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Effect of plant volatiles in *Cydia molesta* responses to pheromones (quantity and qualitatively)

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Instituto Politécnico de Castelo Branco
Escola Superior Agrária

**Effect of plant volatiles in *Cydia molesta*
responses to pheromone
(Quantity and qualitatively)**

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“Cada uma das coisas que vivemos depende do nosso pensamento e daquilo que escolhemos. Para alguns, a Vida é uma grande oportunidade para crescer e desfrutar; para outros, é um grande sacrifício e uma luta contínua” (Os Sete princípios da Felicidade).

“Each one of the things we live depends on our thinking and what we choose. For some, Life is a great opportunity to grow and enjoy, for others it is a great sacrifice and a continuing struggle.”

É graças a TODOS os que estão no meu coração que VIVO desfrutando e crescendo e é por isso que lhes venho agradecer desta forma.

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Abstract

Our work will focus on the effect of plant volatiles in *Cydia molesta* responses to pheromone. Volatiles emitted from host plants often synergism or enhance insect responses to suboptimal (under) sex pheromone doses quantity and qualitatively (pheromone and %E).

The first goal of our work consisted in established, in the field under natural circumstances, a pheromone dose-response curve to determine a suboptimal pheromone dose. To concretize this, an Orchard block of Peach and Nectarine trees was used to test male capture to delta traps, containing a range of dosages. The tested treatments were: Hexane, 1 µg, 10 µg, 100 µg, 1mg and 10 mg. We decide to use 1 mg as optimal and 100 µg as suboptimal for our experiment.

Previous data (laboratory) show that comparing the dose response in the field and in the laboratory the curves do not overlap. In the field a higher concentration is required to elicit responses.

According this mentioned conditions, we wondered if plant volatiles also synergize “off-blends” in under or over dose. Different proportions of (E)-8-dodecenyl acetate (E8-12:Ac) were tested in laboratory to verify which one was the optimal quantity in the complete pheromone blend ratio (2, 4, 6, 8, 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100 ng). Results showed that 10 ng was the optimal quantity in ratio to our laboratory population.

We compare USA and Italian population of *Cydia molesta* and with this, we found that the curve response to %E E8-12:Ac of our Italian population is very different from the USA population. This can be explained by the fact that populations may be genetically different.

With this knowledge, biological control can became more efficient.

Key words: *Cydia molesta*, sex pheromone, pheromone dose-response curve, “off-blends”, (E)-8-dodecenyl acetate.