MODULATORY EFFECT OF CURCUMIN IN NEUROTOXICITY INDUCED BY ALUMINIUM CHLORIDE

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Aims: Potential use of various phytochemicals has been a burning area of research on account of various physical and chemical insults in brain under different toxicological conditions. One of the photochemical curcumin has been exploited in the present experiment under aluminium toxic conditions.

Methods and results: Aluminium was administered by oral gavage at a dose level of 100 mg/Kg b.wt/day for a period of eight weeks. To elucidate the region specific response, study was carried out in three different regions of brain namely cerebral cortex, mid brain and cerebellum. Following aluminium exposure, a significant increase in ROS and lipid peroxidation was observed in all the three regions of brain. Moreover, the activity of catalase was also reported to be significantly decreased and activity of superoxide dismutase was significantly increased. The data was further supported by histopathological observations. Post-treatment with curcumin was able to restore the altered enzyme activities and the effect was observed in all the three regions of brain. Further, curcumin was able to improve the altered histopathology of brain.

Conclusion: In the search of neuroprotective effect of anti-oxidants the present work demonstrated the neuro-protective effect of curcumin in preventing the development of aluminium induced neurodegeneration.