RESULTS AND DISCUSSION

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The Survey indicated that the following honeybee pests and diseases were found have been infected of honeybee colonies in the above apiaries during the periods of studies (2001-2003 and 2005).

Survey of honeybee colonies infested by diseases and pests in Qalubia Gov. during season 2003:

Data in table (1) and figure (1) in different localities were (Shebeen El-Kanter, Qalub, Toukh, Benha and Kafr Shoker) showed that the diseases were Varroa mites (*Varroa destructor)*,Chalkbrood (*Ascosphaera apis*), Nosema, AFB and EFB and the pests were wasps (*Vespa orientalis*) and wax moth in every localities has been observed (three apiaries in each locality). The infestation percentages for Varroa mite were (25, 22.6, 21.3, 26.1 and 19.3) in (Shebeen El-Kanter, Qalub, Toukh, Benha and Kafr Shoker) respectively. The infestation percentages for honeybee colonies infested by chalkbrood diseases were (7.6, 6.6, 4.6, 9.6 and 10.3) respectively for the same localities and the infestation percentages for honeybee colonies infested by *Vespa orientalis* were (11, 8, 9.3, 13.3 and 7.3) respectively. The infestation percentage for honeybee colonies infested by wax moth (6.3, 9, 5.3, 8.3 and 8) respectively.

The infestation percentage for honeybee colonies infested with nosema were (4.6, 3, 4, 7 and 5.3) respectively.

Table (1): Survey of diseases & pests in honeybee colonies at Qalubia Gov. during season 2003

Localities	No. apiaries	Varroa mites		Chalk broad		Wasps		Wax math		Nosema		A.F.B		E.F.B	
		No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting
Shebeen El-Kanter	3	75	25	23	7.6	33	11	19	6.3	14	4.6	8	2.6	-	-
Qaluob	3	68	22.6	20	6.6	24	8	28	9	9	3	6	2	12	4
Toukh	3	64	21.3	14	4.6	28	9.3	16	5.3	12	4	12	4	9	3
Benha	3	80	26.1	29	9.6	40	13.3	25	8.3	21	7	19	6.3	15	5
Kafr Shoker	3	58	19.3	31	10.3	22	7.3	24	8	16	5.3	20	6.6	13	4.3
Total	15	345	114.8	117	38.7	147	48.9	112	36.9	72	23.9	65	21.5	3.9	16.3
Mean	3	69	22.9	23.4	7.7	29.4	9.7	22.4	7.38	14.4	4.7	13	4.3	7.8	3.26

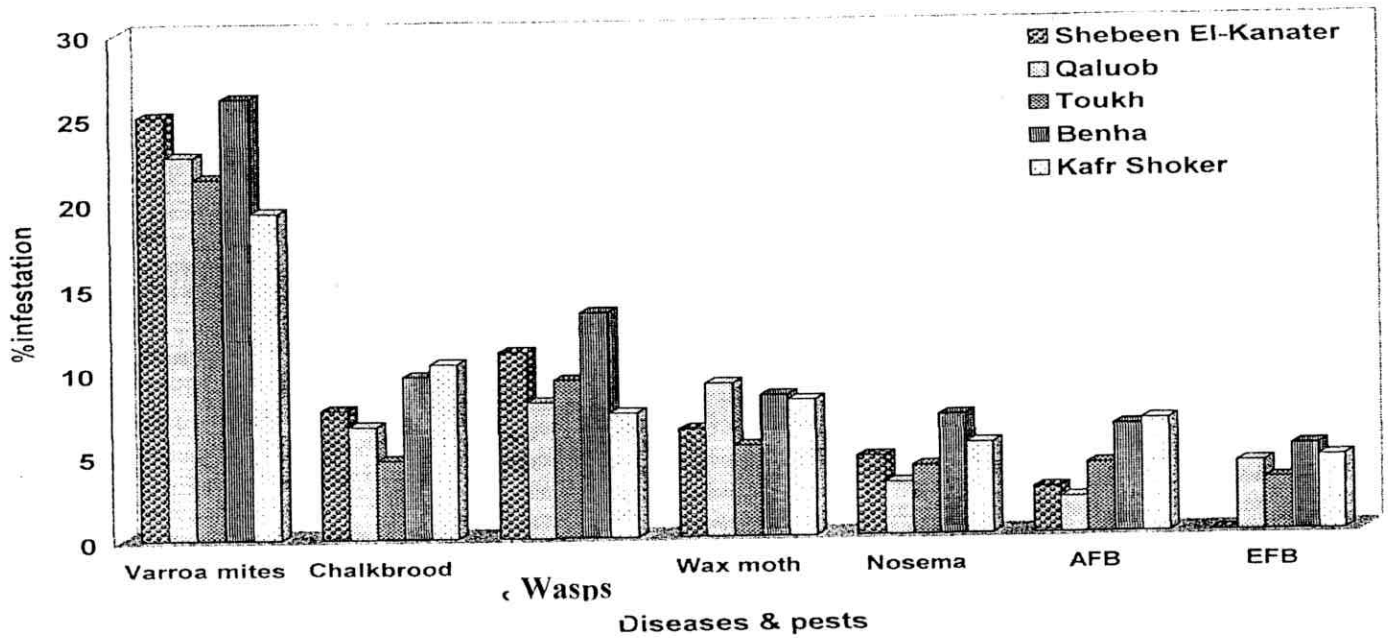


Fig. (1): Survey of diseases & pests in honeybee colonies at Qalubia Governorate season 2003

The infestation percentage for honeybee colonies infested with AFB and EFB were (2.6, 2, 4, 6.3 and 6.6) and (0, 4, 3, 5 and 4.3) respectively.

Data showed during season 2004 in table (2) and figure (2) in different localities, the infestation percentage for Varroa mite were (20, 24.5, 23, 25 and 26.5) respectively, while the infestation for the chalkbrood were (5.5, 7.5, 5, 9 and 8.5) respectively while the infestation for *Vespa orientlis* were (8.5 10, 7, 5, and 6) respectively.

The infestation percentages for wax moth were (3.3, 2.6, 5, 4 and 3.3) respectively, the infestation percentage for Nosema were (0, 1, 2, 4 and 2.4), respectively while the infestation percentage for AFB and EFB were (1, 4, 5, 2.6 and 5) and (0, 2.4, 3.2, 4 and 3.2) respectively.

I. Varroa disease caused by *Varroa destructor* as the main disease in honeybee colonies *Apis mellifera.L*.

II. Chalkbroad disease which caused by *Ascospharea apis.*

III. The waspa the pest which caused by *Vespa orientalis.*

I. Control of *Varroa destructor* by natural products:

The Natural Products is a New ways of integrated Varroa control. The active substance used should be found in Nature and should be without risk for consumers of bee products. Moreover the residues produced should not accumulate in wax.

Table (2): Survey of diseases & pests in honeybee colonies at Qalubia Gov. during season 2004

Localities	No. apiaries	Varroa mites		Chalk broad		Wasps		Wax math		No sema		A.F.B		E.F.B	
		No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting	No. of Colony	% infesting
Shebeen El-Kanter	3	60	20	17	5.5	26	8.5	10	3.3	-	-	3	1	-	-
Qaluob	3	73	245	22	7.5	30	10	8	2.6	3	1	12	4	8	2.4
Toukh	3	69	23	15	5	21	7	15	5	6	2	15	5	10	3.2
Benha	3	75	25	27	9	15	5	12	4	12	4	8	2.6	12	4
Kafr Shoker	3	80	26.5	25	8.5	18	6	10	3.3	8	2.4	15	5	10	3.2
Total	15	357	119	106	35.5	110	36.5	55	18.2	29	9.4	53	17.6	4.6	12.8
Mean	3	71.4	23.8	21.3	7.1	22	7.3	11	3.64	5.8	1.88	10.6	3.52	9.3	2.56

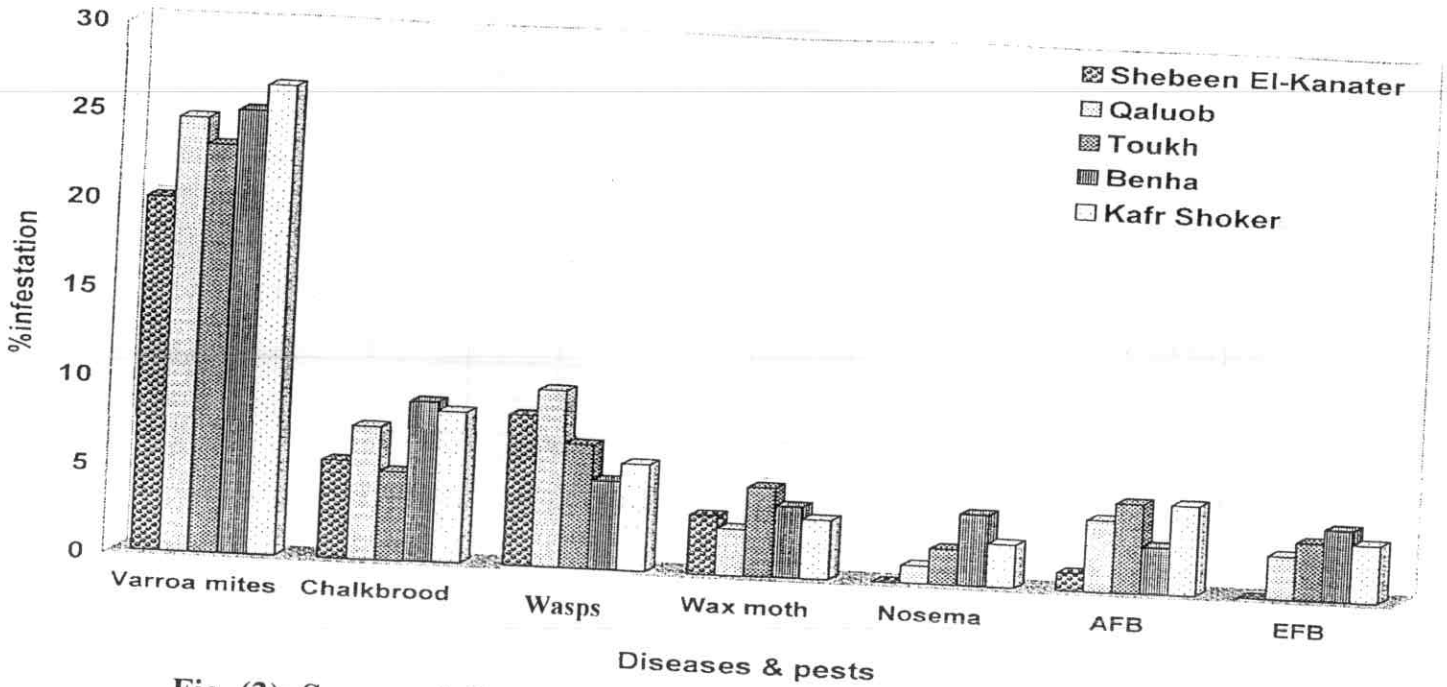


Fig. (2): Survey of diseases & pests in honeybee colonies at Qalubia Governorate season 2004

I.1. Effect of Spraying some plant extracts on Varroa mite:

Data presented in Table (3) indicated that the percentage reduction of infection was 62% on Brood and 77% in adults by used spraying grape fruit and the mean percentage infection before treatment was 12% on Brood and 13.3% in adults, while the mean percentage infestation after Treatment was 5.3% on brood and 4% on adults.

The percentage reduction of infestation was 49% on brood and 84% on adults, by used spraying meal azadraghata, the mean percentage infestation before treatment was 11.3% on Brood and 20% in adults, while the mean percentage infestation after treatment was 6.6% on brood and 4% on adults.

The Spraying Eucalyptus extract to the leaves in this experimental , the percentage reduction of infestation was 69% on brood and 81% on adults, and the mean percentage infestation before treatment 16.6% on brood and 20% on adults but the mean percentage infestations after treatment 6% in brood and 4.6% in adults. The Percentage Reduction of infestations by used capsicum extract from leaves was 61% on brood and 78% on adults, the mean percent infestations before treatment was 14.6% on brood and 22% on adults but the mean percent infestations after treatment was 6.6% on brood and 6% on adults after treated with the mentha leaves extract, the percentage reduction of infestation was 55% on brood and 68% on adults but the mean percentage infestation before treatment 11.3% on brood and 16.6% on adults, the mean percent infestation after treat was 4.6% on brood and 6.6% on adults while the control, untreated. The mean percentage infection before treatment 12% on brood

Table (3): Effect of spraying some plant extracts for controlling Varroa mite during 2004 .

Type of Treat	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatment		% Reduction	
	Brood	adults	After 7 days	After 14 days	After 21 days	After 28 days	Brood	adults	Brood	adults
Grape Fruit	8	16	26	42	20	50	6	2		
	14	10	16	3	30	66	6	6	62%	77%
	8	14	24	34	24	52	4	4	54.6	
Mean	10	13.3					5.3	4		
Mela Azadr-aghata	12	22	16	36	16	42	18	2		
	4	10	12	40	12	44	4	6	49%	84%
	10	18	14	72	18	50	6	4		
Mean	11.3	16.6					9.3	4		
Eucal-yptus	16	20	30	32	50	72	4	6		
	14	18	28	42	58	82	6	6	69%	81%
	20	22	44	78	40	58	8	4		
Mean	16.6	20					6	5.3		
Capsi-cum	10	24	34	63	24	68	4	6		
	16	28	22	48	34	52	6	8	61%	78%
	18	14	16	46	18	36	10	4		
Mean	14.6	22					6.6	6		
Mentha	12	18	24	58	30	54	4	8		
	8	14	28	72	48	76	4	4	55%	68%
	14	18	38	86	35	66	6	8		
Mean	11.3	16.6					4.6	6.6		
Control	12	12	26	42	20	50	14	16		
	14	18	16	30	30	66	16	19		
	10	14	24	34	24	52	12	8		
Mean	12	14					14	14.3		

L.S.D. at 0.05 = 9.14 **F value = 7.31**

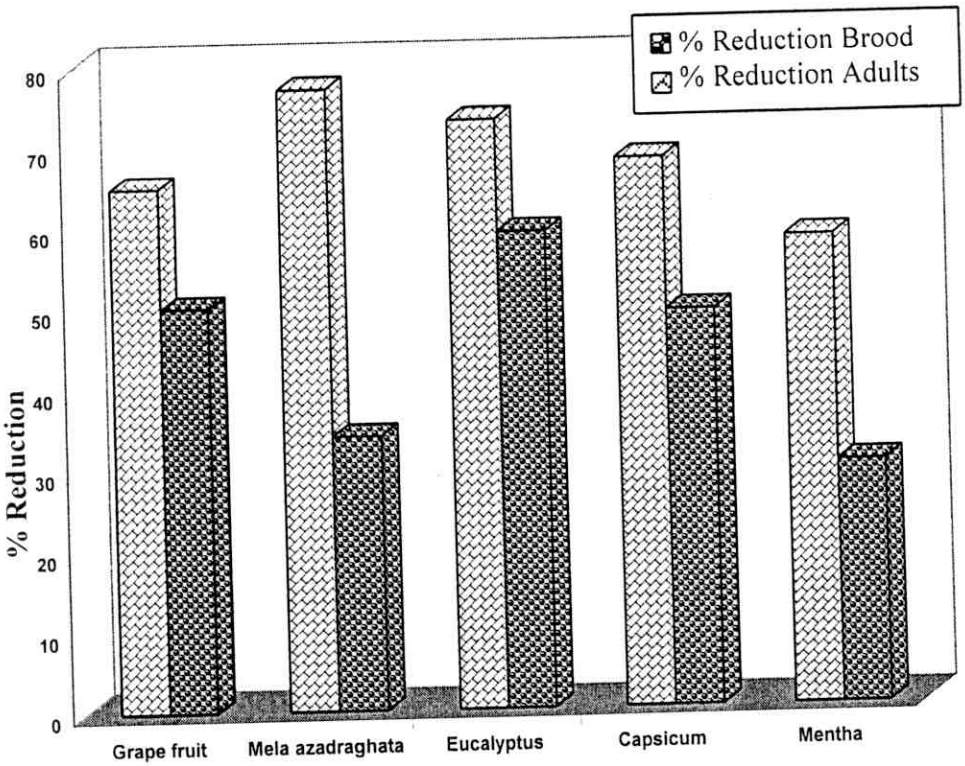


Fig. (3): Effect of spraying of some plant extracts on Varroa mite control during 2004

and 14% on adults while the mean percent infection after treatment was 10% on brood and 12% on adults.

Statistical analysis of the data showed significant between six treatment mentha leaves extract and eucalyptus extract (51.25, 51.16) and non significant between the eucalyptus extract and the capsicum leaves extract (51.16 and 38.4) non significant between the capsicum leaves extract and control, grape fruit and meal azadraghata (38.4, 34.5, 32.2 and 31) respectively while,(F value = 7.31 L.S.D at 0.05% =9.14).

The best time of treatment 28 day and non significant between (28 day, 7 day) respectively and (14 and 21 day) L.SD at 0.05=7.46 this data showed in Fig (3) the results agreement with **Calderone, *et al.*, (1996) and Khattab (2001)** who indicated that plant products are attractive materials for the control of Varroa mites on honeybees because may have no adverse health affects in the products, **Imdorf *et al* (1995)** suggested that the active substances used should be found in Nature and should be without risk for consumers of bee products, the residues products should not accumulates in wax.

I.2.Effect of dusting some Natural Products for Controlling Varroa mite:

Data in Table (4) indicated that treatments by used five plant extract (grape fruit, mela azadraphata, eucalgptuss, capsicum, Mentha leaves) and untreated (control) showed the Number of fallen Varroa mite after (7, 14, 21 and 28 day) were, the mean percentage infestation before treatment by grape fruit in brood 7.3% and adults 14% while the mean percentage infestation after treatment 4.6% in brood and 5.3% in adults, the

percentage reduction of infestation was 55% on brood and 66% on adults but used the mela azadrphata extract the mean percentage infestation before treatment was 10% on brood and 16% on adults but the mean percent of infestation after treatment 6% on brood and 4% on adults the Percent Reduction of infestation was 34% on brood and 78% on adult while the percentage reduction of infestation by used eucalyptus extract was 67% on brood and 85% on adults, the percentage infection before treatment was 17.3% on brood and 21.3% on adults but the percentage infection after treatment was 8% in brood and 3.6% on adults by used the capsicum extract, the percentage reduction of infestation was 68% on brood and 74% on adult, the percentage infestation before treatment was 13.3% on brood and 14% on adults, but the percentage infestation after treatment was 6% on brood and 4% on adults. The reduction percentage of infestation for the mentha leaves extract was 62% on brood and 71% on adult, the infestation percentage before treatment was 14% on brood and 16.6% on adults, but the infestation percentage after treatment was 4% on brood and 5.3% on adults after treatment was 4% on brood and 5.3% in adults.

The result agreement with **Calderone *et al* (1997) and Diana Sammataro, *et al.*, (2002)** he suggested that the Natural Products may be useful against the Tracheal mite and may be on important component of an integrated pest management program for Varroa if used when brood levels are low, we showed to Fig (4) The Reduction Percentage Level is highly by used Eucalyptus extract effected on adult and brood but the mela aradraphata is low, (Capsicum, mentha leaves, Grape fruit) respectively.

Table (4): Effect of dusting some Natural products for controlling Varroa mite during winter 2004

Type of Treat	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatment		% Reduction	
	Brood	adults	After 7 days	After 14 days	After 21 days	After 28 days	Brood	adults	Brood	adults
Grape Fruit	10	24	12	46	18	94	4	8		
	4	6	10	36	16	72	4	4	48.4	66.8%
	8	12	36	58	22	20	6	4		
Mean	7.3	14					4.6	5.3		
Mela Azadr-aghata	8	14	10	36	24	62	4	4		
	12	16	18	28	28	84	6	8	57%	78%
	10	18	26	32	38	90	8	4		
Mean	10	16					6	5.3		
Eucal-yptus	22	20	52	74	72	116	8	3		
	12	20	30	112	28	90	4	2	67%	85%
	18	24	58	92	62	76	12	6		
Mean	17.3	21.3					8	3.6		
Capsi-cum	18	16	18	56	26	68	8	6		
	10	12	32	70	42	76	6	12	68%	74%
	12	18	48	78	48	80	4	4		
Mean	13.3	15.3					6	6.3		
Mentha	14	16	52	96	60	92	8	6		
	18	22	56	110	68	102	6	4	62%	71%
	10	12	62	94	48	82	8	6		
Mean	14	16.6					7.3	5.3		
Control	15	16	20	31	34	18	16	18		
	14	18	12	28	20	26	14	20		
	8	10	8	22	18	34	15	12		
G. Mean	12.3	14.6					15	16.6		

L.S.D. 0.05 = 11.45 F. value =11.59

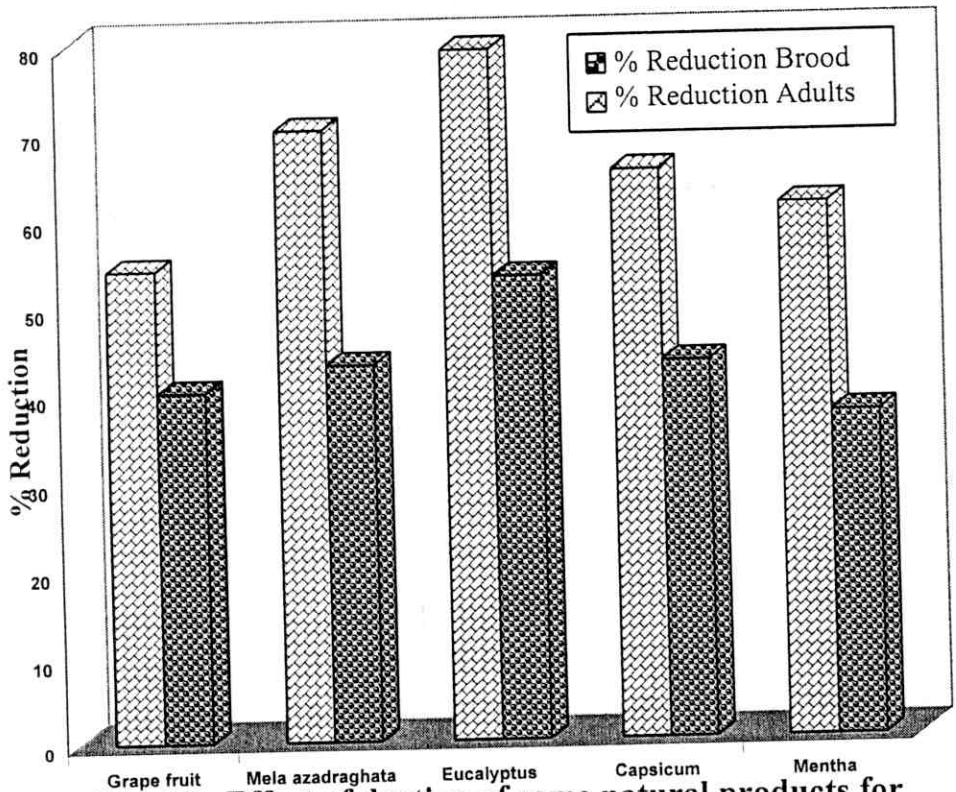


Fig. (4): Effect of dusting of some natural products for controlling Varroa mite during winter 2004 .

