

## ***In Vivo* Radioprotective Effect of *Panax ginseng* C.A. Meyer and Identification of Active Ginsenosides**

HAE JUNE LEE, SE RA KIM, JIN HEE LEE, CHANG MO KANG<sup>1</sup>, YUN SIL LEE<sup>1</sup>,  
SUNG KEE JO<sup>2</sup>, TAE HWAN KIM<sup>3</sup> and SUNG HO KIM

College of Veterinary Medicine, Chonnam National University, <sup>1</sup>Korea Institute of Radiological & Medical Science, <sup>2</sup>Food Irradiation Team, Korea Atomic Energy Research Institute,

<sup>3</sup>College of Veterinary Medicine, Kyungbuk National University,

### Abstract

We evaluated the effect of water extracts of *Panax ginseng* C.A. Meyer (PG), panaxadiol (PD), panaxatriol (PT), ginsenoside Rb1, Rb2, Rc, Rd, Re and Rg1 on jejunal crypt survival, endogenous spleen colony formation, and apoptosis in jejunal crypt cells of mice irradiated with high and low dose of gamma-irradiation. Jejunal crypts were protected by pretreatment of PG, Rc and Rd. PG, PD, Rd and Re administration before irradiation resulted in an increase of the formation of endogenous spleen colony. The frequency of radiation-induced apoptosis in intestinal crypt cells was also reduced by pretreatment of PG, PD, Rb2, Rc, Rd, Re and Rg1. In the experiments on the effects of the individual ginsenoside, the rank order of activity was Rc > Rd > Rg1 > Rb2 > Re > Rb1 on intestinal crypt survival assay, Re > Rb2 > Rd > Rg1 > Rb1 > Rc on the spleen colony formation assay, Rg1 > Re > Rd > Rc > Rb2 > Rb1 on the inhibition of cell death by apoptosis by the mean value. The results indicated that the Rc, Rd and Re might have a major radioprotective effect in mice irradiated with high and low dose of radiation. When we did same experiments using PD and PT, we could observe that most of the inhibitory effects come from PD rather than PT.