EFFECTS DUE to EXPOSURE of BIOLOGICAL SYSTEMS to LOW FREQUENCY and HIGH FREQUENCY ELECTROMAGNETIC FIELDS

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The exposure to weak electromagnetic fields due to mobile phones and other devices can be sensed by the body and create changes. These changes may increase the rate of mutation happening to other parts of the system as well as induce mutation in DNA. Mutation happens as a result of changes in the activation/deactivation of protein/enzymes. The changes in activation/deactivation may be due to changes in transcription factor, which is modified by changes in radical concentrations. Carcinogens change the rate of production/destruction of radicals. In this paper, Electro-Magnetic Fields are studied as a possible carcinogen. The variation in Hydrogen Peroxide with respect to the exposure to EMF and how the variation of Hydrogen Peroxide could lead to cancer are discussed in this paper. The various possible pathways activated/deactivated due to EMF are explored. The paper first, goes through a review of the background needed to understand what possible biological effects are observed resulting from EMF exposures. Next, the observed changes in the biological system are discussed and how this could lead to cancer. One example of daily exposure to EMF is mobile phones using GSM (Global System for Mobile), CDMA (Code Division Multiple Access) or LTE (Long Term Evolution), which generally operate between 200-2500 MHz. There are two kinds of exposure periods due to mobile phones; Chronic exposure and Short-Term Exposure. Chronic exposure is assumed to be more than 6 hours a day and Short-Term exposure is assumed to be 30 to 40 minutes per day. In this paper, experimental data on the variation of biological molecules due to exposure to Static Electric Fields is displayed. Additionally, the possible studies to be performed to further our understanding on EMF effects on Biological Systems will be discussed.