饮料有限公司（以下简称“Kirin饮料”）与雨林联盟达成合作伙伴关系，共同研发并试点可再生农业茶框架“可再生茶记分卡”。再生茶记分卡基于雨林联盟对再生农业的定义，采用保护和恢复农业的方法，将环境友好型农业实践与综合系统管理战略相结合，以确保土壤健康、农场生物多样性保护、生态系统恢复和改善农民生计。该项目将在斯里兰卡的一些茶园启动，斯里兰卡是Kirin Gogo no Kocha所用茶叶的主要生产国，计划于2024年进行试点测试。再生茶记分卡旨在成为农民和公司可以自愿轻松使用的工具，支持茶园向再生农业过渡。它将帮助茶农评估他们目前的农业实践，并确定向可再生农业过渡的改进领域。

来源：World Tea News 网站

发布日期:2024-04-10

全文链接:http://agri.nais.net.cn/file1/M00/10/40/Csgk0EHPI2aAJ70SAAXeK4PZSfI735.pdf

学术文献

1．The plant is neither dumb nor deaf; it talks and hears（植物既不哑也不聋，它能说能听）

简介：Animals and insects communicate using vibrations that are frequently too low or too high for human ears to detect. Plants and trees can communicate and sense sound. Khait et al. used a dependable recording system to capture airborne sounds produced by stressed plants. In addition to allowing plants to communicate their stress, sound aids in plant defense, development, and resilience. It also serves as a warning that danger is approaching. Demey et al. and others discussed the audit examinations that were conducted to investigate sound discernment in plants at the atomic and biological levels. The biological significance of sound in plants, the morphophysiological response of plants to sound, and the airborne noises that plants make and can hear from a few meters away were all discussed.

来源：Plant Journal 期刊

发布日期:2024-01-28

全文链接:http://agri.nais.net.cn/file1/M00/10/3F/Csgk0EHHJTGAZIBRAAlf-hWFH5g495.pdf

2．Identification and functional analysis of odorant-binding proteins provide new control strategies for *Apolygus lucorum*（气味结合蛋白的鉴定和功能分析为绿盲蝽提供了新的防治策略）

简介：The green bug *Apolygus lucorum* is a notorious pest that feeds on multiple crops, including fruit trees, vegetables, and cotton. The odorant-binding proteins (OBPs) are considered to perform crucial roles in regulating *A. lucorum* behaviors such as mating and feeding. In this study, we first identified OBPs in the *A. lucorum* genome. Then, we calculated the expression levels of these OBP

genes in different tissues and stages. Thereafter, we conducted ligand-binding assay to test the interactions between nine selected AlucOBPs and multiple chemical compounds. The result showed that there were 31 OBP genes encoding 39 transcripts in the *A. lucorum* genome, and several OBP clusters were found. Comprehensive expression profiling revealed the tissue-specific expression of some OBP genes. The results of fluorescence competitive binding assays showed that these nine AlucOBPs could specifically bind to plant volatiles, nonvolatile compounds, and synthetic analogs thereof. Additionally, AlucOBP19 was suggested to function in gustatory sensing to avoid deleterious plant secondary metabolites, as AlucOBP19 showed high expression in the mouthparts and legs and could interact with quercetin. Our findings highlight the potential biotechnological application of plant volatiles and their synthetic analogs as ecological attractants and provide new gene targets for control of *A. lucorum*.

