Faculty of Science
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EFFECT OF SOME NEW INSECTICIDES ON BIOLOGICAL AND BIOCHEMICAL CHANGES OF THE COTTON LEAFWORM, *Spodoptera littoralis* (Boisd.) (LEPIDOPTERA: NOCTUIDAE)

A Thesis Submitted to Faculty of Science, Ain Shams University,
In partial fulfillment for the award of M.Sc. degree
(Entomology)

BY

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Title: **Effect of some new insecticides on biological and biochemical changes of the cotton leafworm, *Spodoptera littoralis* (Boisd.) (Lepidoptera: Noctuidae)**

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DEDICATION

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LIST OF ABBREVIATIONS

AChE	Acetylcholinesterase
AI	Active ingredient
ALT	Alanine amino transferase
AST	Aspartate amino transferase
CBB	Coomassie Brillant Blue
Conc.	Concentration
EC	Emulsifiable Concentrate
EDTA	Ethylene Di amine tetra Acetic acid
G.d.	Genetic distance
hrs.	Hour(s)
IGR_s	Insect growth regulators
IPM	Integrated pest management
IUPAC	International Union of Pure and Applied Chemistry
KCl	Potassium chloride
kDa	kilo-Dalton
L.	Liter.
LC	Lethal Concentration
Min.	Minute(s)
M.W.	Molecular Weight

N	Normality
O.D.	Optical density
O.D.I	Oviposition deterrent Index
PAGE	Poly acrylamide gel electrophoresis
Ppm	Part per million
PTU	Phenylthiourea
R_f	Relative fragmentation
RH	Relative humidity
Rpm	Revolution per minute
SAS	Statistical analysis system
SC	Suspension Concentrate
SE	Standard error
S.I.	Similarity Index
TEMED	N,N,N,N, tetramethylendiamine
V	Volume
α-Est	α-esterase
β-Est	β-esterase