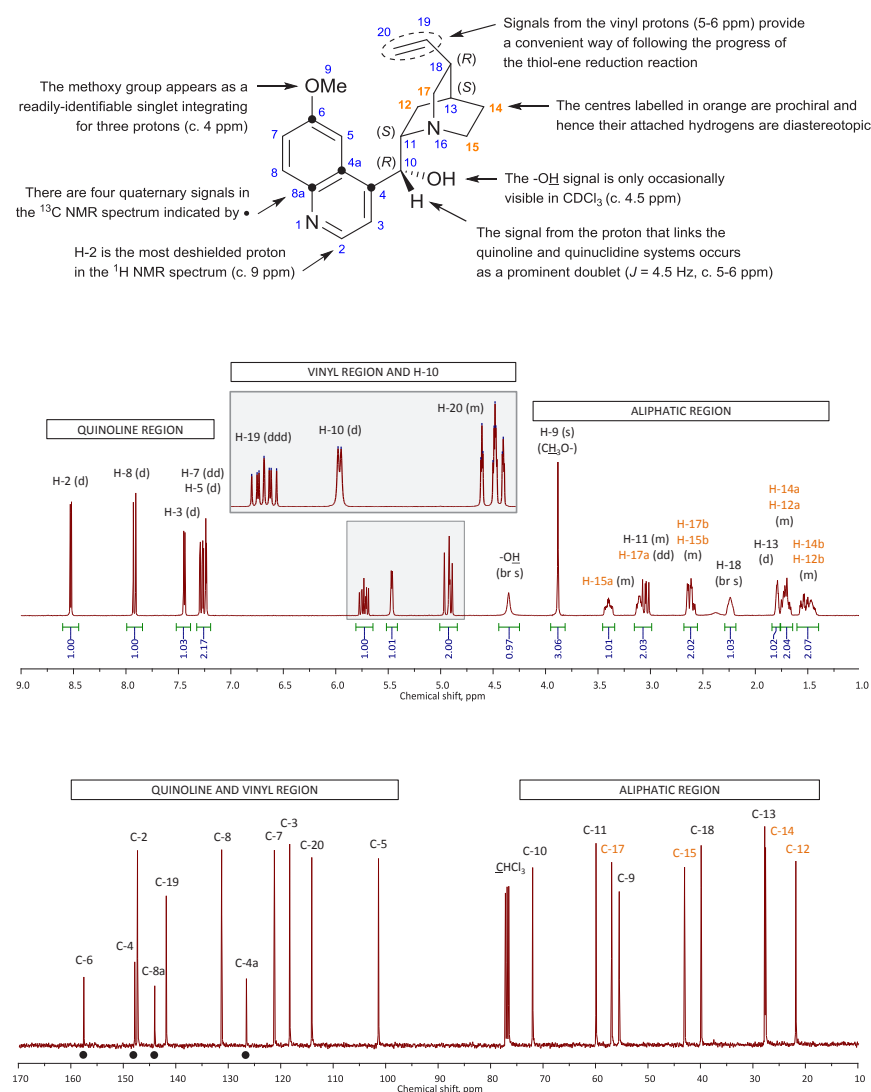


NMR WARS

35

ART



Quinine

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Field strength: 400 MHz, 100 MHz

Why is this your favorite spectrum?

Quinine was first isolated from the bark of the Cinchona tree hundreds of years ago. Possessing a host of therapeutic properties, it was the first effective treatment of malaria and has been described as “a drug that has probably benefited more than any other in the combat of infectious disease.” In 1853, Louis Pasteur exploited the unique stereochemical properties of this molecule as an agent for chiral resolution. Today, quinine is commonly found as a chiral auxiliary in catalytic asymmetric synthesis. Despite the intense interest in this alkaloid, the first stereoselective total synthesis of quinine was only accomplished in 2001 – for which NMR was an invaluable characterisation tool.

Comments: This complete, annotated assignment of the ¹H and ¹³C NMR spectra of quinine hint at the underlying complexity of this beguiling molecule. Diastereotopic proton signals and their corresponding carbon atoms are labelled in orange. I still remember the day I finally assigned all the signals in these NMR spectra – this was the first step in many years of work on quinine. Given the immense value of quinine to science and society, these spectra are, for me, a work of art!