

## Protective effect of Korean Red Ginseng on the noise induced hearing loss in mice

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**Objectives:** The mechanism of noise induced hearing loss is consisted of mechanical and metabolic alteration in inner ear. Antioxidant proteins, such as catalase and glutathione reductase, have already shown the protective effect on the hearing loss induced by noise in mice.

Korean red ginseng (KRG) has various kinds of antioxidative effect and protective effect of cellular membrane. In this study, we conducted an experiment on the possible protection of hearing loss of KRG in mice exposed to noise.

**Materials and Methods:** We used Balb/c mice with normal hearing. Permanent threshold shift (PTS) and temporary threshold shift (TTS) models were used. Experimental groups were consisted of mice ingested each concentration of KRG (50mg/kg, 100mg/kg or 200mg/kg) before noise exposure. Same amount of normal saline was applied to the control group. Hearing level was determined by measurement of the threshold of auditory brainstem response (ABR).

**Results:** There was no significant difference in hearing level between experimental (50 mg/kg, 100 mg/kg, 200 mg/kg) and control group up to 2 weeks after noise in PTS model. Mice in experimental group, however, showed significant difference in hearing level after noise in TTS model. KRG of 50 mg/kg was not efficient to protect the noise induced hearing loss in TTS model. KRG of 100 mg/kg and 200 mg/kg were effective in the protection of hearing loss induced by noise in TTS model.

**Conclusion:** Oral ingestion of KRG showed effective protection on the temporary elevation of hearing threshold induced by noise in mice in the concentration of 100 mg/kg. Further study will be needed to find the active compound in KRG.