茶学研究专题

本期导读

➤ 学术文献

1．三种茶叶渣中水溶性蛋白的功能特性及结构特征

2．观测气候对印度阿萨姆邦茶叶产量的影响

3．L-茶氨酸、咖啡因及其组合对认知和情绪的影响

➤ 相关专利

1．A Repellent for small green leafhopper and its use method

2．杂环化合物和含有该化合物的有害节肢动物控制剂

➤ 科技报告

1．日本茶树遗传资源变异研究及其在茶树育种中的应用

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2019年10月07日

1．Functional properties and structural profiles of water-insoluble proteins from three types of tea residues（三种茶叶渣中水溶性蛋白的功能特性及结构特征）

简介：Green tea water-insoluble protein (GP), oolong tea water-insoluble protein (OP) and black tea water-insoluble protein (BP) were extracted from residues of green tea, oolong tea and black tea by an alkaline method, respectively. The foaming stability and emulsifying capacity of GP were better than that of OP and BP, but the oil absorption capacity (3.00 ± 0.28 mL/g) and foaming capacity ($41.00 \pm 1.41\%$) of GP was significantly lower than that of OP and BP. Furthermore, the analysis of protein surface hydrophobicity, amino acid composition, secondary structure, zeta potential and contact angle of different tea water-insoluble proteins (TWIPs) revealed that TWIPs were negatively charged with high hydrophobicity. Moreover, the random coil content ($26.70 \pm 0.10\%$) of GP was higher than those of OP and BP in favor of emulsifying capacity. At the oil-water ratio of 5:5 and TWIP concentration of 2.0 g/100 mL, the creaming index of GP, OP and BP emulsions was $33.55 \pm 0.93\%$, $40.79 \pm 5.58\%$ and $40.13 \pm 0.93\%$ after 6 d. The emulsifying stability of GP better than that of OP and BP was due to the small size (112.67 ± 2.52 μm) and high zeta potential (-36.77 ± 2.47 mV) of GP emulsion droplets. These results suggest that TWIPs, especially GP, are the potentially food-grade emulsifiers for preparing emulsions.

来源：LWT-Food Science and Technology 期刊

发布日期：2019-08-10

全文链接：http://agri.ckcest.cn/file1/M00/0E/C8/Csgk0F2EmoCACwupABiM61YcrwM568.pdf

2. Observing climate impacts on tea yield in Assam, India（观测气候对印度阿萨姆邦茶叶产量的影响）

简介：Tea is an important cash crop for the economy in northeast India. It also supports the livelihoods of a large proportion of the population. At the same time, tea growth is sensitive to climatic conditions making it vulnerable to climate change and variability. Identifying the tea yield response to climatic variability in operational plantations, and identifying the most important climatic variables that impact tea yield is critical to assessing the vulnerability of the industry and informing adaptation. Here, we developed a garden level panel dataset and estimated statistical models to identify the causal effect of monthly temperature, monthly precipitation, drought intensity, and precipitation variability on tea yield. We found decreasing tea yield returns to warmer monthly average temperatures, and when monthly temperatures were above 26.6℃ warming had a negative effect. We found that drought intensity did not affect tea yield and that precipitation variability, and in particular precipitation intensity, negatively affect tea yield. An increase in average temperatures as expected with global warming will reduce the productivity of tea plantations, all else held equal. Further, interventions to reduce the sensitivity of tea plantations to warming and precipitation variability will have immediate pay-offs as well as providing climate change adaptation benefits.

来源：Applied Geography 期刊

发布日期：2016-12-10

3．The effects of l-theanine, caffeine and their combination on cognition and mood（L-茶氨酸、咖啡因及其组合对认知和情绪的影响）

简介：l-Theanine is an amino acid found naturally in tea. Despite the common consumption of l-theanine, predominantly in combination with caffeine in the form of tea, only one study to date has examined the cognitive effects of this substance alone, and none have examined its effects when combined with caffeine. The present randomised, placebo-controlled, double-blind, balanced crossover study investigated the acute cognitive and mood effects of l-theanine (250 mg), and caffeine (150 mg), in isolation and in combination. Salivary caffeine levels were co-monitored. l-Theanine increased 'headache' ratings and decreased correct serial seven subtractions. Caffeine led to faster digit vigilance reaction time, improved Rapid Visual Information Processing (RVIP) accuracy and attenuated increases in self-reported 'mental fatigue'. In addition to improving RVIP accuracy and 'mental fatigue' ratings, the combination also led to faster simple reaction time, faster numeric working memory reaction time and improved sentence verification accuracy. 'Headache' and 'tired' ratings were reduced and 'alert' ratings increased. There was also a significant positive caffeine × l-theanine interaction on delayed word recognition reaction time. These results suggest that beverages containing l-theanine and caffeine may have a different pharmacological profile to those containing caffeine alone.

