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The effect of Δ^9-Tetrahydrocannabinol on memory formation in mice

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Memory disability is one of the well -known effects of cannabis on human behavior. Cannabis and its constituent cannabinoids are known to impair several aspects of cognitive function, with the most robust effect on short term, episodic and working memory in human. There is growing evidence of role of microtubule dynamic in memory formation and learning .dynamic microtubules are shown to be involved in dendritic spine changes and synaptic plasticity. Numerous studies shows that microtubules play important role in neuronal cells like axonal transportation and cell polarity .In order to investigate the effect of THC on memory formation we treated the mice with Δ^9-tetrahydrocannabinol (THC) the most important ingredient of cannabis, then we studied the behavior of treated animals via T-maze test. To measure the effect of injection on microtubule of brain in closer condition to biological condition of brain, we used polymerization assay for brain extraction soup. We also found the alternation of microtubule polymerization in present of different concentration of THC and through turbidity spectroscopy and fluorescence spectrometry assay. THC also causes changing morphology of astrocyte cells. According to our results, THC impaired memory formation in treated animals and they had poor preformation which is related to microtubule kinetics.

Biography

Mina Mohammadkhani is graduated Biochemistry master student from Tehran University. Her passion for brain function and its mechanism made her doing her master thesis in molecular neuroscience lab in Institute of Biochemistry and Biophysics (IBB) and she was involved in investigation on memory formation . She works on the effect of Tetrahydrocannabinol(THC) (the most important psychotic ingredient of cannabis)on memory formation and brain function in mice through behavioral test , in vitro test on Microtubule and morphological study on astrocyte cell line.She is working as teacher's assistant in neuroscience lab of IBB and cooperating in projects.(from Feb2016)

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