EVALUATION OF THE ANTIPEROXIDATIVE EFFECTS OF MELATONIN IN AMMONIUM ACETATE-TREATED WISTAR RATS

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The efficacy of melatonin (MLT) against ammonium acetate-induced neurotoxicity was biochemically studied in the experimental rats. The activities of serum transaminases and the levels of thiobarbituric acid reactive substances were significantly increased in ammonium acetate-treated rats. These levels were significantly decreased in MLT and ammonium acetate-treated rats. Further, non-enzymatic (vitamin C and E) and enzymatic (superoxide dismutase and catalase) antioxidants were significantly decreased in ammonium acetate-treated rats and were increased in MLT and ammonium acetate-treated rats. These biochemical alterations during MLT treatment could be due to its ability to: (i) scavenge a variety of radicals and reactive species, (ii) induce antioxidative enzymes which reduce steady state levels of reactive species, (iii) inhibit nitric oxide synthase which generates nitric oxide and (iv) stabilize cell membranes which assists them in reducing oxidative damage and, thus, prevents the oxidative stress in rats.

Key words: melatonin, ammonium acetate, antioxidants, lipid peroxidation

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