

## <sup>1</sup>H NMR宽峰效应及其在生物碱结构测定中的应用

贺湘,林文翰,徐任生

中国科学院上海药物研究所

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**摘要** 在生物碱核磁共振谱测试中,当滴加微量酸时,发现分子内与氮孤电子对空间相近的质子峰形变宽,变钝。若酸量连续增加,则这些信号伴有顺磁位移。当酸量增加至生物碱摩尔浓度的六分之一时,该现象最明显。本文对宽峰效应现象作进一步探讨。选择几种生物碱为研究对象,证明这一现象有一定普遍意义,可在测定生物碱的立体构型中应用,并探讨了诱导这一效应的原因。

**关键词** [生物碱](#) [质子磁共振谱法](#) [结构分析](#) [化学位移](#) [峰形](#) [青风藤](#) [百部碱](#)

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## The <sup>1</sup>H NMR line broadening effect and its applications in the determination of some alkaloid

HE XIANG,LIN WENHAN,XU RENSHENG

**Abstract** It has been reported that addition of trace quantity of DCI to NMR solns. of alkaloids resulted in extensive broadening signal of protons spatially closed to the nitrogen lone pair. This phenomenon was named <sup>1</sup>H NMR line broadening effect. Further studies on this effect using several alkaloids, such as stemonine, protostemonine, stemonidine, parvistemonine, stemotinine, isostemotinine and acetylsinoacutine was reported. The effect was further proved and used in the determination of configurations for some alkaloids. The structure of stemonidine was revised. It was suggested that the line broadening effect appeared when the equilibrium between free base and salt of an alkaloid is shifted toward the free base side. The appropriate amount of acid for the line broadening effect was one sixth mole of the alkaloid. The effect was caused by induction and spatial effects of alkaloids.

**Key words** [ALKALOID](#) [PROTON MAGNETIC RESONANCE SPECTROMETRY](#) [STRUCTURAL ANALYSIS](#) [CHEMICAL SHIFT](#) [SHAPE OF PEAKS](#) [SINOMENIUM ACUTUM](#) [STEMONINE](#)

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