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### Effect of Thunbergia Laurifolia Extract on Extracellular Dopamine Level in Rat Nucleus Accumbens

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#### Abstract

**Background:** Thunbergia laurifolia Linn. (TL) is a herbal medicine used as an antidote for several poisonous agents in Thai traditional medicine. TL were reported not only to significantly increase potassium-stimulated dopamine release from rat striatal slices but also potentiated the effect of amphetamine on potassium-stimulated dopamine release.

**Objective:** The present study aim to investigate the effect of TL on extracellular dopamine levels in rat nucleus accumbens in vivo in comparison to cocaine.

**Material and Method:** Single injections of methanol extract of TL (200 mg/kg, ip) and cocaine (10 mg/kg, ip) were performed to determine the levels of extracellular dopamine in vivo in the living brain using the microdialysis technique (collecting time = 20 minutes).

**Results:** Cocaine and TL significantly ( $p < 0.05$ ) increased extracellular dopamine levels in the rat nucleus accumbens in a similar manner, but the effect of cocaine had a faster onset than that of TL.

**Conclusion:** The results are in agreement with a previous in vitro study. It can be summarized that TL stimulated rat dopamine release from the nucleus accumbens both in vitro and in vivo. This brain area is responsible for the reward mechanism of addiction. The clinical significance for the use of TL in humans and the effect of long term treatment with TL on addiction requires further investigation.

**Keywords:** Addiction, Cocaine, Dopamine, Microdialysis, Thunbergia laurifolia

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