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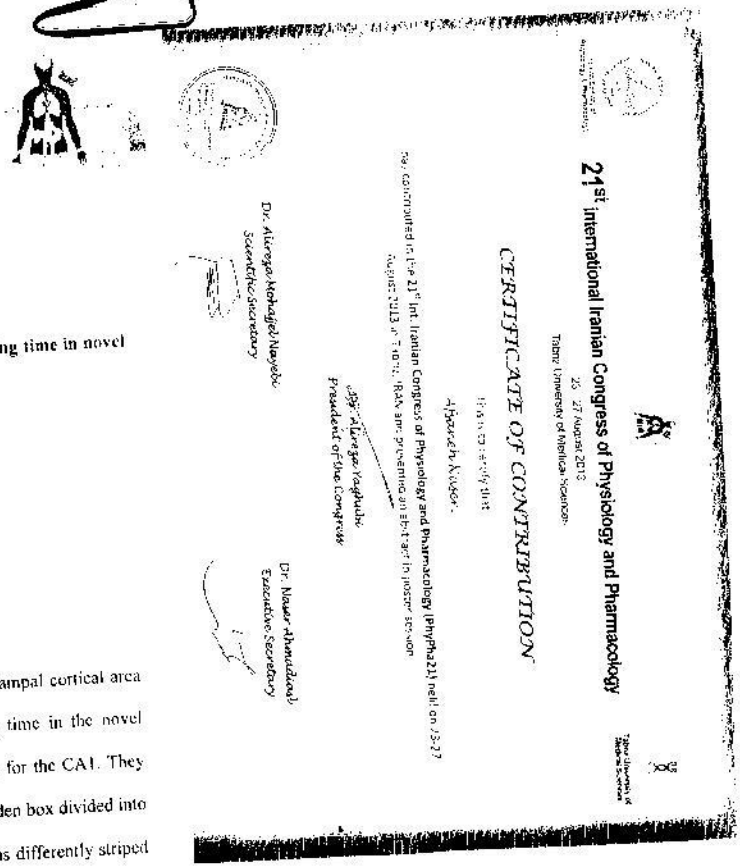

Injection of colchicine intra hippocampal CA1 impairs the learning by evaluation of rat staying time in novel environment

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Abstract

Backgronnd & objectives: Colchicine has recently been introduced a toxin of hippocampal cortical area (CA). We evaluated the degenerative effect of colchicine on CA1 by measuring of staying time in the novel environment. **Material & Methods:** The Wistar rats were cannulated bilaterally at coordinates for the CA1. They experienced the novelty program by using the conditioning apparatus. The apparatus was a wooden box divided into 2 equal parts by a guillotine door. The box, although, was completely colored white, but, it was differently striped and textured. The cannulated rats after 1 week recovery were examined for novelty task using a 3-phase program. In the first phase (day 1) they were familiarized with the box by freely moving in the box for 10 min. Then they were confined (40 min) in a part for 3-days twice per day with 6-h interval. In the last day (day 5) the animals were tested for staying in parts by providing the similar condition as that of day one except that of receiving colchicine (5, 25 µg/rat, intra-CA1) pre-testing. The provided concentrations of neurotoxin in volume 0.5 µl/per side were injected gently throughout a 30-s period. The control group received saline (1 µl/rat) instead of drug. **Results:** The alkaloid caused significant deficiency in learning process. The colchicine treated rat showed preferred staying in non-confined part. **Discussion & Conclusion:** This work may discuss a neural toxicity of colchicine in CA1. We may conclude that the toxin affectively impairs the small pyramidal cells in the dorsal hippocampus.

Key words: Colchicine, Hippocampus, Pyramidal cell, Conditioning, Novelty