

## THE EFFECT OF MELATONIN ON THE CATABOLISM OF POLYAMINES IN THE RAT THYMUS DURING THE EXPOSURE TO MICROWAVE RADIATION

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The toxic effect of microwave radiation (MW) causes the change in the metabolism of polyamines. Polyamines (spermine and spermidine) and their precursor, diamine putrescine, are non-protein nitrogenous bases and they are essential to the function of the cell. Spermine and spermidine are catabolized by the enzyme polyamine oxidase (PAO), while the catabolism of putrescine is under the effect of the diamine oxidase (DAO). The neurohormon melatonin participates in maintaining the normal function of the immune system. The aim of this study was to analyze the effect of melatonin on the catabolism of polyamines in the rat thymus, following the chronic microwave exposure. Wistar rats were divided into four experimental groups: 1) control group, 2) Mel - the animals which were given melatonin daily (2mg/kg), 3) MW - the animals which were exposed to MW (4h daily), 4) the animals which were exposed to MW and were given melatonin daily. The animals were sacrificed after 20, 40 and 60 days of the experiment. There was an increase in the PAO activity and decrease in the DAO activity (already after 20 days) in comparison to the control in the thymus of rats exposed to microwave radiation. There was also a statistically significant positive correlation ( $p < 0.05$ ) between malondialdehyde levels and the activity of PAO during the MW exposure. A significant decrease in both PAO and DAO activity was found in the thymus of animals exposed to MW and treated with melatonin, in comparison to the irradiated animals not treated with melatonin.

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