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## ▶ 前沿资讯

### 1. Green tea cuts obesity, health risks in mice (绿茶可降低小鼠肥胖和健康风险)

简介: COLUMBUS, Ohio - Green tea cut obesity and a number of inflammatory biomarkers linked with poor health in a new study. Mice fed a diet of 2 percent green tea extract fared far better than those that ate a diet without it, a finding that has prompted an upcoming study of green tea's potential benefits in people at high risk of diabetes and heart disease. The benefits seen in the new study, published in the Journal of Nutritional Biochemistry, appear to stem from improved gut health, including more beneficial microbes in the intestines of the mice and less permeability in the intestinal wall - a condition typically called "leaky gut" in people. "This study provides evidence that green tea encourages the growth of good gut bacteria, and that leads to a series of benefits that significantly lower the risk of obesity," said Richard Bruno, the study's lead author and a professor of human nutrition at The Ohio State University.

来源: Eurekalert 网站

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## ▶ 学术文献

### 1. Integrating vibrational signals, mitochondrial DNA and morphology for species determination in the genus *Aphrodes* (Hemiptera: Cicadellidae) (结合振动信号、线粒体DNA和形态学对蚜虫属的物种鉴定(半翅目: 蝉科))

简介: Reliable delimitation and identification of species is central not only to systematics, but also to studies of biodiversity, ecology and pest management. In the era of Internet-based biodiversity databases misidentifications are rapidly disseminated and may have far-reaching consequences. Leafhoppers from the genus *Aphrodes* (Hemiptera, Cicadellidae) are common and abundant, but, nevertheless, they are still a taxonomically challenging group whose members are often assessed in ecological studies and are also potential vectors of plant diseases. Previous study has shown that the syntype series for *A.aestuarina* (Edwards) includes also specimens of *A.makarovi* Zachvatkin and has suggested that misidentifications may be widespread in museum collections. We studied *Aphrodes* individuals collected from the U.K. and Slovenia in order to provide a more comprehensive analysis of this genus using multiple criteria. Combined work using male and female vibrational signals emitted during courtship, and a 600-bp fragment within the barcoding region of the COI mtDNA gene, provided validated specimens that we also used for morphometric study. Analyses confirmed *A.aestuarina*, *A.bicineta*, *A.diminuta* and *A.makarovi* as behaviourally, genetically and morphologically distinct species. Although any of these approaches could be used alone to distinguish between species, combining morphological and molecular approaches will help to improve reliability, especially when identifying females. Morphological investigation of validated individuals from

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the U.K. and Slovenia also revealed geographic differences within species. By combining several body and aedeagus morphological characters males can be reliably identified, however, morphological differences between species are, nevertheless, relatively small. By contrast, observed genetic distances between *Aphrodes* species are relatively large (4.27.0%). At about half of our collecting sites more than one *Aphrodes* species was found and *A.makarovi* was collected together with every other species, including *A.aestuarina* on tidal saltmarshes. Due to low morphological variation between syntopic congeners it is likely that many museum specimens of *Aphrodes* have been assigned to the wrong species and species identification in ecological and vector studies may also be questionable.

来源: Systematic Entomology 期刊

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## 2 . Pure-Tone Vibrational Signals in Small Auchenorrhyncha (Homoptera) (小型颈喙类昆虫 Auchenorrhyncha (同翅目) 的纯音调振动信号)

简介: Investigation of vibrational calling signals of about 500 species of small Auchenorrhyncha from Russia and adjacent territories has shown that more than 10% of the species studied produce signals fully or partially consisting of pure-tone components. Among these species, there are forms dwelling on various substrates including thick tree branches, slender twigs, grass stems, petioles, and leaves. Therefore, it is impossible to associate the presence of pure-tone signals in any species with the physical properties of the inhabited substrate. Pure-tone signals were recorded both in the largest and the smallest forms. Consequently, the type of signal frequency spectrum is not related to the insect size. Experiments under natural conditions confirm the assumption that pure-tone signals are more resistant to noise than wide-band ones. This property may compensate for the disadvantage of pure-tone signals arising from stronger attenuation in certain substrates. As a result, neither pure-tone nor noise signals give unambiguous advantages for vibrational communication. Since the carrier frequency of pure-tone signals of small Auchenorrhyncha increases with temperature, it seems to be determined by the contraction frequency of tymbal muscles, rather than by the resonance properties of any cavity or cuticular structure. Regular frequency modulations occur in the signals of many species; moreover, the calling signals of some species include both pure-tone and noise components. In most of the species studied, "frequency tuning" of their signals to the physical properties of a particular substrate is impossible because of the presence of frequency modulations, temperature-related variation in the carrier frequency, or the wide host range and the absence of strong preference for any particular plant organ. Sympatric species may differ in the carrier frequency of their pure-tone signals. If the signals occupy the same frequency range they sometimes differ in their frequency modulation pattern. Consequently, conspecific signal recognition not only by amplitude, but also by frequency pattern is possible in this case, which increases the efficiency of intraspecific communication.

