

Olfactometer and GC/MS Evidence for (E)-2-hexenal as a Semiochemical in the Defensive Secretions of the Kudzu Bug, *Megacopta cribraria*

Onnink, Carly

Williams, Abigail

Megacopta cribraria is a newly invasive stink bug species significantly reducing soybean crop yield across the southeastern United States. Chemical pesticides are a limited method of control and scientists are currently exploring biological control options. This study is the first reported attempt to identify *M. cribraria* pheromones that could be utilized in an insect trap for environmentally friendly monitoring or integrated pest control. Initial olfactometer tests found *M. cribraria* females to be significantly attracted to disturbed *M. cribraria* specimens. While little is known about the pheromones of the Plataspidae family, a study of *Tessaratoma papillosa*, another species in the Pentatomoidea superfamily, yielded GC/MS evidence of tridecane in their undisturbed and disturbed volatiles and [E]-2-hexenal in only their disturbed volatiles. Based on the pervasiveness of pheromone sharing, this study investigates those chemicals in the *M. cribraria* defensive secretions, hypothesizing that [E]-2-hexenal will illicit a semiochemical response. Open Y-track olfactometer assays were conducted to evaluate the *M. cribraria* behavioral response to E-[2]-hexenal and tridecane. Females were significantly attracted to [E]-2-hexenal while males were indifferent, and both genders showed indifference to tridecane. GC/MS was performed to analyze the chemicals within the *M. cribraria* disturbed volatiles. Tridecane was detected in the disturbed and undisturbed volatiles, while [E]-2-hexenal was a component of only the disturbed volatiles. This data supports that [E]-2-hexenal is a semiochemical in the defensive secretions of *M. cribraria* that could be used as a pheromone trap bait.