

Tualang honey and its methanolic fraction protect against LPS-induced neuroinflammation and amyloid deposition in male rats

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Abstract

Tualang honey (TH) exhibits a number of pharmacological actions including antioxidant, anti-inflammatory, anticonvulsant and cognitive enhancer. The purpose of this study is to investigate the effects of TH and its methanolic fraction (MTH) on the expression of proinflammatory cytokines and amyloid deposition in the hippocampus of systemic lipopolysaccharide (LPS)-injected rats. Sixty male Sprague Dawley rats were divided into 5 groups (n=12): (i) control rats, (ii) untreated LPS rats (5 mg/kg) (iii) LPS rats treated with TH 200 mg/kg, (iv) LPS rats treated with MTH 150 mg/kg and (v) LPS rats treated with memantine 10 mg/kg. All treatments were administered intraperitoneally once daily for 14 days. The rats were sacrificed and hippocampal tissues were carefully dissected out. Determination of proinflammatory cytokines expression and amyloid deposition in the hippocampus were carried out by immunohistochemistry staining method and ELISA, respectively. The COX-2 and TNF- α expression, as well as amyloid deposition, were highest in untreated LPS rats compared to other experimental groups. TH and MTH significantly reduced the concentration of COX-2 and TNF- α expression, as well as amyloid deposition in the hippocampus of LPS rats comparable to memantine group. In conclusion, the findings suggest that TH and MTH protect the hippocampus against LPS-induced neuroinflammation and amyloid deposition as effective as memantine.

Keywords: Tualang honey; lipopolysaccharide; amyloid deposition; proinflammatory cytokines

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