

C8953
NMR structural analysis - seminar
2D NMR spectra, COSY

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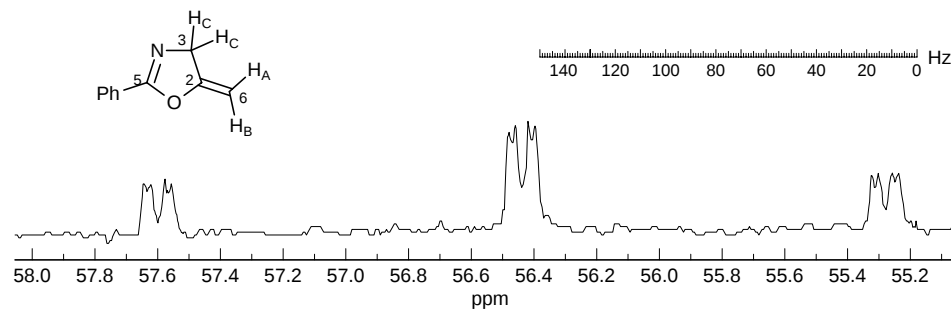
March 20, 2024

^1H - ^{13}C coupled system

15

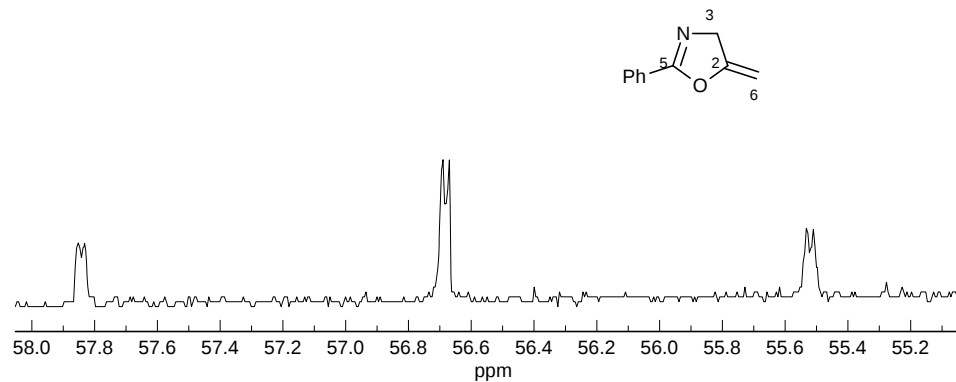
Problem R-12M. You are asked to interpret the coupled ^{13}C NMR spectrum of an oxazoline.

(a) Which carbon are we looking at? _____



(b) Analyze the spectrum, report all coupling constants in the standard format ($^nJ_{\text{X-Y}} = 00.0$ Hz).

