

ABSTRACT

The present study was carried out by using honeybees carnialian hybrid to study; 1. The population dynamic and seasonal fluctuation of Varroa mites (*Varroa destructor*). 2. The regression between the climatic conditions (temperature, relative humidity) and percentage of infestation with Varroa mites in honeybee colonies to select the proper control timing in hot Egyptian regions at Beni-Sweif governorates. 3. Evaluate the efficiency of some essential oils comparison to chemical compounds for Varroa mites controls using different methods of application and their effect on productivity of honeybee colonies.

The obtained results are summarized as follows; 1. The highest infestation rate was recorded at winter and autumn seasons, while the lowest rate was recorded at summer and spring seasons. 2. Varroa infestation level in sealed drone brood showed increase at season activity related to brood drone increase. 3. Varroa infestation level in adult workers recorded the highest rate at late autumn and winter beginning.

The regression between temperature, humidity and Varroa mites infestation; 1. There were relationship between Varroa infestation level and different environmental factors (temperature degrees and humidity percentage). 2. The Varroa population dynamics is inversely proportional to the changes occurred on temperature degrees and humidity rate.

Evaluation the efficiency of some essential oils and chemical compounds for Varroa mites control. **Feeding method** 1. (1.5 ml/litre) let to using the essential oils; Higher reduction of Varroa percentage with all tested oils particularly with thymol treatment.

2. Higher significant differences among application of the essential oils. 3. The rate of the fallen dead Varroa mites start to reduce after 14 days of the 2nd application treatment.

Evaporation method: 1. The 10% and 20% concentrations of the thymol oil caused high Varroa reduction of most periods of the year.

Spraying method: The thymol oil (1% conc.) caused the highest Varroa reduction population (reached to 93%, followed by peppermint and eucalyptus which approached in reduction 88.12% & 85.75%, respectively.

Chemical compounds: It used formic acid, oxalic acid, Apistan and Bayvarol. The Apistan and Bayvarol let to therapeutic effects towards Varroa mites than formic and oxalic acids.

Productivity of honey bee colonies: The reflection effects of tested essential oils and chemical compounds used to controlling Varroa mites positive affected on the honeybee productivity, during tested two seasons (2005 & 2006).

CONTENTS

	Page
INTRODUCTION	1
REVIEW OF LITERATURE	4
Part I: Population Dynamic and Seasonal Fluctuations of Varroa mite	4
Part II. Evaluation of the efficiency of some essential oils and chemical compounds as Varroa control	8
First: Essential oils treatments and doses	8
I. Feeding Method	8
II. Evaporation method	10
III. Spraying method	34
Second: The chemical compounds	41
MATERIALS AND METHODS	57
Part I: Population Dynamic and Seasonal Fluctuations of Varroa mite	57
Part II: Evaluation of the efficiency of some Essential oils and chemical compounds on Varroa mites	58
First: Essential oils treatments and doses	59
Second: The chemical compounds	62
Productivity of The honeybee colonies	64
Meteorology	65
Statistical analysis	65

	Page
RESULTS AND DISCUSSIONS	67
Part I: Population Dynamic and Seasonal Fluctuations of Varroa mite	67
A. Beni-Sweif City Region.....	67
B. Ihnasia El-Madina Region	70
C. Sods Al-Omaraa region	72
Part II: Evaluation of the efficiency of some Essential oils and chemical compounds on Varroa mites	79
First: Essential oils treatments and doses	79
I. Feeding method	79
A- Essential oils treatments	79
1- August- September (2004 & 2005)	79
2- October- November (2004 & 2005)	80
3- February- March (2004 & 2005)	81
4- April- May (2004 & 2005)	82
B- Mixed essential oil treatments	92
1- August- September (2004 & 2005)	92
2- October- November (2004 & 2005)	93
3- December- January (2004 & 2005)	93
4- February- March (2004 & 2005)	94
5- April- May (2004 & 2005)	94

	Page
II- Evaporation method	109
1- August- September (2004 & 2005)	109
2- October- November (2004 & 2005)	110
3- December- January (2004 & 2005)	111
4- February- March (2004 & 2005)	112
5- April- May (2004 & 2005)	113
III- Spraying method	142
1- August- September (2004 & 2005)	142
2- April- May (2004 & 2005)	143
Second: Chemical compounds	156
1- August- September (2004 & 2005)	156
2- October- November (2004 & 2005)	157
3- December- January (2004 & 2005)	158
4- February- March (2004 & 2005)	158
5- April- May (2004 & 2005)	159
▪ Comparison among efficiency of essential oil and chemical compounds used as Varroa controlling	173
▪ Productivity of The honeybee colonies.....	173
SUMMARY	178
REFERENCES	185
ARABIC SUMMARY	-