

Repellency of forty-one aromatic plant species to the Asian citrus psyllid, vector of the bacterium causing huanglongbing

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Abstract

Huanglongbing (HLB) is the most devastating citrus disease worldwide. The causal organism of the disease is spread by an insect vector, *Diaphorina citri*, commonly known as Asian citrus psyllid (ACP). Current management of HLB relies either on physical removal of the infected plants or on chemical control of ACP. Both methods are not overly effective and costly. In addition, public concerns regarding insecticide residues in fruit have greatly increased in recent years. It has been hypothesized that plant volatiles could act as repellents to ACP, thus reduce the incidence of HLB. To test this hypothesis, the repellency of fresh tissues of 41 aromatic plant species to ACP was investigated. The repellency of individual species was determined using a Y-tube olfactometer. Our results showed that volatiles of five plant species were highly effective in repelling ACP with repellency as much as 76%. Among these, the tree species, *Camptotheca acuminata*, and the two shrubs, *Lantana camara* and *Mimosa bimucronata*, could potentially be planted as a landscape barrier. The two herbs, *Capsicum annuum* and *Gynura bicolor*, could potentially be used as interrow plantings in orchards. This is the first time that the repellency of fresh tissues from a diverse range of plant species to ACP has been determined. Although further field evaluation of various interplanting regimes and landscape barriers are needed to assess their effectiveness, our results showed that these aromatic species, being highly repellent to ACP, offer great potential as more cost-effective and environmentally sustainable alternatives to the current methods of managing HLB.

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