2023年第49期 总410期

茶学研究专题

本期导读

学术文献

1. 茶树鳞翅目害虫：生物学、地理分布和管理
2. 茶树害虫生物防治与Beddington-DeAngelis功能响应的分数模型动态
3. 植物提取物在印度茶叶有害生物治理中的应用
4. 茶树害虫对生化杀虫剂的抗性

相关专利

1. 茶树害虫防治方法
2. 应用辣椒素防治茶棍蓟马的方法及应用

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2023年12月04日

学术文献

1. Lepidopteran pests of tea: Biology, geographical distribution, and management（茶树鳞翅目害虫：生物学、地理分布和管理）

简介：Tea is a perennial monoculture crop that serves as a food source for many insect and mite pests as well as a stable and suitable microclimate for inhabiting. Tea plants are associated with 1034 arthropod species and 82 nematode species worldwide, and they are attacked by nearly 250 insect species. Among them, lepidopteran pests are the primary defoliators of tea. Insecticide sprays are currently primarily used to control insect infestations. However, the repeated use of these synthetic pesticides has resulted in pest outbreaks and resistance development, as well as the presence of pesticide residues in produced tea over the last few decades. As a result, pesticide use in the tea industry has become a major concern. To overcome this problem, the use of alternative control methods and the adoption of integrated pest management is becoming essential. Therefore, research into the ecology, biology, distribution and natural enemies of the lepidopteran pest is crucial for the development of a successful pest management strategy. Therefore considering the point of view, a review has been compiled covering the information on the biology, geographic distribution, and control of the lepidopteran pests of tea, and it is also noted that numerous natural enemies can be used to control Lepidopteran pests in the future, particularly in some states of India (e.g. Assam) where some biological agents like Nuclear polyhedrosis virus (NPV) and *Bacillus thuringiensis* (*Bt*) are prohibited because of the silkworm industry.

来源：Phytoparasitica 期刊

发布日期:2023-03-07

全文链接:http://agri.nais.net.cn/file1/M00/10/33/Csgk0GVbIHKAADf4ABRy96D685c863.pdf

2. Dynamics of Fractional Model of Biological Pest Control in Tea Plants with Beddington–DeAngelis Functional Response（茶树害虫生物防治与Beddington-DeAngelis功能响应的分数模型动态）

简介：In this study, we depicted the spread of pests in tea plants and their control by biological enemies in the frame of a fractional-order model, and its dynamics are surveyed in terms of boundedness, uniqueness, and the existence of the solutions. To reduce the harm to the tea plant, a harvesting term is introduced into the equation that estimates the growth of tea leaves. We analyzed various points of equilibrium of the projected model and derived the conditions for the stability of these equilibrium points. The complex nature is examined by changing the values of various parameters and fractional derivatives. Numerical computations are conducted to strengthen the theoretical findings.

来源：Fractal and Fractional 期刊

发布日期:2021-12-21

全文链接:http://agri.nais.net.cn/file1/M00/10/33/Csgk0GVcU0eACWDyARI2GB5yahw762.pdf

3. Use of plant extracts for tea pest management in India（植物提取物在印度茶叶有害生物治理中的应用）

简介：There is also a higher emphasis of implementation of new regulations on internationally traded foods and implementation of Plant Protection Code (PPC) for tea by the Government of India. This necessitates a relook into the usage pattern of synthetic pesticides on this crop. There are various non-chemical interventions which are being worked out for their sustainability, compatibility, and eco-friendly properties which can gradually replace the use of toxic chemicals. The application of plant extracts with insecticidal properties provides an alternative to the synthetic pesticides. Botanical products, especially neem-based products, have made a relatively moderate impact in tea pest control. Research has also demonstrated the potential of 67 plant species as botanical insecticides against tea pests. The majority of plant products used in pest management of tea in India are in the form of crude extracts prepared locally in tea garden itself, and commercial standardized formulations are not available for most of the plants due to lack of scientific research in the area. Apart from systematic research in this area, to facilitate the simplified and trade friendly registration procedures with quality assurance of the products, there is an increasing need of regulatory authority and national norms in India.

来源：Applied Microbiology and Biotechnology 期刊

发布日期:2016-04-22

全文链接:http://agri.nais.net.cn/file1/M00/10/33/Csgk0GVbI_SASAeCAAcUfiQvYRY091.pdf

4. Biochemical Insecticide Resistance in Tea Pests（茶树害虫对生化杀虫剂的抗性）

简介：Recent studies in insect detoxifying enzymes have revealed further versatility in the adaptation of insects to their environment by the phenomenon of induction. This is the process in which a chemical stimulus enhances the activity of the detoxification enzyme systems by the production of additional enzymes that metabolize toxic chemical substances. Hence, the influence of environmental factors such as continuous usage of insecticides and the chemical constituents (allelochemicals) of host plants on phytophagous insects can have a great impact to induce the enzymatic detoxification systems of insects, thereby promoting the insecticide resistance mechanisms. While all insects do possess detoxification ability, its magnitude is expected to vary among the species with the nature of its recent environment and feeding ecology. The level and type of detoxifying mechanisms differ greatly, which therefore result in varying toxicity among different developmental stages, species and populations. Variation in detoxifying enzyme activity is responsible in part for the selective toxicity of different insecticides, the development of resistance to insecticides and selective adaptation to host plants. Over-expression of these detoxifying enzymes, capable of metabolizing insecticides, can result in a high level of metabolic tolerance/resistance to synthetic insecticides. Increased expressions of genes encoding the major xenobiotic metabolizing enzymes are the most common cause of insecticide resistance in insects.

来源：Insecticides Resistance 图书

发布日期:2016-03-02

全文链接:http://agri.nais.net.cn/file1/M00/10/33/Csgk0GVbGh6AJ0czAA0DaLe5G9k430.pdf

相关专利

1. METHOD OF CONTROLLING PESTS ON TEA PLANTS（茶树害虫防治方法）

简介：本专利提供一种防治茶树害虫的方法，该方法包括用杀虫剂组合物喷洒到茶树的叶冠上。所述杀虫剂组合物包括 spiropidion、spirotetramat、spirodiclofen、spiromesifen 或 spidoxamat 作为杀虫活性成分。

来源：世界知识产权组织

发布日期:2023-02-23

全文链接:http://agri.nais.net.cn/file1/M00/10/33/Csgk0GVcbZ2ASBgeAAtAANPaf3M400.pdf

2 . METHOD FOR PREVENTING AND CONTROLLING *DENDRTHRIPS MINOWAI* PRIESNER BY USING CAPSAICIN AND APPLICATION THEREOF（应用辣椒素防治茶棍蓟马的方法及应用）

简介：The present disclosure discloses a method for preventing and controlling *Dendrithrips minowai* Priesners by using capsaicin, and belongs to the technical field of pest control. In this method, spraying the capsaicin solution to 5 control *Dendrithrips minowai* Priesners, and the concentration of the sprayed capsaicin solution is 0.1~0.002 mL/mL. The plant—derived biopharmaceutical capsaicin has (a significant inhibitory effect on the adult population, feeding and oviposition. ability of *Dendrithrips minowai* Priesners, and 10 can effectively prevent and control the small and medium— sized piercing—sucking harmful arthropods in tea gardens such as *Dendrithrips minowai* Priesners.

来源：荷兰专利

发布日期:2022-05-16

全文链接:http://agri.nais.net.cn/file1/M00/10/33/Csgk0GVccdeAKYzZAAfe9JYEUQc475.pdf