

4<sup>th</sup> Global Experts Meeting on

# PARKINSON'S & MOVEMENT DISORDERS

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### Neuroprotective and anti-inflammatory role of *Tinospora cordifolia* in MPTP induced parkinsonian mouse model

Parkinson's disease, an age related neurodegenerative disorder, is characterized by progressive loss of dopaminergic neurons in substantia nigra pars compacta of the mid brain and projecting neurons in striatum. Recently, several studies regarding parkinson's disease have proven the role of oxidative stress in neurodegeneration and neuroinflammation. In this context, our study evaluates the neuroprotective effect of *Tinospora Cordifolia* Aqueous Extract (TCAE) in parkinsonian mice. From the immunohistochemistry and western blot analysis, it is evident that TCAE inhibits the MPTP-induced activation of NF- $\kappa$ B and its associated pro-inflammatory cytokines. Through, Real time PCR analysis it was revealed that pro-inflammatory cytokines were found to be up regulated in MPTP intoxicated mice while TCAE treatment significantly restored their levels. In addition, the expression level of IL-10 was found decreased in diseased condition which was further restored by TCAE treatment. Tyrosine hydroxylase, an important enzyme which is used as marker in parkinson's disease, its expression was found to be reduced in MPTP mice while on giving TCAE, its level was significantly restored. Our result clearly indicates that *Tinospora cordifolia* provides neuroprotection against MPTP induced nigrostriatal dopaminergic neurodegeneration and shows potent anti-inflammatory activity.

#### Biography

Surya Pratap Singh is currently working as a Professor in the Department of Biochemistry in Banaras Hindu University. He has done his Post-doctoral training from 2000 to 2008 in University of Illinois at Chicago and Johns Hopkins, USA and in 1995-1996 in National Institute of Neuroscience, Tokyo, Japan. He has received his PhD, MSc and BSc in Faculty of Science, Banaras Hindu University, India.

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