Biological Studies on the Effects of Calixarenes in *Allium cepa* and Balb/c Mouse Cells

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ABSTRACT

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Calixarenes are widely used, so this study was designed to investigate the genotoxicity of different concentrations of two calixarene compounds, (25,27-p-tertButylcalix[4]dithiaoxabenzocrown) and (25,27-p-tertButylcalix[4]trithiaoxabenzocrown) at 24 and 48 h. The first test system is the A. cepa root tip meristem cells, to determine the mitotic indeces and chromosome aberration rate. The second test system is male Balb/c mice as mammalian system to determine micronucleus rate in normochromatic erythrocytes. In the first assay, 0.5% DMSO was used as a negative control, while 50% was used in the micronucleus assay. The results of this study showed that the two compounds significantly induced chromosome aberration and inhibited the mitotic activity in a dose-dependent manner. Also they induced micronucleus formation systematically with increased concentrations. On the other hand, no statistical significant differences in the means of treated groups compared to the untreated group at 24 and 48
h. By comparing the two calixarene compounds with the negative control in the both assays. It was noticed that 2,27-p-tertButylcalix[4]trithiaoxa-benzocrown has more significant effect than the other compound. We concluded that the two calixarene compounds which were studied herein, have significant mutagenic effect on both *A. cepa* root tip meristem cells and male Balb/c mice normochromatic erythrocytes.