Development and Optimization of Methods for Using Sex Pheromone for Monitoring Vine Mealybug in California Vineyards

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The sex pheromone of the vine mealybug, *Planococcus ficus* Signoret (Homoptera: Pseudococcidae), has been identified as a single component, lavandulyl senecioate. Racemic lavandulyl senecioate was as attractive to male mealybugs as the insect-produced (*S*)-enantiomer, indicating that the unnatural enantiomer is not inhibitory. Lavandulol, which also was found in extracts from virgin females, antagonized attraction of males at higher doses. Rubber septum lures loaded with 10-1000-µg doses of the pheromone were equally attractive, and lures loaded with 100 µg of racemic pheromone remained attractive for at least 12 wk under field conditions. Delta traps were more effective than double-sided sticky cards and minimized captures of nontarget insects. Pheromone-baited traps had an effective range of at least 50 m. Comparison of visual sampling methods and sampling of males with pheromone-baited traps revealed that trap catches were significantly correlated with the results from visual sampling methods, and with economic damage.