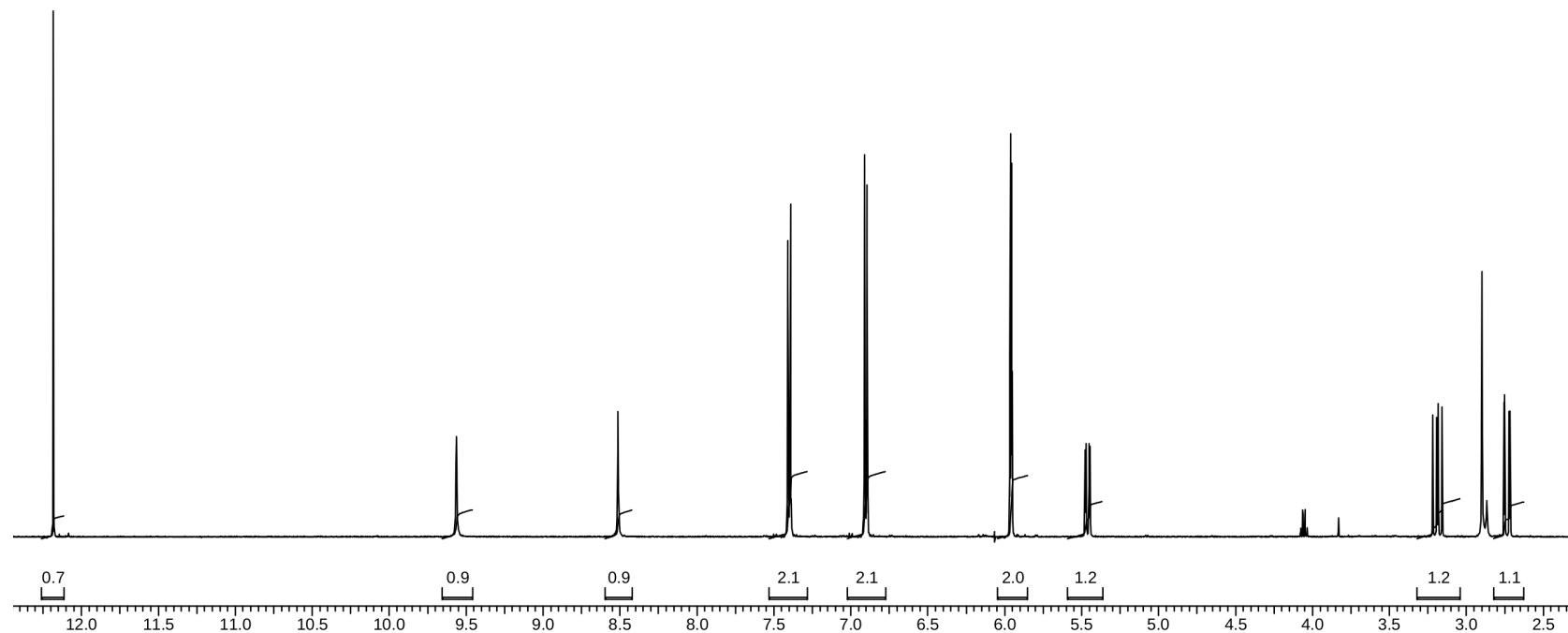
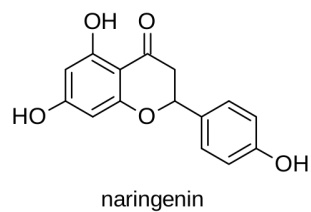
(c) The spectrum below is of the same compound with one H replaced by D. Where is the deuterium? Place it on the structure, and explain briefly.



