

عنوان مقاله:

Protective effect of crocin on bisphenol A - induced spatial learning and memory impairment in adult male rats: Role of oxidative stress and AMPA receptor

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خلاصه مقاله:

Objective(s): Bisphenol A (BPA), a xenoestrogenic endocrine disrupting agent, is widely used in the production of polycarbonate plastics and has potential adverse effects on the developing nervous system, memory and learning abilities. The protective effect of the crocin, an important active constituent in *Crocus sativus* L, on memory impairment induced by BPA in rat was determined through evaluation of oxidative stress and the level of NMDA (N-methyl-D-aspartate receptors) and AMPA (α -amino-3-hydroxy-5-methyl-4-isoxazole-propionic acid) receptors. **Materials and Methods:** Rats were orally treated with BPA (100 mg/kg) or sesame seed oil in control group for 28 days. Crocin (10, 20, and 40 mg/kg, IP) was administered in BPA-orally treated groups for 28 days. Memory and learning functions were evaluated by Morris water maze. The level of malondialdehyde (MDA) and glutathione (GSH) contents were determined in rat hippocampus. Additionally, the expression of NMDA and AMPA receptors were analyzed using Western blot method. **Results:** Administration of BPA significantly reduced memory and learning functions. Crocin significantly protected against learning and memory impairments induced by BPA. BPA administration markedly reduced GSH content and induced lipid peroxidation, while crocin was able to increase GSH content in rat hippocampus. The expression of NMDA receptor did not change in BPA-treated rats, while the significant reduction in AMPA receptor expression was observed. Moreover, crocin (20 mg/kg) significantly elevated the expression of AMPA receptor. **Conclusion:** Crocin recovered spatial learning and memory defects induced by BPA in part through anti-oxidant activity and modulation the expression of AMPA receptor in rat hippocampus.

کلمات کلیدی:

Crocin *Crocus sativus* L. Bisphenol A Anti, oxidant AMPA NMDA