Statistical analysis in Table (4) revealed Highly significant between six treatment F value 11.59 0.0001 L.S.D 0.05 = 11.45, the means with the same letter are not significantly different (76.8333, 71.833) in Mentha leaves extract and eucalyptus extract respectively, the means anthor (53.500, 39.667, 36.667, 22.583) in capsicum extract, mela azadraghata, Grape fruit, Control) respectively for the time of treatment $L.S.D_{0.05} = 9.352$.

The means with the same letter are not significantly different the means were (71.222 and 61.056) after applied 28 day, 14 day respectively but the mean were (37.333 and 31.111) after applied for 21 day, 7 day respectively.

I.3. Effect of some Natural Products as a cake for controlling Varroa mite.

Data in Table (5) after applied some material as a cake, the results showed that the reduction percentages were (50%, 62), (54%, 60%), (44%, 76%), (66%, 73%), and (47%, 51%) on brood and adults for five plants grape fruit, mela azadraghata, eucalyptus, capsicum and Mentha leaves respectively and control (untreated). But the infestation percentage before treatments on brood and adults were (10%, 12%), (12%, 16.6%), (12%, 20.6%), (18%, 21.3%), (16%, 16.6%) and (13.3%, 14.6%) for six treatments (grape fruit, mela azadraghata, eucalyptus, capsicum and Mentha leaves, Control) respectively, the infection percentage after applied in brood and adults were (4%, 5.6%), (6.6%, 8%), (8%, 6%), (7.3%, 11.3%), (6%, 10%), and (6.6%, 12%) for six treatments (Grape fruit, mela azadraghata, eucalyptus, capsicum and Mentha leaves, control) respectively.

After showed the fig (5) this histogram cleared that the highly level for eucalyptus on adults and brood then grape fruit, mela azadraghata, eucalyptus, capsicum and Mentha leaves.

This result agreements with **Nicholas, *et al.*, (1997) and Schnek, P *et al* (2001)** suggested that the scientific research of the content materials of the neem tree and their effects began after 1960. Then, the German entomologist schmutterer observed that during a locust invasion in the Sudan, The neem tree were the only plants which were not attacked by the insects , in consequence, he and many other scientists explored the reasons for this phenomenon **(Schmutterer, 1995)** today more than 100 active agents have been isolated from extract or seeds, leaves, and bark and described chemically statistical analysis in Table (5) revealed F. value 8.05 P>F 0.0001, L.S.D at 0.05 = 16.828 the means were (80.8333, 64.500) for eucalyptus extract, mela azadraghata respectively and then the means were (63.167, 60.833, 31.111, 27.333) for the mentha leaves, capsicum, grape fruit and control respectively this for treatments while the time of control $L.S.D_{0.05}$ = 13.74. Statistical analysis indicated that there were significant differences between different treatments in two seasons.

The best time for treatment was after 14 day then 28 day by means (83.333, 69.667) respectively.

But the time another less effect the means (35.889, 29.778) for 21 day, 7 day respectively.

II. Control varroa mite by :

The essential oils are attractive chemicals for the control of Varroa mites on honeybee because they are perceived as natural compounds that will not contaminate hive products.

Table (5): Effect of some Natural Products as a cake for Controlling Varroa mite during winter 2004 .

Type of Treat	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatments		% Reduction	
	Brood	adults	After 7 days	After 14 days	After 21 days	After 28 days	Brood	adults	Brood	adults
Grape Fruit	16	12	18	40	12	48	8	4		
	10	18	24	54	16	54	6	8	50%	62%
	4	6	20	36	12	42	4	4		
Mean	10	12					6	5.6		
Meal Azadrag-hata	10	18	24	142	34	58	6	8		
	14	22	30	68	26	102	8	10	54%	60%
	6	10	22	178	22	68	6	8		
Mean	10	16.6					6.6	8.6		
Eucalyp-tus	10	26	42	76	68	74	12	10		
	12	22	32	196	56	84	4	4	44%	76%
	14	18	46	138	52	106	8	4		
Mean	12	20.6					7.3	6		
Capsicum	14	16	26	54	38	54	8	3		
	10	22	44	78	52	70	4	10	66%	73%
	22	26	50	86	74	104	10	8		
Mean	18	21.3					7.3	7		
Mentha	12	12	36	78	28	70	8	12		
	22	24	50	104	44	94	4	8	47%	51%
	14	14	32	84	40	98	6	10		
Mean	16	16.6					10.4	10		
Control	10	18	20	38	34	48	14	20		
	16	14	12	28	20	46	18	10		
	14	12	8	22	18	34	16	16		
Mean	13.3	14.6					16.6	18		

L.S.D. at 0.05= 16.82% F. value = 8.05

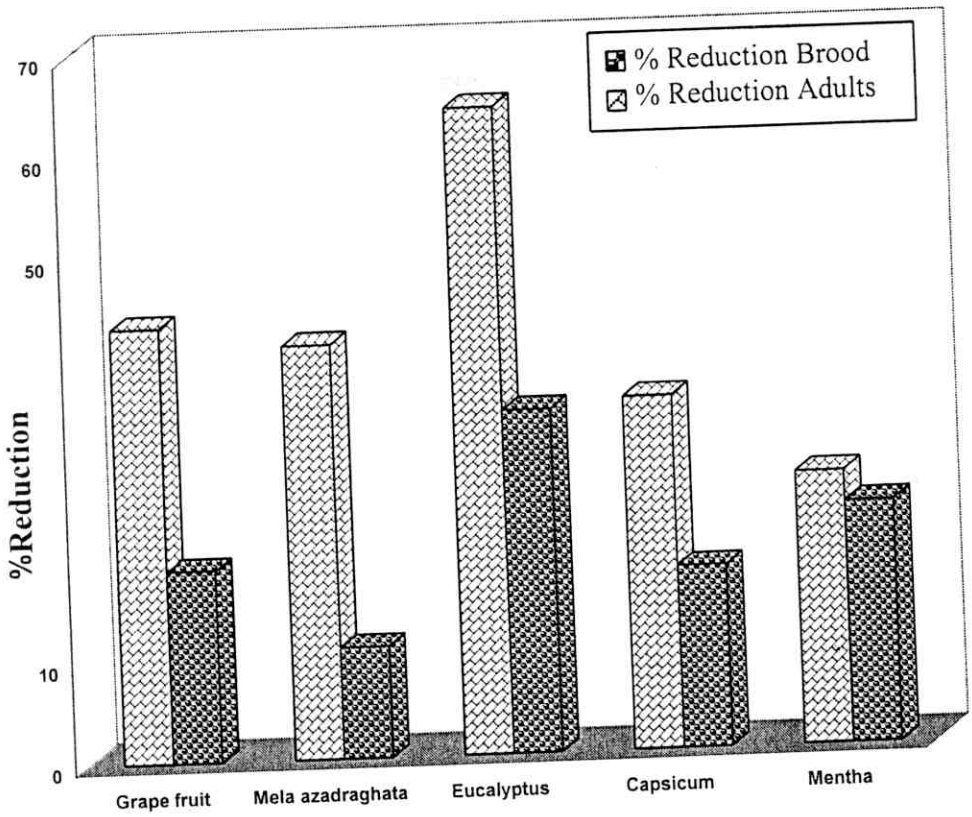


Fig. (5): Effect of some natural products (as cakes) for controlling Varroa mite during winter 2004 .

II.1. Effect of dusting with some varrozal:

Data presented in Table (6) clear that the reduction percentage levels on brood and adults were (46% and 76.2%) after applied the dusting with Varroazal the procedure by Beekeeping Research Control for faculty of Agriculture Moshtohor it necessarily to all Beekeeper in Egypt.

The mean infestation percentage before treatments on brood and adults used (11.33% and 20.6%) and (10.67% and 12%) for Varroazal application and control respectively, but the mean infection percentage after application on brood and adults were (8% and 6.6%) and (14% and 16.3%) respectively.

The results agreement with **Khattab (2000)** found that Varroa like other mites has the tarsal pads that allow it to adhere to the bee's surface. The percentage of dust and some plant powder on the bees will adhere to pads of the Varroa mite and does not allow it to attach to bees surface. In the work, effectiveness of using wheal flour and some plant powder, namely dusts of minth (Mentha viridis); cinamoms (Cinnamomum zelamicam) and their mixture. The results showed also that using these materials as dust is highly effective and this formulation is suitable.

Statistical analysis in table (6) it is clear the F-value 58.57 $Pr > F = 0.0001$ L.S.D at $0.05 = 2.7952$, the mean of fallen Varroa was 34.800 by Varroazal application but the mean of fallen Varroa was 9.467 by untreated (control) highly significantly between Varroazal and control. When the best time for this treatments was L.S.D at $0.05 = 4.4195$ the best time after 14 day then 21 day the means were (32.667, 25.333) but the

Table (6): Effect of dusting varoazal for Controlling Varroa mite during winter 2004 .

Type of Treat	% infestation before treatment		No of fallen of Varroa mite					% infestation after treatments		% Reduction	
	Brood	adults	After 7 days	After 14 days	After 21 days	After 28 days	After 7 days	Brood	adults	Brood	adults
Varr-oazal	12	22	28	24	50	44	20	12	8		
	10	24	30	32	50	38	22	6	6	46.3%	76.2%
	12	16	24	24	64	48	24	6	4		
Total	34	62						24	18		
Mean	11.33	20.6						8	6.6		
Control	12	12	10	12	10	8	8	14	18		
	12	14	12	10	10	6	8	16	15		
	8	10	8	10	12	8	10	12	16		
Total	32	36						42	49		
Mean	10.67	12						14	16.3		

L.S.D. at 0.05 = 2.79 F. value = 8.57

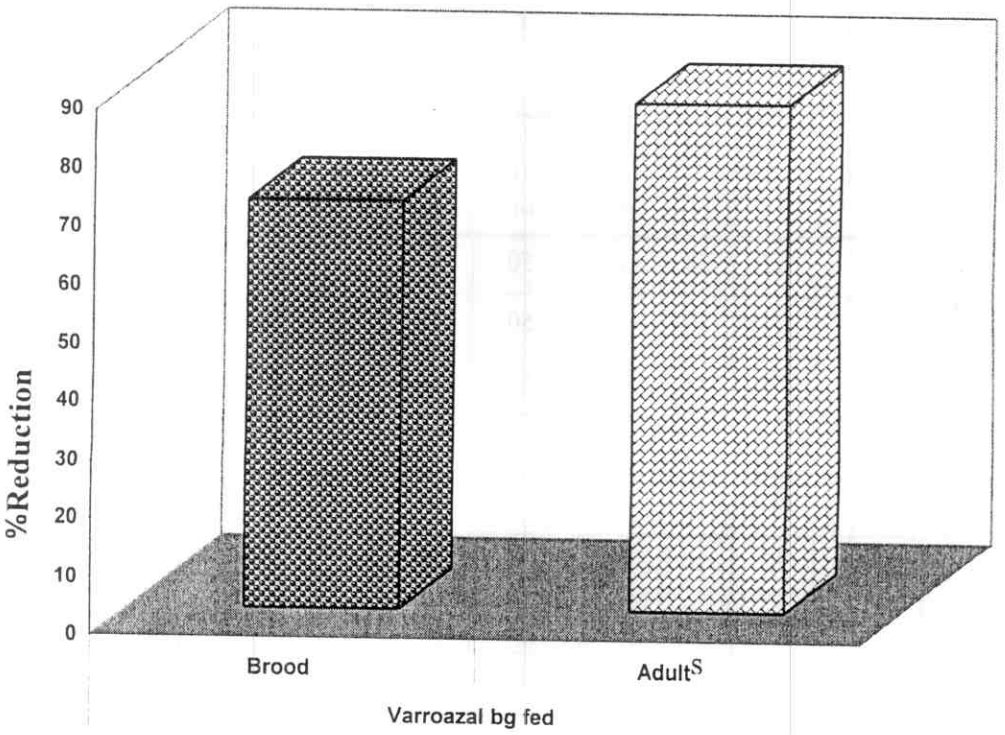


Fig. (6): Effect of Varrozal by fed for controlling Varroa mite on honeybee colonies during winter 2002.

II.2 Effect of difference methods Varroazol application for control Varroa destructor during winter 2001 :

As a shown in table (7) it is clear that the reduction percentage levels on brood and adult (46%, 88%), (58%, 78%), (49%, 92%), (45%, 79%), (53%, 90%) and (43%, 75%) for the six treatments cotton stripes on, cotton stripes under, hard carton on, hard carton under, plastic sheet on, plastic sheet under respectively when the infestation percentage levels before treatments for brood and adults (16%, 19.6%), (14.3%, 16%), (19%, 24.6%), (14.6%, 16.3%), (19%, 23.3%), (16%, 18%) and (13.6%, 15.3%) for treatments cotton strips on, cotton strips under, hard carton on, hard carton under, plastic sheet on, plastic sheet under , control respectively but the infestation percentage levels after treatments for brood, adult uses (10%, 2.6%), (8%, 3.6%) , (11.3%, 2.3%), (9.3%, 4%), (10.3%, 2.6%), (10.6%, 5.3%) and (16%, 18.3%) for cotton strips on, cotton strips under, hard carton on, hard carton under, plastic sheet on, plastic sheet under, control respectively.

This results agreements with **Elzen *et al* (2000)** found that citral was more effective, however, in controlling the tracheal mite, Acarapis woodi, resulting in a 66.8% reduction in population initial treatment.

Statistical analysis in table (7) and Figure (7) it is clear the F. value 2.04 $Pr > F = 0.0754$, $L.S._{0.05} = 10.311$.

The mean (34.667, 25.500) for cotton strips on, Hard carton on respectively it mean not significantly but means (24.000, 22.333, 21.667, 21.417, 18.417) for plastic sheet on, control, hard carton under, cotton strips under, plastic sheet

Table (7): Effect of difference Methods varroozal application for Control *Varroa destructor* during winter 2001 .

Type of Treat	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatment		% Reduction	
	Brood	adults	After 7 days	After 14 days	After 21 days	After 28 days	Brood	adults	Brood	adults
Cotton strips between combs	16	20	23	35	49	34	8	2		
	14	15	19	44	37	31	12	4	46%	88%
	18	24	25	32	51	36	11	2		
Mean	16	19.6					10.3	2.6		
Cotton strips under combs	15	16	17	22	29	19	2	2		
	18	20	28	24	21	20	12	5	58%	78%
	10	12	18	16	22	21	10	4		
Mean	14.3	16					8	3.6		
Hard Carton between combs	20	18	29	25	27	1	10	3		
	1	26	31	33	39	20	14	2	49%	92%
	16	20	21	31	34	15	10	2		
Mean	19	24.6					11.3	2.3		
Hard Carton under combs	18	20	24	23	22	16	12	4		
	12	14	19	25	25	21	14	4	45%	79
	12	15	21	27	24	13	4	4		
Mean	14	16.3					10	4		
Plastic Sheet between combs	18	26	29	32	29	15	6	2		
	19	20	23	26	24	19	4	2	53%	90
	20	24	27	26	18	20	8	4		
Mean	19	23.3					10.3	2.6		
Plastic Sheet under combs	19	20	24	25	26	18	18	4		
	15	16	20	21	25	14	8	6	43%	75
	13	18	11	15	12	10	6	6		
	16	18					10.6	5.3		
Control	15	18	14	18	16	14	16	19		
	14	18	15	121	18	16	18	21		
	12	10	10	11	7	8	14	15		
Mean	13.6	15.3					16	18.3		

L.S.D. at 0.05 = 10.311 F. Value = 1.64

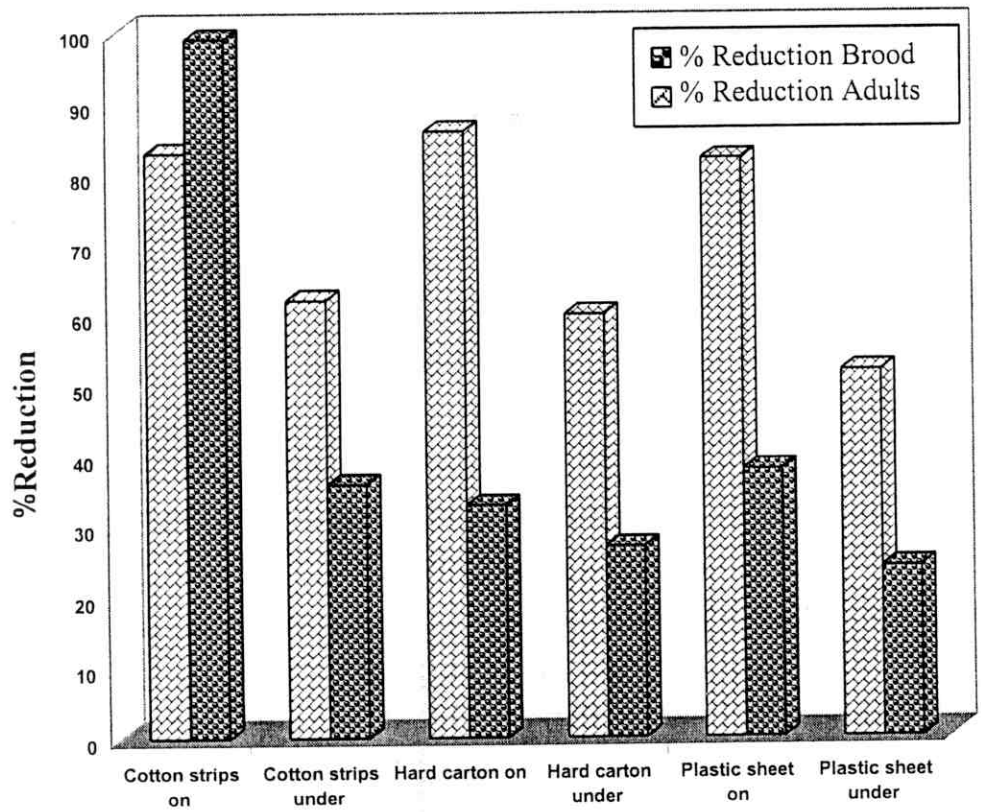


Fig. (7): Effect of different methods Varroazl application for control *Varroa destructor* during winter 2001 .

under respectively the best treat was cotton strips on the best time for the treatment the mean (30.095, 26.429) for 14 day, 21 day then the mean (21.333, 18.143) for 7 day, 28 day, $L.S.D_{0.05}$ = 7.7945.

