Namthip Theangtrong 2007: Micronucleus and Chromosome Aberration Assays in TK6 Cells by Mutagens. Master of Science (Biology), Major Field: Biology, Department of Zoology. Thesis Advisor: Miss Kantimanee Phanwichien, Ph.D. 65 pages.

This study had been carried out with the aim to compare the results of DNA damage in TK6 cells using the micronucleus and chromosome aberration assays induced by various concentrations of mitomycin C (MMC), methylmethanesulfonate (MMS) and etoposide (VP-16) for 4 and 24 hours. The cytokinesis-block micronucleus assay allowed measurement of DNA damage in binucleated cells. For chromosome aberration assay, results were measured in metaphase cells. Then the correlation between the induction of micronucleus and formation of the chromosome aberration was compared.

Results shown that MMC, MMS and VP-16 induced micronucleus and chromosome aberrations in TK6 cells in a dose-dependent manner. Among three of them, micronucleus and chromosome aberration induced by MMC was statistically significant ($p \leq 0.05$) greater than that of MMS and VP-16. It was also noticed that at 4 and 24 hr-treatments, micronucleus frequencies were slightly increased for all three chemicals whereas aberrations of chromosomes were not obviously changed. The major aberrations of chromosomes found were chromatid-gap and chromatid-break.

The present study indicated that TK6 could be the cell line used in genotoxicity test of potential mutagens. The beneficiary of TK6 cells is their ability to grow as cell suspension. Therefore, trypsinisation step for cell detachment is not needed. This can not only shorten the experimental time, but also avoid interfering of experimental results with trypsin.

Student's signature

Thesis Advisor's signature