Title	N-pyridoxylidenehydrazine-N', N'-diacetic acid. III. formation of metal chelates in solution
Sub Title	
Author	松島, 美一(Matsushima, Yoshikazu) 永田, 佳子(Nagata, Yoshiko) 渡辺(玉野), 祐子(Watanabe(Tamano), Yuko) 菅田, 節朗(Sugata, Setsuro) 藤江, 忠雄(Fujie, Tadao) 加留部, 善晴(Karube, Yoshiharu) 河野, 彬(Kono, Akira)
Publisher	共立薬科大学
Publication year	1988
Jtitle	共立薬科大学研究年報 (The annual report of the Kyoritsu College of Pharmacy). No.33 (1988.) ,p.144- 144
JaLC DOI	
Abstract	
Notes	抄録
Genre	Technical Report
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00062898-00000033- 0144

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.

N-Pyridoxylidenehydrazine-*N*', *N*'-diacetic Acid. III. Formation of Metal Chelates in Solution*

Yoshikazu Matsushima, Yoshiko Nagata, Yuko Tamano, Setsuro Sugata, Tadao Fujie, Yoshiharu Karube**, and Akira Kono***

> 松島美一, 永田佳子, 渡辺(玉野)祐子, 菅田節朗 藤江忠雄, 加留部善晴**, 河野 彬***

N-Pyridoxylidenehydrazine-N, N-diacetic acid (1) and related compounds were prepared. Compound 1 has two sets of chelating groups in the molecule, *i.e.* iminodiacetic acid (IDA) and pyridoxal (PL) Schiff base moieties, and was assumed to be a good model compound for the studies of hepatobiliary imaging as well as metal chelation.

The results of biodistribution and scintigraphic studies in experimental animals showed that the ^{99m}Tc complexes of 1 and N-(3-hydroxy-4-pyridylmethylene)-hydrazine-N, N'-diacetic acid (2) were good hepatobiliary tracers. But a considerable accumulation of the radioactivity in the liver and kidneys was noted and this was assumed to be due to the presence of polymeric forms of ^{99m}Tc. In an effort to avoid the polymerization of ^{99m}Tc and to improve the yield of the ^{99m}Tc chelate, metal chelate formation of 1 and related hydrazines in solution was studied by means of absorption spectroscopy.

Compound 1 and N-pyridoxylidene-N'-methylhydrazine (3) in methanol formed Cu(II) chelates of the same spectral character, which indicated the chelation of the phenolate oxygen and the hydrazine nitrogen atoms to Cu(II). The compositions of the chelates were 1:1 for 1 and 1:2 for 2, indicating that 1 acts as a tri- or tetradentate ligand. Compound 2 formed a 1:1 Cu(II) chelate similar to that of 1 but N-pyridoxylidene-N', N'-dimethylhydrazine and N-pyridoxylidene-N', N'-diphenylhydrazine did not form chelates under similar conditions. Addition of an equimolar or excess amount of Co(II), Ni(II), Zn(II), Cd(II) or La(III) salts to 1 in methanol gave rise to absorption assignable to the chelate of 1, whereas 2 did not form metal chelates under the same conditions.

We conclude that the IDA moiety in 1 and 2 coordinated metal ions and enhanced the stability of the metal chelates. However, the stability constants of 1 with Cu(II) and other di- and trivalent metals were not as high as we had expected.

^{*} 本報告は Chem. Pharm. Bull., 35, 4695-4699 (1987) に発表.

^{**} 福岡大学薬学部

^{***} 九州がんセンター