Title	Biological and chemical properties of alkanediazotates as active species of N-nitroso compounds
Sub Title	
Author	鵜川, さと子(Ukawa, Satoko)
	望月, 正隆(Mochizuki, Masataka)
Publisher	共立薬科大学
Publication year	1990
Jtitle	共立薬科大学研究年報 (The annual report of the Kyoritsu College of
	Pharmacy). No.35 (1990.) ,p.60- 60
JaLC DOI	
Abstract	
Notes	抄録
Genre	Technical Report
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00062898-00000035- 0060

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって 保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the KeiO Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.

Biological and Chemical Properties of Alkanediazotates as Active Species of N-Nitroso Compounds*

Satoko UKAWA and Masataka MOCHIZUKI

鵜川さと子,望月正隆

N-Nitrosodialkylamines are detected in foods or drugs, and considered to be a potent human carcinogens. They are metabolically activated by α -hydroxylation, and α -hydroxy nitrosamines decompose to alkanediazohydroxides, which give the ultimate alkylating species, alkyldiazonium ions. Alkanediazohydroxides exist as a pair of geometric isomers, (E) and (Z). These two isomers may have different properties, and the distribution of geometric isomers seems to have some influence on the carcinogenicity of *N*-nitrosodialkylamines. To study the biological and chemical properties of (E) - and (Z) -alkanediazohydroxides, their isolable potassium salts, (E) - and (Z)-potassium alkanediazotates (alkyl=Me, Et, Pr, Bu) are investigated.

We examined the mutagenicity and chemical reactivity of these isomeric alkanediazotates. The mutagenicity was assayed in three microbial strains, Salmonella typhimurium TA1535, Escherichia coli WP2 and WP2 hcr⁻. As controls, we used a series of N-nitroso-N-alkylureas, which decompose to the alkanediazohydroxides nonenzymatically. The effect of changing alkyl groups on the mutagenic potency was similar in the (E) -and (Z) -isomers, N-nitroso-N-alkylureas and α -hydroxy nitrosamines. As one of the chemical reactivities, the alkylating activity towards nicotinamide was tested in an aqueous solution. When the alkyl chain-length increased, the alkylating activity of diazotates and nitrosoureas decreased; Me>Et>Pr=Bu. These results in mutagenicity and alkylating activity was partly explained by the difference in the stability of compounds used. As we compared the mutagenic potency in Salmonella typhimurium TA1535 and the alkylating activity, the relative mutagenicity of compounds with different alkyl groups was linearly related to the alkylating activity.

In conclusions, alkanediazohydroxides are the active alkylating species of Nnitroso compounds, and the relative mutagenicity is determined by their alkylating activity and chemical stability.

^{*} 本報告は IARC Scientific Publications, No. 105, 433-435 (1990) に発表.