The Seasonal Abundance of Fruit-fly Species in Sri Lanka and the Male Annihilation Technique as a Control Measure for Fruit-flies: Two Case Studies

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ABSTRACT

Methyl Eugenol (ME) is a male lure used for monitoring and mass trapping (male annihilation) of fruit flies. A dynamic pattern of fruit fly population fluctuations was observed with peak abundance from July to September in two locations, namely, Guruwela and Gannoruwa, in Sri Lanka. *Bactrocera* correcta was the predominant species during the peak period, followed by B. kandiensis and B. dorsalis. The effect of male annihilation on fruit fly populations was evaluated in both locations using an effective pheromone:insecticide combination and a suitable absorbance material selected from preliminary trials with cotton wool/wood dunk baits soaked in ME + Spinosad 25 g/L SC and ME + Abamectin 18 g/L EC and two readymade commercial traps. Cotton wool soaked in 1 ml ME + 0.15 ml Abamectin 18 g/L EC was selected as the most effective insecticide: pheromone combination last for two months. For mass trapping, fifteen to twenty traps were deployed in Guruwela and Gannoruwa from 2017 to 2018. A significant decline of average number of fruit flies/trap/day was revealed at Guruwela from 159 to 5 (χ^2 108.80; P<.0001) and 243 to 104 ($\chi^2$52.7; P<.0001) at low and high abundance periods, respectively. In Gannoruwa, the baseline fruit fly number significantly reduced from 188 to 68 FF/trap/day (χ^2 51.70; P<.0001) after one year.

Key words: *Bactrocera* spp., Fruit fly, Male annihilation, Methyl eugenol

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