

## Neuroprotector Effect of DPTVP Against Mn-Induced Neurotoxicity

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Manganese (Mn) is a required metal for biological systems, nevertheless chronic environmental or occupational exposure to Mn has been recognized to produce a parkinsonian or dystonic state in mammals (manganism). Diethyl-2-phenyl-2-tellurophenyl vinylphosphonate (DPTVP) has a high antioxidant activity and was reported as hepatoprotector. Our study was designed to investigate the effects of a long - term Mn exposure on different brain areas and whether the vinylic telluride could be able to revert them. After 4 months of treatment with MnCl<sub>2</sub> (137mg/Kg in the drinking water) we noted neurobehavioral alterations, such as decrease in the number of crossings and rearings in the open field and decrease in the latency to the 1st fall in the rotarod test. The administration for two weeks of DPTVP (0.150µmol/Kg, i.p.) improved the behavioral alterations. We detected that the mitochondrial viability and [<sup>3</sup>H]glutamate uptake were decreased and lipid peroxidation was increased by Mn exposure only in striatum . The treatment with the telluride recovered the mitochondria from the damage and significantly recovered the [<sup>3</sup>H]glutamate uptake to the control levels. Our results demonstrated that Mn exposure may cause serious alterations in striatum and in the locomotor activity of intoxicated rats. The decrease of [<sup>3</sup>H]glutamate uptake can occur by the accumulation of Mn in the astrocytes, resulting in decreased function of these cells. Mn also accumulates in mitochondria leading to impaired energy metabolism and free radical production. The vinylic telluride was able to revert the alterations in the Mn-intoxicated rats due to its strong antioxidant activity, acting as a neuroprotector.

Key-Worlds: Manganese, DPTVP, Neuroprotector.

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