

Pre-Administration of Thunbergia Laurifolia Linn. Prevent the Increase of Dopamine in the Nucleus Accumbens in Ethanol Addicted Rats

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Abstract : Thunbergia laurifolia Linn. (TL) is a herbal medicine which has been used as an antidote for several poisonous agents including insecticides and as a component of a mixture of crude extracts to treat drug addicted patients. The aim of this study is to examine the level of dopamine in nucleus accumbens after chronic pre-administration of TL in ethanol addicted rats. Male Wistar rats weigh 200-250 g received TL methanol extract (200mg/kg, orally) 60 minutes before 20% ethanol (1 g/kg, i.p.) for 30 days. The nucleus accumbens was removed and tested for dopamine by HPLC-ECD. The level of dopamine was significantly increased by chronic ethanol administration, whereas the chronic TL extract administration did not cause a difference in dopamine level when compared to control. Moreover, the pre-treatment of TL extract before ethanol significantly reduced the dopamine level in nucleus accumbens to normal level when compared with chronic ethanol administration alone. These results suggested that the increase in dopamine level in the nucleus accumbens by chronic ethanol administration is the cause of ethanol addiction, and this effect is prevented by chronic TL pre-administration. Furthermore, chronic TL extract administration alone did not cause the changes in dopamine level in the nucleus accumbens, indicating that TL itself did not cause addiction.

Keywords : Thunbergia laurifolia Linn., alcohol addiction, dopamine, nucleus accumbens

Conference Title : ICNMMP 2019 : International Conference on Naturopathic Medicine and Medicinal Plants

Conference Location : Vienna, Austria

Conference Dates : June 20-21, 2019