Attractiveness and Bait Longevity of Food Bait Traps for Female Melon Fly, Zeugodacus cucurbitae (Coquillett)

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The melon fly (*Zeugodacus cucurbitae*) poses a significant threat to cucurbit and tomato crops worldwide, with larvae damaging fruit interiors, making surface insecticide management challenging. Current control methods focus on pheromone traps for males and protein-based pesticide baits for females. This study aimed to develop an environmentally friendly food bait trap for female melon flies. Three treatment schedules were tested, incorporating varying proportions of cucumber, water, sugar, and vinegar. Based on the preliminary study, three treatment combinations were selected and were scheduled in a luffa field as T1-cucumber+water (1:1)+vinegar 2%, T2-cucumber+water (1:1)+sugar 2%, T3-cucumber+water (1:1)+ sugar 2% + vinegar 2% and T4-cucumber+water (1:1) (Control). Each treatment was replicated three times, with the average number of female flies counted over 12 days, and the pH value and evaporation rate of the solutions recorded. The results indicated that T3 attracted the highest number of female flies (107.5 ± 15.5), followed by T2 (42.5 ± 14.3), T1 (38.3 ± 14.5), and the control (24.1 ± 11.5). Over 50% of the total female flies were trapped by T3. More than 60% of the total flies were captured within the first six days, after which the attractiveness of the traps significantly declined. The pH values of the solutions changed from a minimum of 4.5 to a maximum of 7.2, and 60% of the solutions evaporated. This research underscores the potential of food-based baits in melon fly management, providing insights into effective bait formulations and trap durability in agricultural settings.

Keywords: Melon Fly, Food Bait Traps, Trap Longevity

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