I.2.3. Effect of different methods of Varroazol application for control *Varroa destructor* during winter 2002 :

In this trial studied table (8) six treatments as a difference methods Varroazal application for example cotton strips on, cotton strips under, hard carton on, hard carton under, plastic sheet on, plastic sheet under and control the treatment application in winter 2002 at Moshtohor for 28 days and counted number of Varroa fallen after treatments 7 days, 14 days, 21 day, 28 day respectively, when the infestation percentages calculated before treatments in brood and adult, they were (15%, 22.6%), (16.3, 19.3), (15.3, 18.6%), (17.3, 19.6%), (12.3, 21.6%), (12, 14%) and (10.6, 11.6%) for cotton strips on, cotton strips under and, hard carton on, hard carton under, plastic sheet on, plastic sheet under and control, respectively. After treatments the infestation percentages 2% in brood and adults were (10%, 4%), (11%, 4.6%), (11.6 %, 5%), (11.3%, 5.3%), (8.6%, 4.4%), (8%, 6%) and (13.3%, 18%) for cotton strips on, cotton strips under, hard carton on, hard carton under, plastic sheet on, plastic sheet on, plastic sheet under and control respectively. The reduction percentages were on brood and adults (46%, 88%), (46.4%, 79%), (55.4%, 82%), (47.4%, 76%), (44.4%, 87%) and (46.4%, 72%) for cotton strips on, cotton strips under, hard carton, on, hard carton under, plastic sheet on, plastic sheet under, respectively in Fig. (8) revealed that the highly reduction after treated with Varroazal by used cotton strips on combs is a highly

strips on, cotton strips under, hard carton on, hard carton under, plastic sheet on, plastic sheet under respectively, to satisfy with Varroazal a mixture of some volatile oils (Eucalypts 16%, thymol 76%, menthol 3.8% and camphor 3.8%) mixture by the national project for honeybees diseases and pests control were treated in 21 colonies, to monitor Varroa population grid line paper sheets were smeared with Vaseline and placed insides the hive bottom board under the wire/ wood frame where the fallen mites were trapped in the Vaseline, the wire mesh hinlar the bees removing were scaoped clean, statistical analysis in table (8) revealed the f- value = 4.61

Pr > F= 0.00001 a highly significantly for treatments

L.S.D. at 0.05 = 4.762 the mean rang upper to lower (30.8, 23.8) for cotton strips on, cotton strips under and not significantly different between this means (23.5, 21.6 and 21.4) for hard carton on, plastic sheet on, hard carton under respectively but the means lower was (15, 8.8) for treatments plastic sheet under, control respectively L.S.D. 0.05 for the time was = 3.5997, the best time for the treatments were after (28 and 7 day) the means upper to lower (21.857, 21.714), but the means another (20.143, 19.143) for used 21 day and 14 day this data mean must be used this treatments for 28 day to effective for the Varroa population and reduction this invastion. this results agreements with **El-Hady (2001)** the obtained results showed that the highest number of fallen mites on sticky boards was recorded after 7 days of treatments with any of the tested materials as acaricies

Table (8): Effect of Varraozol using different methods controlling *Varroa destructor* during winter of 2002

Type of Treat	% infestation before treatment		No of fallen of vorroa mite				% infestation after treatment		% Reduction	
	Brood	adult	After 7 days	After 14 days	After 21 days	After 28 days	Brood	adult	Brood	adult
Cotton Strips between combs	14	24	27	26	41	28	8	5		
	15	20	24	36	29	45	12	3	46%	88%
	16	24	26	24	30	34	10	4		
Mean	15	22.6					10	4		
Cotton Strips under combs	18	22	27	24	30	34	12	4		
	17	20	31	12	15	29	11	6	46%	79%
	14	16	25	19	22	18	10	4		
Mean	16.3	19.3	27.66				11	4.6		
Hard Carton between combs	18	20	25	29	23	26	10	8		
	16	20	28	24	18	12	12	4	55%	82%
	12	16	28	17	23	29	13	3		
Mean	15.3	18.6					11.6	5		
Hard Carton under combs	19	21	32	21	36	24	12	6		
	15	18	21	13	22	27	16	6	47%	76%
	18	20	23	12	10	16	6	4		
Mean	17.3	19.6					11.3	5.3		
Plastic Sheet between combs	10	25	25	26	29	22	6	2		
	15	26	28	26	21	15	8	2	44.4%	87%
	12	14	19	14	13	21	12	4		
Mean	12.3	21.6					8.6	4.4		
Plastic Sheet under combs	12	16	12	15	8	17	8	2		
	14	12	13	20	21	18	12	6	46%	72%
	10	11	14	13	10	19	4	4		
Mean	12	14					8	6		
Control	14	12	11	13	10	9	10	19		
	10	13	9	8	5	7	12	17		
	8	10	8	10	7	9	18	18		
Mean	10.6	11.6					13.3	18		

L.S.D. at 0.05 = 4.76 F. Value = 17.40

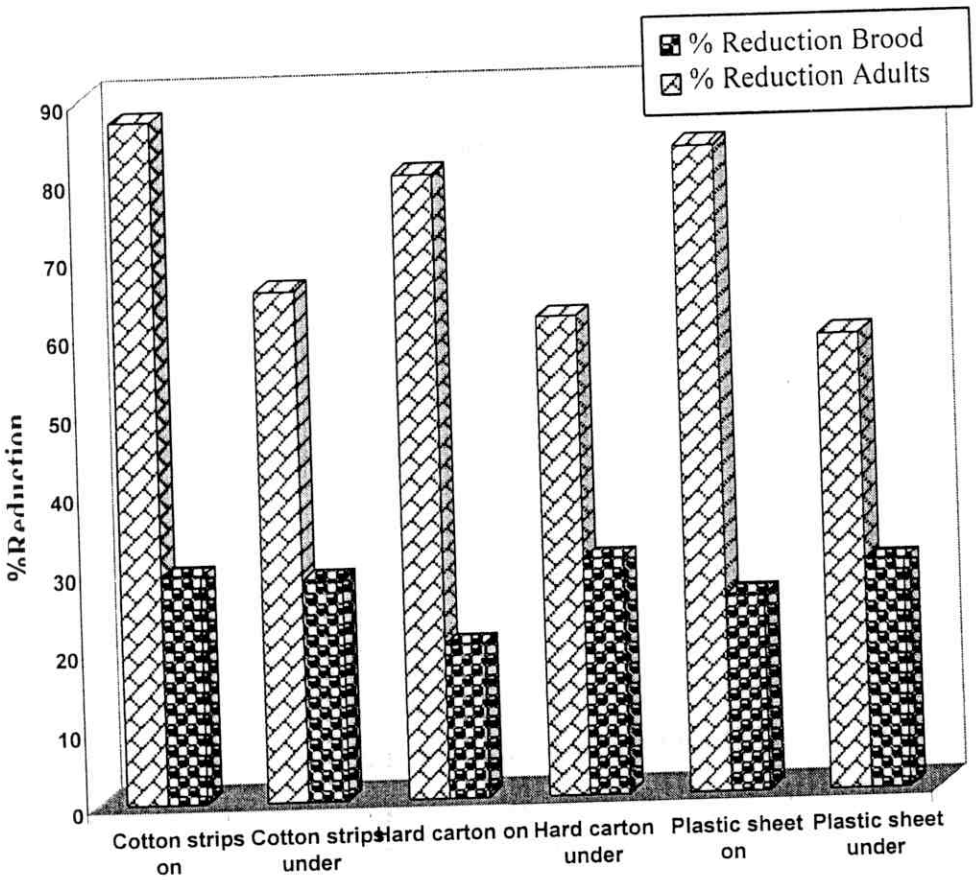


Fig. (8) : Effect of different methods Varroazl application for control *Varroa destructor* during winter 2002

significant differences were found between the tested materials in this respect as compared to the untealed colonies this result may be due to the fast affect of the fresh materials.

I.2.4. Effect of spraying Varroazal on honeybee colonies for controlling of *Varroa destructor* during winter 2002 .

The data presented in table (9) showed that after treatments the three colonies with Varroazal spraying and three colonies untreated (control) the infestation percentages before treatments in brood and adult the means were (12.6, 18%) and (6, 8%) for Varroazol, and control, respectively, while the infestation percentages after detainment were (7.3, 2.6%) and (8.6, 9.3%) on brood and adults for in the case of Varroazal, and control, respectively.

The reduction percentages in brood and adult by using Varroazol application were (59%, 87.7%) respectively. The dose are 2 grams per 10 ml to the colony for treatment after. Fig. (9) mentioned that the Varroazal spraying highly effective on Varroa mite upon the adult but the effective for the Varroazal on brood was a lower effective statistical analysis in table (9) revealed the f- value = 14.95

Pr > F= 0.0001 L.S.D 0.05 = 4.3445

Highly significantly between treatments was varrozal means (25.400) but the mean of control was (5.267) for the best time in this treatments after 7 days then 3 day the mean was (22.167, 16.500) respectively but lower effect for the time was after 48h, 24h and 15 day , respectively for the means was (16.167, 14.167, 7.667) respectively, understand for this

Table (9): Effect of spraying Varroazal on honeybee colonies for Control of *Varroa detractor* during of 2002 .

Type of Treat	% infestation before treatment		No of fallen of Varroa mite					% infestation after treatment		% Reduction	
	Brood	adults	1day	2day	3day	7 day	15day	Brood	adults	Brood	adults
Varroazal spraying	12	18	21	22	38	47	15	8	2		
	10	14	17	16	17	34	12	6	2	59.7%	87.7%
	16	22	29	32	21	44	16	8	4		
Total	38	54						22	8		
Mean	12.6	18						7.3	2.6		
Control	8	10	8	13	5	3	1	18	8		
	4	6	4	3	12	2	-	4	14		
	6	8	6	11	6	3	2	4	6		
Total	18	24						26	28		
Mean	6	8						8.6	9.3		

L. S. D. at 0.05 = 4.34 F. value 14.95

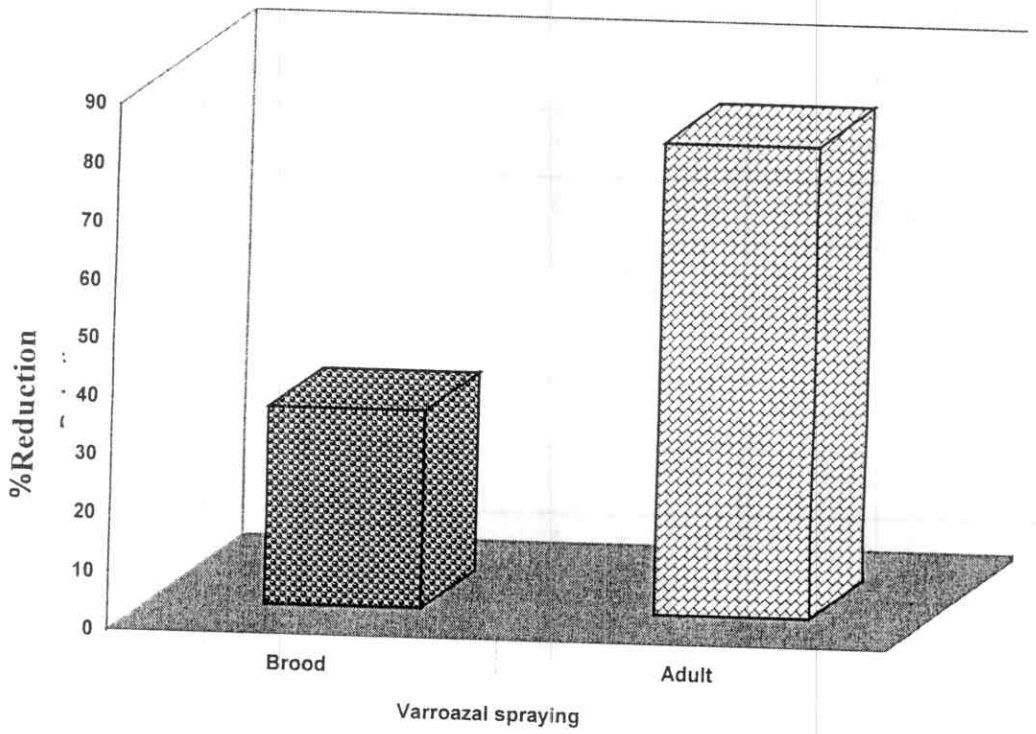


Fig. (9): Effect of spraying Varroazal on honeybee colonies for Control of *Varroa detractor* during of 2002

statistical analysis the Varroazal is highly effective after application a spraying on combs and bees the reduction infection was 81% and the best time for this treatment after application 7 day and long of the time lower of the fallen Varroa mite and the effective is lower.

These results agreement with **Imdrof, *et al.*, (1999) and El-Zen *et al.*, (2000)** suggested that the total population change after 6 weeks of exposure between citral and control treatments was also not significantly different with great increase in mite populations seen in tile citral and control hives. Citral was more effective however, in controlling the tracheal mite Acarapes woodi, resulting in a 66.8% reduction in populations after initial treatments. Discussion is presented on the use of natural essential oils in the control of honeybee acarine pests .

I.2.5. Effect of Varroazal dust on honeybee colonies for controlling of *Varroa destructor* during winter of 2004 :

The data in Table (10) showed that this a new methods for Varroazal application as a dusting upon the combs and the bees for 35 day increased the effective of Varroazal application, counted the infestation percentage mean on brood and adults were (16.5%, 22.5%) and (12.75%, 14.75%) for Varroazal, control respectively, counted the number of Varroa mite fallen on sticky board after treatments with Varroazal destiny after 4, 7, 15, 21, 28 and 35 days respectively, the infestation percentage after treatments on brood and adult was (8.25%, 2.5%) and (14% , 15.5%) for Varroazal dusting and control respectively. The reduction percentage on brood and adult was (54%, 89%), for Varroazal dusting application when showed Fig. (10) clear that

the reduction percentage for Varroazal dusting highly effective on adult bees but the effective of Varroazal dusting for the brood infestation is lower.

Statistical analysis in table (10) revealed the F- value = 48.62, Pr > F= 0.0001, L.S.D at 0.05 = 1.9485 found highly significantly between treatments was a Varroazal means (34.7500) but the mean of control was (19.7083) for the best time in this test after treatments was 28 day, 21 day the mean was (36.000, 33.625) respectively but the lower effect for the time was after treatments (15 day, 7 day, 4 day, 35day) for the means was (28.625, 26.375, 22.500, 16.250) respectively.

The table clear that the reduction percentage highly effective by use d a Varroazal powder as dusting for long time to become the population levels is a low for Varroa mite.

This data agreements with **Khattab (2001)** he said the active substances suggested for use should be directed to applying of natural products such as volatile oils which may have no residual effects on the produced products of honeybee, the obtained results indicated clearly that the volatile oils under study were found to be highly effective in reducing the Varroa mite infestation on honeybee colonies .

I.3. Dusting the fine white sugar :

This methods consists of dusting adult bees with finely ground white sugar. The sugar dust is expected to adhere to the pals of the Varroa mite. The mite should lose its grip and thus fall on the floor of the hive, where it dies. This method of controlling mites. Could be use d throughout the gear especially during honey flow, when other methods are not allowed **(Lakhimzadeh, 2000) .**

Table (10): Effect of Varroazal on honeybee colonies for control of *Varroa destructor* by dusting methods during winter 2004

Type of Treat	% infestation before treatment		No of fallen of Varroa mite						%infestation after treatment		% Reduction	
	Brood	adults	4	7	15	21	28	35	Brood	adults	Brood	adults
Varro-azal	19	25	29	36	31	45	56	21	8	2		
	15	20	21	32	34	48	50	19	12	2	54%	89%
	18	23	27	38	36	41	51	18	7	4		
	14	22	25	30	39	47	48	12	6	2		
Total	66	90							33	10		
Mean	16.5	22.5							8.25	2.5		
Control	15	18	20	21	24	20	23	19	10	22		
	16	15	21	21	26	25	20	15	22	16		
	12	14	19	18	23	26	22	14	10	10		
	8	12	18	15	16	17	18	12	14	14		
Total	51	59							56	62		
Mean	12.75	14.75							14	15.5		

L.S.D. at 0.05 = 1.94 F. value = 48.62

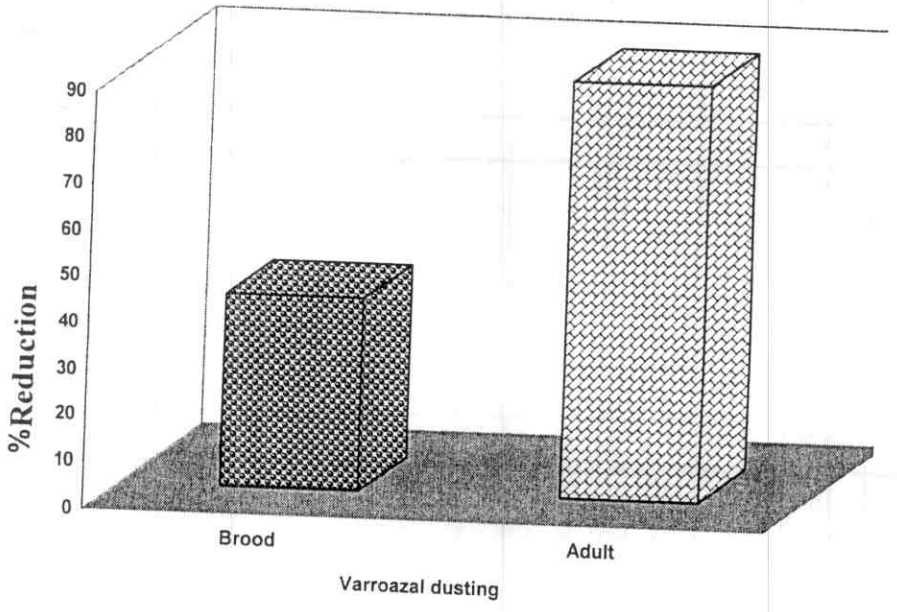


Fig. (10): Effect of Varrozal on honeybee colonies for controlling *Varroa distracter* by dusting methods during winter 2004 at Moshtohor.

I.3.1. Effect of sugar powder on honeybee colonies of control Varroa mite during winter 2002

The data presented in table (11) showed that the three treatments for Varroa control (sugar powder, 85% formic acid and control) every treatment was three colonies for time four week after treatment (4, 7, 21 and 28 day) respectively in the first counted the infestation percentage means before treatments in brood and adults bees were (9.3%, 12%), (16.6%, 19.3%) and (8%, 6%) for sugar powder, formic acid 85%, control respectively. After then counted the number of Varroa mite fallen after 4 day, 7 day, 14 day, 21day and 28 day respectively, on a sticky board above bottom board on the hive the infestation percentage after treatments on broad and adults were (7.3% , 6.6%), (8%, 3.6%) and (9.3%, 8%) for sugar powder, 85%formic acid, control respectively. The reduction percentage on brood and adult bees were (32%, 58%) and (84, 89%) for sugar powder, 85% formic acid respectively when showed the Fig. (11) clear that the reduction infestation of 85% formic acid highly effective from sugar powder as dusting from control but the sugar powder dusting decrease the rat infestation (reduction) of population the Varroa mite levels was 79% but the 85%formic acid was 89%.

Statistical analysis in table (11) revealed the F- value = 11.14, Pr > F = 0.0001, L.S.D. at 0.05= 6.5843, the highly significantly was a formic acid 85% was mean (42.400) but the sugar powder was mean (17.467).

The control was mean (7.333) is a lower for the time the $L.S.D_{0.05}$ = 8.5002, the Best time for this treatment after 14 and 21 day were (27.333, 26.222) respectively but the lower

Table (11): Effect of Sugar powder on honeybee colonies for controlling *Varroa destructor* during winter of 2002.

Type of Treat	% infestation before treatment		No of fallen of Varroa mite					% infestation after treatment		% Reduction	
	Brood	adults	4	7	14	21	28	Brood	adults	Brood	adults
powder Sugar	8	10	12	16	24	26	18	6	4		
	14	16	18	14	28	24	16	12	8	32%	58%
	6	10	10	24	22	4	6	4	6		
Total	28	36						22	18		
Mean	9.3	12						7.3	6		
85% Formic acid	18	22	28	32	30	46	42	8	3		
	18	20	24	58	68	52	46	4	2	84%	89%
	14	14	16	24	48	70	52	12	6		
Total	50	56						24	11		
Mean	16.6	18.6						8	3.6		
Control	10	8	12	6	6	4	2	16	14		
	8	6	10	6	10	4	4	8	6		
	6	4	16	12	10	6	2	4	4		
Total	24	18						28	24		
Mean	8	6						9.3	8		

L.S.D. at 0.05 = 6.58 **F. value = 11.14**

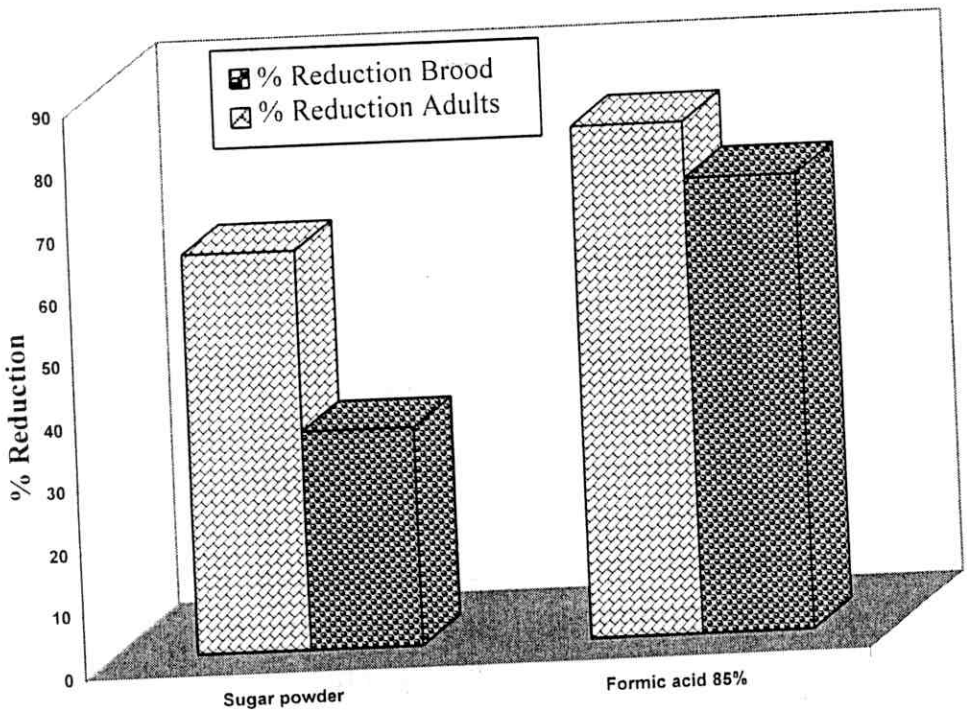


Fig. (11): Effect of sugar powder and Formic acid on honeybee colonies for controlling *Varroa destructor* during winter 2002.

effect from the time in this treatment was 7 day, 28 day, 4 day the means was (21.333, 20.889, 16.222) respectively.

From this study this methods used to reduction of population the infestation of Varroa into rate 64% the adult bees but for the brood was 35% only.

This data agreements with **Fakhimzaeh (2000)** suggested that the method consists of desting adult bees with finely ground white sugar. The sugar dust is expected to adhere to the pads of the vorroa mite.

I.3.2. Effect of adding menthol leaves to powder sugar for dusting bees and combs on Varroa destructor during winter 2002.

