

# Neurology: Neurochemistry, Neuropharmacology and Neurosciences

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## Naringenin modulates paraquat-induced dysregulations in mitochondrial membrane potential in the cellular model (SH-SY5Y cells) of Parkinson's disease

Parkinson's disease (PD) is the second most common [neurodegenerative disease](#) which is characterized by the loss of dopaminergic neurons in the substantia nigra. The exact cause of PD remains unknown and the drugs that are available show optimal results with side effects. Flavonoids are naturally occurring polyphenolic compounds that exhibit therapeutic properties in neurodegenerative diseases including PD and do not show any side effects even in extended use. [Naringenin](#) (NAR), one such natural flavonoid, also has been reported to show neuroprotection against PD-related pathology. However, studies on its neuroprotective role and the underlying mechanisms are scarce, therefore the present study will explore the potential neuroprotective role of NAR in paraquat (PQ)-induced parkinsonism in SH-SY5Y cells. The present study determined the effect of NAR on PQ-induced cellular toxicity by measuring cell viability, ATP levels and mitochondria membrane potential ( $\Delta\Psi_m$ ) in SH-SY5Y cells. Our results show that NAR treatment in SH-SY5Y cells resulted in increased cell viability, reduced the PQ-induced dysregulations in  $\Delta\Psi_m$  and higher mitochondrial ATP levels. In conclusion, NAR exhibits neuroprotection against PQ-induced neurotoxicity in SH-SY5Y cells indicating its therapeutic potential against PD.

### Keywords:

Paraquat, Parkinson's disease, Naringenin, Cell Viability, [Mitochondria membrane potential](#).

### Biography:

[Mir Hilal Ahmad](#) completed her MSc in Biochemistry from the [PGIMER](#), Chandigarh, India. Currently, he is pursuing her PhD from the Laboratory of Cellular and Molecular Neurobiology (Lab 215), School of Life Sciences (SLS), [Jawaharlal Nehru University](#) (JNU) under the supervision of Dr. Amal Chandra Mondal, Associate Professor, SLS, JNU. He is interested in studying the use of phytochemicals exhibiting significant free radical scavenging activities and minimal toxicity even after prolonged usage, indicating that they might be potential innovative therapeutic strategies for Parkinson's disease. She has published two review articles in reputed international journals. He has also given one poster and one oral presentation at national and international conferences

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