

CONTENTS

I-	Introduction	1
II-	Review of Litrtature	2
	1- Importance of bee venom as a mechanism of colony defence	2
	2- The stinging apparatus of <i>Apis mellifera</i>	3
	3- Venoms of Hymenoptra	6
	4- Collection Bee-Venom	8
III-	Materials and Methods	15
IV-	Results and Discussion	46
	1- Types of devices used B.V. collection	46
	2- Effect of different seasons on bee venom collection	70
	3- Effect of using bee venom electrical collector device on dead number of <i>Varroa jacobsoni</i>	75
	4- Effect of B.V. collection on dead bees.	84
	5- Effect of using B.V. devices on the temperature & R.H. in hive of honeybee collenies	91
	6- Effect of races and generation on B.V. collection .	99
V-	Summary	115
VI-	References	120
VII-	Arabic Summary	126
List of Tables		
Table (1)	Effect of using 3 V. at 0.4 A. on venom collection from three bee races per 30 min.	48
Table (2)	Effect of using electrical transformer 220 V to 6 V. at 1 A. on amount of B.V. collection from three F ₂ bee races .	52
Table (3)	Amount of B. V. collected at three days interval from the three races of honeybee by using electrical transformer 220 V. to 12 V. at 1 A. on during 27/6/98 to 30/8/98.	56
Table (4)	Amount of B.V. from 15/8/99 to 29/8/99 collected daily from the three races of honeybee by using electrical transformer 220 V. to 12 V. at 1 A.	59

Table (5)	Amount of bee venom from the three bee races F_2 using electrical transformer 220 V. to 14 V. at 3 A. during 30 min.	63
Table (6)	Effect of using wetbattery 12 V with 16 A. on amount of B.V. collection in the three bee race F_2 .	67
Table (7)	Effect of different seasons on bee venom collection.	71
Table (8)	The relationship between bee venom collection and Varroa mites caught by using electrical transformer 220 V. to 3 V. at 0.4 A. on the three bee races F_1 . during 30 min.	76
Table (9)	The relationship between bee venom collection and Varroa mites caught using electrical transformer 220 V. to 12 V. at 1 A., during 27/6/98 to 30/8/98 recorded at the 3-day intervals in the three bee races F_2 during 30 min.	79
Table(10)	The relationship between bee venom collection and Varroa mites caught using electrical transformer 220 V. to 14 V. at 3 A. on bee race F_2 during 30 min.	82
Table(11)	Effect of using electrical transformer 220 V. to 12 V. at 1 A. on the amount of bee venom collection during 27/6/98 to 30/8/98 recorded at 3-run intervals in the three bee race F_2 (A) during 30 min	85
Table(12)	Effect of using electrical transformer 220 V to 14 V. with 3 A. on amount of B.V. collection in the three bee races F_2 , leaving the device to 30 min. after cut off the electric current	89
Table(13)	Effects of temperature in honeybee hive and R.H. on the amount of bee venom collection using electrical transformer 220 V. to 3 V. at 0.4 A. in three bee races F_1 .during 30 min	92
Table(14)	Effects of colleting venom on temperature in honeybee hive and R.H. using electrical transformer 220 V. to 14 V. at 3 A. in the three bee race F_2 during 30 min.	96
Table(15)	Amount of bee venom on affected by bee races and generation (F_1 and F_2)	102
Table(16)	Effect of bee venom collection device on different races on F_1 and F_2 on amount dead bees.	108
Table(17)	Amount of bee venom affected by races.	114

List of Graphs		
Fig. (1-a) & Fig. (1-b)	Effect of using electrical transformer 220 V. to 3 V. at 0.4 A. on the mean of bee venom collection bee races, during 30 min.	49-50
Fig. (2)	Effect of using electrical transformer 220 V to 6 V. at 1 A. on amount of B.V. collection three bee races F ₂ .	53
Fig. (3)	Amount of B. V. 3 run collected from the three races of honeybee by using electrical transformer 220 V. to 12 V. at 1 A. on the amount of bee venom collection during 27/6/98 to 30/8/98 recorded at 3-run intervals.	57
Fig. (4)	Amount of B.V./run collected from the three races of honeybee by using electrical transformer 220 V. to 12 V. at 1 A. on the amount of bee venom collection during 15/8/98 to 28/8/98 recorded daily during 30 min.	60
Fig. (5)	Amount of bee venom from the three bee races F ₂ using electrical transformer 220 V. to 14 V. at 3 A. during 30 min.	64
Fig. (6)	Effect of using wetbattery 12 V with 16 A. on amount of B.V. collection in the three bee race F ₂ .	68
Fig. (7-a) & Fig. (7-b)	Effect of different seasons on bee venom collection at the three runs. Effect of collecting venom on the number of dead bees at the three runs.	72-73
Fig. (7-c)	Effect of venom collection on the number of Varroa mites collected at the three runs.	74
Fig. (8)	Counts of Varroa mites caught as a result of using electrical transformer 220 V. to 3 V. at 0.4 A. on the three bee races F ₁ . during 30 min.	77

