SUMMARY

This research work was carried out to investigate three insecticides permethrin(pyrethroids), thiodicarb (carbomates) and fenitrothion (organophosphous compounds) on laboratory strain from Spodoptera littoralis.

After resistant strains were selected by each insecticide, biological potential and biochemicals parameters were studied in resistant strains and susceptible strain for each insecticide used.

The results obtained showed that permethrin resistant strain developed in 5th generation and its resistant fold was 10.8. While the thiodicarb resistant strain developed in the fourth generation and its resistant fold was 10.92. But fenitrothion resistant strain developed in the seventh generation and its resistant fold was 10.3.

Results of the biological potential parameters indicated that the average egg number per batch of thiodicarb strain had increased than the susceptible strain in the same generation and was highest strain in the average number of eggs per batch. The permethrin strain also had increased in the average number of eggs per batch than the susceptible strain .

Fenitrothion strain had decreased slightly in the average number of eggs per batch than the susceptible strain. The percentage of hatchability in permethrin

strain and thiodicarb strain had decreased slightly than the susceptible strain.it was 95.91%, 96.43%,and 99.16% respectively, but the fenitrothion strain not changed than the susceptible strain. It was 99.13% ,and 99.34% respectively.

The results also indicated that the percentage of pupation decreased in permethrin strain than the susceptible strain from 91.78% to 86.76%, while the thiodicarb strain not changed and fenitrothion strain increased slightly than in permethrin strain and the susceptible strain from 91.76% to 92.05%. The results also revealed that the percentage of the adult emergance in all strains decreased significantly than the susceptible strain. The results showed that in permethrin strain the average weight of female and male pupae decreased than the susceptbile strain from 344.38 mg to 319.46 mg and from 330.12 mg to 303.18 mg,. While in thiodicarb strain and fenitrothion strain the average weight of female and male increased than the susceptible strain which was high significant in fenitrothion strain.

Determination of biochemical parameters in pupal tissue revealed that the percentage of the crude protein decreased in permethrin strain than the susceptible strain while the percentage of total amino acids was increased and the percentage of amonia was increased slightly also than the susceptible strain.

Proline, glycine, alanine, valine, methionine, leucine, tyrosine, histidine, lysine and arginine increased. But gave decreased in threonine and serine while aspartic acid, glutomic acid, isoleucine, cystine and phenyl alanine was not changed when compared with the susceptible strain.

The results of thiodicarb strain revealed that the percentage of the crude protein decreased than the susceptible strain. Percentage of total amino acids decreased also than the susceptible strain while the percentage of amonia increased slightly than the susceptible strain. Percentage of proline, alanine, Cystine, methionine, isoleucine, phenylalanine, tyrosine, histidine and lysine increased.but threonine, serine, leucine, arginine and glycine decreased than the susceptible strain. Aspartic acid, glutamic acid, and valine were not changed compared with the susceptible strain.

Results of fenitrothion strain indicated that the percentage of the crude protein increased than the susceptible strain, while the percentage of total amino acids in resistant strain decreased than the susceptible strain but the percentage of amonia was not changed.

The percentage of glutamic acid, valine, methionine, leucine, tyrosine, phenylalanine, histidine and arginine increased. Threonine, serine, proline and isoleucine decreased while aspartic acid, glycine, alanine, cystine,

and lysine was not changed when compared with the susceptible strain.

The results indicated that the development of resistance and susceptibility to insecticides were associated with biological potential, biochemical parameters which play the important role in this development.