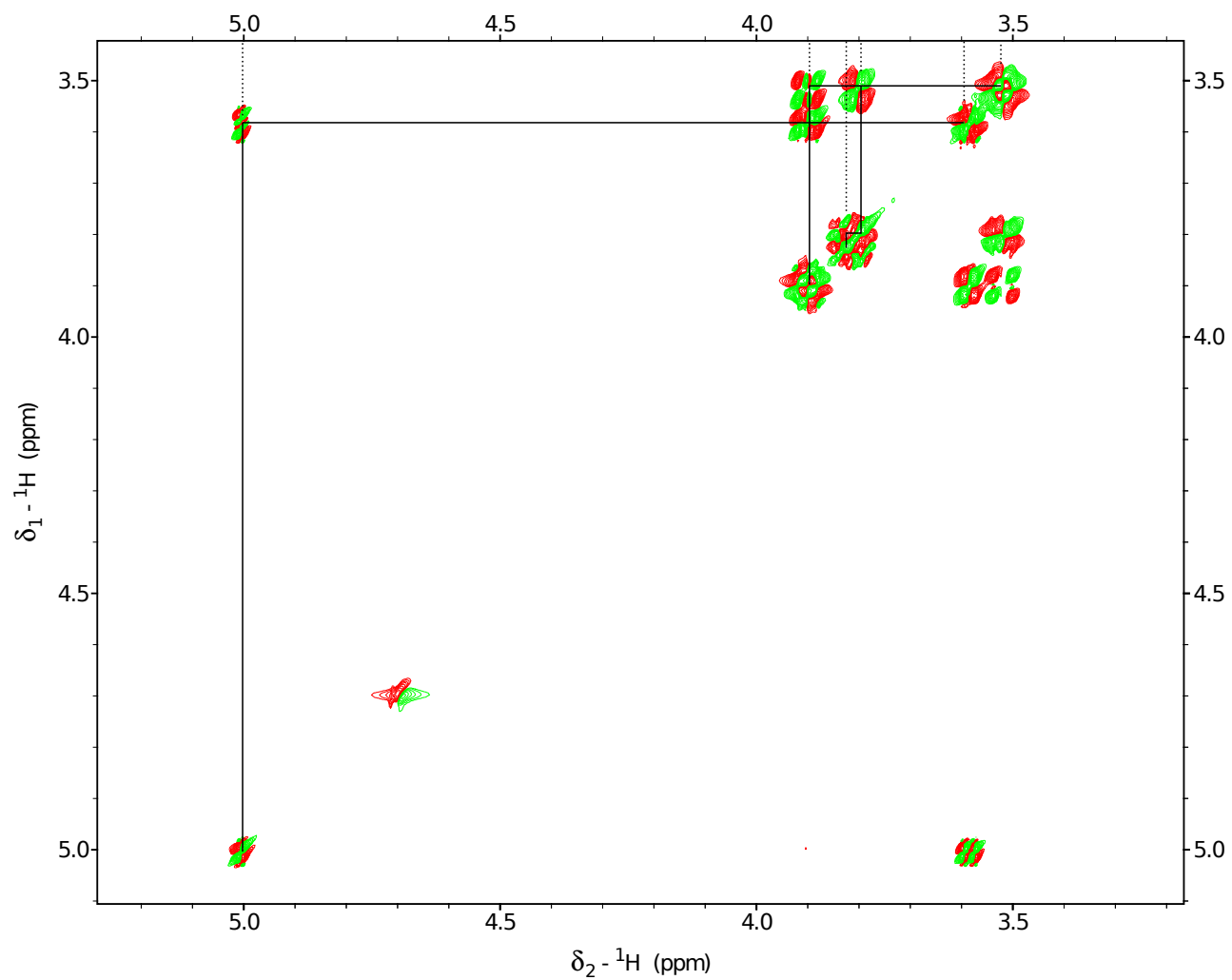
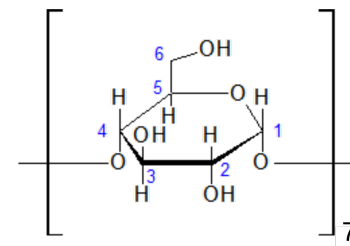
(d) What is the proton NMR frequency of the spectrometer they were using? _____



