

ORIENTATION OF *Tribolium castaneum* (Coleoptera: Tenebrionidae) ADULTS TOWARDS TRAPS HAVING AGGREGATION PHEROMONE AND KAIROMONE FOLLOWING PRE-EXPOSURE TO ABAMECTIN

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The red flour beetle, *Tribolium castaneum*, is frequently found in stored food. Correct monitoring is a pre-requisite to precisely decide the population density and the correct timing for the management practices. DOME traps containing its aggregation pheromone 4,8-Dimethyldecenal (4,8-DMD) and commercially-available kairomones are used for this, but low trapping is often reported. Previous studies reported enhanced trapping of *T. castaneum* by pre-exposing to certain chemicals but no such effects of abamectin is known. This research aimed to determine the effect of abamectin on orientation of *T. castaneum* to traps containing its aggregation pheromone and kairomone. *Tribolium castaneum* 100 adults pre-exposed to a concentration series of abamectin were used 14 days following exposure. In a rectangular experimental arena (2.6 m×2 m) inside a room, six dome traps containing pheromone only (experiment 1) or a combination of pheromone and kairomone (experiment 2) were placed. After one hour, insects were released at the centre and those trapped inside each trap were counted after two hours. For pheromone alone, the highest trapping (29%) occurred in insects pre-exposed to 1 ppm abamectin ($F_{7,24}=16.29$, $p<0.0001$) which did not significantly differ from 0 ppm and 2.5 ppm. The lowest trapping (8%) occurred at 15 ppm and was not significantly different with 20 ppm-exposure. When pheromone and kairomone used together, the highest trapping (48.75%) was obtained in adults pre-exposed to 0 ppm ($F_{7,24}=165.95$, $p<0.0001$) which was not significantly different with 2.5 ppm exposure while the lowest 11% obtained with 20 ppm abamectin. More insects were trapped in the combination of pheromone and kairomone than pheromone alone. But pre-exposure to high concentrations of abamectin reduced trapping at 14 days following exposure. Future research needs to schedule the pre-treatment with abamectin so that it would not jeopardize monitoring efforts using pheromone and kairomone traps and thus ensuring the protection of stored food from insect infestation.

Keywords: 4,8-Dimethyldecenal, Kairomone, Monitoring, Pheromone, Red flour beetle