



The 2nd International Neuroinflammation Congress and 2nd Student Festival of Neuroscience

Shefa Neuroscience Research Center, Tehran, Iran, 17-19 April, 2018

The Neuroscience Journal of Shefaye Khatam

Volume 6, No. 2, Suppl 1

Poster Presentation

P45: The Effects of *Nigella sativa* on Sickness Behavior Induced by Lipopolysaccharide in Male Wistar Rats

Vahid Mahdavizade¹, Fatemeh Norouzi², Azam Abareshi³, Farimah Beheshti², Mahmoud Hosseini^{2*}

¹Neuroscience Department, Mashhad University of Medical Sciences, Mashhad, Iran

²Neurocognitive Research Center, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

³Pharmacological Research Center of Medicinal Plants, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Published: 17 April, 2018

Abstract

Neuroimmune factors contribute on the pathogenesis of sickness behaviors. *Nigella sativa* (NS) has anti-inflammatory, anti-anxiety and anti-depressive effects. In the present study, the effect of NS hydro-alcoholic extract on sickness behavior induced by lipopolysaccharide (LPS) was investigated. The rats were divided into five groups (n=10 in each): (1) control (saline), (2) LPS (1 mg/kg, administered two hours before behavioral tests), (3-5) LPS-*Nigella sativa* 100, 200 and 400 mg/kg (LPS-NS 100, LPS-NS 200 and LPS-NS 400, respectively). Open-field (OF), elevated plus maze (EPM) and forced swimming test (FST) were performed. In OF, LPS reduced the peripheral crossing, peripheral distance, total crossing and total distance compared to control ($p < 0.01$ - $p < 0.001$). The central crossing, central distance and central time in LPS-NS 100, LPS-NS200 and LPS-NS 400 groups were higher than LPS ($p < 0.01$ - $p < 0.001$). In EPM, LPS decreased the open arm entries, open arm time and closed arm entries while increased the closed time compared to control ($p < 0.001$). Pretreatment by NS extract reversed the effects of LPS ($p < 0.05$ - $p < 0.001$). In FST, LPS increased the immobility time while, decreased the climbing and active times compared to control ($p < 0.05$ - $p < 0.001$). The results of the present study showed that the hydro-alcoholic extract of NS reduced the LPS-induced sickness behaviors in rats. Further investigations are required for understanding the responsible underlying mechanism(s).

Keywords: Rat, Lipopolysaccharide, *Nigella Sativa*, Sickness Behavior

***Corresponding Author:** Mahmoud Hosseini

Email: hosseini@mums.ac.ir