

CHAPTER: FIVE

5- Discussion

The search for safe naturally occurring pesticides for the pest of the field crops and storage pests has been intensified in last few decades. There is a continuous search for natural products that can reduce insect pest populations in manner that is less hazardous (Jurd and manners, 1980). The extract of the neem tree is found to be among the most important and economic natural product because of its wide spread, abundance and availability. Its products are potentially successful insecticides, which can be used as safe and ecologically sound pest control agents (Florence and David 1998).

The present research was undertaken to study the efficacy of NeemAzal-T/S Malation57 and a combination of both insecticide against the larvae and adults of *Tribolium castaneum*. The results obtained demonstrated that the NeemAzal-T/S is less effective than both the Malation57 and the combination of the NeemAzal-T/S and Malation57 against the larvae and adults of the red flour beetle.

The results in Table.1, Fig.2, and Fig.3, showed that the different concentrations of NeemAzal-T/S caused different mortality percentages even after 11days in both adults and larvae. In fact the larvae showed a higher mortality percentage than the adults. This may be due to azadirachtin which prevents the larvae of some insects from molting by inhibiting production of ecdysone hormone, the hormone responsible for triggering molts. These results agreed with the finding of (Weinzierl and Henn 1991), who reported that azadirachtin (the active ingredient of NeeAzal-T/S) affected larval molting, and also caused insects to stop feeding after ingestion due to secondary physiological effects. In general,

neem derivatives often modify the development of insects by influencing the hormonal system, especially ecdysteroids (Schmuttere, 1990) leading to growth regulatory effects, such as growth inhibition, malformaton and mortality (Mordue and Blackwell, 1993).

The results in Table.2, Fig.4, and Fig.5, showed that the Malathion57 gave a significant mortality percentage in both larvae and adults, but it was more effective against the adult stage. This may be due to the fact that the adults consumed much more of insecticide –mixed food than the larvae.

As seen in Table.3, Fig.6 and Fig.7 the combination of Malathion57 and NeemAzal-T/S caused a higher mortality percentage in both larvae and adults of *Tribolium castaneum* than the NeemAzal-T/S alone. On the other hand the combination of NeemAzal-T/S and Malathion57 gave a lower mortality percentage than the malathion57 alone which indicates that NeemAzal-T/S is of less potential when mixed with Malathion57.

Conclusion:

The larvae of *Tribolium castaneum* showed higher susceptibility to NeemAzal-T/S than the adults. The results showed that Malthion57 was more effective against both larvae and adults compared with the NeemAzal-T/S alone and the combination of NeemAzal-T/S 50% and Malathion57 50%. In addition to that Malathion57 caused higher mortality percentage in the adult stage than the larval stage. The combination of NeemAzal-T/S 50% and Malathion57 50% showed more potency than the NeemAzal-T/S alone and less potency than the Malathion57. So it can be concluded that, the NeemAzal-T/S is of less potential when it is used alone than when it is mixed with the Malathion57.

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