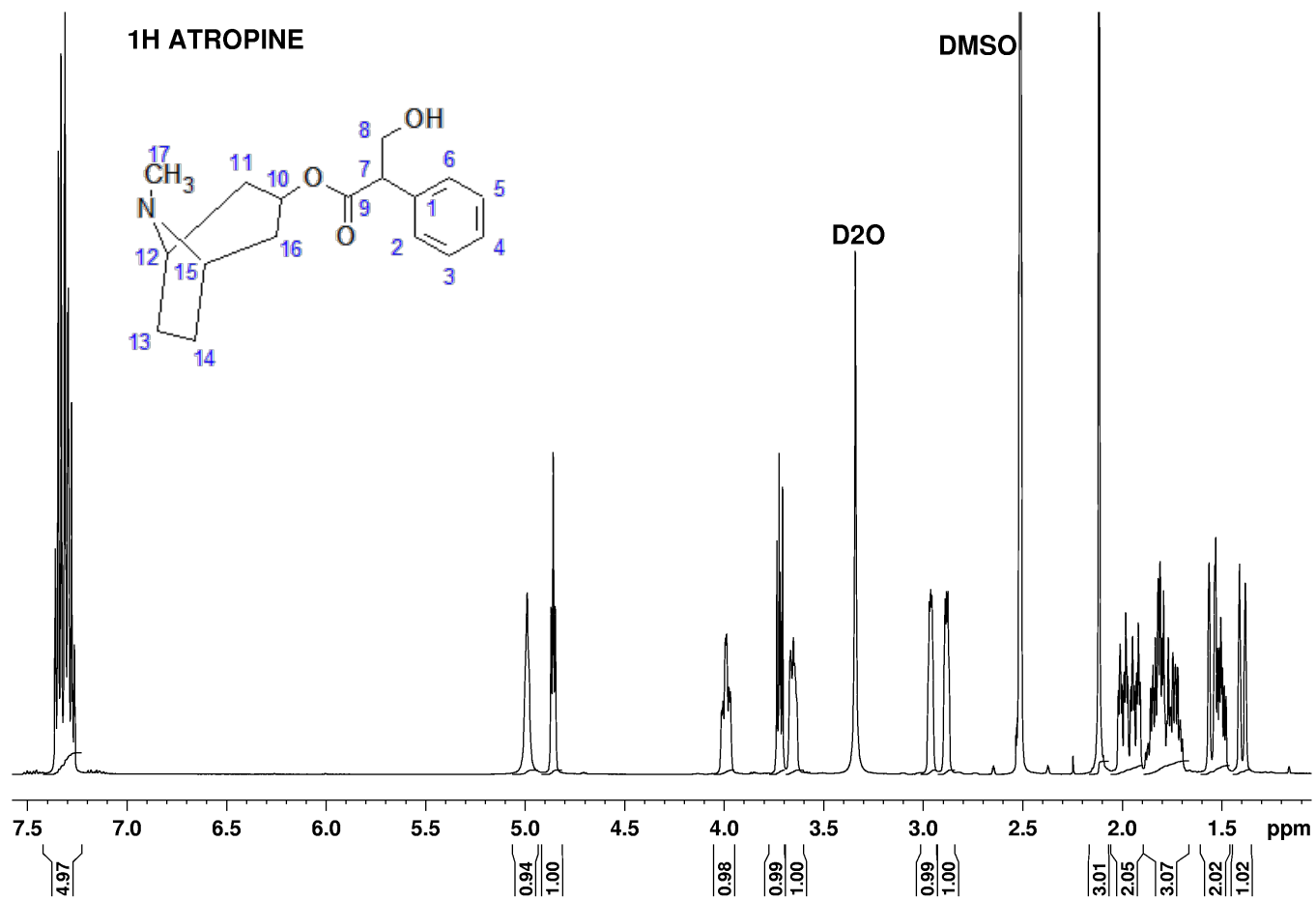
^1H NMR spectrum of naringenin in d_6 -acetone