Data presented in Table (12) showed that the three treatments for Varroa control (mint sugar powder, 85% formic acid, and control) every treatment was (three colonies for four week after application) counted the Varroa mite fallen after 4, 7, 14 and 28 days respectively, in this first counted the infestation percentage means before treatments on brood and adult bees were (14%, 16%), (17%, 19%) and (10%, 12%) for mentha, sugar powder, 85% formic acid and control respectively.

After 4, 7, 14, 21 and 28 day counted the number of Varroa mite fallen for mentha leaves mix with sugar powder, 85%formic acid, control, respectively.

The infestation percentages after treatment on brood and adult bees were (8%, 6.6%), (8%, 3.7%) and (12.6%, 15%) for mentha leaves mixed with sugar powder, formic acid 85% and control, respectively.

Table (12): Effect of Mentha leaves powder plus sugar for controlling *Varroa destructor* during winter of 2002

Type of Treat	% infestation before treatment		No of fallen of Varroa mite					% infestation after treatment		% Reduction	
	Brood	adults	4	7	14	21	28	Brood	adults	Brood	adults
Mint + prouder sugar	14	18	10	14	17	15	5	14	6		
	12	18	14	18	26	23	13	6	12	54%	67%
	16	12	12	16	24	18	15	4	4		
Total	42	48						24	20		
Mean	14	16						8	6.6		
85% Formic acid	15	16	30	42	27	27	26	8	3		
	14	18	29	35	54	31	27	4	2	87%	91%
	22	23	34	58	36	18	33	12	6		
Total	51	57						24	11		
Mean	17	19						8	3.7		
Control	12	14	10	10	7	12	10	16	15		
	8	10	10	4	7	10	12	10	14		
	10	12	12	8	12	8	10	12	16		
Total	30	36						38	45		
Mean	10	12						12.6	15		

L.S.D. at 0.05 = 4.27 F. value =12.66

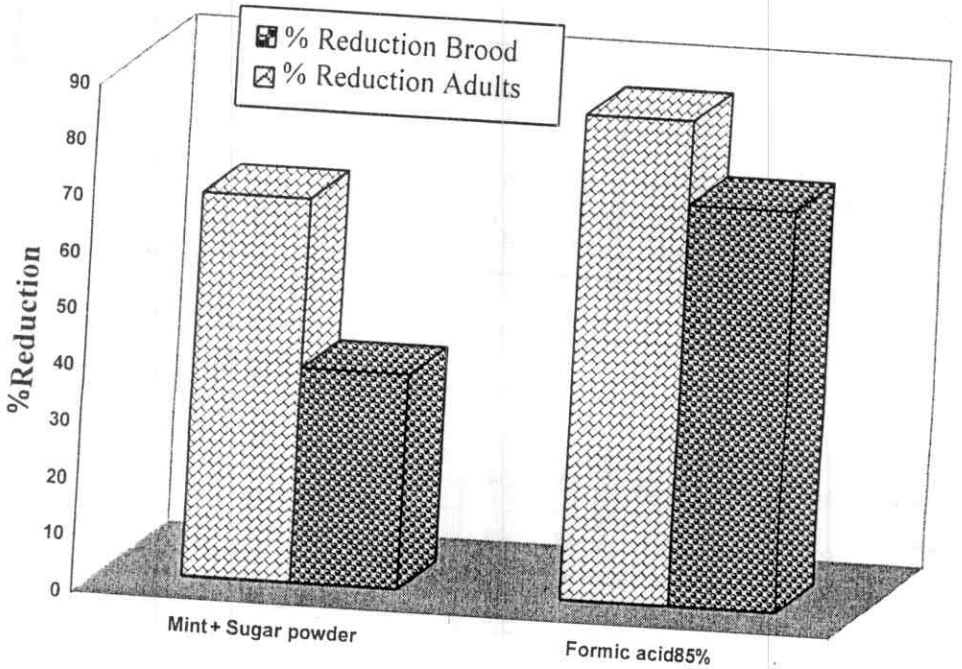


Fig. (12): Effect of Mentha leaves dusting added sugar powder and Formic acid on bees and combs for controlling *Varroa destructor* during winter 2002 at Moshtohor.

The reduction infestation percentages on brood and adult bees were (54%, 67%) and (87%, 91%) for mentha leaves mixed with sugar powder and formic acid 85% respectively.

Showed Fig. (12) that the reduction percentages on brood and adult for used formic acid 85% the upper than the reduction percentage on brood and adult for mentha leaves mixed with sugar powder.

Statistical analysis in table (12) related the F. value = 12.66, Pr > F = 0.001, L.S.D at 0.05 = 4.2738.

The highly significantly was a formic acid 85% was mean (33.800) but the mentha leaves mean was (16.000) then the control was (9.467).

For the best time L.S.D at 0.05 = 5.5174. the best time after treatments (14 and 7 days) the mean were (23.000, 22.778) respectively but the less effective for time was 21, 4 and 28 days the mean were (18.000, 17.889 and 16.778) respectively.

I.4. Natural Smoke Products:

The Natural Smoke Products in a new methods for controlling Varroa mite after the Varroa mite became resistance to pesticides because the beekeeper used chemical non effective for the pests and the Doses were not enough, then chemicals reduced in the hive products for example honeybee, royal jelly the wax, pollen grains, it necessary to used a safety methods for controlling Varroa mite because they effective for honeybee products and consumers **Frank Eischen (1997).**

I.4.1. Effect of Natural Products as a Smoke for controlling *Varroa destructor* during winter of 2002.

The Data presented in Table (13) should that four treatments for Varroa control (Smoke eucalyptus, mela azadraighata, formic acid 85%, control).

The mean infestation percentages before treatments in brood and adults were (15%, 20.6%) , (16%, 18.3%), (16.3%, 22.3), (15.6%, 12%) for (eucalyptus, mela azdraghata, formic acid 85% and control) respectively counted the number of fallen for Varroa mite on sticky sheet every 7 days along 35 day from (13/10 to 18/11) on brood, adult bees (6.6%, 5.3%) , (6.2%, 6%), (2.6%, 2%) and (18.3%, 14.6%) for eucalyptus, mela azdraghata, 85% formic acid and control, respectively.

The reduction percentage levels on brood and adult bees was (60%, 78%), (59%,73%) and (85%, 92%), for ecucalgptus, mela azdraghata, formic acid 85%, respectively. When showed the fig (13) clear that the reduction percentage on brood ands adults for used 85% formic acid is a highly effective because the formic acid effective on Varroa mite in sealed brood but the smoker eucalyptus leaves effective for reduction percentage 73% om adult bees and 60% in sealed brood the mela azadraghata less effective on adult bees was 73% but on sealed brood was 59% .

Statistical analysis in Table (13) revealed the F. value = 10.07 $Pr > F = 0.001$ L.S.D at $0.05 = 4.1222$.

This treatments is a highly significantly the group A formic acid 85% the mean was (32.278), the group B eucalyptus smoke the mean was (15.944), mela azadraghata the mean was (13.056) group C control the mean was (8.944).

Table (13): Effect of Natural product as a smoke for controlling of *Varroa destructor* during winter of 2002.

Type of Treat	% infestation before treatment		No of fallen of Varroa mite						% infestation after treatment		% Reduction	
	Brood	adults	13/10	21/10	28/10	3/11	11/11	18/11	Brood	adults	Brood	adults
Smoke Eucalyptus	12	18	14	24	36	13	11	8	8	6		
	15	20	19	10	15	23	10	9	8	4	60%	78%
	18	24	22	14	23	16	12	8	4	6		
Total	45	62							20	16		
Mean	15	20.6							6.6	5.3		
Mela Azalroghta	16	18	15	16	15	14	12	10	7	4		
	14	19	14	16	12	12	16	8	4	8	59%	73%
	18	18	15	13	16	12	13	6	8	6		
Total	48	55							19	18		
Mean	16	18.3							6.2	6		
85% Formic acid	18	24	19	36	43	31	18	15	4	4		
	16	21	22	29	51	40	27	19	2	2	85%	92%
	15	22	25	71	56	28	31	20	2	-		
Total	49	67							8	6		
Mean	16.3	22.3							2.6	2		
Control	14	10	6	8	7	6	10	8	16	12		
	14	12	8	10	12	13	7	6	18	14		
	19	14	12	11	10	12	7	8	21	18		
Total	47	36							55	44		
Mean	15.6	12							18.3	14.6		

L.S.D. at 0.05 = 4.222 **F. value = 10.07**

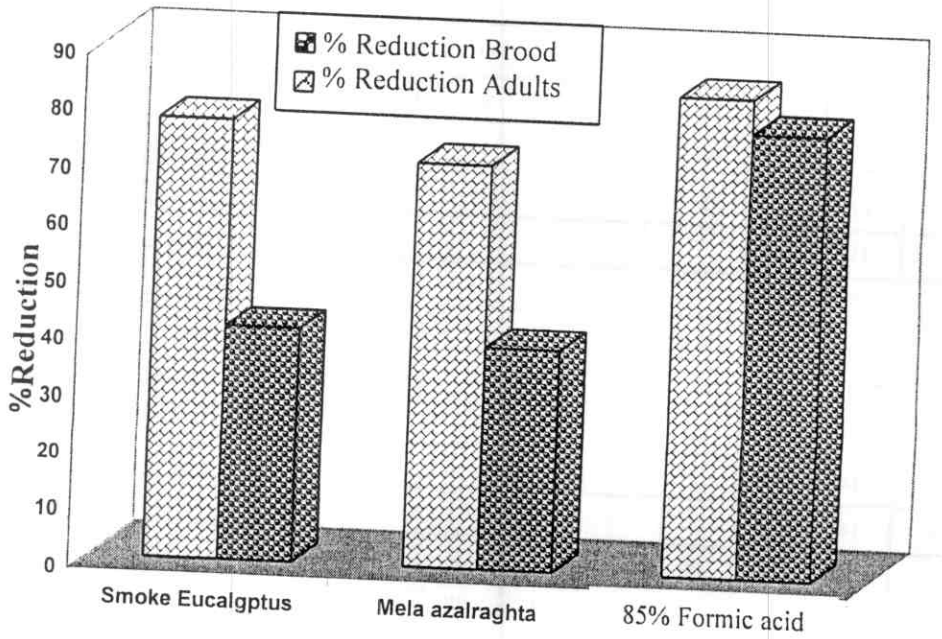


Fig. (13): Effect of smoke natural products on honey colonies for controlling Varroa distructor during winter 2002 .

Do not significantly different between eucalyptus smoke and mela azadraghata.

The best time for this treatments group A is 14 day the mean was (24.7), 7 day the mean was (21.5), the group C was 21 day , 24 day, 28 day, respectively the mean were (18.3, 15.9 and 14.5) but group D was 35 day the mean was (10.4).

This results agreement with **Eishen, *et al.*, (1997) and Elzen *et al* (2001)** state that in the present study we investigated the activity of two preparation of smoke extract, both an experimental and a commercial preparation. In the first bioassay, which tested the activity of volatiley in dislodging Varroa from infested adult bees, the experimental preparation caused significantly mere Varroa drop than corresponding control. The volatiles from the commercial preparation did not cause significant Varroa drop in the second bioassay, which measured Varroa drop from infested bees sprayed directly with aquous solutions of both smoke types significant Varroa drop.

I.5. Pollen Traps

Chemical treatments are a standard hive management practice for beekeeper in many parts of the world. However with mite Varroa have shown resistance to various pesticides in agricultural products have been a growing public concern. Biological methods are recommended by many scientists but on effective method has get to be developed the combined methods of pollen traps and drone pupae destruction show promise for the control of Varroa.

I.5.1.Trapped *Varroa destructor* population by pollen traps during summer of 2002:

Data presented in Table (14) indicated that three treatments in this treatment (pollen traps, Formic acid, control).

The infestation percentage before treatments on brood and adults were (10%, 13.6%) , (14%, 20.3%) and (8% , 8.3%) for pollen trap, formic acid 85% and control respectively, counted the number of Varroa fallen above sticky boord for time (28/8, 3/9, 9/9, 15/9, 21/9) respectively. The infestation percentage after treatments on sealed brood and adult bees were (6.6%, 6%), (2.6%, 2%), (10.6%, 10%) for pollen traps, formic acid 85% and control respectively. The reduction percentage levels on sealed brood and adult bees were (50%, 63%), (85%, 91%) for pollen traps, formic acid 85% respectively,

When showed the Fig (14) clear that the reduction percentage on sealed brood and adult bees for used 85% formic acid is highly effective then the pollen traps 75% reduction in adult bees statistical analysis in Table (14) revealed the F-value = 5.87 $Pr > F = 0.0001$ L.S.D at 0.05 = 5.5495 this treatment is a highly significantly, formic acid 85% is a group A the means (29.467) but the group B pollen traps the mean were (12 control the means the best time for this treatments after (15 day, 21 day) is a group A the mean were (18.667, 18.000). Then the group too after 3 day, 9 day, 24 hour respectively the mean were (18.000, 14.667, 13.111).

Table (14): Trapped *Varroa destructor* population by pollen traps during summer of 2002 .

Type of Treat	% infestation before treatment		No of fallen of Varroa mite at period					% infestation after treatment		Reduction %	
	Brood	adults	28/8	3/9	9/9	15/9	21/9	Brood	adults	Brood	adults
Pollen Traps	12	14	10	16	16	12	14	8	4		
	10	15	8	24	14	10	6	6	6	50%	63 %
	8	12	6	16	12	6	10	6	8		
Total	30	41						20	18		
Mean	10	13.6						6.6	6		
Formic acid	14	16	18	24	16	26	8	2	2		
	11	19	28	32	24	34	46	2	2	85%	91%
	17	26	34	26	30	48	48	4	2		
Total	42	61						2.6	2		
Mean	14	20.3									
Control	12	10	6	8	6	10	12	14	12		
	6	10	4	10	8	12	10	8	12		
	6	5	4	6	6	10	8	10	6		
Total	24	25						32	30		
Mean	8	8.3						10.6	10		

L.S.D. at 0.005 = 5.54 **F. value = 5.78**

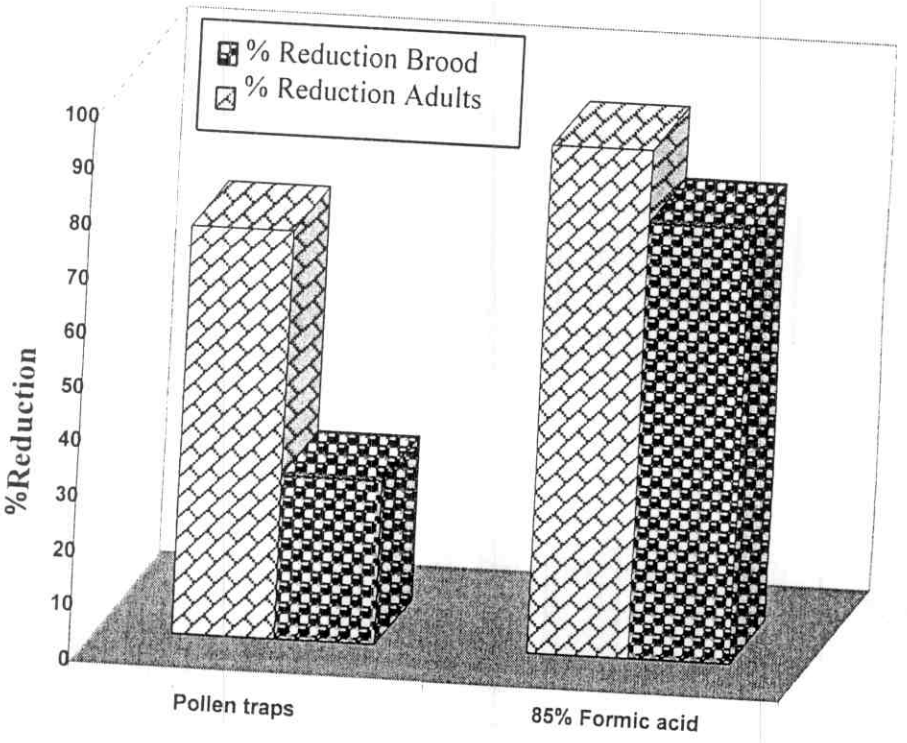


Fig. (14): Trapped *Varroa destructor* population by pollen traps during summer of 2002 .

This results are agreement of Hart, **Nabors (1999)** finding, who suggested that the pollen traps had lower mites were aware that screening under the brood nest which would filter mites and allow bees to walk upon them would reduce mites within the hive. Evidently mites fall off the adult bees frequently. A screen that keeps bees off the bottom board while allowing mites to of mite populations.

I.6. 85% Formic acid:

The used of formic acid over a one month period was used as a treatment for Varroa destructor in a region with high summer time temperature following the main honey flaw. The low dosage extend application was applied ass a response to problem of gound brood rearing which greatly reduced the efficacy of many of the available grugs. Success is due to a large extent on the two-fold effect of high temperature, mite the selves, are temperature sensitive, high temperature greatly assists in the evaporation of the acid throughout the treated colony **Fries, (1989) and Elzen, *et al.*, (2002).**

I.6.1. Effect of 85% formic acid for controlling Varroa destructor :

This Data presented in Table (15) and Fig (15) showed that the two treatments (85%formic acid, control) after treatments counted the Varroa fallen after (4, 7, 14, 21 and 28 day) respectively, counted the infestation percentage before treatments in sealed breed and adult bees the mean were (21%, 24.3%) and (15.6%, 19.3%), respectively. The infestation percentage after treatment in sealed brood and adult bees was (2.6%, 2%) and (16.6%, 21.3%) for 85% formic acid and control respectively. The reduction percentage on sealed brood and adult was (88%, 92%) respectively.

Table (15): Effect of 85% formic acid for controlling *varroa destructor* during winter of 2003 .

Type of Treat	% infestation before treatment		No of fallen of Varroa mite day					% infestation after treatment		% Reduction	
	Brood	adults	4	7	14	21	28	Brood	adults	Brood	adults
(85% formic acid)	21	28	155	195	123	117	68	2	2		
	23	25	62	48	75	66	47	4	1	88%	92.6%
	19	20	184	206	173	112	55	2	3		
Total	63	73						8	6		
Mean	21	24.3						2.6	2		
Control	15	19	18	19	16	14	13	16	20		
	18	16	15	16	12	14	12	19	18		
	14	24	21	18	15	16	14	15	26		
Total	47	58						50	64		
Mean	15.6	19.3						16.6	21.3		

L.S.D. at 0.05 = 29.66 **F. value = 6.32**

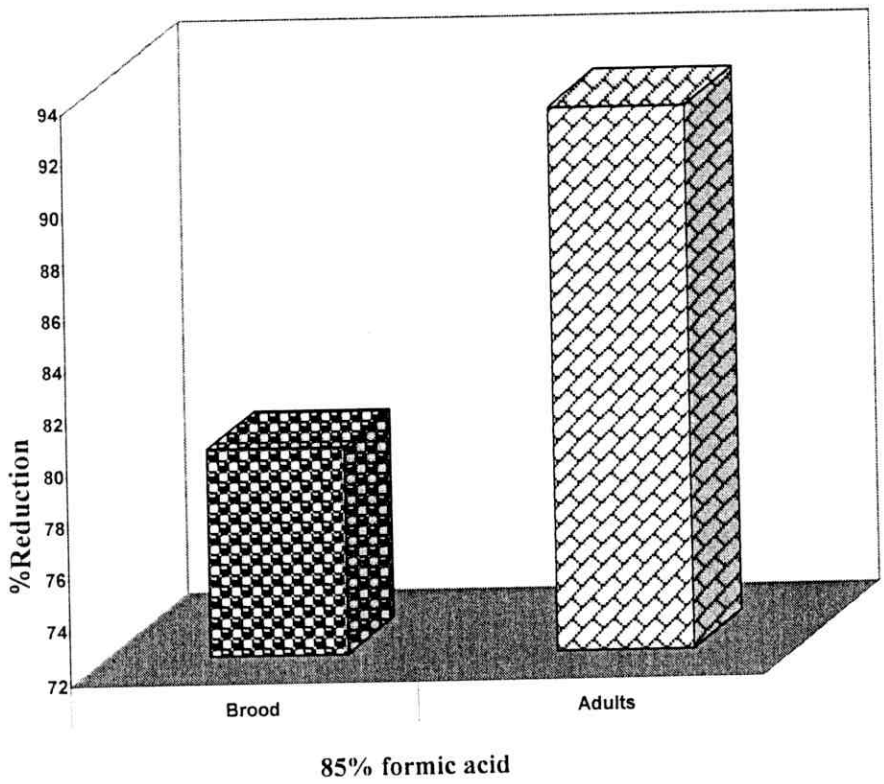


Fig. (15): Effect of 85% Formic acid for controlling *Varroa distracter* during winter of 2003 .

Statistical analysis in Table (15) revealed the F value = 6.32 Pr > F = 0.0003 L.S.D at 0.05 = 29.663, This treatments is highly significantly, group A is a formic acid 85% the mean was (112.40) , but the group B the mean was (15.53).

The L.S.D at 0.05 = 46.902 for the Best Time group A was after (7 and 4day) respectively the means was (83.67, 75.83) respectively.

The less time effective were (14, 21 and 28day) respectively the means in group B were (69, 56.6 and 34.8).

This results agreements with **Imdrof (1990) and Barcey and Fisher (1989) and Feldaufer *et al* (1997)** found the effective for formic acid were highly when the temperature with highly.

