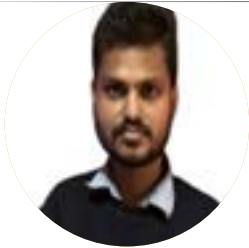


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Study of the neuroprotective effect of Apocynin against PQ-induced Parkinsonism

Parkinson's disease (PD) is the second most common neurodegenerative disorder characterized by the progressive loss of dopaminergic neurons in the substantia nigra and presence of intra- cytoplasmic inclusion bodies known as lewy body containing α - synuclein aggregate . The cause of dopaminergic neuronal loss in PD remains unknown for a long time, however, recent studies report that oxidative stress plays a key role in the pathogenesis of PD. Paraquat (PQ), a widely used herbicide is an oxidative stress inducer that has been implicated as a potential risk factor for the development of PD. Pharmacological approaches targeting antioxidant machinery may have therapeutic value against PD. Flavonoids are naturally occurring polyphenolic compounds that display a variety of therapeutic properties against oxidative stress. Apocynin (4-hydroxy-3- methoxyacetophenone) is a natural flavonoid obtained from medicinal plant Picrorhiza kurroa that exhibits neuroprotection against PD-related pathology. However, studies on its neuroprotective role and the underlying mechanisms are scarce, therefore the proposed study will explore the potential neuroprotective role of Apocynin associated with PQ induced- Parkinsonism. As a part of preliminary study we have developed PQ-induced Parkinsonism model in adult Wistar rats. We performed motor coordination related behavioral experiments and histopathological studies in order to validate the establishment of PQ-induced Parkinsonism. In future, we will be assessing the neuroprotective effect of Apocynin in the developed model of Parkinsonism.

Keywords: Parkinson's disease, paraquat, neuroprotection, apocynin, neurodegeneration.

Biography

Myself Sandeep, pursuing my Ph.D. in neurobiology at Jawaharlal Nehru University. I am having passion for research in neurodegenerative disease. Currently I am working on Parkinson's disease. The in-vivo model that I am working is paraquat-induced Parkinsonism. Parkinson's disease is a progressive neurological disorder affecting more than 1% of population over age of 60 years. It has motor as well as non-motor symptoms. Aggregation of α - synuclein in the form of Lewy body and loss of dopaminergic neurons in the striatum and substantia nigra region of the brain is pathological hallmark of the disease. Current treatment strategies available are use of L-DOPA or its agonist. But long-term treatment with these results in the bradykinesia, motor fluctuations. So presently no complete cure is available against the disease. I am targeting the molecular pathway involved in the onset and progression of the disease that may open novel treatment strategies against disease.

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