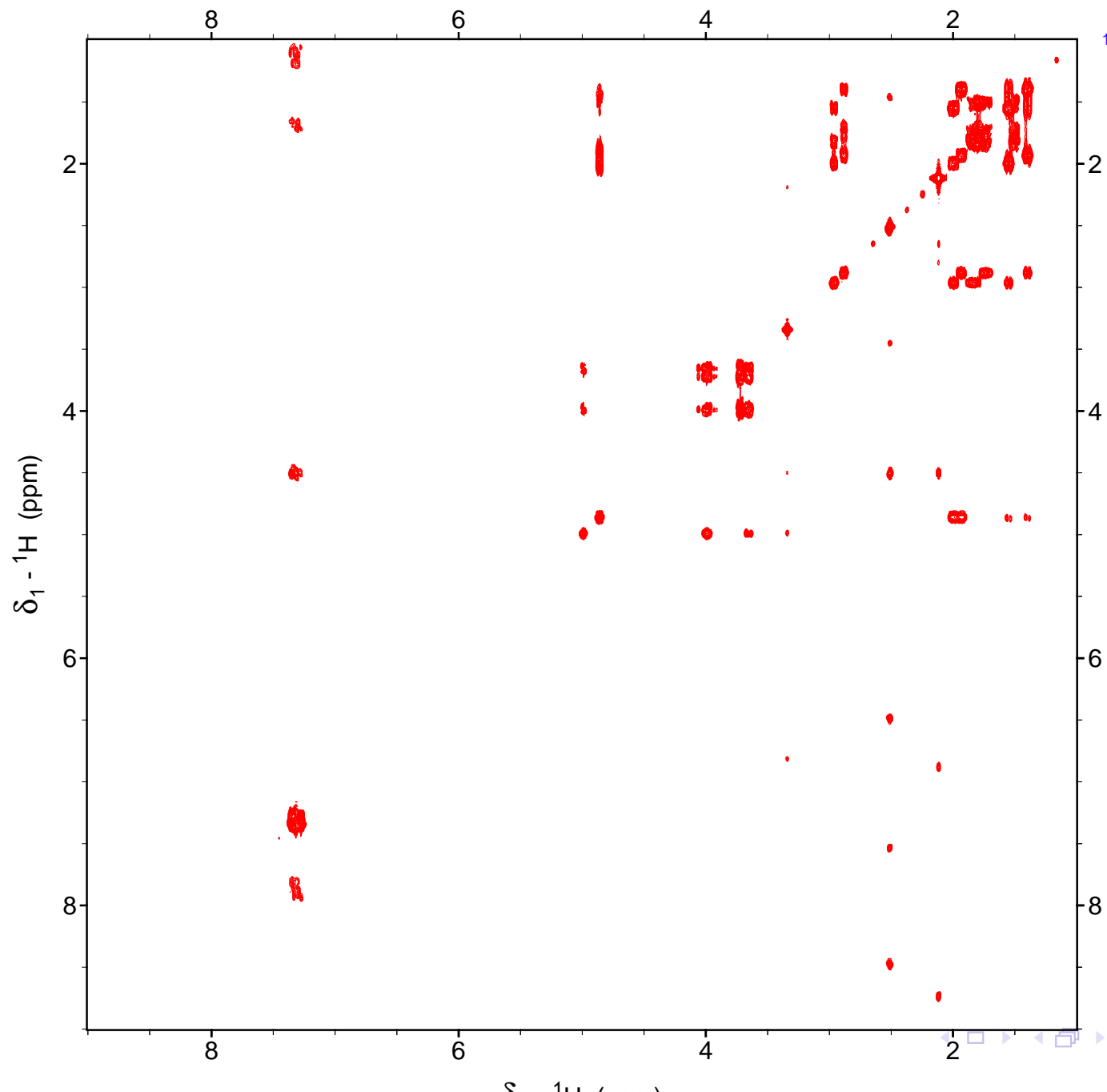
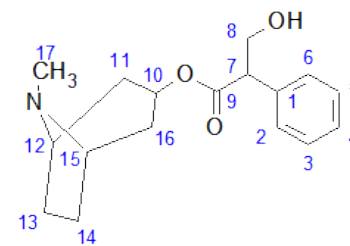
COSY : β -cyclodextrine



