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## Antidepressant-like effects of *Crataegus pinnatifida* extract on the immobility behavior of mice in the forced swim and tail suspension tests

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Hawthorn (also known as *Crataegus pinnatifida* which is the fruit of *Crataegus* species) is commonly used in Chinese herbs to reduce risk of cardiovascular diseases such as heart failure, arrhythmias and hypertension. Many studies have reported that extracts from the fruits of *C. pinnatifida* have beneficial effects on the cardiovascular system including cardiovascular protection, improvement of coronary circulation and hypolipidemic effects. Here, we aimed to determine whether *C. pinnatifida* extracts exhibited antidepressant-like activity in mice subjected to forced swim (FST) and tail suspension (TST) tests-induced depression. Acute treatment of mice with *C. pinnatifida* extracts (300 mg/kg, p.o.) significantly reduced immobility time and increased swimming time without any significant change in climbing. In addition, *C. pinnatifida* extracts, at concentrations that were not affected by cell viability, significantly prevented the dexamethasone (DEX)-induced decreases in cell viability by an 3-[4,5 dimethylthiazol-2-yl]-2,5-diphenyl-tetrazolium bromide (MTT) assay using SH-SY5Y human neuroblastoma cell. In our results determined that *C. pinnatifida* extracts may have biological effects on neuroprotection and exhibited significant antidepressant-like effects in the FST and TST. Therefore our finding suggests that *C. pinnatifida* extracts has preventive or therapeutic potential for the treatment of depression-related disorders.

**Keywords:** *Crataegus pinnatifida*, Antidepressant activity, SH-SY5Y cells, Behavioral tests

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