FIELD BIOASSAYS ON THE ASIAN LONGHORNED BEETLE MALE-PRODUCED PHEROMONE

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ABSTRACT

The Asian longhorned beetle (ALB) (*Anoplophora glabripennis* [Coleoptera: Cerambycidae]) is a high risk, exotic species in the U.S. In 2002, two male-produced volatiles were isolated from ALB that stimulated antennae of both sexes of ALB. The components were synthesized and consisted of an aldehyde (4-(n-heptyloxy) butanal) and an alcohol (4-(n-heptyloxy) butan-1-ol).

Behavioral tests conducted in the laboratory in 2006 showed a significant attraction of virgin female ALB toward the alcohol ($P<0.05$). In July 2007, field trapping experiments using ALB male-produced pheromone were performed in Ningxia province in China. A pheromone blend of 1:1 (v:v) of the alcohol and the aldehyde was compared to each component alone and to the blend added to linalool and pinocarveol, two plant volatiles found in maple. Controls consisted of empty traps and traps with caged live insects, males or females separately. All treatments were replicated seven times over space. Trapping was conducted for 3 weeks. New IPM intercept PT traps were used for all treatments. Traps were checked daily, and the sex and number of beetles caught in each trap were recorded.

Results showed a significantly higher total trap catch in the pheromone blend-baited traps, followed by traps baited with the pheromone blend + plant volatiles ($P_{(MPvs.MPPL)}=0.04$). Alcohol-baited traps caught only females, supporting previous lab results. Coupling plant volatiles with the male pheromone appeared to increase the attractiveness of females to the traps. Future research will investigate the effect of different plant volatiles on the attractiveness of the male-produced pheromone.