

キャピラリーガスクロマトグラフィーによるイプロニアジド及び
イソプロピルヒドラジンの重水素標識体分離と
同位体希釈分析への応用

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**Isotopic Fractionation of Iproniazid and Isopropylhydrazine from Their
Deuterated Analogues and Application for Isotope Dilution
Analysis by Capillary Gas Chromatography**

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ABSTRACT Quantitative analyses of iproniazid (IPN) and deuterated analogue (IPN- d_6) and of isopropylhydrazine (IP-Hy) and deuterated analogue (IP-Hy- d_6) after conversion to pyrazole derivatives (IDP) were carried out by gas chromatography. The complete separation of protio- from deuterio-forms of IPN and IDP was achieved by using a fused-silica CBP1 capillary column (50m). The resolution coefficients between two isotopic molecules were 1.10 for IPN and 1.62 for IDP, respectively.

The present isotopic fractionation procedure was applied to the isotope dilution analyses of IPN and IP-Hy. By the measurement of the samples prepared by the addition of known amounts of IPN and IPN- d_6 to the control plasma and urine of rat, a linear relationship between peak height ratio and added amount ratio was observed. The correlation coefficients obtained by regression analysis were 0.9990 for the plasma and 0.9999 for the urine, respectively. In the case of IP-Hy, a linear relationship was also observed, and the correlation coefficients were 0.9998 for the plasma and 0.9997 for the urine, respectively. The present method was compared with the gas chromatography-mass spectrometry method in urinary samples from rats treated with IPN. The results of these parallel determinations were comparable.

抄録 イプロニアジド (IPN) 及びその代謝物イソプロピルヒドラジン (IP-Hy) について、それぞれの重水素標識体とのガスクロマトグラフィーによる分離を試みた。化学結合形の溶融石英キャピラリーカラム (50m) を用いることにより、どちらの場合も軽水素体と重水素体は完全に分離され、分離係数はIPNで1.10, IP-Hyの誘導体では1.62であった。本方法を同位体希釈分析に応用して、尿中並びに血中のIPN及びIP-Hy濃度を測定したところ、IPN, IP-Hyともにピーク高比と添加量比の間に極めて高い相関が認められた。本方式とガスクロマト質量分析法を比較するため、同一試料をそれぞれの方法で測定した結果、定量値はよい一致を示した。

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