RESPONSE OF *Trichogramma pretiosum* FEMALES TO HERBIVORE-INDUCED BT MAIZE VOLATILES

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Parasitoids use herbivore-induced plant volatiles (HIPVs) to locate their hosts. However, little is known about variations in HIPVs production in genetically modified maize plants that are herbicide tolerant, insect resistant (Bt plants), or both herbicide tolerant and insect resistant. We investigated the olfactory behavioral responses of the egg parasitoid *Trichogramma pretiosum* (Hymenoptera: Trichogrammatidae) to HIPVs produced in maize (*Zea mays*) singular herbicide-tolerant and insect-resistant plants and their stacked events in response to damage caused by *Spodoptera frugiperda* in nighttime and daytime infestations. Real-time reverse-transcription PCR was used to assess whether the presence of one or more *Bacillus thuringiensis* (Bt) proteins and the time of induction of HIPVs affected the expression of genes in plants under herbivore attack. The results showed that compounds were released during nocturnal and diurnal infestations. However, some HIPVs were released exclusively in infestations that started during the night by non-Bt plants and were highly attractive to parasitoids. HIPVs produced by non-Bt plants were more attractive to parasitoids than those released by Bt plants in infestations that started during the night. However, glyphosate-tolerant maize plants were more attractive to parasitoids than isogenic plants. The expression of the analyzed genes TPS10, TPS23, LOX10, and STC1 was higher in infestations that started during the night. In this study, we discuss the unresponsiveness of *T. pretiosum* females to HIPVs produced by Bt maize, in the context of the impacts of transgenic hybrids on parasitoid foraging and the implications for the biological control of *S. frugiperda.*

Keywords: GMOs, qRT-PCR, multitrophic interactions, HIPVs, biological control.