

**AGGREGATION PHEROMONE 4,8 DIMETHYLDECANAL AND
KAIROMONES AFFECT THE ORIENTATION OF *TRIBOLIUM
CASTANEUM* ADULTS**

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Insects cause massive losses in stored food; *Tribolium castaneum*, the red flour beetle, is one of the major pests in stored food. Monitoring of this species involves the use of aggregation pheromone 4,8 Dimethyldecanal (4,8 DMD) and kairomones such as cereal oils. Little information is available on the effective distance for this pheromone and the potential use of edible oils as kairomones. The objectives of this experiment were to determine if the orientation of adult beetles to the pheromone source is affected by the pheromone concentration and distance from the pheromone source, and to evaluate edible oils as kairomones. Experimental design laid as completely randomized design with three replicates. The aggregation pheromone 4,8 DMD placed on a tile floor tested the orientation of adults when the pheromone concentration, distance from the pheromone source or the air flow was changed. In a separate experiment, the adult beetles released in between two vials were tested for their orientation either to the kairomone oil or the empty vial. Square roots of arcsin transformed values of percentage adults trapped were analyzed using ANOVA of SAS to determine the significance of treatments. No significant differences were observed in the percentage of beetle adults trapped when they were released upto 60 cm from the pheromone, and recorded the highest trap catch. In contrast, the percentage beetles trapped declined when the beetles were released at a distance of 60-120 cm from the pheromone source. Presence of air flow increased the percentage adults trapped. The maximum trap catch (24%) was obtained with 0.5 μ L of pheromone. The kairomones having botanical origin successfully attracted adults whereas those of animal origin failed. The average angles on individual turns of beetles during their orientation significantly differed ($p < 0.05$) from the respective controls at each concentration. It is concluded that *T. castaneum* adults are best attracted within 60 cm from the pheromone source and the air flow increases the trapping efficiency. Furthermore, the oils having the botanical origin are promising attractants for *T. castaneum* adults.

Keywords: Aggregation pheromone, Concentration, Distance, Kairomone, *Tribolium castaneum*