I.7. Effect of volatile oils on varroa destructor :

I.7.1.Evaluation of some volitial oils for controlling the Varroae mites :

The data presented in Table (16) and Fig. (16) showed that the treatments for example camphor oil, minit oil, anise oil, and control the application for 28 days, when counted the infestation percentage before treatments in adults and broad (22%, 19.3%), (20.6%-14.6%), (24.6%- 32%) and (10%- 12.6%) for camphor oil, minit oil, anise oil and control respectively and after treatment the infestation percentage in adults and boord (3.6%-3.3%), (4%- 3.33%), (5.3%- 4.3%), and (10%- 17.3%) for camphor oil, minit oil, anise oil and control respectively. The reduction percentage levels in adults and brood were (63%-56%), (57%- 41%) and (51%- 42%) for camphor oil minit oil and anise oil Respectively.

Table (16): Effect of some volatile oils on reduction the Varroa mite population before season activity by sugar species

Type of treat	No. of colony	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatment		% Reduction	
		Adult	broad	After 1 day	After 2 day	After 7 day	After 28 day	Adult	broad	Adult	broad
Camphor oil	1	22	19	20	24	28	21	6	4	63%	56%
	2	18	15	18	19	16	14	2	2		
	3	26	24	23	26	32	20	3	4		
Total		66	58					11	10		
Mean		22	19.3					3.6	3.3		
Minit oil	1	23	15	16	18	23	17	6	4	57%	41%
	2	19	11	15	15	18	15	4	2		
	3	20	18	14	20	27	16	4	4		
Total		62	44					12	10		
Mean		20.6	14.6					4	3.33		
Anise oil	1	26	23	12	16	23	15	6	3	51%	42%
	2	28	16	16	18	16	14	6	6		
	3	20	57	18	15	18	12	4	4		
Total		74	96					16	13		
Mean		24.6	32					5.3	4.3		
Control	1	10	12	13	14	12	13	12	18		
	2	8	10	15	12	10	12	10	18		
	3	12	16	10	11	13	10	8	16		
Total		30	38					30	52		
Mean		10	12.6					10	17.3		

L.S.D. at 0.05 = 3 .161 F. value =15.60

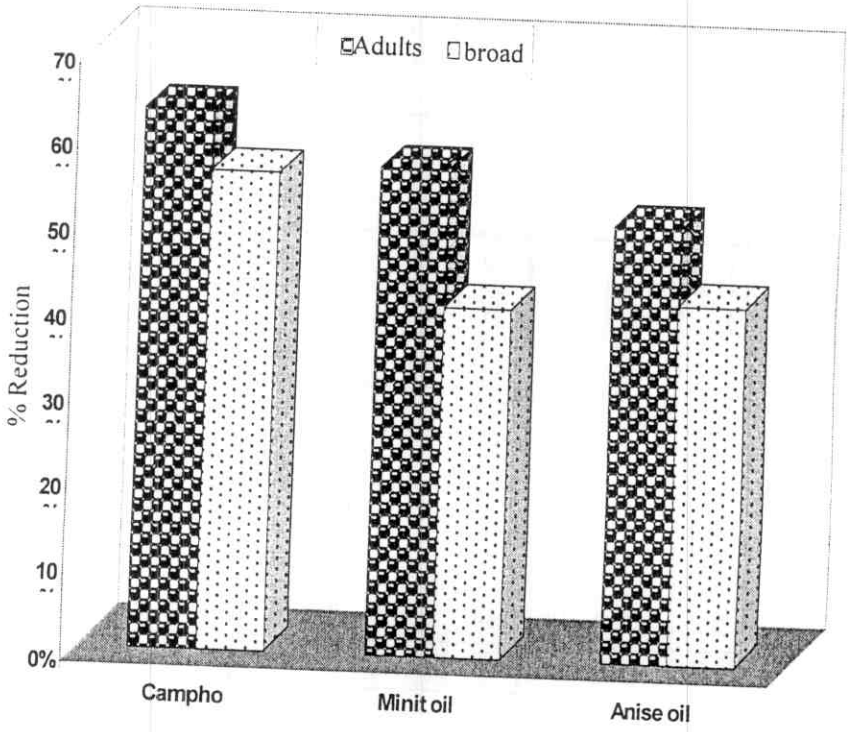


Fig. (16) : Effect of some volatile oils on reduction the Varroa mite population before season activity by sugar species

Statistical analysis in the Table (16) and Fig. (16) revealed the F. value = 15.60, Pr > F = 0.0001 a highly significantly for treatments L.S.D$_{0.05}$ was 3.161 the best time for the treatments was after (7, 2, 1 and 28 day).

I.7.2. Effect of some volatile oils on reduction the Varroa mite :

Effect of some volatile oils on reduction the Varroa mite population before season activity by carton strips. The data presented in Table (17) and Fig. (17) showed that after treatments the three colonies with volatile oils 10 gram absorption on carton strips and adding two strips per colony the infestation percentage before treatments in adults and brood were (28.3%, 23%), (23.2%, 20%), (25%, 18.6%) and (15%, 17.6%) for camphor oil, minit oil, anise oil and control respectively while were after treatments counted the fallen of Varroa mite after treatments 1, 2, 7 and 28 days respectively the infestation percentage after treatment in adults and brood (3.3%, 3%), (3.6%, 2.6%), (5.3%, 3.3%) and (20%, 22%) for camphor oil, minit oil, anise oil and control respectively.

The reduction percentage in adults and brood were (71%, 55%), (61%, 55%) and (59%, 39%) for camphor oil, minit oil and anise oil respectively.

Statistical analysis in Table (17) revealed the F. value: F. value = 18.63, pr > F = 0.0001, L.S.D$_{0.05}$ = 2.654 .

Highly significantly between treatments was volatile oil for the best time in this treatments after 7 days then 28 days.

Effect of some volatile oils on reduction the Varroa mite population before season activity by carton strips.

Table (17): Effect of some volatile oils on reduction the Varroa mite population before season activity by carton strips

Type of treatment	No. of colony	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatment		% Reduction	
		Adult	broad	After 1 day	After 2 day	After 7 day	After 28 day	Adult	broad	Adult	broad
Camphor oil	1	28	24	30	32	39	31	4	2	71%	55%
	2	26	20	22	20	24	20	2	2		
	3	31	25	28	28	30	27	4	2		
Total		85	69					10	6		
Mean		28.3	23					3.3	2		
Minit oil	1	26	21	22	28	31	24	3	4	61%	55%
	2	23	11	25	24	26	22	4	2		
	3	21	18	20	21	20	18	4	2		
Total		70	50					11	8		
Mean		23.3	16.6					3.6	2.6		
Anise oil	1	24	20	23	27	29	18	6	4	59%	39%
	2	22	19	22	26	25	15	6	4		
	3	20	17	17	19	21	13	4	2		
Total		76	56					16	10		
Mean		25.2	18.6					5.3	3.3		
Control	1	14	21	14	18	16	14	20	26		
	2	18	16	13	15	17	12	18	16		
	3	13	16	12	14	13	10	22	24		
Total		45	53					60	66		
Mean		15	17.6					20	22		

L.S.D. at 0.05 = 2.6 **F. value =18.6**

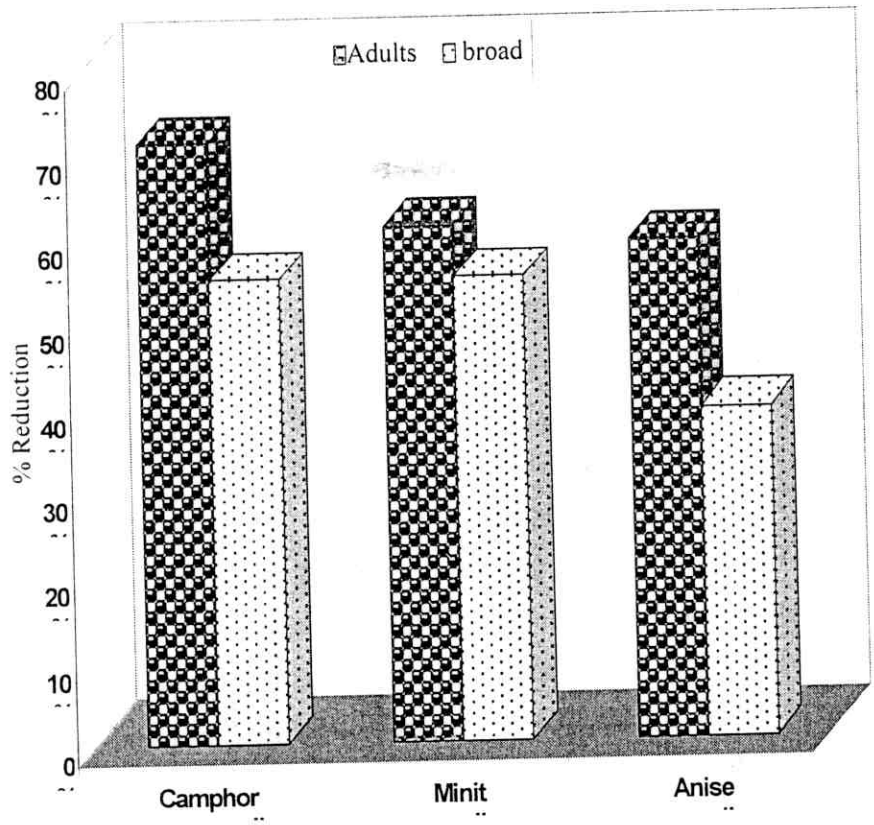


Fig. (17): Effect of some volatile oils on reduction the Varroa mite population before season activity by carton strips.

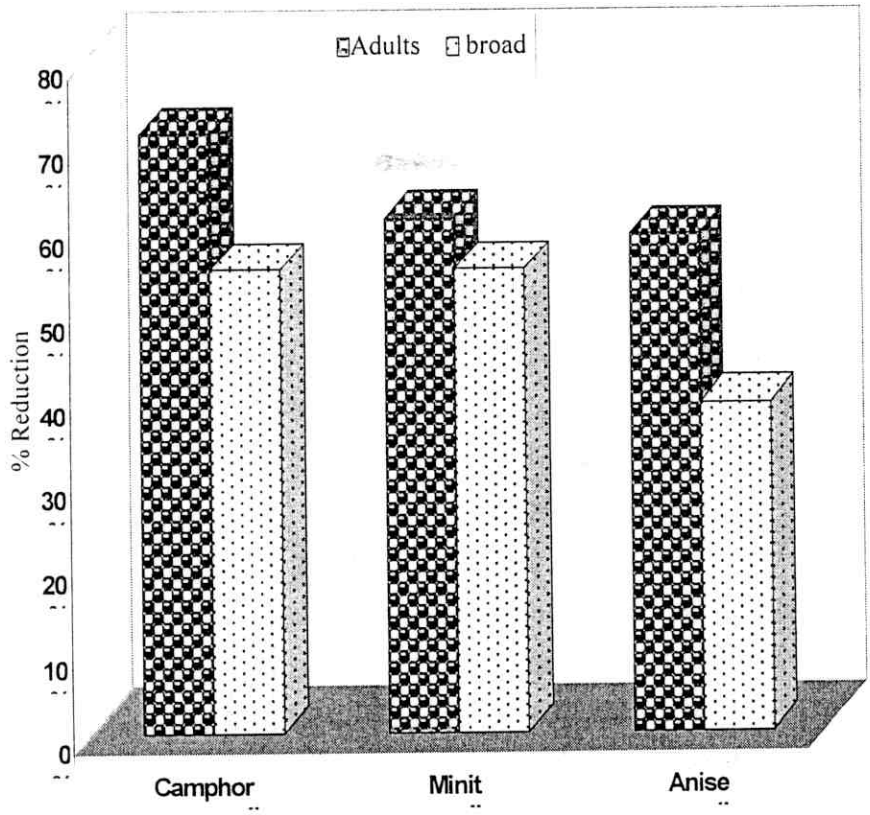


Fig. (17): Effect of some volatile oils on reduction the Varroa mite population before season activity by carton strips.

I.7.3.Effect of some volatile oils on reduction the Varroa mite population before season activity by cotton strips:

Data in Table (18) and Fig. (18) showed that the infestation percentage before treatments in adults and brood were (25.6%, 21.3%), (23.3%, 21%), (24.3%, 19.6%) and (16.6%, 19%) for camphor oil, minit oil , anise oil and control the infestation percentage after treatments in adults and brood was (2.6%, 2.3%), (3.2%, 3%), (4%, 3.2%) and (18.3%, 19.6%) respectively, the reduction percentage on adults and brood were (90.8%, 89.5%), (87.5%, 86%), (85, 84%) for camphor oil, minit oil, and anise oil respectively.

Statistical analysis in Table (18) revealed: F. value = 24.58 , $Pr > F = 0.0001$, $L.S.D_{0.05} = 2.256$. The pest time in this treatments after 7 days then 28 days, 1, 28 day.

I.7.4.Evaluation of some volatile oils for controlling the Varroa mites on honeybee colonies before activity seasons.

The data presented in Table (19) and Fig (19) showed that the infestation percentage before treatments in adult and brood were (19%, 17%), (17.3%, 13.6%), (20.3%, 13.6%), (25.6%, 20.3%) and (15.66%, 17.3%) for camphor oil, clove oil, Grees oil, minit oil and control respectively and after treatment the infestation percentage in adults and brood were (4%, 3.66%), (5.3%, 4%), (7.3%, 4%), (5%, 4.66%) and (16.66%, 18.3%) for camphor oil, clove oil, Grees oil minit oil and control respectively. The reduction percentage levels in adult and brood were (80.2%,79.6%), (71.2% 72%), (66% , 67%) and (81.6%, 78.2%) for camphor oil, clove oil, Grees oil, minit oil and control respectively.

Table (18): Effect of some volatile oils on reduction the Varroa mite population before season activity by cotton strips

Type of treatment	No. of colony	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatment		% Reduction	
		Adults	broad	1day	2day	7 day	28 day	Adults	broad	Adults	broad
Camphor oil	1	23	20	28	25	32	27	2	2	90.8%	89.5%
	2	27	21	30	32	34	22	4	3		
	3	26	23	24	26	27	19	2	2		
Total		77	64					8	7		
Mean		25.6	21.3					2.6	2.3		
Minit oil	1	21	18	22	26	30	24	4	3	87.5%	86%
	2	23	21	20	24	26	20	2	4		
	3	26	24	21	23	25	21	4	2		
Total		70	63					10	9		
Mean		23.3	21					3.2	3		
Anise oil	1	26	21	20	23	26	21	6	4	85%	84%
	2	22	18	21	26	29	23	2	2		
	3	25	20	24	29	32	26	4	4		
Total		73	59					12	10		
Mean		24.3	19.6					4	3.2		
Control	1	16	18	17	16	15	12	20	18		
	2	14	20	18	19	18	14	17	21		
	3	20	19	16	20	16	10	18	20		
Total		50	57					55	59		
Mean		16.6	19					18.3	19.6		

L.S.D. at 0.05 = 2.25 **F. value =24.58**

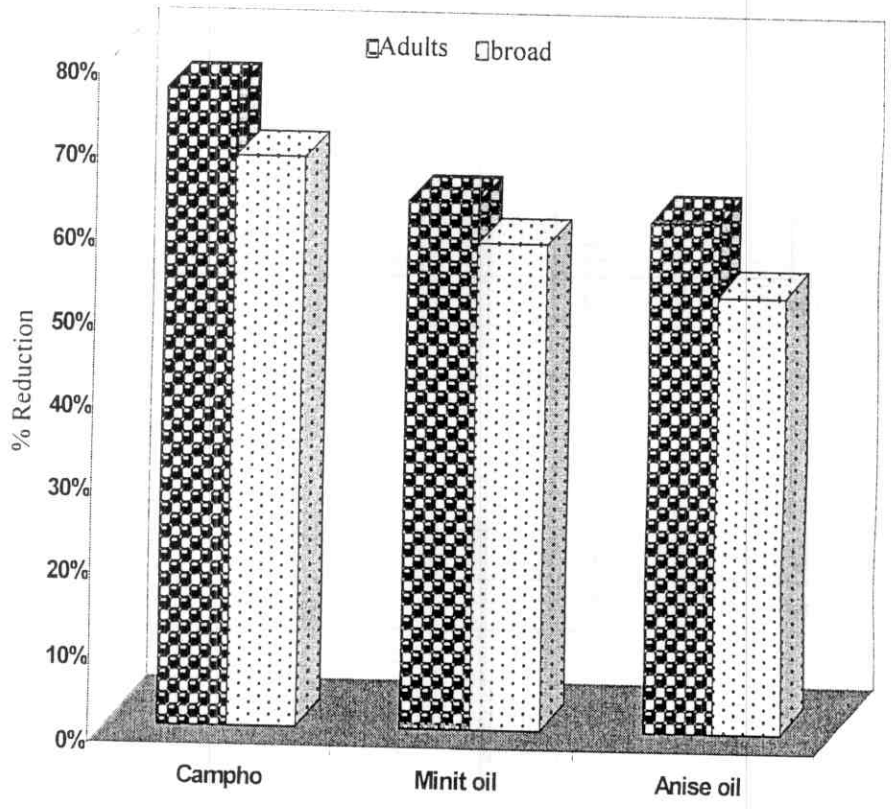


Fig. (18): Effect of some volatile oils on reduction the Varroa mite population before season activity by cotton strips

Table (19): Evaluation of some volatile oils for controlling the *Varroa mites* on honeybee colonies before activity seasons

Type of treat	No. of colony	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatment		% Reduction	
		Adults	broad	1day	2day	7 day	28 day	Adults	broad	Adults	broad
Campher oil	1	26	25	28	32	47	36	4	5	80.2%	79.6%
	2	15	14	15	19	26	24	6	2		
	3	16	12	18	21	29	21	2	4		
Total		57	51					12	11		
Mean		19	17					4	3.66		
Clove oil	1	22	18	19	25	29	20	6	4	71.2%	72%
	2	16	13	18	18	22	17	4	4		
	3	14	10	16	12	15	10	6	4		
Total		52	41					16	12		
Mean		17.3	13.6					5.3	4		
cress oil	1	15	10	10	12	14	12	6	4	66%	67%
	2	21	13	18	23	28	21	8	6		
	3	25	18	15	20	22	19	8	4		
Total		61	41					22	14		
Mean		20.3	13.6					7.3	4		
Mint oil	1	28	21	20	21	24	18	6	6	81.6%	78.2%
	2	31	24	22	28	31	23	5	4		
	3	18	16	12	14	16	17	4	4		
Total		77	61					15	14		
Mean		25.6	20.3					5	4.66		
Control	1	20	18	11	12	13	10	18	20		
	2	14	22	8	10	12	8	22	21		
	3	13	12	10	13	14	11	10	14		
Total		47	52					50	55		
Mean		15.66	17.3					16.66	18.3		

L.S.D. at 0.05 = 4.40 **F. value =12.16**

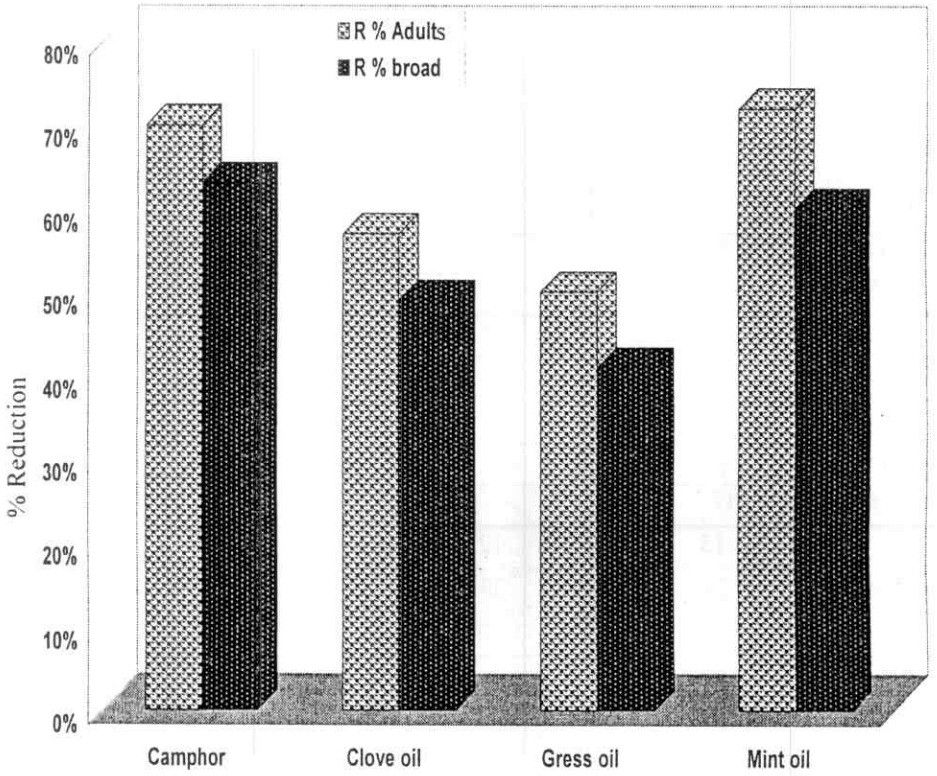


Fig. (19): Evaluation of some volatile oils for controlling the Varroa mites on honeybee colonies before activity seasons

Statistical analysis in the Table (19) and Fig. (19) revealed the F-value = 12.16 L.S.D. = 4.405, Pr>F= 0.0001.

The best time for the treatment was 7, 2, 28 and respectively.

I.7.5. Evaluation of some volatile oils for controlling the Varroa mites on honeybee colonies before activity season:

The data presented in Table (20) and Fig. (20) showed that the infestation percentage before treatments in adults and brood were (20.3%,14.66%), (22%, 18.3%0, (16.3%, 13%), (16.6%, 11.6%) and (14.66%, 15%) for parsley oil, anise oil, onion oil, Garlic oil and control respectively and after treatments the infestation percentage in adults and brood were (6%, 5.33%), (4%, 3.6%), (6.6%, 6%), (7.6%, 5.3%) and (16.66%, 16%) for parsley oil, anise oil, onion oil, Garlic oil and control respectively. The reduction percentage levels in adults and brood were (66.5%, 67%), (34%, 81.5%), (62.9%, 56.7%) and (59.7%, 57.1%) for parsley oil, anise oil, onion oil, Garlic oil and control respectively.

