Effects of radiations from a Wi-Fi router on ants' behavior and evaluation of the compensating CMO biotechnology (CMO MF04 Harmony)

COMMENTS

It has become clear that any electromagnetic field has an effect on living organisms. Many scientific papers show multiple biological effects of radiation from mobile phones (eg.. Benlaidi and El Kharroussi, 2011; Cammaerts et al, 2011; Everaert and Bauwens, 2007; Favre, 2011; Orendaeova et al, 2009; Panagopoulos et al., 2004; Sharma and Kumar, 2010; Wang et al., 2009; Goodman et al 2003).. The authors often speak of biological stress, in general (eg Adang et al., 2009).

Moreover, Wi-Fi technology is now very widely used, and, though imperceptible to most human detection, it nevertheless undoubtedly alters the environment. It seemed appropriate to explore whether Wi-Fi transmitters also disrupted biological systems of other living beings, observing for example, their behaviour in the absence and presence of the EM radiation.

Ants are a living biological model of choice. Their high sensitivity allows them to quickly detect the presence of even low levels of undesirable elements in their environment. They were therefore used as a "bio-signalling" system to reveal the potential adverse effect of radiation from a home Wi-Fi router, and then to test the effectiveness of a "EM compensation" biotechnology (CMO / ref . MF04). The observed behaviour of the ants was analysed by observing their movement (their linear and angular velocity), which instantly changes following detection of new elements, unusual, hostile or friendly in their the environment.

Materials and methods

Emitter material:

The source of WiFi radiation was a NETGEAR DGN1000 brand wireless router (frequency: 2.4 GHz) with the antenna placed at approx. 30cm from the ant nests, and two PCs placed 4m away from the ants, exchanging data through the router for the duration of the exposure to the ants.

"Protection" device:

The CMO MF04 Harmony consists of an aluminium-cone with 5cm diameter base, containing an aqueous salt solution, treated electromagnetically (process Comosytems) emitting ultra-low bioactive compensation signals (femtoTesla).

Biological material:

The experiments were performed on four experimental companies of ants : *Myrmica sabuleti* from two colonies “ Marchin” harvested and maintained in the laboratory in polyethylene containers used as harvest area, and the edges were coated with talc to prevent the ants escaping. These ants nested in glass tubes half filled with water with cotton foam separating the ants from the water. The 4 companies were fed ad libitum with “Tenebrio Molitor” placed on a glass slide and sugar water supplied in a small stuffy cotton tube. Laboratory

temperature was 20 ° C ± 1 ° C, humidity 80% and brightness of 300 lux, optimal conditions for the species.

The ants were observed and their journeys recorded as they moved to their crop area, that is to say, on the bottom of the feeding tray and therefore in semi freedom.

Experimental Protocol

Two variables were used: linear velocity (mm/sec) and the angular velocity (deg.ang/cm) of the ants were recorded and quantified as in recent previous work (Eg. Cammaerts et al, 2011) with a new easy to use software (Cammaerts et al., 2012a in press).

Two nests were first used at the same time to perform a control in the presence of the inactive router. These nests were then exposed to EM radiation from the Wi-Fi router. A first test was carried out after exposure for 5 min, a second test after a 30 min exposure. (That is to say 25 min after the completion of the first test). The distance between the wireless transmitter and the ants moving area was 30 cm (see Figure 1).

Then two other unexposed still nests were used simultaneously to achieve control as before. They were then exposed to the active Wi-Fi router with a "safety net" (CMO ref MF03) placed close to the antenna transmission-reception of the router. Testing of these nests were performed first after 5 min of exposure, then after 30 min of exposure (the second test is therefore carried out 25 min after the first). The distance between the Wi-Fi antenna fitted with the "CMO protection" and the ants moving area was still 30 cm.

For each nest, trips from 10 ants were recorded and their linear and angular velocities calculated. Distributions of the values obtained were characterized by their median and quartiles, and were compared with each other using the non-parametric test Chi-Square.

The intensity of the ambient electromagnetic field was measured using a magnetometer " Electrosmog TES 92-meter" equipped with a probe of from 50 MHz to 3.5 GHz; EM field average was 7.5 mV/m.

The linear speed values (11.9; 12.8) and angular speed values (135, 144) obtained during both the controls are statistically identical. The results of the subsequent experiments performed are perfectly comparable.

The intensity of the electromagnetic field prevailing in the vicinity of the Wi-Fi enabled router was 500 mV/m.

The linear speed values (7.7; 7.9) and angular speed values (235, 266) of the ants (5 and 30 minutes) exposed to Wi-Fi showed differences that were highly significantly ($P < 0.001$) relative to the controls. The Wi-Fi significantly decreased the ants travel speed and significantly increased their angular deviations during their journey towards the food.

