

**Assessment of Different Broad Beans Varieties to the Infestation  
by faba bean beetle *Bruchidius incarnatus* (Boh.)  
(*Coleoptera, Bruchidae*) in the Store.**

**By**

**Afrah Hassan Suliman Ortashi**

**B.Sc. (Agric.) Honours - 1996**

**Sudan University of Science and Technology**

**A thesis submitted in partial fulfillment of the requirements for  
the degree of Master of Science in Plant Protection.**

**Supervisor,**

**Prof. Asim Ali Abdel Rahman**

**Department of Plant Protection**

**College of Agricultural Studies**

**Sudan University of Science & Technology**

**September - 2004**

# CONTENTS

<b>DEDICATION</b>	i
<b>ACKNOWLEDGEMENTS</b>	ii
<b>ENGLISH ABSTRACT</b>	iii
<b>ARABIC ABSTRACT</b>	iv
<b>CHAPTER ONE: INTRODUCTION</b>	1
<b>CHAPTER TWO: REVIEW OF LITERATURE</b>	5
2.1 Faba bean ( <i>Vicia faba</i> L.)	5
2.1.1 Origin and usage	5
2.1.2 Economic importance	5
2.1.3 Geographical distribution and production	6
2.2.1 Description of <i>Bruchidius incarnatus</i>	6
2.2.2 Distribution	7
2.2.3 Biology of <i>Bruchidius incarnatus</i>	8
2.2.4 The economic importance of the pest	9
2.2.5 Host range	10
2.3 Basis of preference and resistance	11
2.4 Percentage damage and losses	12
<b>CHAPTER THREE: MATERIALS AND METHODS</b>	13
<b>CHAPTER FOUR: RESULTS</b>	21
4.1 The effect of varieties on egg number	21
4.2 The effect of varieties on emergence holes	21
4.3 The effect of seed variety on the number of emerging adults	22
<b>CHAPTER FIVE: DISCUSSION</b>	34
<b>CONCLUSIONS AND RECOMMENDATIONS</b>	36
<b>REFERENCES</b>	38
<b>APPENDICES</b>	41
Appendix 1	41
Appendix 2	42
Appendix 3	43

## LIST OF TABLES

Table	Title	No.
1.	The effect of broad bean variety on egg laying by <i>B. incarbatus</i>	23
2.	Means number of emergence holes of <i>B. incarnatus</i> per 18 gms seeds of faba bean varieties	23
3.	Number of emerging adults of <i>B. inarnatus</i> per 18 gms of seeds of faba bean varieties	34
4.	The nutritive values of faba bean seeds as shown by the chemical analysis of four varieties	24

## LIST OF FIGURES

Fig.	Title	No.
1.	Mean number of eggs of <i>B. incarnatus</i> laid on the seeds of four broad beans varieties	26
2.	Mean number of emergence hole of <i>B. incarnatus</i> shown by four varieties of broad beans	27
3.	Mean number of adults of <i>B. incarnatus</i> emerged from four broad beans varieties	28
4.	Number of adults of <i>B. incarnatus</i> emerged from Agbat variety	29
5.	Number of adults of <i>B. incarnatus</i> emerged from Selaim variety	30
6.	Number of adults of <i>B. incarnatus</i> emerged from Turki variety	31
7.	Number of adults of <i>B. incarnatus</i> emerged from Habashi variety	32
8.	Number of adults of <i>B. incarnatus</i> emerged from four broad bean varieties	33

## LIST OF PLATES

Plate	Title	No.
1.	Eggs of <i>Bruchidius incarnatus</i> laid on the seeds of Turki variety	15
2.	Emergence holes of <i>Bruchidius incarnatus</i> shown by Turki variety	16
3.	Adults of <i>Bruchidius incarnatus</i> emerged from Turki variety	17
4.	Eggs of <i>Bruchidius incarnatus</i> laid on the seeds of Habashi variety	18
5.	Emergence holes of <i>Bruchidius incarnatus</i> shown by Habashi variety	19
6.	Adults of <i>Bruchidius incarnatus</i> emerged from Habashi variety	20