Thesis Title Antimicronucleus Formation of Lemongrass Extract in Mice

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Abstract

Antimicronucleus formation induced by cyclophosphamide and mitomycin C of lemongrass extract in female Swiss albino mice had been studied. Cyclophosphamide is premutagen, which requires activation by liver microsomal cytochrome P-450 system to become mutagen. While mitomycin C is direct acting mutagen. Four concentrations of lemongrass extract 3.2, 6.4, 12.8 and 25.6 gm/kg B.W. were used. The experimental mices were devided into 15 groups. There were three control groups, one solvent control group, received only water and two positive control groups, received cyclophosphamide at 240 mg/kg B.W. and mitomycin C at 3 mg/kg B.W. respectively. Those in groups 4-7 obtained only lemongrass extract in each particular concentration while groups 8-11 obtained a particular concentration of lemongrass extract and cyclophosphamide. Mices in groups 12-15 obtained each particular concentration of lemongrass extract and mitomycin C. The

mices were fed with lemongrass extract for 3 days. Twelve hours after the last feeding, cyclophosphamide 240 mg/kg B.W. or mitomycin C 3 mg/kg B.W. was fed to both the control and the experimental groups except for group No.1 which obtained only water. Those mice were killed after 30 hours later. Bone marrow were obtained from both femurs of the experimental mices. Bone morrow smear had been performed and stained with Leishman's stain. Frequency of micronucleated polychromatic erythrocytes were examined. The result revealed that lemongrass extract at the concentrations of 6.4, 12.8 and 25.6 gm/kg B.W. were significantly decrease the amount of micronuclei which induced by cyclophosphamide ($p<0.001$, $p<0.02$ and $p<0.001$ respectively). The extract also significantly decreased micronuclei induced by mitomycin C at the concentration of 6.4, 12.8 and 25.6 gm/kg B.W. ($p<0.001$). This study demonstrated that methanol extract of lemongrass has antimutagenicity against premutagen, cyclophosphamide and direct acting mutagen, mitomycin C. The extract may directly react with mutagen or the extract might be enzymatically changed to active intermediates and react with mutagen or play some role at cytochrome P-450 system and causes reduction of the cyclophosphamide activities. The exact mechanism of these possible explanation required more further studies.