

Effects of an anti-Parkinson's new drug developed from traditional Chinese medicine

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Parkinson's disease is a chronic neurodegenerative disorder characterized by a selective and progressive degeneration of dopaminergic neurons in the substantia nigra pars compacta and subsequent decrease of dopamine level in the striatum. According to the pathogenesis of Parkinson's disease, we established 6-OHDA-lesioned SH-SY5Y cell model and promoting PC12 cell differentiation model *in vitro* which can display two different mechanisms in Parkinson's disease. We have complete screening of 560 compounds in these two models and discovered that baicalein have strong activity on these two models. Baicalein, a flavonoid with potent antioxidant and anti-inflammatory properties, has been shown to have neuroprotective effects. In rats, baicalein could significantly attenuate muscle tremor of 6-OHDA lesioned rats. Interestingly, baicalein could decrease the burst frequency in a dose-dependent and time-dependent manner. In mice, baicalein exerts the capacity to block the MPTP-induced neurotoxicity. In monkeys, baicalein could significantly improve the abnormal behavior in MPTP-treated macaca fascicularis including arm movements, freezing, bradykinesia and resting tremor. In cells, baicalein exerts neuroprotective effect on rotenone-induced neurotoxicity. We summarized the central effects of baicalein and found that dopamine, 5-HT, choline and epinephrine systems were the main targets. It is more likely that multiple bioactive mechanisms contribute to its anti-Parkinson's activity. These results suggested that baicalein might be a promising candidate for the Parkinson's disease, but further studies to understand the basic mechanism are required.