BIOCHEMICAL PARAMETERS AS CORRELATED WITH THE MUTAGENIC EFFECT OF PESTICIDES ON DROSOPHILA MELANOGASTER

By

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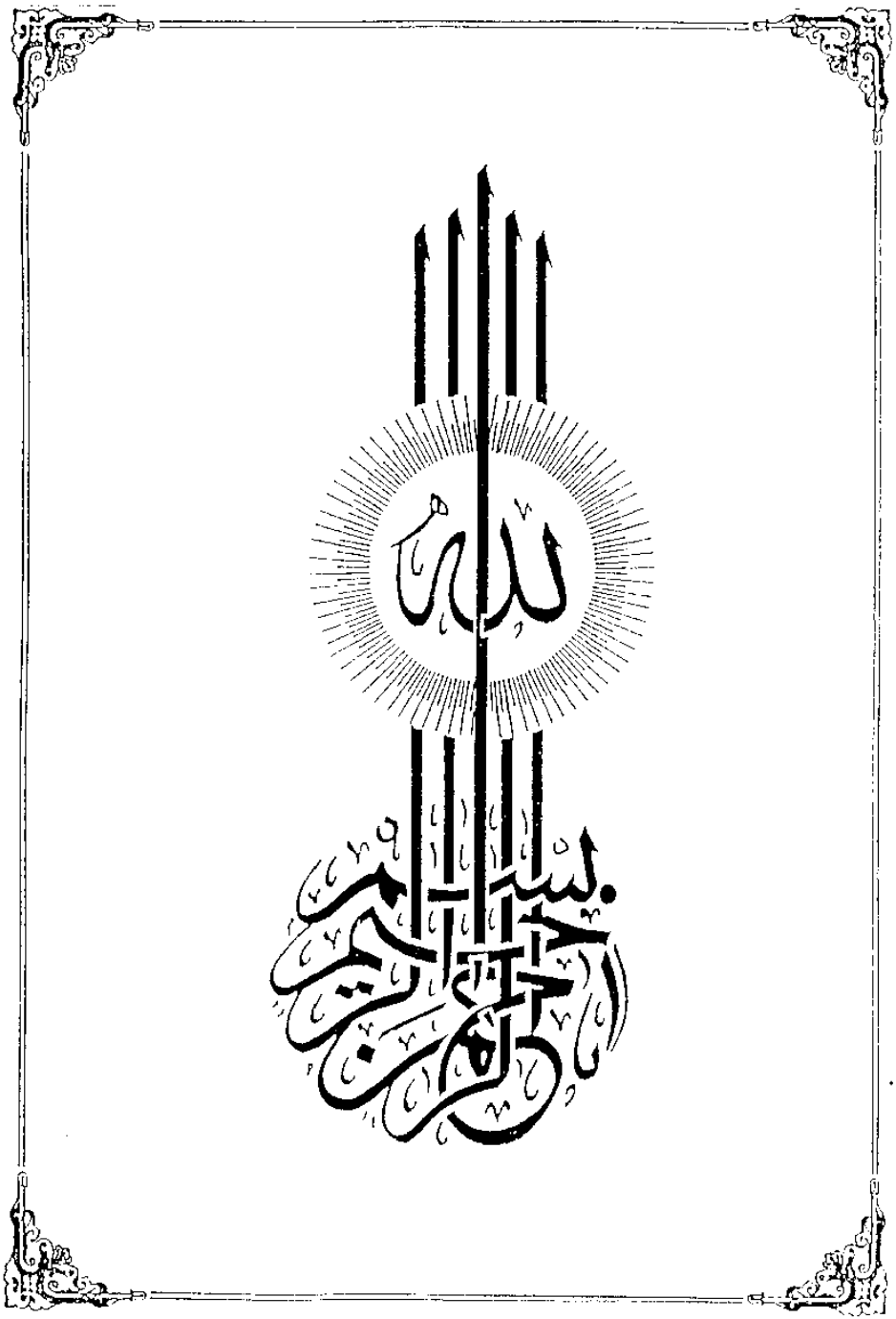

"BIOCHEMICAL PARAMETERS AS CORRELATED WITH THE MUTAGENIC EFFECTS OF PESTICIDES ON *DROSOPHILA MELANOGASTER*"

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ABSTRACT

The present study amied at investigating the response of parent and F_1 genetrations of *Drosophila melanogaster* to diazinon and dursban, at LC50 and LC5.

- Medium lethal concentration was estimated to be 0.447 & 0.237 ppm for diazinon and dursban, respectively while the slope was 2.7 & 4.91.

- In male sterility test both insecticides exerted direct effect on spermatozoa and spermatids, and indirect effect on other spermatogensis stages with dursban.
- Dursban induced direct mutagenic effect as dominant female sterility at LC50 represented by 0.8% female sterlity.
- A significant increase in sex-linked recessive lethals occurred with both insecticides.
- The effect of both insecticides was studied on A Ch E, Bu Ch E, A Ph, AL Ph, GO, GOT, GPT and LDH and total protein. Both pesticiedes inhibited all but GPT in both parent and F_1 generations, dursban was more effective.
- Correlation coefficients were calculated between enzyme activities and each of male sterility, dominant female sterility and sex-linked recessive lethals, and were found indicative in certain cases.
- Electrophoregrams revealed different isozymes for esterase and indophenole oxidase. The effect of dursban was greater with dursban on esterase of males and indophenole oxidase of female.

KEY WORDS

Drosophila melanogaster, diazinon, dursban, mutagenicity and enzyme activity.

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When mention (6) throughout the whole text =

GOT = Aspartate amino transferase.

GPT = Alanin amino transferase.

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INTRODUCTION

I. INTRODUCTION

Chemical pesticides are widely used in pest control programes in agriculture and against man natural enemies in hygiene. Therefore, the extensive use of the tremendous amounts of pesticides raised up the distinguishable problem of environmental pollution.

Several reports indicate that some of these pesticides can produce important side effects, including genetic damage to microorganisms, plants, animals, and mankind (Garrett, *et al.*, 1986). Furthermore, the importance of taking genetic hazards in consideration in occupational health studies has been reported recently by Xamena, *et al.*, (1988).

Organophosphorus pesticides (OP's) which are the most important group of pesticides, are known to react with DNA generally as alkylating agents and, consequently, they are potentially mutagens and/or carcinogens. Some organophosphorus compound were proved to be effective mutagens in a variety of organisms (Waters, *et al.*, 1980). There is a great deal of scanty and inconclusive results, due to the high toxicity of these compounds. This fact implies that more researches are necessary to evaluate adequately the real mutagenic effects of the organophosphorus pesticides present in our environment (Velazquez, *et al.*, 1986).