Statistical analysis in table (20) and Fig. (20) revealed the F-value = 12.87, L.S.D. = 2.221, Pr>F= 0.0001.

The best treatment was anise oil, onion oil, Garlic oil, parsley oil and control. The best time were 7, 2, 28 and 1day.

I.8. Effect of supplements to reduced the population of Varroa destructor winter 2004 as a method for I.P.M.

The data presented in table (21) and Fig (21) showed the five treatments(supplement(1) yeasts, supplement(2) Eucalyptus

Table (20): Evaluation of some volatile oils for controlling the Varroa mites on honeybee colonies before activity seasons

Type of treatment	No. of colony	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatment		% Reduction	
		Adults	broad	1 day	2 day	7 day	28 day	Adults	broad	Adults	broad
Parsley oil	1	24	15	12	15	16	14	4	8	66.5%	67%
	2	18	16	10	12	18	15	8	6		
	3	15	13	15	16	14	12	6	4		
Total		61	44					18	16		
Mean		20.3	14.66					6	5.33		
Anise oil	1	21	19	18	21	28	20	6	5	84%	81.5%
	2	25	18	20	24	32	23	4	4		
	3	20	18	18	15	19	15	2	2		
Total		66	55					12	11		
Mean		22	18.3					4	3.6		
Onion oil	1	16	13	15	14	18	13	6	6	62.9%	56.7%
	2	18	14	21	19	24	19	12	8		
	3	15	12	18	12	16	15	4	4		
Total		49	39					22	12		
Mean		16.3	13					6.6	6		
Garlic	1	15	12	12	16	20	14	12	8	59.7%	57.1%
	2	14	13	10	18	16	12	8	4		
	3	21	10	13	15	22	13	6	4		
Total		50	35					23	16		
Mean		16.6	11.6					7.6	5.3		
Control	1	10	16	12	10	12	14	14	18		
	2	20	17	11	12	13	10	20	16		
	3	14	12	9	10	8	11	16	14		
Total		44	45					50	48		
Mean		14.66	15					16.66	16		

L.S.D. at 0.05 = 12.222 **F. value =12.87**

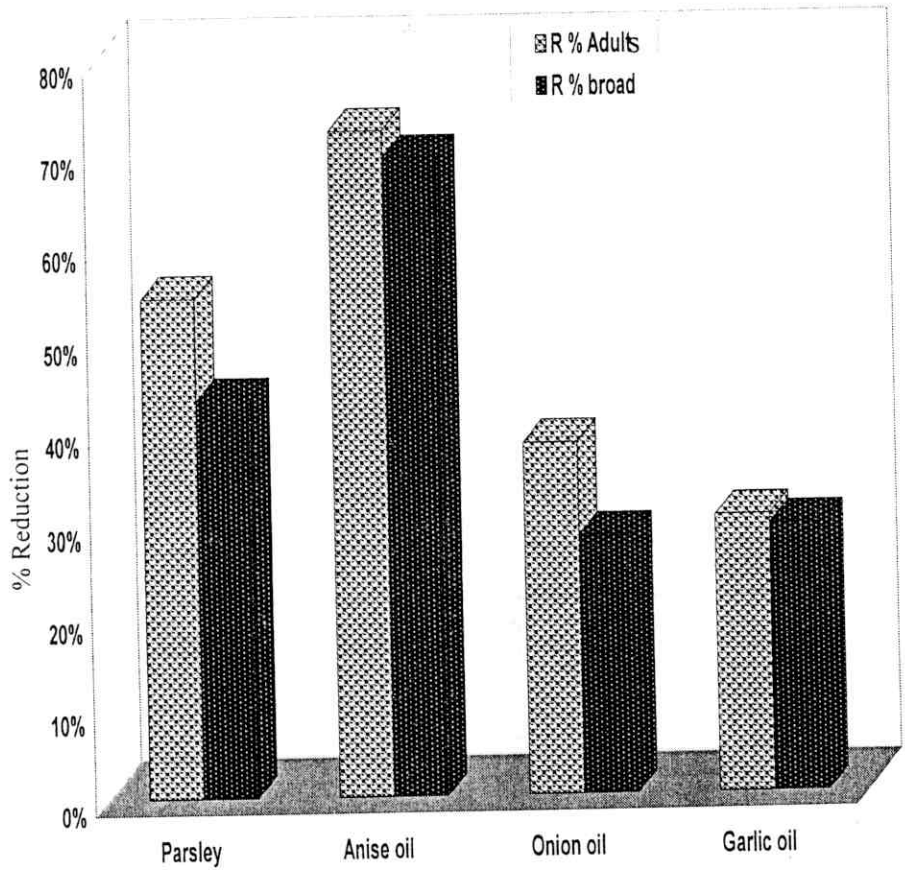


Fig. (20): Evaluation of some volatile oils for controlling the Varroa mites on honeybee colonies before activity seasons.

Table (21): Effect of supplemental martial and formic acid 85 for reducing *Varroa destructor* population during winter of 2004.

Type of treatment	% infestation before treatment		No of fallen of Varroa mite				% infestation after treatment		% Reduction	
	Brood	Adults	7	14	21	28	Brood	Adults	Brood	Adults
Yeasts (1)	15	23	28	39	46	19	8	4		
	18	24	26	30	20	18	4	8	68%	72%
	12	18	16	18	14	10	8	6		
Mean	15	21.6					6.6	6.6		
eucalypts Oil (2)	16	20	25	30	41	15	6	4		
	14	14	21	33	35	10	10	8	55.4%	71%
	11	17	18	21	19	8	8	4		
Mean	13.6	17					8	5.8		
Wet dates (3)	10	13	24	38	44	16	8	4	60%	70.6%
	14	22	28	36	30	14	6	6		
	17	21	19	23	27	18	7	8		
Mean	13.6	18.6					7	6		
85% Formic acid	18	28	29	32	36	18	4	2	90%	93%
	20	26	34	40	28	16	4	4		
	22	28	36	42	31	14	-	-		
Mean	20	26.3					2.6	2		
Control	11	14	13	13	10	8	18	16		
	10	16	15	14	16	12	12	18		
	14	18	18	16	14	14	16	19		
Mean	11.6	16					15.3	17.6		

L.S.D. at 0.05 = 6.75 **F. value =7.68**

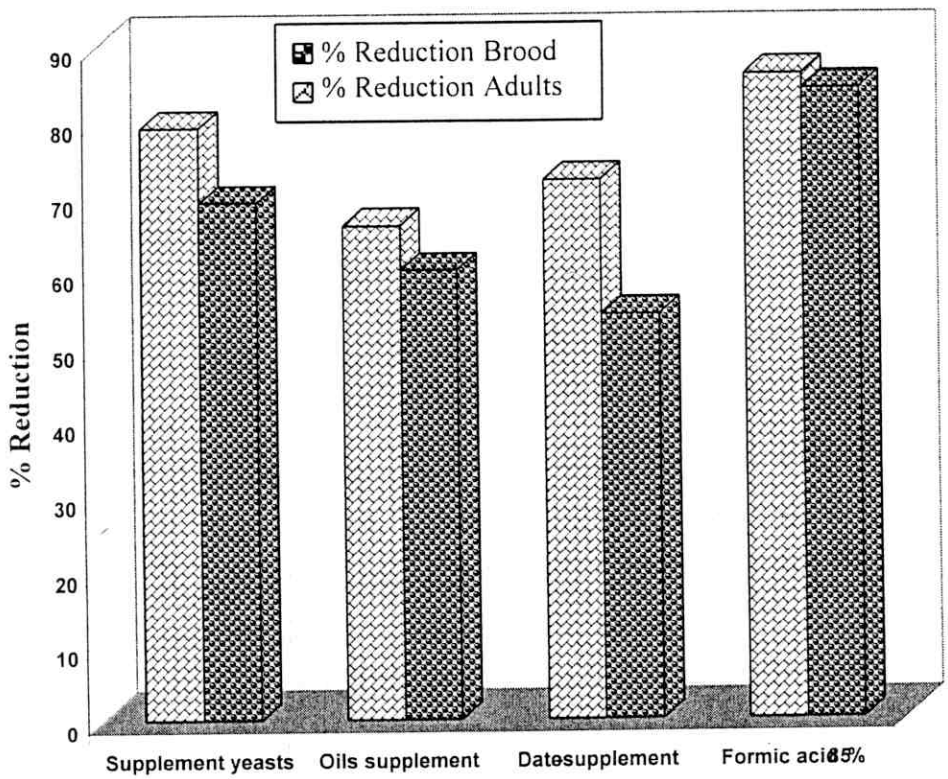


Fig. (21): Effect of supplemental materials for reducing *Varroa destructor* during winter of 2004.

oil, supplement (3) wet dates, formic acid 85% and control, before treatment the infestation percentage in sealed brood and adult bees the mean were (15%, 21.6%), (13.6%, 17%), (13.6%, 18.6%), (20%, 26.3%) and (11.6%, 16%) for (supplements 1, 2, 3, formic acid and control) respectively after treatments the infestation percentage in sealed brood and adult bees the mean were (6.6%, 6.6%), (8%, 5.8%), (7%, 6%), (2.6%, 2%) and (15.3%, 17.6%), the reduction percentage on brood and adults were (68%, 72%), (55.4%, 71%), (60%, 70.6%) and (90%, 93%) respectively, for supplements (1, 2, 3, and 85% formic acid).

Statistical analysis in the table (21) revealed F- value = 7.68, Pr> F= 0.0001,L.S.D.at 0.05 = 6.7572

This highly significantly for supplement 3,1 this is a group A the mean were (26.417 and 23.667) respectively, but the less effective in group A the mean were (23.000 and 22.083) but the group B the mean was (12.250). the best time for this treatment when the L.S.D. at 0.05=6.0438. the day best 14 day, 7 day this a group A the mean were (26.867 and 24.133) respectively, the less effective was 21 and 28 day the mean were (23.867 and 11.067) respectively. This results agreements with **Khattab, M.M. (1976).**

I.9.a. Comparative between production and infection by *Varroa destructor* for honeybee colonies in queen rearing station at seasons 2004 :

The data presented in table (22) and Fig (22) showed the six type of production in the normal colonies on queen rearing

station (bee honey, pollen grane, virgin queen, Royal jelly, queen production, and Nucleus production) for seasons 2004 from February to September, in gine the production bee honey was 4 kg but the pollen production was 1 kg for April, 1kg (0.5, 4, 1) June, August, September respectively but the virgin queen production were (200, 300, 100, 200, 180 and 200 queen) for (March, April, May, June, July, August) respectively.

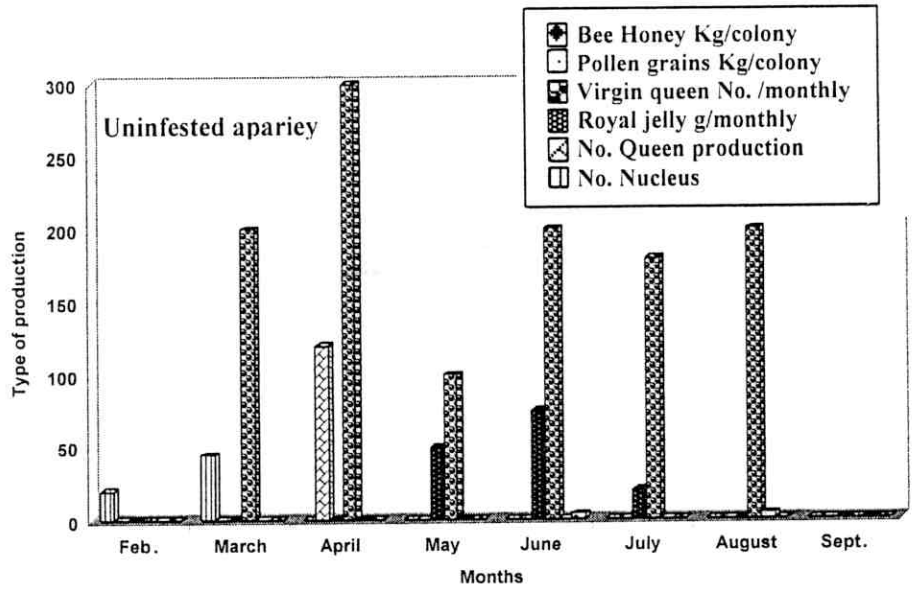
The royal jelly production were (50, 75 and 20) gram for May, June, July respectively, but the queen production was 120 queen for April. The nucleus production were (20 and 45) for February, march) respectively. The mean were (0.8, 0.93, 147.5, 18.125, 15 and 8.125 queen/coloney) for (bee honey, pollen grane, virgin queen, royal jelly, queen production, nucleus production respectively. But in the infestation colonies, the production was 2 kg for bee honey, (1.5, 1) kg pollen grains, for (July and August) (5 and 12) gram royal jelly for (May and June) respectively, (30) queen production for April, but the mean were (0.25, 0.31, 2.125 and 3.75) for (bee honey, pollen grane, royal jelly, queen production) respectively.

Statistical analysis in the table (22) revealed F- value = 8.00, Pr > F = 0.0064, L.S. D. 0.05 = 0.5912 this test was highly significantly between the normal colonies and the infestation colonies, comparative every type of production from normal for infested colonies the mean were (0.500 and 2500), (0.9375 and 0.3125), (147.50 and 0.00), (18.375 and 2.125), (15.25 and 3.75) for (bee honey, pollen grane, royal jelly, queen production, nucleus production) the best time was June.

Table (22): Comparative between production and infestation by *Varroa destructor* for honeybee colonies in queen rearing station at season 2004

Month \ Type of treatment		Type of production					
		Bee honey K.g	Pollen grain K.g	No. of Virgin queen	Royal jelly g.	No. of Queen production	No. of Nucleus
February	Uninfested apiary	-	-	-	-	-	20
March		-	-	200	2	-	45
April		-	1	300	-	30	-
May		-	1	100	50	50	-
June		4	0.5	200	75	-	-
July		-	-	180	20	-	-
August		-	4	200	-	-	-
September		-	1	-	-	-	-
Total		4	7.5	1180	147	80	65
Mean		0.5	0.937	147.5	18.375	10	8.125
February	Infested apiary	-	-	-	-	-	-
March		-	-	-	-	-	-
April		-	-	-	-	30	-
May		-	-	-	5	-	-
June		2	-	-	12	-	-
July		-	1.5	-	-	-	-
August		-	1	-	-	-	-
September		-	-	-	-	-	-
Total		2	2.5	-	17	30	-
Mean		0.25	0.312	-	2.125	3.75	-

L.S.D. at 0.05 = 9.50 F. value =8



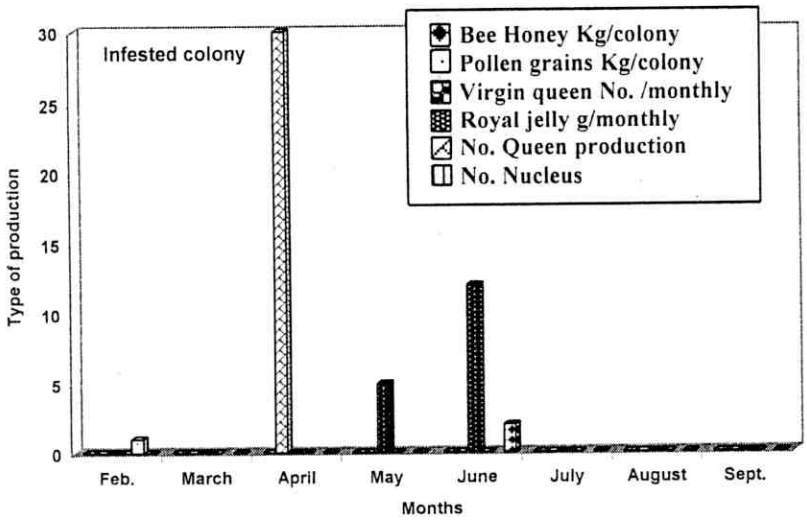


Fig (22): Comparative between production and infestation by *Varroa destructor* for honeybee colonies in queen rearing station at seasons 2004

I.9.b.Comparative between production and infestation by Varroa destructor for honeybee colonies in queen rearing station at seasons 2005:

The data presented in table (23) showed the six type of production in the normal colonies on Varroa rearing station bee honey, pollen grain, virgin queen, royal jelly, queen production and nucleus production) for seasons 2005 from February to September, in June the production bee honey was 5 Kg but the pollen grane production were (2, 1, 1.5, 1, 3, 3 and 2) Kg for (March, April, May, June, July, August and September) respectively but the virgin queen production were (300, 400, 200, 250, 400 and 300) for March, April, May, June, July and August) respectively.

The Royal jelly production were (50, 100, 120, 120 and 50) gram for (April, May, June, July and August) respectively queen production was (50, 50, 100 and 100) for May, June, July, August) respectively. The nucleus production were (30 and 80) for (February and March) respectively.

Statistical analysis in the table (23) revealed that F-value= 3.14, Pr> F = 0.0745, L.S.D 0.05= 1.0345 the mean were (0.6250, 0.1875), (1.6875, 0.3125), (231.25, 0.00), (55.00, 0.0), (37.50, 5.00) and (16.25, 0.00) for (bee honey, pollen traps, virgin queen, royal jelly queen production and nucleus production) respectively.

This analysis is highly significantly for six production on normal colonies then the infested colonies.

Table (23): Comparative between production and infestation by *Varroa destructor* for honeybee colonies in queen rearing station at season 2005 .

Type of treatment / Month		Type pf production					
		Bee honey K.g	Pollen grain K.g	No. of Virgin queen	Royal jelly g.	No. of Queen production	No. of Nucleus
February	Uninfected apiary	-	-	-	-	-	30
March		-	2	300	-	-	50
April		-	1	400	50	-	-
May		-	1.5	200	100	50	-
June		5	1	250	120	50	-
July		-	3	400	120	100	-
August		-	3	300	50	100	-
September		-	2	-	-	-	-
Total		5	13.5	1850	440	300	80
Mean		0.625	1.687	231.25	55	37.5	10
February	Infested apiary	-	-	-	-	-	-
March		-	-	-	-	-	-
April		-	-	-	-	40	-
May		-	-	-	-	-	-
June		1.5	1	-	-	-	-
July		-	0.5	-	-	-	-
August		-	1	-	-	-	-
September		-	-	-	-	-	-
Total		1.5	2.5	-	-	40	-
Mean		0.187	0.312	-	-	5	-

L.S.D. at 0.05 = 8.83 F. value =7.66

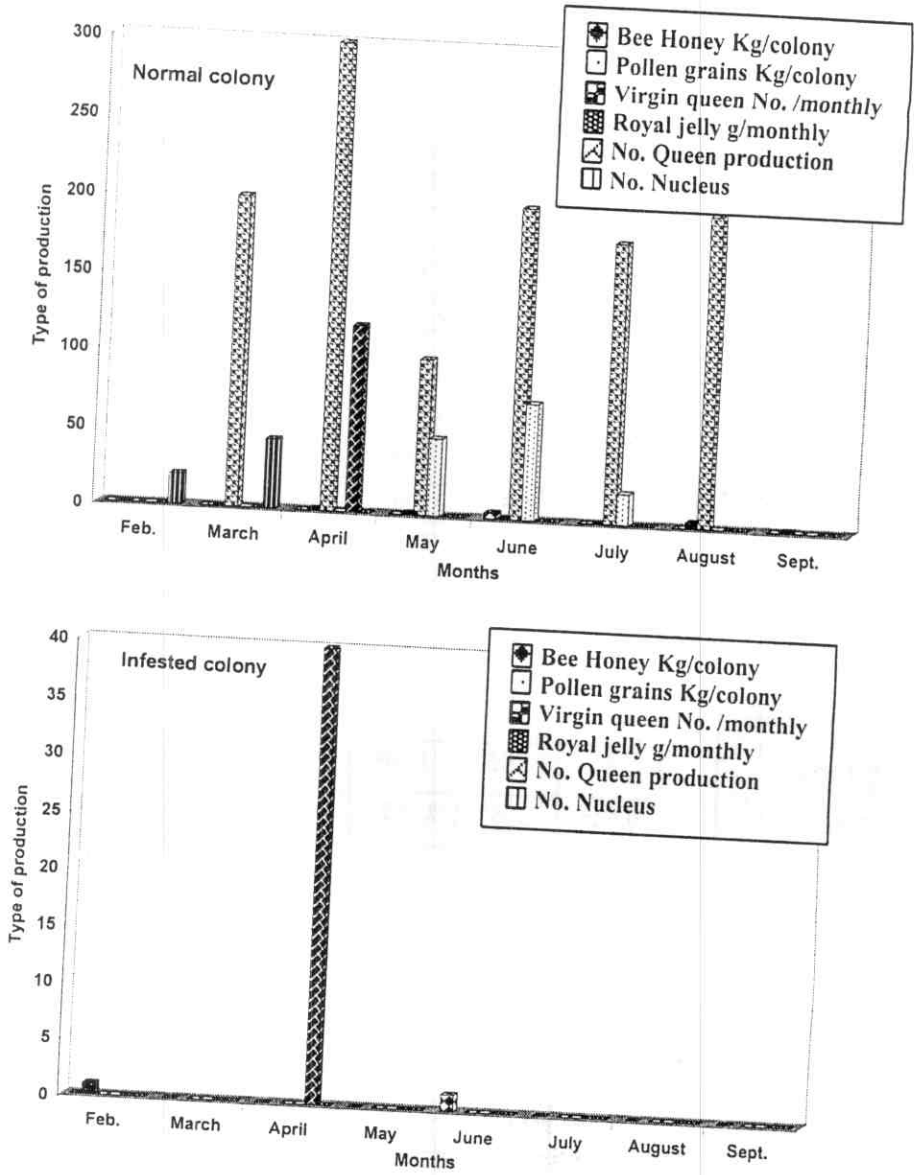


Fig. (23): Comparative between production and infestation by *Varroa destructor* for honeybee colonies in queen rearing station at season 2005.

