Subject area: BIO

Study of selenium-containing quinoline in *Drosophila melanogaster* model of Parkinson's-like disease

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Highlights

Selenium-containing quinoline restores dopamine levels in fly heads.
Selenium-containing quinoline restores oxidative stress and antioxidant defenses in fly heads
Neuroprotective effect of selenium-containing quinoline is correlated with selenium levels in fly heads

Abstract

Neurodegeneration in Parkinson's disease appears to be caused by multiple factors including oxidative damage[1,2]. Evidence suggests the involvement of selenium in the physiopathology of Parkinson's disease, since dopaminergic pathways appear to utilize this element, possibly due to high reactive oxygen species production during dopamine cycling and autooxidation[3-5]. In addition, studies have highlighted the important actions of quinoline compounds in conjunction with selenium, mainly attributed to its antioxidant properties [6-8]. Currently, *Drosophila melanogaster* is used as an alternative animal model for screening therapeutic agents for the treatment of neurodegenerative diseases, including Parkinson's disease and emerges as a useful organism to characterize the roles of selenium in biology and medicine[9,11]. In this lecture we will present the main results of our study involving the neuroprotective effect of a selenium-containing quinoline in a model of Parkinson's-like disease in *Drosophila melanogaster*.

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