

Biological activity of heptanal on *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae) oviposition behaviour.

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The Potato Tuber Moth (PTM) is a major pest of potato (*Solanum tuberosum* L.) worldwide. The range of the PTM host plants is limited to some members of the family Solanaceae with a preference for the potato tubers. Among the sustainable control methods, the use of attractant or repellent volatile plant compounds is particularly promising. In a preliminary EAG study (De Cristofaro *et al.*, 1999) the olfactory sensitivity of virgin and mated males and females of the PTM to the potato volatile substances was investigated. In the present paper a bioassay to study the effects of the EAG-active compounds on the PTM ovideponent females was set up. Bioassays were carried out in cubic cages (side 60 cm) made by metallic poles (\varnothing 6 mm) and tulle sides. The cage bottom was constituted by black and stiff cardboard with a hole (\varnothing 8 cm) at each corner. Under each hole, sealed with black nylon cloth, a plastic box with a stimulus was located. Potato tubers (500 g per box) were placed in 2 opposite boxes; 2 empty boxes were used as control. Cages were kept in a chamber at controlled conditions. In a bioassay, 6 ovideponent females were utilized. Eggs were mainly laid (84 %) on the cloth above the tubers. EAG dose-response curves confirmed the female olfactory sensitivity to the volatile compounds emitted by the tuber and aldehydes were the most EAG-active compounds. Heptanal, octanal and nonanal elicited significantly higher responses. A polyethylene dispenser (pierced eppendorf vial) baited with heptanal (200 μ l of a solution in mineral oil, 1/10:V/V) induced the females to lay their eggs (95 %) on the cloth above the control boxes. A similar antiovideponent effect was observed using a heptanal dispenser and potato tubers in the same box. In order to evaluate the biological activity of other volatile compounds and the practical application of heptanal (allomone) further studies are in progress.

Key words: heptanal, EAG, semiochemicals, allomonas, antiovideponent effect.

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