PROTECTIVE EFFECT OF S-ALLYLCYSTEINE AND LYCOPENE IN COMBINATION AGAINST N-METHYL-N’-NITRO-N-NITROSOGUANIDINE-INDUCED GENOTOXICITY

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Chemoprotection by diet-derived antioxidants has emerged as a cost-effective approach in preventing genotoxicity and carcinogenicity. In this study, we investigated the protective effects of S-allylcysteine (SAC) and lycopene against N-methyl-N’-nitro-N-nitrosoguanidine (MNNG)-induced genotoxicity. Quantification of bone marrow micronuclei and chromosomal aberrations in male Wistar rats was used to monitor the protective effects of SAC and lycopene. Intragastric administration of MNNG (40 mg/kg) induced a significant increase in the frequency of micronuclei and chromosomal aberrations. Although pretreatment with SAC and lycopene significantly reduced the frequency of MNNG-induced bone marrow micronuclei and chromosomal aberrations, the combination of SAC and lycopene exerted a greater protective effect. These findings indicate that antioxidants such as SAC and lycopene, are effective chemoprotective agents against genotoxicity and carcinogenicity especially when used in combination.

Key words: MNNG, micronuclei, chromosomal aberrations, lycopene, S-allylcysteine

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