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Poster Presentation

Protective Effects of *Nigella Sativa* on Synaptic Plasticity Impairment Induced by Lipopolysaccharide

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Abstract

In the present study the protective effect of *Nigella sativa* (*N. sativa*) on synaptic plasticity impairment induced by lipopolysaccharide (LPS) in rats was investigated. Fifty-eight rats were grouped and treated as follows: 1) control (saline), 2) LPS, 3) LPS-*N. sativa*, and 4) *N. sativa*. In a Morris water maze test, the escape latency and travelled path to find the platform as well as time spent and the travelled distance in target quadrant (Q1) were measured. Long term potentiation (LTP) from CA1 area of hippocampus followed by high frequency stimulation to Schafer collateral was studied and slope, slope 10-90% and amplitude of field excitatory field potential (fEPSP) were calculated. The escape latency and traveled path in LPS group were significantly higher than those in the control group while, in LPS-*N. sativa* group these parameters were significantly lower than those in LPS group. The rats in LPS group spent less time and travelled shorter distance in Q1 than the rats in the control group while, in LPS-*N. sativa* group the rats spent more time and travelled longer distance than the rats in LPS group. LPS significantly decreased slope, slope 10-90% and amplitude of fEPSP while, in LPS-*N. sativa* group these parameters increased compared to LPS group. The results indicated that the hydro-alcohol extract of *N. sativa* protected against synaptic plasticity and spatial learning and memory impairment induced by LPS in rats.

Keywords: Lipopolysaccharide, Long Term Potentiation, *Nigella Sativa* L, Spatial Memory, Synaptic Plasticity

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