II. Control of Chalk brood:

Chalkbrood in honeybees (*Apis mellifera*) may be easily recognized in cells uncapped by the workers At first , dead leave are covered by a fluffy white mould and swollen to hexagonal shape of cell latter they dry and shrink into "Mummies" and may become gray / black it spore costs form, the only condition with which might be confused is mouldy pollen, but the latter mostly occurs early in the spring and mouldy the brood consists mostly of stretched larvae, the head protectively from the fungal mantle **(David De Jong, (1976), Carol Dassbinder, *et al.*, (2005) and Gochnauer, *et al.*, (1976).**

II.1. Effect of powder sugar as dusting on bees and combs for control of chalkbrood during winter (2002):

The data presented Table (24) showed that the three treatments (sugar powder dusting, 85%formic acid, control), before treatments the infestation percentages on new brood and dry brood were(16.3%, 21.3%), (17%, 21.6%) and (13.3%, 12.66%) for sugar powder dust, formic acid and control, after treatments the infestation percentage were (11.6%, 7.6%), (4%, 2%) and (15.33%, 14.60%) for sugar powder, formic acid, and control respectively.

The reduction percentage on new brood and dry brood were (55%, 72%) and (79%, 62%) for sugar powder dusting, 85%formic acid respectively.

II.2. Effect of Varroazal by fed honeybee colonies for controlling chalkbrood during winter 2003.

Data presented in Table (25) showed that the two treatment (Varroazal, control) respectively, before applied this treatment on new brood and dry brood were (19.3% and 14.6%),

Table (24): Effect of sugar powder as dusting on bees and combs for controlling of chalkbrood diseases during winter of 2002.

Type of Treat	% infestation before treatment		No of fallen of Mummies					% infestation after treatment		% Reduction	
	New Brood	dry Brood	4	7	14	21	28	New Brood	dry Brood	New Brood	dry Brood
Powder Sugar dust	15	18	6	24	62	22	30	10	4		
	13	19	8	36	24	38	20	11	8	55%	72%
	21	27	30	26	28	56	32	14	11		
Total	49	64						35	23		
Mean	16.3	21.3						11.6	7.6		
Formic acid	19	21	18	30	65	48	22	6	4		
	20	20	16	48	51	50	24	6	-	79%	92%
	12	24	20	32	72	39	27	-	2		
Total	51	65						12	6		
Mean	17	21.6						4	2		
Control	14	10	4	4	6	6	8	16	12		
	16	14	12	8	8	4	6	18	16		
	10	14	6	4	4	6	4	12	16		
Total	40	38						46	44		
Mean	13.3	12.66						15.33	14.66		

L.S.D. at 0.05 = 6.87 **F. value =10.89**

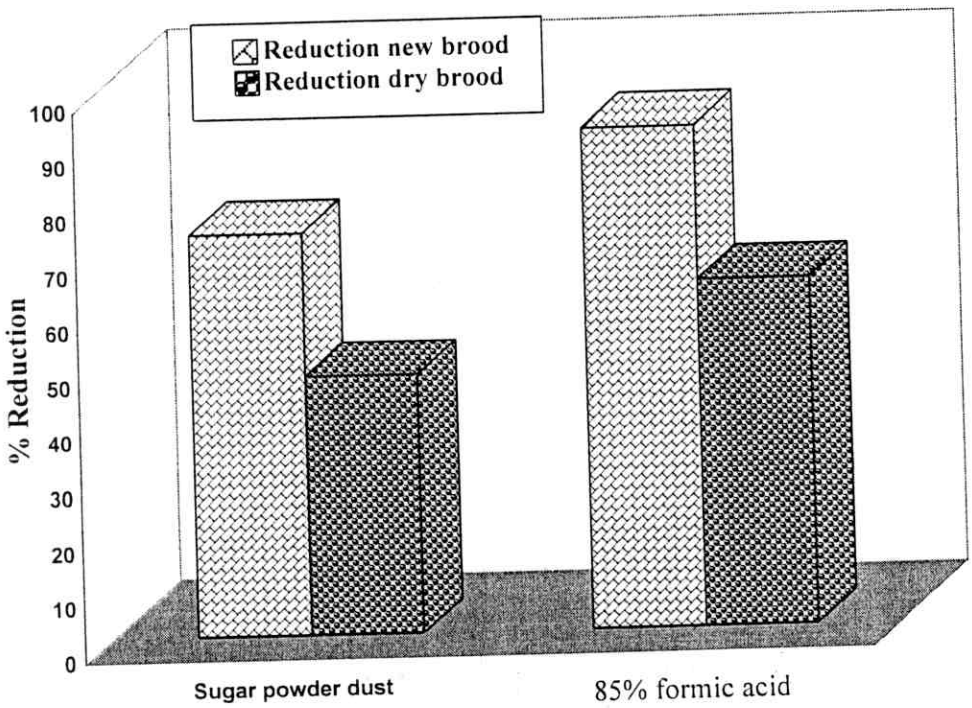


Fig. (24): Effect of powder sugar as dusting and Formic acid on bees and combs for controlling chalkbrood during winter 2002.

Table (25):Effect of Varroazal by fed honeybee colonies for controlling chalkbrood diseases during winter of 2003

Type of Treatment	% infestation before treatment		No of fallen of Mummies after 28 day					% infestation after treatment		Reduction %	
	New brood	Dry brood	4	7	14	21	28	New brood	Dry brood	New brood	Dry brood
Varroazal	15	13	14	10	14	8	6	4	4		
	19	11	30	18	8	8	2	6	2	63%	77%
	24	20	56	40	28	10	1	14	5		
Total	58	44						24	11		
Mean	19.3	14.6						8	3.6		
Control	15	18	12	14	10	12	8	16	19		
	14	16	14	14	12	10	8	16	18		
	12	11	15	16	12	10	10	14	12		
Mean	41	45						46	49		
	13.6	15						15.3	16.3		

L.S.D. at 0.05 = 6.8636 F. value =2.67

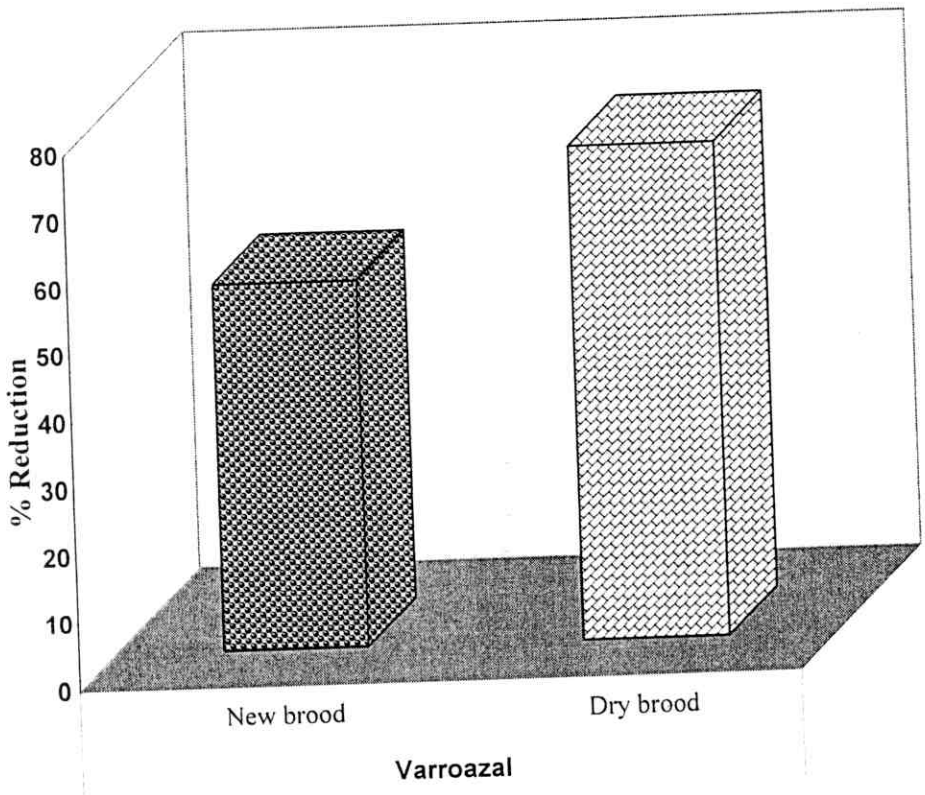


Fig. (25): Effect of Varrozal by fed honeybee colonies for controlling chalkbrood during winter of 2003.

(13.6%, 15%) respectively for Varroazal, control after treatment the infestation percentage on new brood and dry brood were (8%, 3.6%) and (15.3%, 16.3%) for Varroazal, control respectively.

The reduction percentage were (63% and 77%) on new brood and dry brood.

Statistical analysis in the table (25) revealed that F- value = 2.67, Pr > F = 0.0321, L.S.D = 6.8636, the group A (Varroazal, control) for the mean was (16.867, 11.800) respectively.

The best time were (14, 21, 28) for (14.000, 9.667, 5.883) respectively this results agreement with **Heath, (1985) and Abd El- Fatah, (1999).**

Statistical analysis in the table (24) and Fig. (24) revealed the F. value = 10.89, Pr > F = 0.0001, L.S.D at 0.05 = 6.8717 this treatment is a highly significantly the group A was a formic acid 85% the mean was (37.467) the group B was a sugar powder dusting the mean was (29.467) then the group C was control the mean was (6.00) the sugar powder effective on the infestation by ascosphare apis because decreased the relative humidity on the colony the reduction percentage was 54% for the adult bees although the graining by the worker to the colonies reduction the infestation percentage.

II.3. Effect of 85% formic acid on honeybee colonies of chalkbrood diseases control during winter 2003.

The Data presented in Table (26) showed that the two treatments (formic acids 85%, control) , before treatments this infestation percentage on new brood and dry brood were (19.3%,

22.6%) and (13.66%, 14.66%) for formic acid 85%, control respectively.

The infestation percentage after treatment on new brood and dry brood were (4.3%, 4%) and (15.3%, 16.3%) for treated with 85%formic acid, control, the reduction percentage on new brood and dry brood were (80% and 87%) because the formic acid 85% effective an Varroa mite fallen and chalknbrood and speedily effective on Varroa mite inside the sealed brood as soon as the control of Varroa mites will reduction the population of Varroa mite and chalkbrood in fig (26).

Statistical analysis in the table (26) revealed that F. Value = 25.50, Pr > F = 0.0001, L.S.D at 0.05= 4.4609 this treatment by formic acid is a highly significantly, the group A formic acid the mean was (40.7333) then the control in group A the mean was (15.867) the best time in the treatments for group. A were (35.500 and 33.667) for (25.333 and 13.500) for 7, 21 and 28 day) respectively.

The result agreement with **Abou Lila, (1997) and El-Hady(2001)** found that showed also passive correlation between Varroa infestation and chalkbrood disease, in the Varroa infested colonies the mean number of mummies of chalkbrood disease was 24.16 at bottom brood and 26.23 inside cell while it was 13.66 and 18.30 mummies respectively in the lowest infest colonies with Varroa during 1998.

Table (26): Effect of (85% formic acid) on honeybees colonies of chalkbrood diseases controlling during winter of 2003 .

Type of Treatment	% infestation before treatment		No of fallen of Mummies after 28 day					% infestation after treatment		% Reduction	
	New brood	Dry brood	4	7	14	21	28	New brood	Dry brood	New brood	Dry brood
85% Formic acid	18	23	67	54	46	39	18	3	4		
	19	21	58	42	50	32	19	4	6	80%	87%
	21	24	42	52	54	24	14	6	2		
Total	58	68						13	12		
Mean	19.3	22.6						4.3	4		
Control	12	15	18	20	14	16	12	14	16		
	14	16	16	18	24	22	10	16	18		
	15	13	12	15	14	19	8	16	15		
Total	41	44						46	49		
Mean	13.66	14.66						15.3	16.3		

L.S.D. at 0.05 = 4.46 **F. value =25.50**

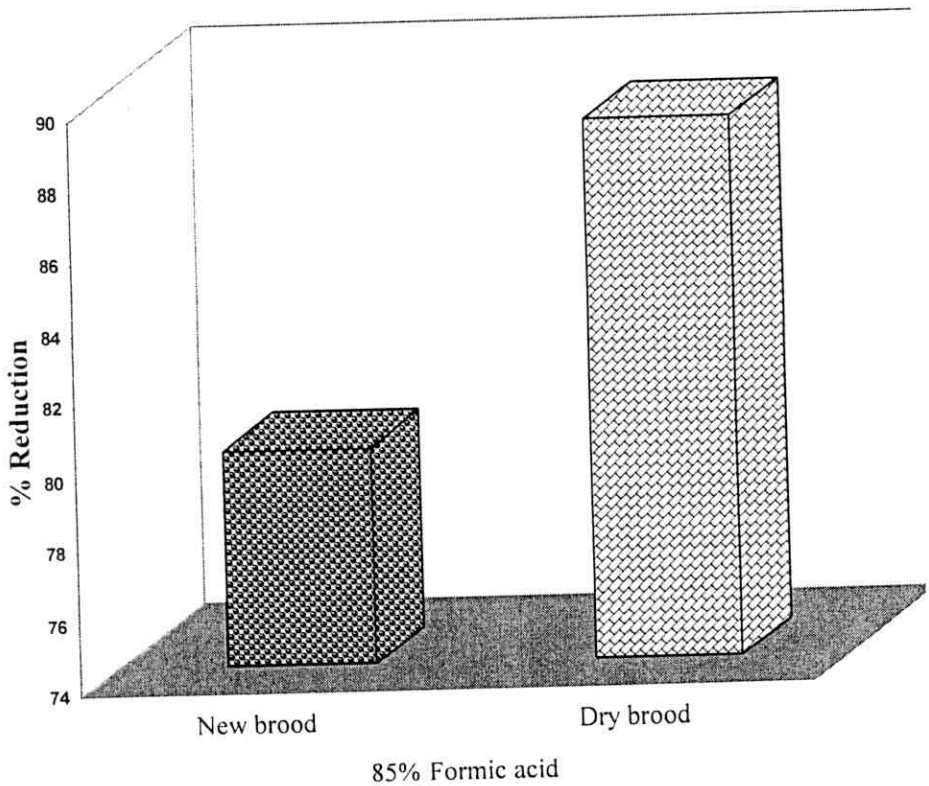


Fig. (26): Effect of (85% Formic acid) on honeybee colonies for controlling chalkbrood diseases during winter 2003.

II.4. Effect of Natural temperature on chalkbrood diseases during summer 2003:

The Data presented in table (27) showed that the two treatments Natural temperature by directly sunrise for (29/5, 31/5, 18/7) on summer 2003, this colonies placed on without shadding and the colonies were expressed to direct sunrise the colonies were used three colonies, the infestation percentage counted before treatment on new mummies and dry mummies the mean were (12%, 13.6%) and (11.66%, 10.66%), the infestation percentage after treatment on a new mummies and a dry mummies the mean were (5.3%, 5%) and (13.66%, 12.66%) for temperature shadding place (untreated), the reduction percentage on a new mummies and dry mummies were (57% and 65%) for treatments by Natural temperature.

Statistical analysis in the table (27) and Fig. (26) revealed that F. value = 3.68, Pr > F = 0.0146, L.S.D at 0.05 = 4.2177 the treatment by Natural temperature was highly significantly the group A (Natural temp) the mean was (14.500) but group B (shadding place) the mean was (8.000) , the best time for this treatments the L.S.D at 0.05 = 5.9647.

The effect time was after 15 day, 1 day in group A with mean were (15.667 and 10.167) respectively the less after 30 day, 2 day the mean were (9.833 and 9.333) this results agreement with **Liu (1991); Bruce *et al* (1997), Heath (1982), Owayss (2002) Abed El-fatah (1999)** found that the effect of four substance on the linear growth of A. apis showed that formaline was only effective and inhibit the growth of fungus at different concentration, the rate of growth were less completely

Table (27): Effect of natural temperature on chalkbrood diseases during summer of 2003 .

Type of Treat	% infestation before treatment		No of fallen Mummies after treatment				%infestation after treatment		Reduction %	
	New brood	Dry brood	29/5	31/5	16/6	18/7	New brood	Dry brood	New brood	Dry brood
Temperature Natural	14	18	13	10	35	14	8	6		
	12	15	11	16	25	11	4	8	57%	65%
	10	8	7	9	11	12	4	3		
Total	36	41					16	17		
Mean	12	13.6					5.3	5.6		
Shadding place (control)	12	10	8	9	6	8	14	12		
	10	12	14	6	8	6	12	14		
	13	10	8	6	9	8	15	12		
Total	35	32					41	38		
Mean	11.66	10.66					13.66	12.66		

L.S.D. at 0.05 = 4.21
F. value =3.68

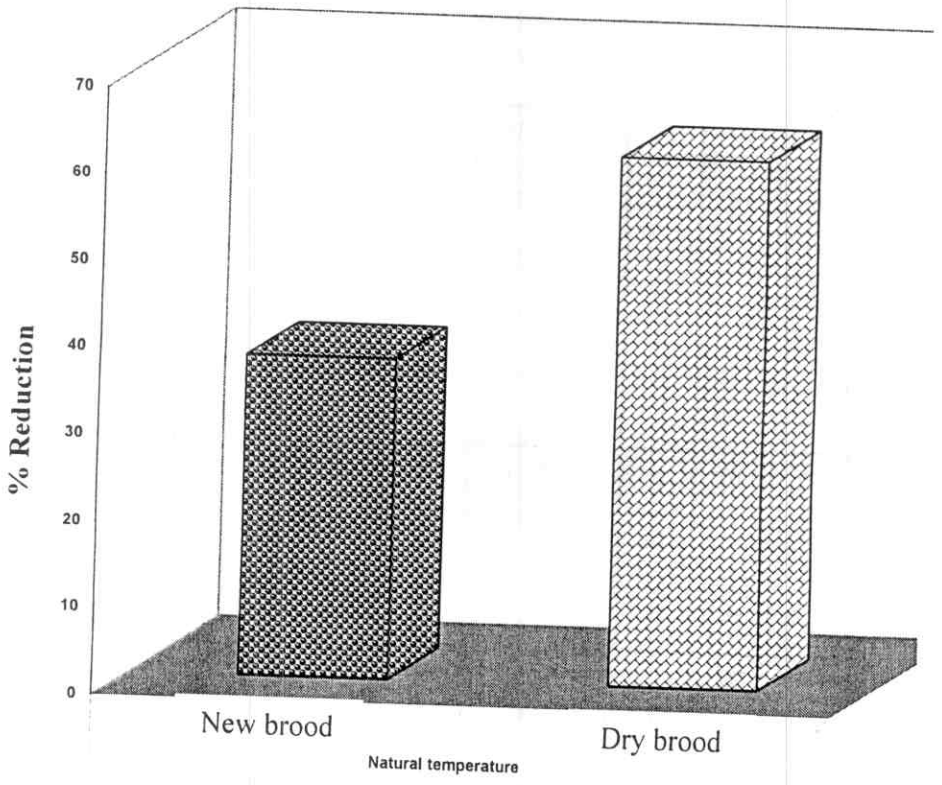


Fig. (27): Effect of natural temperature for controlling chalkbrood diseases during summer of 2003.

inhibited by both ultragrisofulwin and neem extracts the growth were inhibited at a very low rate with propolise the effective substance are formaline at low concentration of 10% followed by propelise then ultragrisoluni and neem.

III. Control the wasps:

The colony consists of relatively immobile brood (eggs, larvae, pupae) in addition to the queen and the sterile workers and frequently contains stored food such as honey and pollen.

All these potential foods concentrated into a small area make social insect colonies potential prey for al multitude for other invertebrates and for vertebrates such as Skunks, bear and man social wasps in the sub family vespiane belong to one of five genera.

In addition the damage to the beekeeper every gear, most aparies effective by the wasps and the reduction percentage of the colony every year 35, 40% from the number of colonies then the production reduced of economic yields too effective for economic production and less of pollation between the plants it needs to pollented.

