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Mutagenicity of Alkanediazotates in Chinese Hamster V79 Cells*

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We reported different bacterial mutagenicities between geometrical isomers; (*E*)-potassium alkanediazotates were more mutagenic than (*Z*)-diazotates in three microbial strains. This paper describes mutagenicity and cytotoxicity of (*E*)- and (*Z*)-potassium alkanediazotates in Chinese hamster V79 cells, using ouabain resistance as an indicator.

The cytoxic and mutagenic activity of (*E*)-diazotates decreased with an increase in alkyl chain length; Me > Et > Pr, Bu. On the other hand, (*Z*)-diazotates were less mutagenic and cytotoxic in V79 cells than (*E*)-diazotates. The mutagenicity of (*E*)-diazotates in V79 cells was correlated well to the bacterial mutagenicity and also to the activity to alkylate nicotinamide in an aqueous phosphate buffer. The effects of alkyl group on mutagenicity of (*E*)-diazotates were similar to those of the corresponding *N*-nitroso-*N*-(hydroxymethyl) alkylamines reported, which supports further that α-hydroxy nitrosamines decompose through alkanediazohydroxides to alkylate DNA.

These results suggested the geometrical isomerism may influence the carcinogenicity of *N*-nitroso compounds in mammalian include human being.

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