

Study of Toxic Effect and Anti-Oxidative Activity of a β - Amidophosphonates

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Abstract : Reactive oxygen species (ROS) have a high potential to damage almost all types of cellular components of the body, which explains their involvement in the induction and/or amplification of several pathologies. Supplementation of the body by exogenous antioxidants is very useful against these harmful species. In this context, we attempted to evaluate the in vitro and in vivo antioxidant activities of three newly synthesized amidophosphonates (AP1, AP2, and AP3). The results relating to the in vitro tests for DPPH radical scavenging activity shows that these amidophosphonates have a modest antiradical power (ARP) less effectively pronounced compared with an analogue marketed in Algeria: (Dursban) Clorpiryphos ethyl. However, in vivo effects were evaluated on some antioxidant systems (LP intensity, CAT activity and GSH content), or in combination with 2, 2-diphenyl-picrylhydrazyle (DPPH) radical in paramecium tetraurelia used as a complementary system to rapidly elucidate the cytotoxicity. On the basis of the results obtained it can be concluded that amidophosphonates studied exhibited a mild protective effect. The mechanism for how they influenced the antioxidant activities was discussed.

Keywords : Paramecium tetraurelia, amidophosphonates, antioxidant activity, DPPH free radical, in vitro experiments, biochemical parameters

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