III.1. Comparative between some baits for trapping *Vespa orientalis* in screens traps monthly summer 2004:

The results listed in table (28), fig. (28) showed that the five monthes (August, September, October, November and December) respectively and five baits (sugar syrup, fermented sugar, tona fishes, supplemts and Varroazal) in this treatments used five traps was square traps, counted the number of wasps every month with change the baits every week, and counted the temperature an relative humidly, the means wasps captured

Table (28): Comparative between some baits for trapping *Vespa Orientalis* in screen traps monthly summer 2004

Type of treatment / Month	No of wasps								
	Sugar syrup	fermented Sugar syrup	Tona fishes	Supp-lement	Varrozal	Temp	R.H%	Total	Mean
August	19	26	14	84	98	34.2	75	241	48.2
September	113	197	86	253	393	31.1	72.2	1042	208.4
October	124	212	93	336	418	29	70	1183	236.6
November	149	236	77	221	357	27	69	1040	208
December	121	81	54	137	146	25.5	65	539	107.8
Total	526	752	324	1031	1412			4045	809
Mean	105.2	150.4	64.8	206.2	282.4			809	

L.S.D. at 0.05 = 72.25 **F. value =11.74**

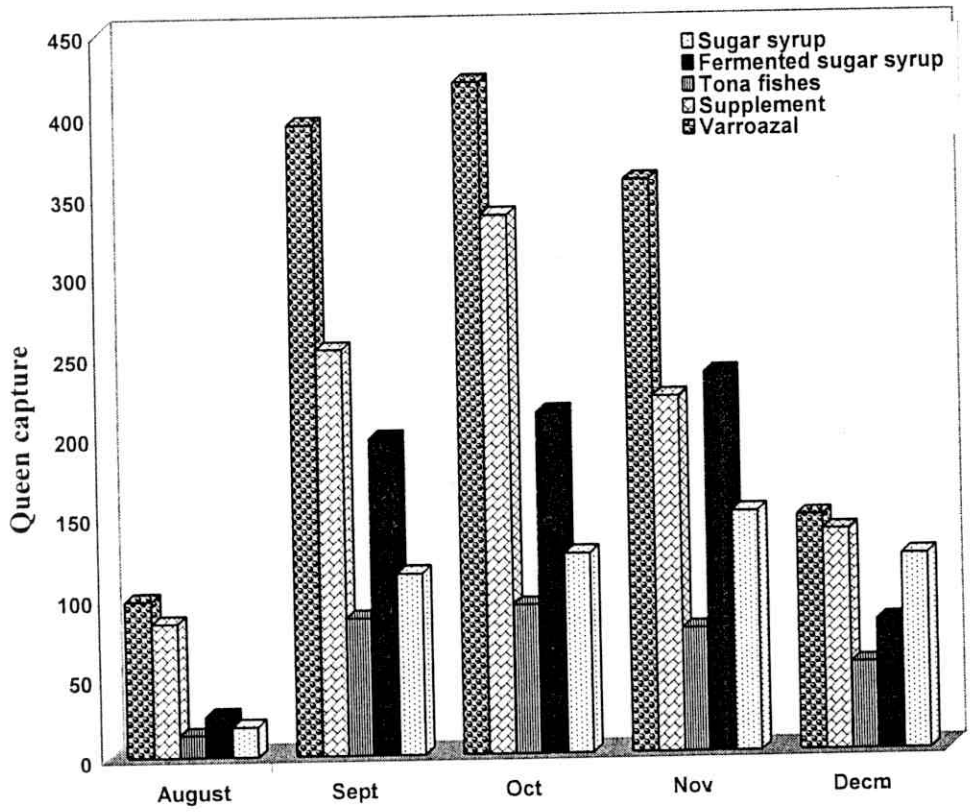


Fig. (28): Comparative between some baits of trapping *Vespa orientalis* in screen traps monthly summer 2004.

every month were (48.2, 208.4, 236.6, 208 and 107.8) wasbes respectively, the effective months was October, September respectively, the effective baits for trapping was (Varroazal, supplements, ferment sugar, sugar syrup and tona fishes) the mean were (282.4, 206.2, 150.4, 105.2, 64.8).

Statistical analysis in the table (28) , fig (28) showed that fig 24 F. value = 11.74, Pr > F = 0.0001, L.S.D at 0.05 = 72.551 this treatments is a highly significantly.

The best baits in group A was (Varroazal, supplement) the means (282.40, 206.20) respectively, less effect group B (fermented sugar, sugar, tona fishes) the means (150.40, 105.20, 64.80).

The highly significantly in October then September, November, this results agreements with **Stringer (1989), Don Von Bj (1992), Abo-El-Enain (1999)** stated that the 2 chamber modified of bee hive as a wasp traps proved to be more efficient and easier for application than the cubic wire screen cage topes the lower chamber should be provided with old wax combs full of honey or sugar syrup as wasps attractant, Honey combs proved to be the most efficient attractant, while the difference between fermented and unfermented sugar syrup was insignificant the highest numbers of wasp caught in the traps were during September and October while it disappeared completely during January.

III.4.Comparative between some traps for control Vesps orientalis on daily 2004:

The results listed in table (29), fig (29) showed that the five months (January , February, March, April, May) and three

different traps (screen trap, square trap, Abo-El-Enain) collected the queen captured by different traps and counted every day, three traps to every treatment for (screen trap, square trap, Abo-El-Enain trap), counted the total of queen captured to every treatments were (0.68, 1.63, 2.39 and 3.29) for (screen trap, square trap and Abo-El-Enain trap), respectively.

Under effect the temperature daily and relative humidity percentage, statistical analysis in table (29) showed that F. value = 11.74, Pr > F = 0.047, L.S.D at 0.05 = 0.2665 the best trap was group A (Abou El-Enin trap, square trap) the mean was (0.8250, 0.6200) respectively then the less effect was group B (screen trap) the mean was (0.5525).

The results listed in table (29), fig (29) showed that the four months (June, July, August, September), three different traps (screen trap, square trap, Abou enin trap), the workers captured collected by three traps to every treatment, counted the mean under effect the temperature and relative humidity percentage the total of workers captured to every treatments were (7.1, 21.6, 96.2 and 128.2) for (June, July, August and September) respectively.

Statistical analysis in the table (29B) showed that F. value = 73.56, Pr > F = 0.0001, L.S.$D_{0.05}$ = 5.2885 the best trap was group A (Abo-El-Enain, square trap) the mean was (22.975, 21.625) then the less effect group B (screen trap) the mean was (18.675).

The results listed in table (29), fig (29) showed that the three months (October, November and December), three different traps (Screen trap, square trap, Abo-El-Enain) the workers, virgin queen and males captured collected all by three traps to every treatments every thing under the effect of temperature daily and relative humidity percentage.

The total of collection (workers, virgin queens, and males) were (144.7, 79.2 and 28.5) respectively, the mean of all collection (workers, virgin queens and males) were (48.2, 26.4 and 9.5) respectively.

Statistical analysis in the table (29) showed that f. value = 176.33, Pr > F = 0.0001, L.S.D at 0.05 = 4.0784 this treatments is a highly significantly the best traps was group A (Abo-El-Enain, Screen trap) the mean (30.133, 27.567) respectively, then the less effect is a group b (square trap) the mean was (26.500).

This results agreement with **Abo-El-Enain (1999), Ahmed (1999)** founds that baits of either of fermented honeybee, dead bee, fish fresh and animal lying were used in the trap of ministry of agriculture.

Table (29): Comparative between some traps for control *Vespa Orientalis* on daily 2004

Type of treatment / Months	Wasps	No of wasps captured						
	Individual	Screen trap	Square trap	Abo-El-Anian trap	Total	Mean	Temp	R.H %
January	Queens (A)	0	0	0	0	0	16	62
February		0.2	0.22	0.26	0.68	0.22	18	60
March		0.51	0.53	0.59	1.63	0.54	24	64
April		0.7	0.74	0.95	2.39	0.79	20	80
May		0.8	0.99	1.5	3.29	1.09	31	80
June	Workers (B)	2.1	2.4	2.6	7.1	2.36	32	82
July		7.2	7.0	7.4	21.6	7.2	34	75
August		30.1	32.0	34.1	96.2	32.06	42	75
September		35.3	45.1	47.8	128.2	42.7	33	72
October	Workers virgin queens workers + males (C)	49.2	44.3	51.2	144.7	48.2	25	70
November		25.3	26.2	27.9	79.2	26.4	24	69
December		8.2	9	11.3	28.5	9.5	21	65
Total	159.6	168.4	185.6					
Mean	13.3	14	15.4					

A- L.S.D. at 0.05 = 0.26
B- L.S.D. at 0.05 = 5.28
C- L.S.D. at 0.05 = 4.07

A- F. value =11.74
B- F. value =73.56
C- F. value =176.33

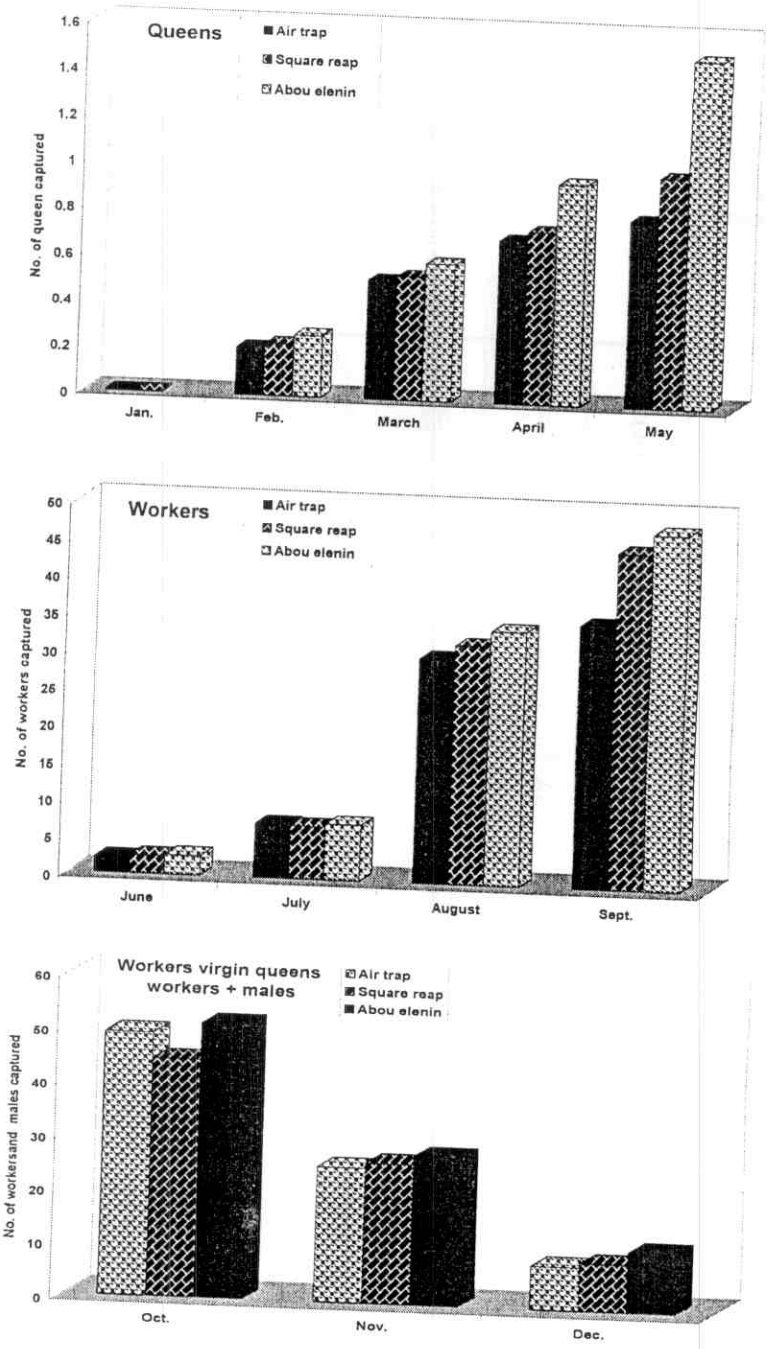


Fig. (29): Comparative between some traps for controlling *Vespa orientalis* daily 2004.

III.1. Effect of the Best time from the day queen capture *Vespa orientalis* during of 2005:

The Data presented in table (30) and Fig (30) showed that the time of the time of the day from (8,9,10,11,12, 1,2,3,4,5,6 and 7 O'clock) respectively for six day (5/9, 10/5, 11/5, 12/5, 13/5, 14/5) respectively, the queen capture by Data Broom every O'clock counted and placed in paper carton (Box) and collected the queen capture every day for six days, every o'clock for six days collected alone to detected the best time for the day to capture the queens., the total queen capture during (8, 9, 10, 11, 12, 1, 2, 3, 4, 5, 6 and 7 O'clock) were (3, 21, 22, 31, 4, 4, 6, 22, 26, 28, 3 and zero) queen wasps respectively, the means queen capture during (8, 9, 10, 11, 12, 1, 2, 3 ,4 ,5, 6 and 7 O'clock) were (0.5, 3.5, 3.6, 5.1, 0.6, 1, 3.6, 4.3, 4.6 and 0.5) queen wasps respectively.

The best time from the one day was 9 o'clock to 11 o'clock at morning, 3 o'clock to 4 O'clock afternoon, the total queen capture for six days (9/5, 10/5, 11/5, 12/5, 13/5, 14/5) was (18, 25, 33, 43, 31 and 29) respectively.

The mean queen capture for the six days (9/5, 10/5, 11/5, 12/5, 13/5, 14/5) respectively, the best day for capture the queens was (11/5, 12/5) respectively.

Statistical analysis in the table (30) revealed that F. value = 12.30 Pr> 0.0001 $L.S.D_{0.05}$ = 1.3456 this treatments is highly significantly, for every treated, hour the best hour in group A (4,10) the mean were (5.1667 and 4.6667) but the less hour in group B (9, 3, 8, 2, 7, 5 and 6) respectively, the means were (4.3333, 3.6667, 3.6667, 3.5000, 1.0000 and 0.6667) respectively, but not significantly for hour (1,11, 12) respectively the means was (0.5000, 0.5000, 0.000) respectively.

Table (30): Effect of the Best time from the day for queen capture *Vespa Orientalis* during of 2005.

The time of day (hr)		Queen capture during May							
		9/5	10/5	11/5	12/5	13/5	14/5	Total	Mean
8	A.M	1	-	-	1	-	1	3	0.5
9		2	2	6	4	3	4	21	3.5
10		3	5	3	3	5	3	22	3.6
11		5	5	4	6	7	4	31	5.1
12		-	1	2	1	-	-	4	0.66
1	P.M	-	-	1	1	1	1	4	0.66
2		1	2	2	-	-	1	6	1
3		2	1	6	5	4	4	22	3.6
4		2	5	2	6	6	5	26	4.3
5		2	3	5	7	5	6	28	4.66
6		-	1	2	-	-	-	3	0.5
7		-	-	-	-	-	-	-	
Total		18	25	33	34	31	29		
Mean		1.5	2.08	2.75	2.83	2.58	2.4		

L.S.D. at 0.05 = 1.34 **F. value =12.30**

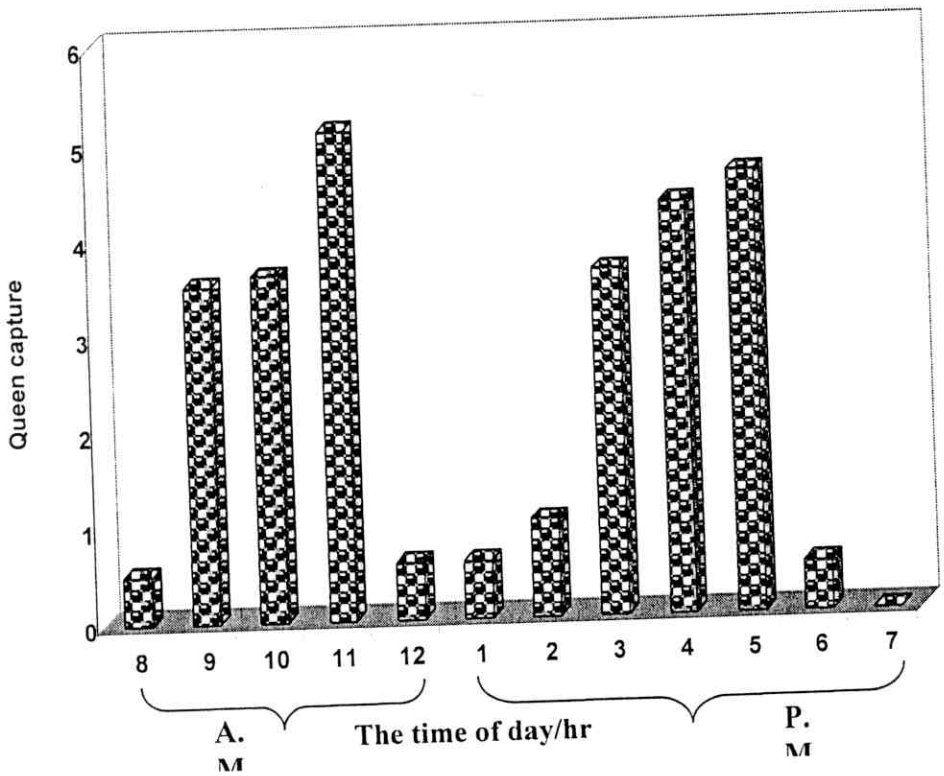


Fig (30) : Effect of the best time from the day for queen capture *Vespa orientalis* during 2005

Effect of the best day in this treatment L.S.D at 0.05 = 0.9515 the best day was (11/5, 12/5) the mean were (2.83333 and 2.75000) respectively, then the day were (13/5, 14/5, 10/5, 9/5) the means were (2.5833, 24167, 2.0833 and 1.5000) respectively, in the fig (30) showed that the best hour from the one day was (4, 10) and the best day for this treatments was (11/5, 12/5).

III.2. Comparative between some materials in trapping for controlling of wasps during September of 2005:

The results listed in table (31) and Fig (31) showed that the five traps (screen traps, stickers trap, Abo-El-Enian, hand trap and square trap) respectively this tested to choose the best trap and best day for trapping the wasps on winter 2005, the total wasps captured for five traps (screen traps, sticker trap, Abo-El-Enian, hand trap and square trap) were (219, 89, 410, 451, 152) respectively, with mean were (36.5, 14.83, 68.3, 15.16 and 25.3) respectively, best trap was hand trap and Abo-El-Enian trap then the less effect (screen trap, square trap, sticker trap) respectively, the best day from six days, the total wasps captured on traps for six days were (152, 144, 193, 280 and 253) for (1/9, 2/9, 3/9, 4/9, 5/9, 6/9) respectively the means were (30.4, 28.8, 38.6, 39.8, 56, and 50.6) respectively, the best day was (5/9, 6/9, 4/9) respectively than (1/9, 2/9) respectively.

Statistical analysis in the table (31) showed that Fig (31) F. value = 12.23, Pr > F = 0.0001, L.S.D at 0.05 = 17.593 this treatments was highly significantly, the best trap was group A (hand trap, Abou el enien) the mean were (75.167 and 68.333) respectively, the group B(screen trap, square trap) the means were (36.5000 and 25.333) but the less effect was the sticker trap

Table (31): Comparative between some materials in trapping for controlling of wasps during September of 2005

Type of	No of wasps captured on traps weekly							
	1/9	2/9	3/9	4/9	5/9	6/9	Total	Mean
Screen trap	24	29	33	40	48	45	219	36.5
Sticker trap	11	12	14	13	17	22	89	14.83
Abo-El-Enian	47	41	55	58	91	118	410	68.3
Hand trap	52	43	70	61	90	135	451	75.16
Square trap	18	19	21	27	34	33	152	25.3
Total	152	144	193	199	280	253	1321	22
Mean	30.4	28.8	38.6	39.8	56	50.6		

L.S.D. at 0.05 = 17.5 F. value =12.23

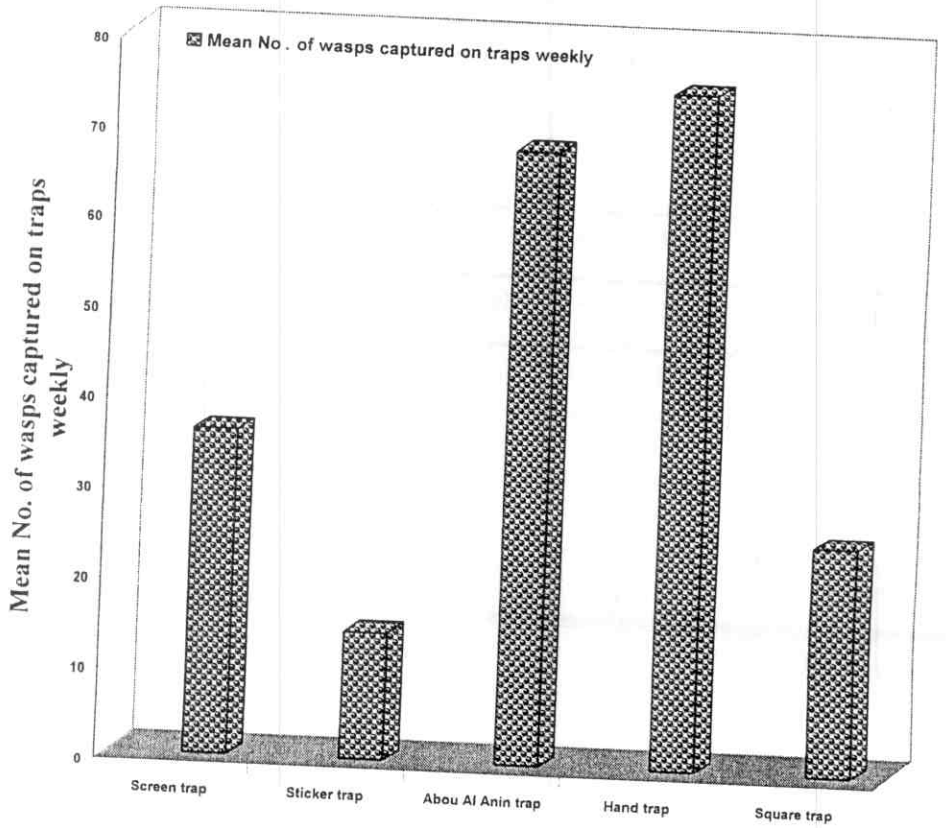


Fig. (31): Comparative between some materials in trapping for controlling of wasps during September of 2005

the means was (14.833). L.S.D at 0.05 = 19.272 the day for the day the best day was (6/9, 5/9) in the group A the mean was (70.600, 56.000) respectively but the less effect (4/9, 3/9, 1/9, 2/9) the means (39.800, 38.600, 30.400, 28.800) respectively.

This result agreement with **Mishra *et al* (1989)** suggested that the five overripe fruits tested as bait for Vespa spp in an apiary. Feeding poisoned bait adlib. To the wasps in cages revealed $L.T_{50}$ values were 180.9, 62.1 and 28.8 min at 100, 200 and 300 mg fenitrothion Kg jaggery respectively.