Contents

Page

-INTRODUCTION 1

-REVIEW OF LITERATURE..... 3

I. Survey of natural enemies of scale insects in the world..... 3

II. Population abundance and number of generations of some scale insects..... 28

II.1. The California red scale, *Aonidiella aurantii* 28

II.2. The Oriental yellow scale, *Aonidiella orientalis* 31

II.3. The Florida red scale, *Chrysomphalus aonidum* 32

III. The role of entomophagous insects in suppressing the scale insects'population..... 36

IV. Biological studies..... 41

IV. 1. *Aspidiotiphagus citrinus*..... 41

IV. 2. *Habrolepis pascuorum* 44

-MATERIALS AND METHODS..... 45

I. Survey of natural enemies of different scale insects..... 45

II. Population fluctuations of the scale insects..... 46

III. Rate of parasitism..... 47

IV. Biology of *A. citrinus* and *H. pascuorum*. 48

-RESULTS AND DISCUSSION..... 55

I .Survey of entomophagous insects and predacious mites of certain scale insects in Beni–Suef Governorate..... 55

II. The seasonal abundance of certain scale insects..... 70

II. 1. The seasonal abundance of California red scale, *A. aurantii*..... 70

II. 2. The seasonal abundance of Oriental Yellow scale, *A. orientalis*..... 84

II. 3. The seasonal abundance of Florida red scale, *C. fiicus*..... 97

III. Role of parasitoids and other mortality factors on some scale insects..... 109

III. 1. Role of parasitoids on *A. aurantii* 109
III. 2. Role of parasitoids on *A. orientalis* 116
III. 3. Role of parasitoids on *C. ficus* 124
IV. Biological studies 132
IV. 1. *Aspidiotiphagus citrinus* 132
IV. 2. *Habrolepis pascuorum* 158
V. Hyperparasitism 186
- SUMMARY 194
- REFERENCES 208
- ARABIC SUMMARY .....