Fig. (9)	The relationship between bee venom collection and Varroa mites caught using electrical transformer 220 V. to 12 V. at 1 A., during 27/6/98 to 30/8/98 recorded at 3-day intervals in the three bee races F ₂ during 30 min	80
Fig. (10)	The relationship between bee venom collection and Varroa mites caught using electrical transformer 220 V. to 14 V. at 3 A. on bee race F ₂ during 30 min.	83
Fig. (11)	Effect of using electrical transformer 220 V. to 12 V. at 1 A. on the amount of bee venom collection during 27/6/98 to 30/8/98 recorded at 3-day intervals in the three bee race F ₂ (A) during 30 min	86
Fig. (12)	Effect of using electrical transformer 220 V to 14 V. with 3 A. on amount of B.V. collection in the three bee races F ₂ , leaving the device to 30 min. after cut off the electric current	90
Fig. (13-a) & Fig.(13-b)	Effects of temperature in honeybee hive and R.H. on the amount of bee venom collection using electrical transformer 220 V. to 3 V. at 0.4 A. in Italian bee race F ₁ .during 30 min	93-94
Fig. (14-a) & Fig.(14-b)	Effects of temperature in honeybee hive and R.H. on the amount of bee venom collection using electrical transformer 220 V. to 14 V. at 3 A. in the three bee race F ₂ during 30 min.	97-98
Fig. (15-a) & Fig.(15-b)	Aamount of bee venom on affected by bee races and generation (F ₁ and F ₂)	102-103
Fig. (15-c) & Fig.(15-d)		105
Fig. (15-e)		106

Fig. (16-a) & Fig.(16-b)	Effect of bee venom collection device on different races on F ₁ and F ₂ on amount dead bees.	109-110
Fig. (16-c) & Fig.(16-d)		111-112
Fig. (16-e)		113

List of Plates

Plat.(1)	Bee venom collector device by transformer 220V. to 3 V. with 0.4 A. with stabilizer	20
Plat.(2)	The plate of bee venom device collector in treatment on the bottom of honeybee hive.	21
Plat.(3)	Bee worker is sting the sheet of device plate.	22
Plat.(4)	The bee worker on the device plate.	23
Plat.(5)	Plastic sheet on the glass plate.	24
Plat.(6)	Scrashing the secreted bee venom (Apitoxine) from the surface of glass device plate.	25
Plat.(7)	Bee venom collector device by transformer 220 V. to 6 V. with 1 A.	26
Plat.(8)	Bee venom collector device by transformer 220 V. to 12 V. with 1 A.	27
Plat.(9)	Bee venom collector by transformer from 220 V. to 14 V. with 3 A.	28
Plat.(10)	Bee venom collector device by battery at 12 V. with 16A.	29
Plat.(11)	The bee venom apparatus of the honeybee worker (The sting worker <i>Apis mellifera</i> L.).	30
Plat.(12)	Poison sac before using the bee venom device on F ₁ Manzala bee race.	31
Plat.(13)	Poison sac after using the bee venom device on F ₁ Manzala bee race.	32
Plat.(14)	Poison sac before using the bee venom device on F ₂ Manzala bee race.	33
Plat.(15)	Poison sac after using the bee venom device on F ₂ Manzala bee race.	34
Plat.(61)	Poison sac before using the bee venom device on	35

	F ₁ Carniolan bee race.	
Plat.(17)	Poison sac after using the bee venom device on F ₁ Carniolan bee race.	36
Plat.(18)	Poison sac before using the bee venom device on F ₂ Carniolan bee race.	37
Plat.(19)	Poison sac after using the bee venom device on F ₂ Italian bee race.	38
Plat.(20)	Poison sac before using the bee venom device on F ₁ Italian bee race.	39
Plat.(21)	Poison sac after using the bee venom device on F ₁ Italian bee race.	40
Plat.(22)	Poison sac before using the bee venom device on F ₂ Italian bee race.	41
Plat.(23)	Poison sac after using the bee venom device on F ₂ Italian bee race.	42
Plat.(24)	A worker is sting the human skin.	43
Plat.(25)	The sting worker is left the stinging apparatus and its poison sac with the end of stomach and nerve.	44
Plat.(26)	The stinging apparatus of a worked in the skin.	45

