

CONTENTS

CHAPTERS	PAGE
Chapter – I	
I Introduction	
A Nicotinic acid derivatives	----- 1
B. Status of the major sucking and nonsucking insect pest	----- 9
i. <i>Myzus persicae</i>	----- 9
ii. <i>Helicoverpa armigera</i>	----- 10
iii. <i>Maize weevil</i>	----- 12
C. Bio-assay	----- 13
i. Insecticidal bioassay	----- 14
ii. Antimicrobial bioassay	----- 14
Chapter – II	
II Material and method	
A. Synthesis of Nicotinic acid derivatives	----- 15
i. Synthesis of Methyl nicotinate (1)	----- 18
ii. Synthesis of Nicotinyl hydrazide (2)	----- 18
iiia. Reaction of Nicotinyl hydrazide with p-dimethylamino benzaldehyde (3)	----- 19
iiib. Reaction of Nicotinyl hydrazide with trimethoxy benzaldehyde (3)	----- 22
iiic. Reaction of Nicotinic acid hydrazide with p-Chloro benzaldehyde (3)	----- 25
iiid. Reaction of Nicotinyl hydrazide with benzaldehyde (3)	----- 28

iiie. Reaction of Nicotinic acid hydrazide with p-nitro benzaldehyde (3)	-----	31
iiif. Reaction of Methyl Nicotinate with 2-Fluorophenyl urea (4)	-----	33
iiig. Reaction of Methyl Nicotinate with 3-trifluoro methyl phenyl urea (5)	-----	36
iiih. Reaction of Methyl Nicotinate with DL-nor-leucine (6)	-----	39
 iii. Reaction of Methyl Nicotinate with diethyl malonate and by thiourea (7)	-----	42
iiij. Reaction of Methyl Nicotinate with 2,4-dichlorophenoxy acetic acid hydrazide (8)	-----	45
 B. Insecticidal bio-assay	-----	48
a. <i>Myzus persicae</i>	-----	48
i. Performed on live plants	-----	48
ii. Performed by residual thin film technique	-----	51
b. <i>Helicoverpa armigera</i>	-----	52
c. Maize weevil	-----	54
 C. Anti-microbial bioassay	-----	56
i. Anti fungal bioassay on <i>Aspergillus niger</i>	-----	56
ii. Antibacterial bioassay of <i>Pseudomonas flurous</i>	-----	57

Chapter – III	
III. Results and Discussion	
A. Synthesised Nicotinic acid Derivatives	----- 59
B. Insectidal bio-assay	----- 60
i. <i>Myzus persicae</i>	----- 60
ii. <i>Helicoverpa armigera</i>	----- 65
iii. <i>Sitophilus zeamay</i>	----- 68
C. Antimicrobial bio-assay	----- 71
i. Antifungal bioassay	----- 72
ii. Antibacterial bioassay	----- 75
Chapter – IV	
IV. Conclusions	----- 78
Chapter – V	
V. References	----- 79