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Genotoxicity of Di-2-Ethylhexyl phthalate and Its Metabolites Determined by Chromosome Aberration, Micronuclei, Sister Chromatid Exchange and Single Cell Gel Electrophoresis in Human Lymphocytes in vitro

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DEHP(Di-2-EthylHexyl Phthalate) is one of well known endocrine disruptors which is widely used as additives for the production of PVC. There have been contradictory results on the genotoxicity of DEHP. In order to examine genotoxicity of DEHP and it's two metabolites, EHA(2-EthylHexanoic Acid) and DEP(Di-2-Ethyl Phthalate), chromosomal damage determined by chromosome aberration(CA), sister chromatid exchange(SCE), micronuclei(MN) and DNA damage determined by single cell gel electrophoresis were analysed. No increase of the frequency of CA in human lymphocytes was observed by DEHP and its two metabolites. DEHP increased the frequency of SCE and MN whereas EHA increased the frequency of SCE only. DEP also increased the frequency of SCE but the increase was not statistically significant. DEHP and its two metabolites, EHA and DEP, induced DNA damage.

From above result, combination of several end points should be used for the determination of genotoxicity of DEHP and its two metabolites, EHA and DEP.

Keyword : PVC, Endocrine Disruptor, DEHP, EHA, DEP, CA, SCE, MN, Single Cell Gel Electrophoresis(SCGE)