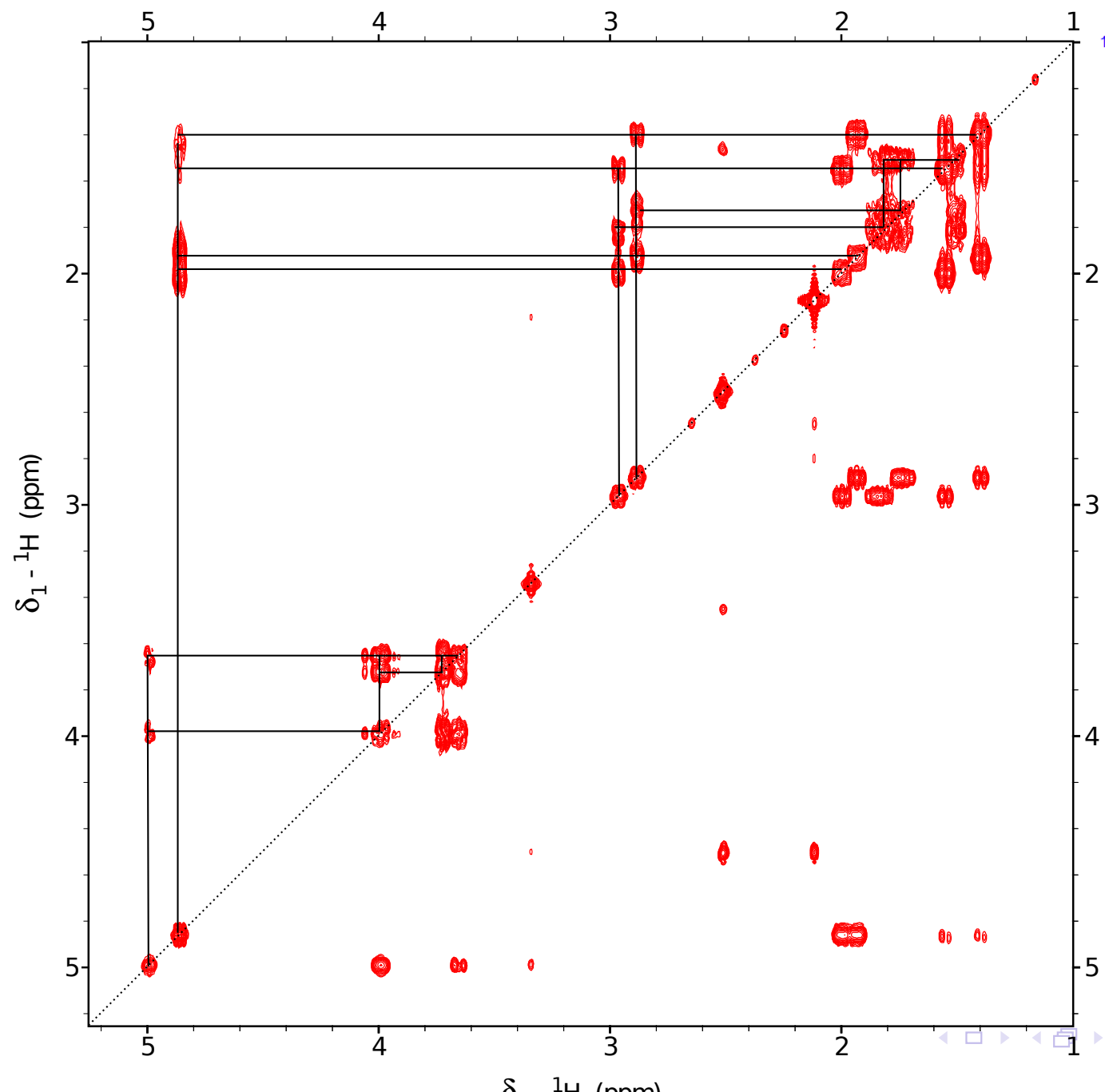
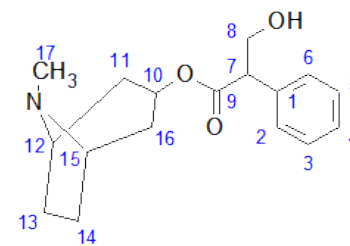
1D ^1H of Atropine in DMSO