来源： International Journal of Biological Macromolecules 期刊

发布日期: 2023-01-01

全文链接: http://agri.nais.net.cn/file1/M00/03/6D/Csgk0WYd0W2ATb6UACaKRn_zfIc452.pdf

3. Herbivore-induced plant volatiles, not natural enemies, mediate a positive indirect interaction between insect herbivores（草食动物诱导的植物挥发物而不是天敌，介导了昆虫草食动物之间的积极间接相互作用）

简介： Many insect herbivores engage in apparent competition whereby two species interact through shared natural enemies. Upon insect attack, plants release volatile blends that attract natural enemies, but whether these volatiles mediate apparent competition between herbivores is not yet known. We investigate the role of volatiles that are emitted by bean plants upon infestation by *Acyrthosiphon pisum* aphids on the population dynamics and fitness of *Sitobion avenae* aphids, and on wheat phloem sap metabolites. In a field experiment, the dynamics of *S. avenae* aphids on wheat were studied by crossing two treatments: exposure of aphid colonies to *A. pisum*-induced bean volatiles and exclusion of natural enemies. Glasshouse experiments and analyses of primary metabolites in wheat phloem exudates were performed to better understand the results from the field experiment. In the field, bean volatiles did not affect *S. avenae* dynamics or survival when aphids were exposed to natural enemies. When protected from them, however, volatiles led to larger aphid colonies. In agreement with this observation, in glasshouse experiments, aphid-induced bean volatiles increased the survival of *S. avenae* aphids on wheat plants, but not on an artificial diet. This suggests that volatiles may benefit *S. avenae* colonies via metabolic changes in wheat plants, although we did not find any effect on wheat phloem exudate composition. We report a potential case of associational susceptibility whereby plant volatiles weaken the defences of receiving plants, thus leading to increased herbivore performance.

来源： Oecologia 期刊

发布日期: 2022-01-09

全文链接: http://agri.nais.net.cn/file1/M00/03/6D/Csgk0WYd5ESAX-L-AAz47LPKhWI816.pdf

4. Integrated view of plant metabolic defense with particular focus on chewing herbivores（植物代谢防御的综合观点，特别关注咀嚼草食动物）

简介： Success of plants largely depends on their ability to defend against herbivores. Since

emergence of the first voracious consumers, plants maintained adapting their structures and chemistry to escape from extinction. The constant pressure was further accelerated by adaptation of herbivores to plant defenses, which all together sparked the rise of a chemical empire comprised of thousands of specialized metabolites currently found in plants. Metabolic diversity in the plant kingdom is truly amazing, and although many plant metabolites have already been identified, a large number of potentially useful chemicals remain unexplored in plant bio-resources. Similarly, biosynthetic routes for plant metabolites involve many enzymes, some of which still wait for identification and biochemical characterization. Moreover, regulatory mechanisms that control gene expression and enzyme activities in specialized metabolism of plants are scarcely known. Finally, understanding of how plant defense chemicals exert their toxicity and/or repellency against herbivores remains limited to typical examples, such as proteinase inhibitors, cyanogenic compounds and nicotine. In this review, we attempt summarizing the current status quo in metabolic defense of plants that is predominantly based on the survey of ubiquitous examples of plant interactions with chewing herbivores.

来源：Journal of Integrative Plant Biology 期刊

发布日期:2021-12-16

全文链接:http://agri.nais.net.cn/file1/M00/03/6D/Csgk0WYd252AT6x4ABvRPVZtmqE279.pdf

科技图书

1．Microbes and Signaling Biomolecules Against Plant Stress（抗植物胁迫的微生物和信号生物分子）

简介：This book sheds new light on ways to alleviate biotic and abiotic stress in plants, using signaling molecules of plant growth promotory rhizobacteria. Further, it elaborates on the different types of stress and strategies used by plants under various stress conditions. The respective sections describe the importance of the microbiome for the overall health of plants and how exploring plant-microbe communication and signaling pathways could offer a promising avenue for future research. The book also discusses how rhizobacteria could be exploited in stress alleviation and sustainable agriculture, and addresses omics strategies for stress response and mitigation. Thanks to clearly annotated references, the book also supports and encourages readers to further explore the topics discussed.

来源：SpringerLink 网站

发布日期:2020-11-06

全文链接:http://agri.nais.net.cn/file1/M00/10/40/Csgk0EHPG9-AH7_TAEuy0PTZdsE683.pdf