来源: Entomological Review 期刊

发布日期: 2014-01-29

全文链接: <http://agri.ckcest.cn/file1/M00/06/68/Csgk0FyhpiCAKp-qACPEiXLRCS208.pdf>

### 3. Molecular diagnostics reveal spiders that exploit prey vibrational signals used in sexual communication (分子诊断揭示了蜘蛛利用猎物的振动信号进行性传播)

简介: Vibrational signalling is a widespread form of animal communication and, in the form of sexual communication, has been generally regarded as inherently short-range and a private communication channel, free from eavesdropping by generalist predators. A combination of fieldwork and laboratory experiments was used to test the hypothesis that predators can intercept and exploit such signals. First, we developed and characterized PCR primers specific for leafhoppers of the genus *Aphrodes* and specifically for the species *Aphrodes makarovi*. Spiders were collected from sites where leafhoppers were present and screened with these primers to establish which spider species were significant predators of this species during the mating period of these leafhoppers. Analysis using PCR of the gut contents of tangle-web spiders, *Enoplognatha ovata* (Theridiidae), showed that they consume leafhoppers in the field at a greater rate when signalling adults were present than when nymphs were dominant, suggesting that the spiders were using these vibrations signals to find their prey. Playback and microcosm experiments then showed that *E. ovata* can use the vibrational signals of male leafhoppers as a cue during foraging and, as a result, killed significantly more male than female *A. makarovi*. Our results show, for the first time, that arthropod predators can exploit prey vibrational communication to obtain information about prey availability and use this information to locate and capture prey. This may be a widespread mechanism for prey location, one that is likely to be a major unrecognized driver of evolution in both predators and prey.

来源: Molecular Ecology 期刊

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### 4. Communication with substrate-borne signals in small plant-dwelling insects (在小型植物里栖息的昆虫中基质信号传播)

简介: Vibratory signals of plant-dwelling insects, such as land bugs of the families Cydnidae and Pentatomidae, are produced mainly by stridulation and/or vibration of some body part. Signals emitted by the vibratory mechanisms have low-frequency characteristics with a relatively narrow frequency peak dominant around 100 Hz and differently expressed frequency modulation and higher harmonics. Such spectral characteristics are well tuned to the transmission properties of plants, and the low attenuation enables long-range communication on the same plant under standing wave conditions. Frequencies of stridulatory signals extend up to 10 kHz. In some groups, vibratory and stridulatory mechanisms may be used simultaneously to produce broadband signals. The subgenital organ, joint chordotonal organs, campaniform sensilla and mechanoreceptors, such as the Johnston's organ in antennae, are used to detect these vibratory signals. Species-specific songs facilitate mate location and recognition, and less species-specific signals provide information about enemies or rival mates.

来源: Annual Review of Entomology 期刊

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全文链接:<http://agri.ckcest.cn/file1/M00/06/68/Csgk0FyhqBOACaEtACdWmJHSqIA813.pdf>

## 统计数据

### 1. Tea Yield in Least Developed Countries in 2013-2017 (FAOSTAT) (2013-2017年度最不发达国家茶叶产量 (FAOSTAT))

简介: 根据FAOSTAT, 最新统计了2017年度最不发达国家的茶叶产量, 2013-2017年度茶叶产量逐年增加, 相应数据见Tea Yield in Least Developed Countries in 2013-2017 (FAOSTAT)。

Year	Yield (kg/ha)	DATA Description
2013	1425.2	Calculated data
2014	1441.2	Calculated data
2015	1449.8	Calculated data
2016	1462.2	Calculated data
2017	1528.6	Calculated data
合计	7307.0	

来源: FAO 网站

发布日期:2018-12-26

全文链接:<http://agri.ckcest.cn/file1/M00/06/69/Csgk0Fylzm2AZM5ZAACsu97a7ME353.pdf>