

Host specificity in the egg parasitoid *Telenomus busseolae* is mediated by sex pheromone compounds

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Several studies showed that egg parasitoids are able to detect host sex pheromones produced by adult hosts as a host cue. In this way female wasps are directed toward an area where host mating is in progress and where an oviposition has probably taken place or is soon to occur. *Telenomus busseolae* Gahan (Hymenoptera: Scelionidae) is a solitary egg parasitoid of various noctuids (Lepidoptera, Noctuidae) belonging to the genera *Sesamia*. In field observations, it has been demonstrated that *T. busseolae* reacts to the pheromone emitted by females of the corn stalk borer, *Sesamia nonagrioides* (Lefebvre) and the pink stem borer, *Sesamia calamistis* (Hampson). It is known that the sex pheromone produced by calling lepidopteran females are usually a mixture of compounds. In laboratory experiments, it was shown that three components of the synthetic sex pheromone of the Mediterranean stem borer, e.g. (Z)-11-16:Ac (the main component), (Z)-11-16:Ald and 12:Ac, attract wasp females, while a fourth compound, (Z)-11-16:OH, did not. Interestingly, these active compounds are also present in the sex pheromone blends of other host *Sesamia* species, and in the sex pheromone blends of other non-host noctuid species. To evaluate the role played by some components of noctuid sex pheromone in the host specificity of *T. busseolae*, we carried a series of laboratory experiments with a Y-tube olfactometer coupled a video tracking and motion analysis system. In particular we analyzed the behavioural response of *T. busseolae* females to the main compounds of the synthetic sex pheromones of the corn earworm, *Helicoverpa armigera* (Hübner). Bioassays were carried out with the whole corn earworm sex pheromone blend [(Z)-9-16:Ald : (Z)-11-16:Ald at ratio of 3 : 97], and the following single compounds: (Z)-9-16:Ald present only in the corn earworm sex pheromone, (Z)-11-16:Ac the main component of the Mediterranean stem borer sex pheromone, and (Z)-11-16:Ald common to both noctuids. All the treatments were bioassayed at two different doses (0.1 mg and 1.0 mg). The results showed that *T. busseolae* females were 1) attracted by (Z)-11-16:Ac at 0.1 mg and by (Z)-11-16:Ald at 1.0 mg; 2) not attracted by the whole sex pheromone of the corn ear borer at both concentrations; and 3) slightly deterred by (Z)-9-16:Ald at both concentrations. These results suggest that (Z)-9-16:Ald is a key compound which prevents *T. busseolae* females responding to the corn earworm sex pheromone.