

P-11

DEVELOPMENT OF ANTIMUTAGENIC FUNCTIONAL DIETSu-Ok Kim, Sook-Hee Rhee, and Kun-Young Park

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To develop an antimutagenic functional diet, the foods that have shown anticancer activity were mixed to make ready-to-eat powdered diets. The diets were prepared with various kinds of powdered cooked cereals, cooked legumes, oil seeds and sea tangles, and freeze-dried vegetables. The antimutagenic effects of methanol extracts from three mixed diets were investigated in the Ames test, SOS chromotest, and *in vivo* supravital staining micronucleus assay in the mice. Mixed diet I was prepared with brown rice, sorghum, job's tears, black soybean, perilla seeds, kale, small water dropwort, *angelica utilis*, and sea tangles. Mixed diet II was prepared with mixed diet I plus proso millet, glutinous rice, oak mushroom, and pine needle (2%). Mixed diet III was prepared with mixed diet II plus soybean, black sesame, cabbage, carrot, and pine needle (1%). In the Ames test, the methanol extract of the mixed diet II effectively inhibited the mutagenicity induced by *N*-methyl-*N*'-nitro-*N*-nitroguanidine (MNNG) on *Salmonella typhimurium* TA100 and in SOS chromotest using *E. coli* PQ37. The induction of chromosome aberrations of reticulocytes of the ICR mice by mitomycin (MMC) was decreased *in vivo* supravital staining micronucleus assay by the pre-treatment with the above mixed diets. Among the mixed diets, the mixed diet II showed the highest antimutagenic and anticlastogenic effects. These results suggested that the foods in the mixed diet II showed synergistically or individually increased antimutagenicity *in vitro* and *in vivo* and that pine needle and the cereal foods seem to be the major antimutagenic components in diet.