

Female Sex Pheromone Blends and Male Response of the Legume Pod Borer, *Maruca vitrata* (Lepidoptera: Crambidae), in Two Populations of Mainland China

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The legume pod borer, *Maruca vitrata* (Lepidoptera: Crambidae; syn. *M. testulalis*), is a serious pantropical insect pest of grain legumes. Comparative studies of *M. vitrata* female sex pheromone components in two different geographic populations in China, Wuhan and Huazhou, confirmed that (*E,E*)-10,12-hexadecadienal (*E10,E12*–16:Ald) and (*E*)-10-hexadecenal (*E10*–16:Ald) were present in variable ratios in all pheromone gland extracts of both populations. (*E,E*)-10,12-hexadecadienol (*E10,E12*–16:OH) was always detected in minor amounts using polar DB-WAX columns, but was never detected using medium-polar DB-17 columns for the two populations. *E10*–16:OH was not found in any of the *M. vitrata* sex pheromone gland extracts. The average ratios of *E10*–16:Ald, *E10,E12*–16:Ald, and *E10,E12*–16:OH in the pheromone gland extracts of populations from Wuhan and Huazhou were 79.5:100:12.1 and 10.3:100:0.7, respectively. Electrophysiological testing suggested that *E10,E12*–16:Ald elicited the highest male electroantennography (EAG) response, followed by *E10,E12*–16:OH and *E10*–16:Ald. Field-trapping tests with single synthetic sex pheromone lures showed that *E10,E12*–16:OH alone could not attract males, whereas *E10,E12*–16:Ald or *E10*–16:Ald alone attracted few males. Wuhan and Huazhou males were most attracted by lures containing *E10*–16:Ald + *E10,E12*–16:Ald + *E10,E12*–16:OH in doses of (80 + 100 + 10) μ g and (10 + 100 + 10) μ g, respectively, per vial. Males could discriminate between the blends that were most attractive to their own geographic population and those that were most attractive to the reference population. Our findings suggest that geographic variation exists in the sex pheromone system of *M. vitrata* in China. The results are discussed with regard to the mechanisms underlying the sex pheromone variation.

Key words: *Maruca vitrata*, Geographic Population, Sex Pheromone