来源：Biological Psychology 期刊

发布日期：2008-02-10

全文链接：https://www.sciencedirect.com/science/article/pii/S0301051107001573

> 相关专利

1．一种菊小绿叶蝉趋避剂及其使用方法 (A Repellent for small green leafhopper and its use method)

简介：本发明提供了一种菊小绿叶蝉趋避剂及其使用方法，将百里香酚、2-异丙基-4-甲基茴香醚、萜品油烯和月桂烯按比例配制剂量为55—65mg/mL趋避剂。在每年10月上旬—12月上旬杭白菊盛开之际，菊小绿叶蝉盛发。遂将载有趋避剂的橡皮头芯绑于杭白菊主茎上，散发趋避剂排斥取食杭白菊花朵和嫩叶的菊小绿叶蝉；被驱赶的小绿叶蝉飞向或跳向放在菊花之上、边缘邻接菊花的浅黄色、边长20—30cm的正方形粘虫板。每亩杭白菊放置由趋避剂芯和正方形浅黄色粘虫板组成的趋避-诱杀器10—15套，杀死菊园重要害虫菊小绿叶蝉，减免杭白菊花期打药治虫。

来源：中国专利

发布日期：2019-06-28

全文链接：http://agri.ckcest.cn/file1/M00/00/02/Csgk0V14tLGAbXq7AAkNyQkwZGk796.pdf

2．HETEROCYCLIC COMPOUND AND HARMFUL ARTHROPOD CONTROLLING AGENT CONTAINING THE SAME（杂环化合物和

含有该化合物的有害节肢动物控制剂）

简介：本专利提供了一种对有害节肢动物具有良好控制作用的杂环化合物，该化合物由式（I）表示，其中A1表示CH或氮原子；R5表示CF3或类似的环基；R9表示一个烷基，它有1～6个碳原子，可以有一个或多个卤素原子或类似的原子；R10表示一个烷基，它有1~6个碳原子，可以有一个或多个卤素原子或类似的原子；T为三唑基，从a基团中选择一个或多个取代基（其中，三唑基通过三唑基的氮原子与含有A1的环结合）；n是0、1或2；A组为NR11C(O)R12或类似的一组；R11表示含有1~6个碳原子的烷基；R12表示一个有2到6个碳原子的烷基。

来源：日本专利

发布日期：2019-02-07

全文链接：http://agri.ckcest.cn/file1/M00/0E/C8/Csgk0F14qlaAYTkIAAWt_j8gnpA641.pdf

> ## 科技报告

1．Studies on variations in genetic resources of tea in Japan and application to tea [*Camellia sinensis*] breeding（日本茶树遗传资源变异研究及其在茶树育种中的应用）

简介：At the Makurazaki Station of the National Research Institute of Vegetables, Ornamental Plants and Tea (presently the National Institute of Vegetable and Tea Science), many Valuable tea plants are preserved as genetic resources for tea breeding, which have been collected from many areas both in Japan and foreign countries since 1929. Makurazaki Station is a suitable place for the preservation of every variety of tea because it is located in a warm region without cold damage in winter. Therefore, the Assam variety (*Camellia sinensis* var. *assamica*) and Chinese variety (*C. sinensis* var. *sinensis*) can be safely preserved. Makurazaki Station harbors the largest gene bank of tea in the world, with 800 accessions of the Assam variety, 550 accessions of the Chinese variety introduced from China and 1,500 accessions of the Chinese variety collected in Japan. Therefore it is the most suitable place for studying the genetic resources of tea in the world. In this study, some morphological and physiological characteristics were investigated both for the markers used for classifying the two varieties. The variations in morphological characters such as mature leaf, pubescence of young leaf and flower organs were described in Chapter2. The resistance to both cold and diseases (tea anthracnose and tea gray blight), and the chemical components in the tea leaf such as caffeine and tannin were analyzed in relation to the classification between the two varieties and for use as breeding materials of tea (Chapters 3 and 4) . Genetic analysis of the resistance to tea gray blight caused by *Pestalotiopsis longiseta* was presented in Chapter V by testing progenies among many cross combinations. The phenotypes and genotypes identified in this study may contribute to breeding for resistance to the disease. Also methods of tea breeding for disease resistance may be developed based on the theory presented in this study.

来源：野菜茶業研究所研究報告

发布日期：2002-03-10

全文链接：http://agri.ckcest.cn/file1/M00/00/01/Csgk0V14axiAfB6oALdY-SUwDQg716.pdf