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**Therapeutic use of the curcumin and its derivative, (tetrahydrocurcumin) on MPTP induced parkinson's disease in male mouse**

**Muthukumara Sabesan**  
Annamalai University, India

Curcumin (diferuloylmethane), a polyphenol extracted from the plant *Curcuma longa*, is widely used in food both in India and China. It is also used in therapeutic uses. In this study we used curcumin and its derivative first time to treat neurodegenerative disease, Parkinson's disease (PD). In this disease the increased reactive oxygen species (ROS) accumulation and oxidative damage of lipids, nucleic acids and proteins occur. Therapeutic use of curcumin for this neurodegenerative disease appears multifactorial which regulates the enzymes, cytokines, monoamine oxidase-B inhibition, and transcription factors. We investigated free radicals, enzymatic and non-enzymatic antioxidants in on methyl 4-phenyl 1, 2, 3 4 tetra hydro pyridine (MPTP). In this model depletion of dopamine (DA) and DOPAC (3, 4 dihydroxy phenyl acetic acid) occurs with increased activity of monoamine oxidase (MOA-B). We used HPLC with electrochemical detection to measure DA and DOPAC respectively while MAO-B was assayed by spectrofluorimetry using the conversion of fluorogenic substrate, kyuramine. Systemic administration of curcumin (80 mg/kg i.p) and tetrahydro curcumin (60mg/kg ip) significantly reversed the MPTP induced depletion of DA and DOPAC. The MOA-B activity was also significantly inhibited by these compounds. The results showed that curcumin and its derivative reversed the MPTP induced depletion of DA and DOPAC which may in part be due to inhibition of MAO-B activity. This result also supported by free radical estimation, antioxidant assay and electron microscopical observations. In conclusion both curcumin and its metabolite exert neuroprotection against MPTP induced neurotoxicity.

**Biography**

M Sabesan has completed his PhD from Bharathidasan University and Postdoctoral studies from Freiburg University, Germany. He worked as Professor and Head with Dean, Faculty of Science, Annamalai University, India. He worked on PD and published 20 papers in these neurodegenerative diseases in the high impact factor journals. He guided seven students for PhD in the same field. He has completed four major research projects in this subject.

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