

## EFFECTS OF MICROWAVE RADIATION AND MELATONIN ON THE ACTIVITY OF ALKALINE AND ACID DNASE IN THE RAT BRAIN

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The toxic effect of the microwave radiation (MW) on human health usually manifests with the occurrence of various unspecified such as irritability, neurovegetative dystonia and insomnia. In the brain microwave radiation leads to thermal damage, oxidative stress induction and molecular changes in DNA. Melatonin is a neurohormone and a powerful antioxidant that reduces the damage of brain cells. The goal of this research is to analyze DNA fragmentation through the activity of alkaline and acid DNase in conditions of exposure to MW in the brain tissue and to monitor the melatonin effect on the activity of these enzymes. Wister rats were divided into four experimental groups: I(control), II(Mel)-the animals were given melatonin daily (2mg/kg), III(MW) animals were exposed to the MW for 20, 40 and 60 days (4h daily), IV(MW+Mel)-the rats that were given melatonin and were exposed to the MW as well. Animals were sacrificed after 20, 40 and 60 days of the experiment. In the brain of the rats that were exposed to microwave radiation a significant increase in the alkaline DNase activity (after 60 days) ( $p < 0.05$ ) and acid DNase (after 20 days) ( $p < 0.001$ ) were observed when compared to the control group. In animals that were exposed to microwave radiation and that were given melatonin a significant decrease in the acid DNase activity was observed in the brain when compared to the irradiated animals that were not given melatonin. It can be concluded that melatonin exerts significant anti-apoptotic and neuroprotective effect in the brain of animals exposed to the microwave radiation.

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