

عنوان مقاله:

Protective Effect of Oleuropein on Memory Impairment and Oxidative Stress in Streptozotocin-Induced Diabetes Rats via Modulation of NF- $\kappa$ B and Nrf- $\gamma$  Pathways

محل انتشار:

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نویسندگان:

زهرا شیبانی - Department of Biology, Faculty of Basic Sciences, Payam Noor University, Tehran, Iran

مریم رفیعی راد - Department of Biology, Izeh branch, Islamic Azad University, Izeh, Iran

خلاصه مقاله:

**Background & Objectives:** Diabetes is the most common metabolic disease, associated with hyperglycemia and long-term complications. This study aimed to elucidate the anti-diabetic role of oleuropein (OLE) in a streptozotocin (STZ)-induced diabetic animal model. **Materials & Methods:** Adult male Wistar rats (200-250 g) were randomly divided into four groups: 1) Control group, 2) STZ group: diabetic rats that received STZ (60 mg/kg), 3) OLE 50 group: diabetic rats treated with oral OLE at 50 mg/kg of body weight daily for 28 days, and 4) OLE 100 group: diabetic rats treated with oral OLE at 100 mg/kg of body weight daily for 28 days. Memory function and biochemical factors such as malondialdehyde (MDA) levels, glutathione peroxidase (GPx), and total thiol activity were evaluated in the rats' cerebral cortex and striatum tissues. Moreover, nuclear transcription factor- $\kappa$ B (NF- $\kappa$ B) and nuclear factor E $\gamma$ -related factor 2 (Nrf2) pathway activation were determined in cerebral cortex and striatum tissues by real-time polymerase chain reaction (PCR). **Results:** Chronic administration of OLE ameliorated cognitive deficits and attenuated oxidative stress induced by diabetes. Additionally, OLE significantly prevented the activation of the pro-inflammatory marker NF- $\kappa$ B and downregulated Nrf2 expression in STZ-induced diabetic rats. **Conclusion:** Our results confirm the significant protective role of OLE against STZ-induced diabetes in rats by up-regulating Nrf2 signaling and enhancing antioxidant activity.

کلمات کلیدی:

Diabetes, Oleuropein, Oxidative stress, Memory, Nrf- $\gamma$ , Rat

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