

# 3<sup>rd</sup> International Conference and Exhibition on Addiction Research & Therapy

August 04-06, 2014 Hilton-Chicago/Northbrook, Chicago, USA

## The effect of acute and sub-acute exposure to crude khat (*Catha edulis F.*) extract on learning and memory in rodents

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Learning is a process of acquiring new information while memory is retention of the acquired information. The molecular mechanism of learning is due to the increased synaptic strength which is called long term potentiation. Khat (*Catha edulis F.*) is a dense evergreen shrub belonging to the family Celastraceae. Although comparative studies of amphetamine and khat on physiological and psychological behaviours are extensive, little is known about the effect of khat on learning and memory. The aim of this study was to evaluate the effect of acute and sub-acute exposure to crude khat (*Catha edulis F.*) extract on learning and memory in rodents. Crude khat extract obtained using a mixture of chloroform and diethyl ether (1:3) was administered orally in doses of 100, 200, 300 mg/kg and the control group was administered with Tween 80 2% v/v in water as a single dose and repeatedly for fourteen days. Three protocols: Morris water maze (MWM), active avoidance and multiple T-maze (MTM) tasks were used to study learning and memory. Parameters, including escape latency; time spent in the target quadrant; number of avoidances, escapes and nulls; number of wrong decisions and latency to reach the goal box were determined. The results showed that acute and sub-acute administration of khat extract at the doses used did not have a significant effect in the three learning and memory paradigms.

### Biography

Ashenafi Girma Tefera earned his B.Pharm and MSc. in Pharmacology from Addis Ababa University. Now, he is a lecturer of pharmacology at undergraduate studies at Samara University. He is also working as academic dean at Universal Medical College and as a medical bulletin writer and editorial assistant at Pharma info which is a known medical bulletin in Ethiopia. He maintains an active academic role within the university teaching courses in pharmacology, mentor undergraduate students in their final year research project. He is also a member of Ethiopian pharmaceutical association. He conducted experimental researches using behavioral science techniques in rat and mice models include khat plant and anxiety, khat plant and memory. He has presented his research on substance abuse for the scientific community at the University of Minnesota-IBRO-Jimma University international symposium 2014. His main research interest is experimental researches in animal models on substance abuse including khat plant and schizophrenia, khat plant and Parkinson's disease as well as khat plant and the level of dopamine and serotonin in rat brain.

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