(P02-31)

Indirect Defence of aphid Infested Potato: Role of Terpenes on *Episyrphus balteatus* Behaviour

F. Francis, N. Harmel, R. Almohamad, and E. Haubruge

Gembloux Agricultural University, Functional and Evolutionary Entomology, Passage des Déportés 2, 5030 Gembloux, Belgium
francis.f@fsagx.ac.be

To cope with pathogen and insect attacks, plants develop different mechanisms of defence, in both direct (such as secondary molecules and pathogen related proteins, PRP) and indirect ways (attractive volatiles to entomophagous beneficials). Plants are then able to express traits that facilitate "top-down" control of pests by attracting predators to the feeding herbivores. Here, we investigate the indirect defense mechanism of potato plants by analysing the volatile pattern of both healthy and aphid infested plants. Important changes of terpene emission by the *Myzus persicae* infested host plant was observed (mainly (E)--farnesene (EBF) but not only) by SPME and GC-MS. To assess the infochemical role of these volatile releases on the aphid phagous predators *Episyrphus balteatus*, the hoverfly foraging behaviour was assessed using the Observer 5.0 software (Noldus). Free aphid potato plants were also used as control for predator behaviour. While aphid infested plant induced efficient searching, acceptation behaviour leading to egg laying, no kairomonal effect of healthy potato was observed leading to long duration of immobility and only short searching period in the cage. Whether high oviposition rate of *E. balteatus* was observed when aphid infested potato was used (mean of 48.9 egg per laying and per female), no egg was produced by the hoverfly on heathy free aphid plants. The *E. balteatus* foraging and reproductive behaviour according to the aphid presence and related volatile emission by the host plant was discussed in relation to biological control efficacy and the potential use of active infochemical molecules in integrated aphid pest management.

Key words: *Episyrphus balteatus*, pathogen related proteins, aphid