

## عنوان مقاله:

Effect of rutin on oxidative DNA damage in PC12 neurons cultured in nutrients deprivation condition

## محل انتشار:

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## خلاصه مقاله:

**Objective(s):** Rutin is a flavonoid with potent antioxidant property, which exhibited cytoprotective effects in several models of neuronal injury. This work aimed to examine whether rutin can protect neurons against oxidative DNA damage caused by serum/glucose deprivation (SGD) as an in vitro model of neurodegeneration and ischemia. **Materials and Methods:** The PC12 cells were cultured for 2 hr in normal culture medium containing different concentrations of rutin or  $\alpha$ -tocopherol (positive control) and then further incubated for 12 hr in SGD condition. Then, cell viability, DNA fragmentation, lipid peroxidation, generation of reactive oxygen species (ROS), and the expression of proteins involved in apoptosis were determined. **Results:** The SGD condition significantly decreased viability of the cells, which was accompanied by a significant rise in the generation of ROS and lipid peroxidation. Rutin enhanced the viability of PC12 cells in SGD condition and reduced the production of ROS and lipid peroxidation. In addition, rutin decreased DNA damage and inhibited apoptotic cell death by decreasing the levels of proapoptotic proteins (Bax, caspase-3, caspase-9) and increasing the level of anti-apoptotic protein Bcl-2. **Conclusion:** This study demonstrated that rutin inhibits oxidative DNA damage and neuronal death induced by nutrients deprivation condition. Further studies may warrant the use of rutin as an appropriate neuroprotective agent for ischemic attacks and other neurodegenerative disorders.

## کلمات کلیدی:

Apoptosis, DNA, Oxidative stress, PC12, Rutin

## لینک ثابت مقاله در پایگاه سیویلیکا:

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