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SOS chromotest, a rapid and simple method for screening genotoxic potentials.

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The evaluation of genotoxic potentials of newly synthesized molecules is very important in early drug developmental step. Ames test is widely used to assess a mutagenic potential but it requires at least 5 strains and spends long time. Thus, more simple and rapid genotoxicity assay was needed in drug discovery. SOS chromotest is a short-term assay for the identification of *sfiA* gene inducing DNA damage caused by chemical compounds in strain *Escherichia coli* PQ37. It is known that the concordance between SOS chromotest and Ames test is about 80%. We performed SOS chromotest with 6 positive control chemicals used in Ames test. Sodium azide, 9-minoacridine.HCl (9-AA) and 2-aminoanthracene (2-AA) were induced SOS response at more than doses of 50μg/assay in a dose-dependent manner. Methyl methansulfonate (MMS), 4-nitroquinoline-1-oxide (4NQO) and benzo[a]pyrene (B[a]P) induced SOS response at more than doses of 5, 2.5 ng/assay and 1 μg/assay respectively in a dose-dependent manner. The result showed a good correlation with Ames test but the sensitivity are very different each chemicals. This method has some limitations that solubility and colors of chemicals are important point to adopt. Nevertheless SOS chromotest could be a rapid and simple genotoxic screening assay system in early drug discovery.

Keyword : SOS chromotest, Ames test, Genotoxicity, SOS response