

Naringin

Huntington's disease (HD) is a complex multifactorial neurodegenerative disorder. Naringin, a flavanone glycoside exhibits potent anti-inflammatory and antiapoptotic effect.

AIM: To evaluate the effect of naringin in quinolinic acid (QA)-induced neurotoxicity in laboratory rats.

METHODS: Neurotoxicity was induced in male Wistar rats by single intrastriatal injection of QA (300 nmol/4 μ l saline) in striatum except non-treated. Rats were administered orally with either vehicle (distilled water (10 mL/kg) or naringin (20, 40 and 80 mg/kg) or pioglitazone (40 mg/kg, p.o.) or its combination for 28 days.

RESULTS: Naringin (40 and 80 mg/kg) treatment significantly ($p < 0.05$) attenuated QA-induced alterations in locomotor activity, rearing, grooming, neurological score, footprint analysis, grip strength and a number of slips. QA-induced altered striatal oxido-nitrosative stress (superoxide dismutase, glutathione, malondialdehyde and nitric oxide), neuroinflammatory markers (TNF- α , IL's and NF-kB mRNA) and apoptotic markers (Bax-Bcl-2, Caspase-3, and PPAR- γ mRNA) were significantly attenuated by ($p < 0.05$) by naringin. It also significantly increased ($p < 0.05$) mitochondrial complex (I-IV) activity. TTC scanning also showed that naringin treatment significantly reduced ($p < 0.05$) QA-induced striatal degeneration. It also significantly decreased ($p < 0.05$) OVA-induced elevated striatal apoptosis revealed by flow-cytometric analysis.

CONCLUSION: Naringin exerts its neuroprotective effect against QA-induced neurotoxicity via modulation of oxido-nitrosative stress, neuroinflammatory, apoptotic markers and mitochondrial complex activity. Thus, it may offer a better therapeutic alternative for the management of HD like symptoms ¹⁾.

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Cui J, Wang G, Kandhare AD, Mukherjee AA, Bodhankar SL. Neuroprotective effect of naringin, a flavone glycoside in quinolinic acid-induced neurotoxicity: Possible role of PPAR- γ , Bax/Bcl-2, and caspase-3. Food Chem Toxicol. 2018 Aug 18. pii: S0278-6915(18)30584-2. doi: 10.1016/j.fct.2018.08.028. [Epub ahead of print] PubMed PMID: 30130594.

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