World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

The Effect of Extremely Low Frequency Magnetic Field on Rats Brain

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Abstract : The purpose of this study is evaluating the effect of extremely low frequency magnetic field on Waster rats brain. The number of rats used in this study were 25, which were divided into five groups, each group containing five rats as follows: Group 1: The control group which was not exposed to energized field; Group 2: Rats were exposed to a magnetic field with an intensity of 0.6 mT (2 hours/day); Group 3: Rats were exposed to a magnetic field of 1.2 mT (2 hours/day); Group4: Rats were exposed to a magnetic field of 1.8 mT (2 hours/day); Group 5: Rats were exposed to a magnetic field of 2.4 mT (2 hours/day) and all groups were exposed for seven days, by designing a maze and calculating the time average for arriving to the decoy at special conditions. We found the time average before exposure for the all groups was G2=330 s, G3=172 s, G4=500 s and G5=174 s, respectively. We exposed all groups to ELF-MF and measured the time and we found: G2=465 s, G3=388 s, G4=501 s, and G5=442 s. It was observed that the time average increased directly with field strength. Histological samples of frontal lop of brain for all groups were taken and we found lesion, atrophy, empty vacuoles and disorder choroid plexus at frontal lope of brain. And finally we observed the disorder of choroid plexus in histological results and Alzheimer's symptoms increase when the magnetic field increases.

Keywords : nonionizing radiation, biophysics, magnetic field, shrinkage
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020