

基于害虫生态调控的柑橘园乡土植物配置物种筛选

刘丹盈 徐永荣 林嘉卉 严翔 李梦媛 谢丽芳

(1. 华中农业大学园艺林学学院 武汉 430070; 2. 赣州市柑桔科学研究所 赣州 341000)

摘要:【目的】柑橘木虱与斜纹夜蛾是柑橘园中最为常见的害虫, 柑橘木虱是柑橘黄龙病传播的唯一昆虫媒介, 而斜纹夜蛾是一种食性很杂的暴食性害虫, 异色瓢虫则是两者的捕食性天敌昆虫, 探究对柑橘木虱具有驱避作用的植物, 以及斜纹夜蛾相较于柑橘更喜好的植物、天敌昆虫异色瓢虫的喜好植物, 为柑橘园生态防控科学配置植物提供理论依据。【方法】运用 Y 型嗅觉仪研究柑橘木虱对 40 种乡土植物气味的行为反应, 通过新鲜枝条选择法探究斜纹夜蛾对 30 种不同乡土植物的喜好选择, 运用 Y 型嗅觉仪研究异色瓢虫对 40 种乡土植物气味的行为反应。【结果】柑橘木虱对 6 种植物气味产生显著的驱避行为, 分别为菊科植物一点红、茼蒿、芦蒿、艾纳香和伞形科植物茴香、唇形科植物藿香, 斜纹夜蛾对 7 种植物产生显著的喜好选择倾向, 分别为猕猴桃科植物猕猴桃、榆科植物朴树、菊科植物芦蒿、十字花科植物白菜、葫芦科植物南瓜、桃金娘科植物番石榴、茄科植物茄子, 异色瓢虫对 6 种植物产生显著的吸引行为, 分别为榆科植物榔榆、木犀科植物小蜡、无患子科植物栾树、苏铁科植物苏铁、茄科植物茄子、十字花科植物白菜, 异色瓢虫对 3 种植物产生显著的驱避行为, 分别为伞形科植物芹、茄科植物番茄、马鞭草科植物黄荆。【结论】当前的研究与实践中多采用藿香蓟、假臭草、薇甘菊等外来物种作为驱避植物, 因此存在一定的生物入侵风险, 而从乡土植物中筛选出柑橘木虱驱避植物和斜纹夜蛾、异色瓢虫喜好植物, 通过合理配置植物、控制害虫种群数量的生态调控方式具有发展潜力。

Selection of native plant species based on ecological control of insect pests in citrus orchard

Liu Danying Xu Yongrong Lin Jiahui Yan Xiang Li Mengyuan Xie Lifang

(1. College of Horticulture and Forestry Sciences, Huazhong Agricultural University Wuhan 430070; 2. Ganzhou Citrus Science Research Institute Ganzhou 341000)

Abstract: 【Objective】*Diaphorina citri* and *Spodoptera litura* are the most common pests in citrus gardens. The *Diaphorina citri* is the only insect vector for the transmission of citrus Huanglongbing (HLB), while *Spodoptera litura* is a predator insect with a very mixed feeding diet, and *Harmonia axyridis* is the predatory natural enemy of both. Compared with citrus, the plants preferred by the moth and the natural enemy insect *Harmonia axyridis* were the preferred plants, which provided the theoretical basis for the scientific allocation of plants for the ecological control and control of citrus orchard. 【Method】Y-type olfactory experiment was used to study the behavioral responses of *Diaphorina citris* to the odors of 40 native plants, fresh branch selection was used to explore the preferences and selection of 30 different native plants of *Spodoptera litura*, and Y-type olfactory experiment was used to study the behavioral responses of *Harmonia axyridis* to the odors of 40 native plants. 【Result】*Diaphorina citri* has a significant repellent behavior against the odors of six plant species, whose Latin scientific names are *Emilia sonchifolia*, *Glebionis coronaria*, *Artemisia selengensis*, *Blumea balsamifer*, *Foeniculum vulgare* and

Agastache rugosa. *Spodoptera litura* showed significant preference and selection tendency to 7 kinds of plants, whose Latin scientific names are *Actinidia chinensis*, *Celtis sinensis*, *Artemisia selengensis*, *Brassica pekinensis*, *Cucurbita moschata*, *Psidium guajava* and *Solanum melongena*. *Harmonia axyridis* produced significant attraction behavior to 6 species of plants, whose Latin scientific names are *Ulmus parvifolia*, *Ligustrum sinense*, *Koelreuteria paniculata*, *Cycas revoluta*, *Brassica pekinensis* and *Solanum melongena*. *Harmonia axyridis* has a significant repellent behavior against the odors of three plant species, whose Latin scientific names are *Apium graveolens*, *Solanum lycopersicum* and *Vitex negundo*. 【Conclusion】 In the current research and practice, foreign species such as *Ageratum conyzoides*, *Praxelis clematidea* and *Mikania micrantha* are used as repellent plants, so there is a certain risk of biological invasion. However, the selection of *Diaphorina citri* repellent plants, *Spodoptera litura* and *Harmonia axyridis* preference plants from native plants has potential for development through rational allocation of plants and control of pest population.