

# Effect of Communication Towers on the Behaviour and Performance of Honey Bee

## [*Apis mellifera* L. (Hymenoptera: Apidae) in Baghdad, Iraq

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### Introduction

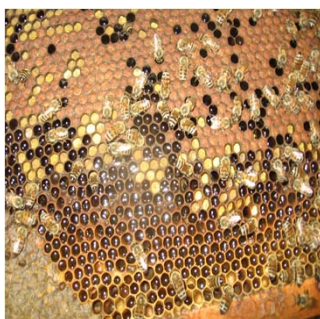
- Beekeeping of honey bees and the multiplication of insects is one of the most important branches of agricultural investment.
- New Problem-phenomenon: sudden Colony Collapse Disorder >bees simply leave the hive and fail to return, this might be due to electromagnetic radiation emitted by mobile phone towers actually affects the behavior of honeybees.

### The objectives of this study:

- Evaluation of the effect of radiation from the mobile phone tower on the internal activity of honey bees (*Apis mellifera*) and estimation of the honey produced for the three location from the towers.

### Materials and Methods

- The sites: The University of Baghdad/Jadiriya , Iraq.
- The radiation emitted from the tower is 925 MHz, which it represents as third treatment. The first at 500 meters and the second at 150 meters from the communication tower.
- Tested parameters included measurement of brood area, egg area, density of bees, pollen area, honey area, by using the glass board (inch<sup>2</sup>) at the start of the experiment and then every 14 days.
- The design: Complete Randomize Design. three replications.



### Results

**Table (1): Mean of eggs laying areas (inch<sup>2</sup>) by the queen on the treatments on different dates**

Treatment	The first	The second	The third	The mean
Date				
28 February	90.00	95.33	56.33	80.56
5 March	199.00	136.33	110.33	148.56
13 March	311.33	207.33	148.67	222.44
20 March	288.67	210.67	170.00	223.11
27 March	281.33	238.67	164.00	228.00
4 April	333.00	318.67	180.67	277.44
18 April	373.00	447.00	183.33	334.44
25 April	465.67	542.67	197.33	401.89
LSD 5%		45.54**		26.29**
Mean	292.75%	274.58	151.33	
LSD 5%		16.10**		

**Table (2): Means of the closed brood area (inch<sup>2</sup>) on the treatments on different dates.**

Treatment	The first	The second	The third	The mean
Date				
28 February	188.33	170.17	120.33	159.61
13 March	299.33	282.00	169.33	250.22
27 March	383.67	328.67	254.00	322.11
11 April	466.00	383.67	244.67	364.78
25 April	472.00	390.00	214.33	358.78
9 May	570.00	461.00	269.33	433.44
23 May	682.67	714.00	284.67	560.44
LSD 5%		51.46**		29.71**
Mean	437.43	389.93	222.38	
LSD 5%		19.45**		

**Table (3): Means of the male brood area (inch<sup>2</sup>) on the treatments on different dates.**

Treatment	The first	The second	The third	Mean
Date				
28 February	9.33	4.33	5.33	6.33
13 March	9.33	11.33	4.00	8.22
27 March	30.67	18.00	11.00	19.89
11 April	13.33	24.33	37.33	25.00
25 April	8.00	9.33	38.00	18.44
9 May	4.00	6.33	3.33	4.56
23 May	26.67	25.00	18.33	23.33
LSD 5%		4.739**		2.736**
Mean	14.48	14.1	16.76	
LSD 5%		1.791**		

**Table (4): Means of the pollen area (inch<sup>2</sup>) on the treatments on different dates.**

Treatment	The first	The second	The third	The means
Date				
28 February	25.00	11.00	16.67	17.56
13 March	28.33	22.67	26.00	25.67
27 March	31.33	25.00	27.67	28.00
11 April	28.67	38.33	53.33	40.11
25 April	60.67	110.00	66.67	79.11
9 May	61.33	71.33	43.67	58.78
23 May	104.33	98.33	50.67	84.44
LSD 5%		14.59**		8.42**
Means	48.52	53.81	40.67	
LSD 5%		5.51**		

### Conclusion

The radiation negatively affect egg laying, the behavior, density of honey bees, disturbance of the power of the hive, pollen store, on the closed brood area and on wax foundation area.