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ANTIMUTAGENIC EFFECT OF *KOCHUJANG* (KOREAN RED PEPPER SOYBEAN PASTE) AND *KOCHUJANG* INGREDIENTS IN THE AMES TEST

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The antimutagenicities of methanol extracts from traditional and commercial *kochujang* (Korean Red Pepper Soybean Paste) and their ingredients were evaluated in *Salmonella*/mammalian microsome assay system. The traditional *kochujang* showed higher antimutagenic effects than the commercial one against *N*-methyl-*N'*-nitro-*N*-nitrosoguanidine (MNNG) in the *Salmonella typhimurium* TA100, a base-pair substituted mutant strain. Among the ingredients of the traditional and commercial *kochujang*, *meju*, *koji* and glutenous rice powder (GRP) effectively reduced the mutagenicity induced by MNNG. Aflatoxin B_1 (AFB_1) induced mutagenesis was also inhibited by the ingredient of traditional and commercial *kochujang* in the test strain of S. *typhimurium* TA100. Antimutagenic effects of *meju* for traditional *kochujang* was higher than those of *koji* for commercial *kochujang*. GRP had strong inhibitory effects on the mutagenicity induced by AFB_1, however, red pepper powder (RPP) showed lower inhibition rate than the *kochujang*. The antimutagenic effects of the *kochujang* ingredients against MNNG were also observed in the S. *typhimurium* TA98 strain, a frameshift mutant tester. *Meju*, *koji*, and GRP had the strongest inhibitory effects on the mutagenicity induced by MNNG. The revertants of the *S. typhimurium* TA98 strain induced by MNNG was not decreased when each of RPP, wheat flour, wheat grain and mustard for commercial kochujang was added to the test system. *Meju* for traditional *kochujang* exhibited strong antimutagenicity against AFB_1, whereas mustard and imported condiment paste for the commercial *kochujang* had comutagenic effects to the AFB_1. These results indicate that *meju*, *koji* and GRP seem to be the major antimutagenic components in *kochujang*.