

Attraction of non-methyl eugenol-attracted males of the Oriental fruit fly to beta-caryophyllene

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In controlling the highly destructive Oriental fruit fly, *Bactrocera dorsalis*, the use of male attractants such as methyl eugenol (ME) remains the gold standard in programmes such as the male annihilation technique (MAT). This is because ME remains the most potent attractant for this highly invasive fruit pest species. Consumption of ME by male *B. dorsalis* has been shown to result in result in significantly higher mating success for females compared with non-ME-fed males. Recently, work in our laboratory has been focused on developing non-ME-attracted male Oriental fruit fly lines but supplemented with semiochemical exposure. Non-ME-attracted males offer advantage that they will not be attracted to the MAT trap devices containing toxicant-laced ME. We hypothesized that non-ME-attracted males can be raised from the field, and that those males can regain mating advantage when exposed to certain semiochemicals. This follows our recent work which demonstrated that although pure isolines of non-ME-responding males were not attained, reduced responder males were obtained instead, until the 10th generation of rearing. When those males were assayed for their attraction to the sesquiterpene compound beta-caryophyllene (CP), no loss of attraction to CP was observed when compared to laboratory males that were used as controls. Males were attracted to feed on CP. Further, those CP-fed males showed that they were able to mate significantly earlier and more successfully compared with control males. This suggests that in releases of sterile male flies to compete with wild males for mating, and not getting captured in MAT devices, non-ME-attracted sterile males but supplemented with compounds such as CP can be considered for further field trials. This warrants further investigations.

Keywords: *Bactrocera dorsalis; beta-caryophyllene; methyl eugenol*

References:

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