

Abstract

Maize, a genetically diverse crop, is the domesticated descendent of its wild ancestor, teosinte. Recently, we have shown that certain maize landraces possess a valuable indirect defense trait not present in commercial hybrids. Plants of these landraces release herbivore-induced plant volatiles (HIPVs) that attract both egg [*Trichogramma bournieri* Pintureau & Babault (Hymenoptera: Trichogrammatidae)] and larval [*Cotesia sesamiae* Cameron (Hymenoptera: Braconidae)] parasitoids in response to stemborer egg deposition. In this study, we tested whether this trait also exists in the germplasm of wild *Zea* species. Headspace samples were collected from plants exposed to egg deposition by *Chilo partellus* Swinhoe (Lepidoptera: Crambidae) moths and unexposed control plants. Four-arm olfactometer bioassays with parasitic wasps, *T. bournieri* and *C. sesamiae*, indicated that both egg and larval parasitoids preferred HIPVs from plants with eggs in four of the five teosinte species sampled. Headspace samples from oviposited plants released higher amounts of EAG-active compounds such as (*E*)-4,8-dimethyl-1,3,7-nonatriene. In oviposition choice bioassays, plants without eggs were significantly preferred for subsequent oviposition by moths compared to plants with prior oviposition. These results suggest that this induced indirect defence trait is not limited to landraces but occurs in wild *Zea* species and appears to be an ancestral trait. Hence, these species possess a valuable trait that could be introgressed into domesticated maize lines to provide indirect defense mechanisms against stemborers.