Evaluation of the exposure time: the linear velocity values obtained after 5 mins and the subsequent 30 mins of exposure did not differ statistically while those of the angular values were different but not enough to be considered significant ($0.05 < P < 0.1$). The Wi-Fi enabled impact thus increases over time but not statistically significantly.

The intensity of the electromagnetic field prevailing next to the Wi-Fi coupled with the CMO protection was also 500 mV/m. The Wi-Fi therefore continues to operate 'as if nothing had happened'; CMO protection does not interfere with its operation. In short, the protection device CMO (with ultra-low intensity EM compensation signal) 'corrects' the biologically disturbing signals emitted by the Wi-Fi enabled alone. It can be concluded that the observed stress effect on exposed ants vanishes due to the CMO compensation effect.

After 5 minutes, the linear velocity values of the ants exposed to Wi-Fi and protected by CMO protection still differ from control values but at P <0.01; those of the angular values differ statistically more than the control values ((0.05 <P 0.10). Protection after mins is therefore clearly present but not total.

After 30 minutes, the linear velocity values of the ants exposed to Wi-Fi and protected by CMO protection do not differ at all from the control values (NS). Those of the angular values are even closer to the control values than the values obtained after 5 min of exposure (P> 0.10). The stress effect of Wi-Fi radiation which is offset by the CMO protection is now very small and insignificant. This indicates that the effectiveness of protection increases with time during the 30 min, until it is about a little over 94% (see Tables 1 and 2).

variable	Exposed to Wi-Fi ON		Exposed to Wi-Fi + CMO protection	
	5 min	30 min		
Linear velocity	- 35%	- 34%	- 14,8%	- 3%
Angular velocity	+ 74%	+ 97%	+ 19,4%	+ 6,9%

Table 2. Evaluation in percentage of the linear and angular speed of the changes occurring during exposure (5 and 30 min) to a WiFi turned ON and the same Wifi turned OFF with a CMO protection.

The presented study shows that after exposure for 5 min and 30 min to a Wi-Fi router enabled, the linear velocity of ants decreased by 35% and 33% respectively while their angular velocity (= winding) increased by 74% and 97%. Ants increasingly wind (sinusoidal displacement) and finally are no longer even able to move. It is therefore clear that Wi-Fi activity induces stressful effects on these organisms. Based on the reactions of the ants, one can infer that their nervous system is affected by the EM radiation. This is also what we found at the end of our two previous works in the field: under the influence of electromagnetic waves, the ants are no longer responsive to behaviour conditioning, and they lose all memory (Cammaerts at al., 2012b), they are almost no longer responsive to their own pheromones and stop harvesting any more food (Cammaerts et al, 2012C, in press). Other physiological disturbances are then observed. The irradiated ants are in a state of 'stress' (broadly defined), as found by other researchers who have worked on a variety of living organisms (plants, rats ...) (Ledoigt 2007; Adang, 2009). In fact, electromagnetic waves interfere with the operation of biological structures, in particular the membrane unit; they therefore affect the mechanisms for nerve impulses, the functions of mitochondria, chloroplasts etc ....

It is unthinkable and impossible not to use communication technologies with so powerful radio frequencies. So the only solution is to develop the means of protection against the potential adverse biological effects.

The present work shows that placing a M04 CMO protection near the antenna of a Wi-Fi enabled,

1. after 5 min of exposure, the linear speed of ants is not smaller than 15% and their angular speed increases only slightly more than 19%, which is low.

2. After a 30 min exposure, the linear speed is identical to the controls and the angular variation only increases by 7%, which is negligible. Ants have, moreover, a perfectly normal behaviour then. The CMO protection used is perfectly effective! Its protective efficacy increases over time, faster than any parallel increase in the stressful effects of wireless radiation.

The impact of waves on the cell membrane of ants and protozoa proves that the nervous system of human beings, consisting of similar cells, can also be affected.

Finally, the use of Wi-Fi equipment with protection seems to be the least hazardous. Wi-Fi radiation has adverse effects on every surrounding living being because they generate electromagnetic fields disrupting biological mechanisms. It is most beneficial to guard against these harmful effects and to use an effective protective biotechnology. One tested here experimentally (CMO biotechnology), proves to be effective. In other words, a promising solution is to place a CMO compensator (whose effectiveness has been proven experimentally) near the antenna for Wi-Fi routers that restores by its presence (bio-technology Comosystems) system, waves compatible with the living. Adding that such protection does not impair the proper functioning of Wi-Fi, measurements of electromagnetic fields in support.

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