

## **Panagopoulos-Draft**

1. GSM radiation/fields from mobile phone handsets are found to reduce insect reproduction by up to 60%. The insects were exposed for 6 min daily during the first 5 days of their adult life. Both sexes were found to be affected.
2. The reduction of insect reproductive capacity was found to be due to cell death induction in reproductive cells
3. The effect (in regards to short-term exposures) is evident for radiation intensities down to  $1 \mu\text{W}/\text{cm}^2$  ( $10^{-6} \text{ W}/\text{cm}^2$ ). This radiation intensity is found at about 1 m distance from a cell-phone or about 100 m distance from a corresponding base station antenna. It is possible that for long-term exposure durations (weeks-months-years) the effect would be evident at longer distances/smaller intensities. For this, a safety factor should be introduced in the above value
4. The effect is strongest for intensities higher than  $200 \mu\text{W}/\text{cm}^2$  and within a “window” around  $10 \mu\text{W}/\text{cm}^2$  where it becomes even stronger.
5. The effect increases with increasing exposure duration in regards to short-term exposures.
6. The effect is non-thermal (there are no temperature increases during the exposures)
7. The effect at cellular level is most likely due to irregular gating of ion channels on the cell membranes caused by the EMFs, leading to disruption of cell's electrochemical balance and function.
8. Although we cannot simply extrapolate, similar effects on humans are possible because insects are in general much more resistant to radiations than mammals and because the above findings are in agreement with some other results reporting DNA damage on mammalian cells or mammalian and human infertility (References)
9. Reported observations regarding diminishes of insect populations (especially bees) can be explained by decrease in their reproductive capacity as above
10. Symptoms referred to as “microwave syndrome” (headaches, sleep disturbances, fatigue etc), among people residing around base station antennas, can possibly be explained by cell death induction on a number of brain cells.