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랫드대뇌피질 신경세포에 있어서 과산화수소로 유발된 산화적 신경세포손상에 대한 지유의 보호효과

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Protective effect of Sanguisorbae Radix on H_2O_2-induced oxidative neuronal cell damage in rat cortical neurons

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Objectives

Sangguisorbae radix (SR) from Sanguisorba officinalis L. (Losaceae) is widely used in Korea and China due to its various pharmacological activity. We previously reported that SR prevent Aβ (25-35)-induced neuronal cell damage *in vitro*. The present study aims to investigate the effect of the methanol extract of SR on H_2O_2-induced neurotoxicity using cultured rat cortical neurons.

Materials and Methods

- Materials
  - Methanol extract of SR
  - H_2O_2
- Methods
  - Primary neuronal culture: Cerebral cortical neurons (E15 SD rat)
  - Analysis of cell viability: MTT colorimetric assay, Hoechst 33342 staining
  - Measurement of Glutamate release: HPLC - ECD

Results and discussions

SR, over a concentration range of 10-50 μg/ml, inhibited H_2O_2-induced neuronal cell death, as assessed by MTT assay and the number of apoptotic nuclei, evidenced by Hoechst 33342 staining. Pretreatment of SR (10, 30 and 50 μg/ml) inhibited glutamate release into medium induced by 100 μM H_2O_2, which was measured by HPLC. In conclusion, we demonstrated that SR prevents H_2O_2-induced neuronal cell damage *in vitro*.

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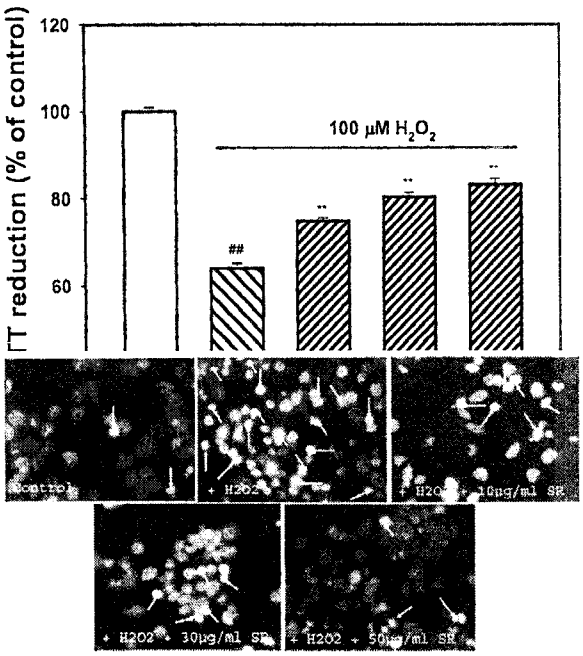

Fig. 1. Inhibitory effect of SR on H_2O_2-induced neuronal cell death in cultured cortical neurons. Neuronal death was measured by the MTT assay. ## $p<0.01$ compared to control. ** $p<0.01$ compared to 100 μM H_2O_2.

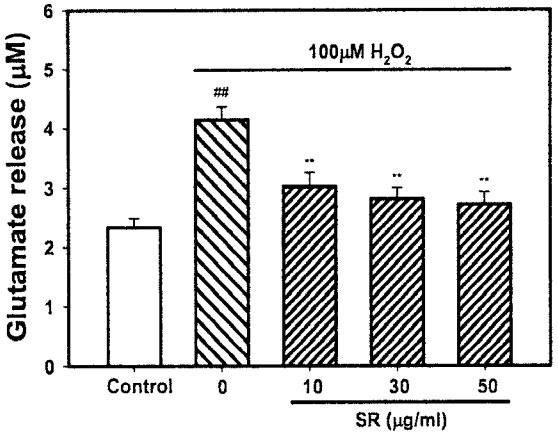

Fig. 2. Inhibitory effect of SR on H_2O_2-induced glutamate release. ## $p<0.01$ compared to control. ** $p<0.01$ compared to 100 μM H_2O_2.

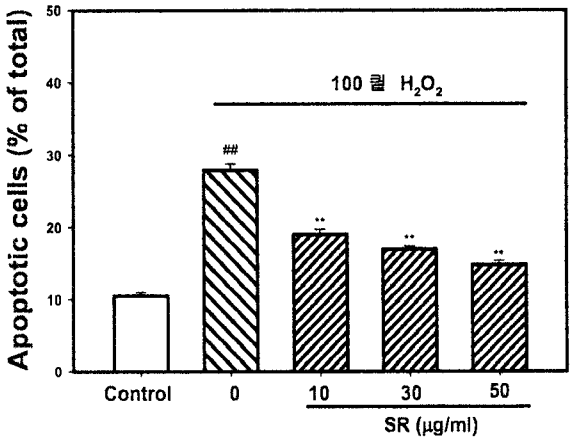

Fig. 3. Inhibitory effect of SR on H_2O_2-induced apoptosis of cultured cortical neurons as measured by Hoechest 33342 staining. ## $p<0.01$ compared to control. ** $p<0.01$ compared to 100 μM H_2O_2.