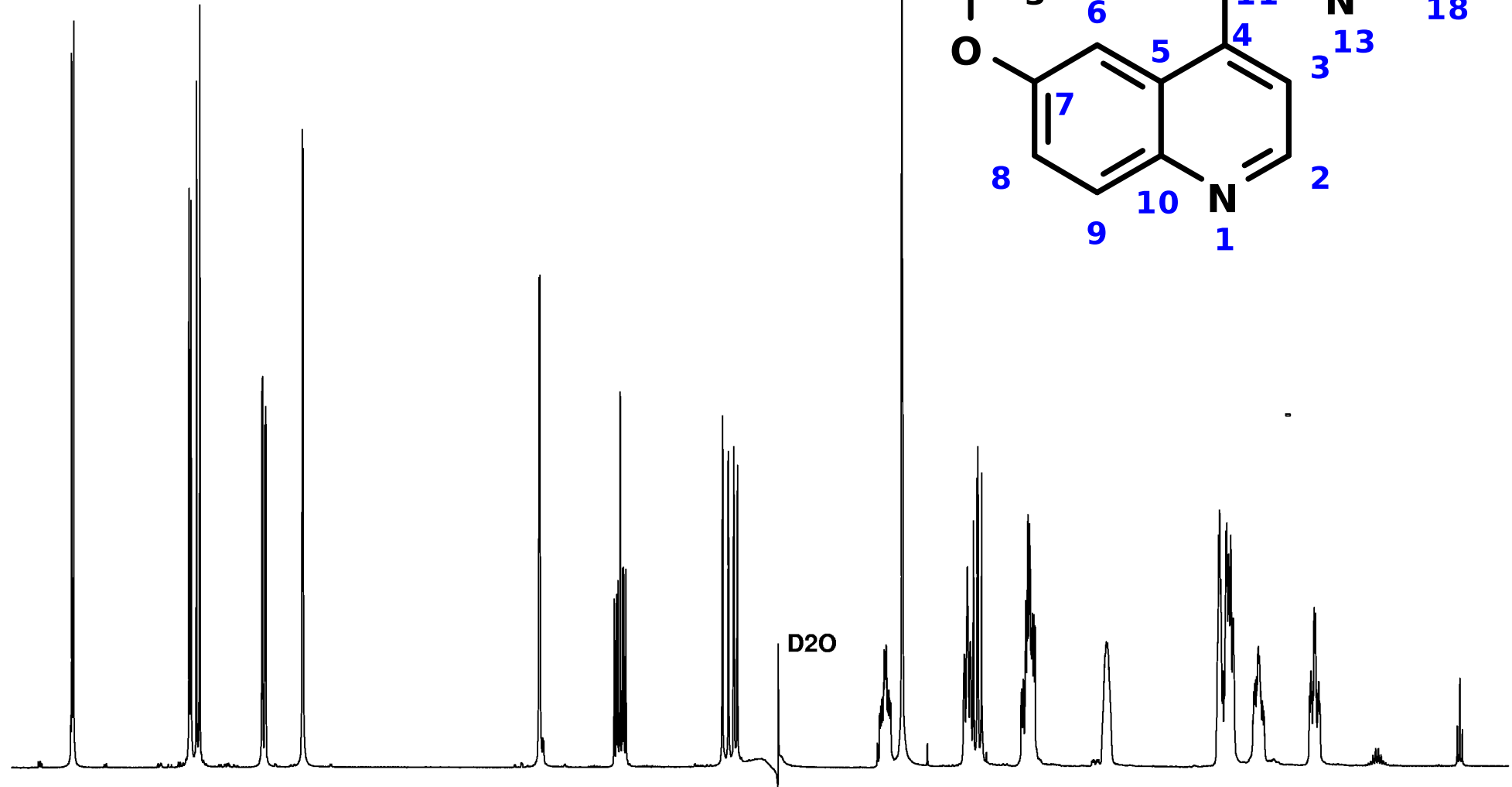
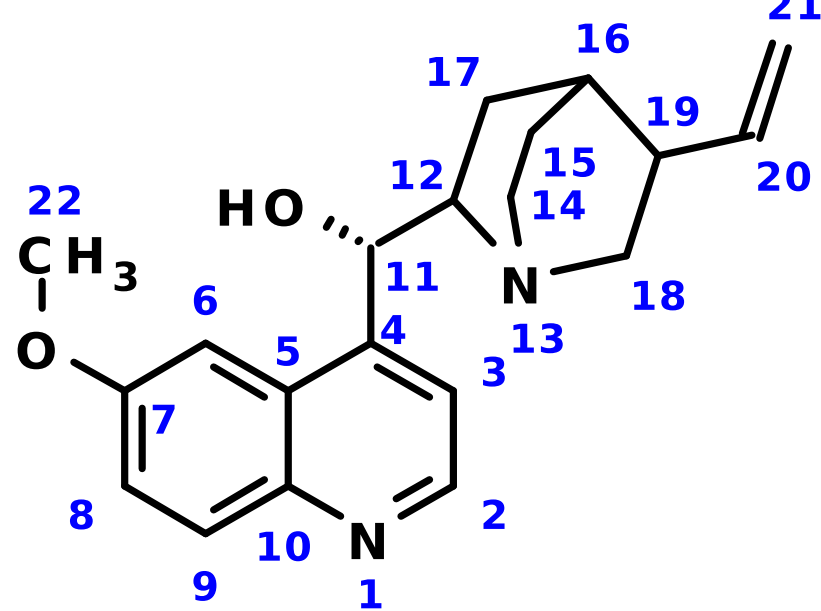
COSY : Atropine



COSY : Atropine

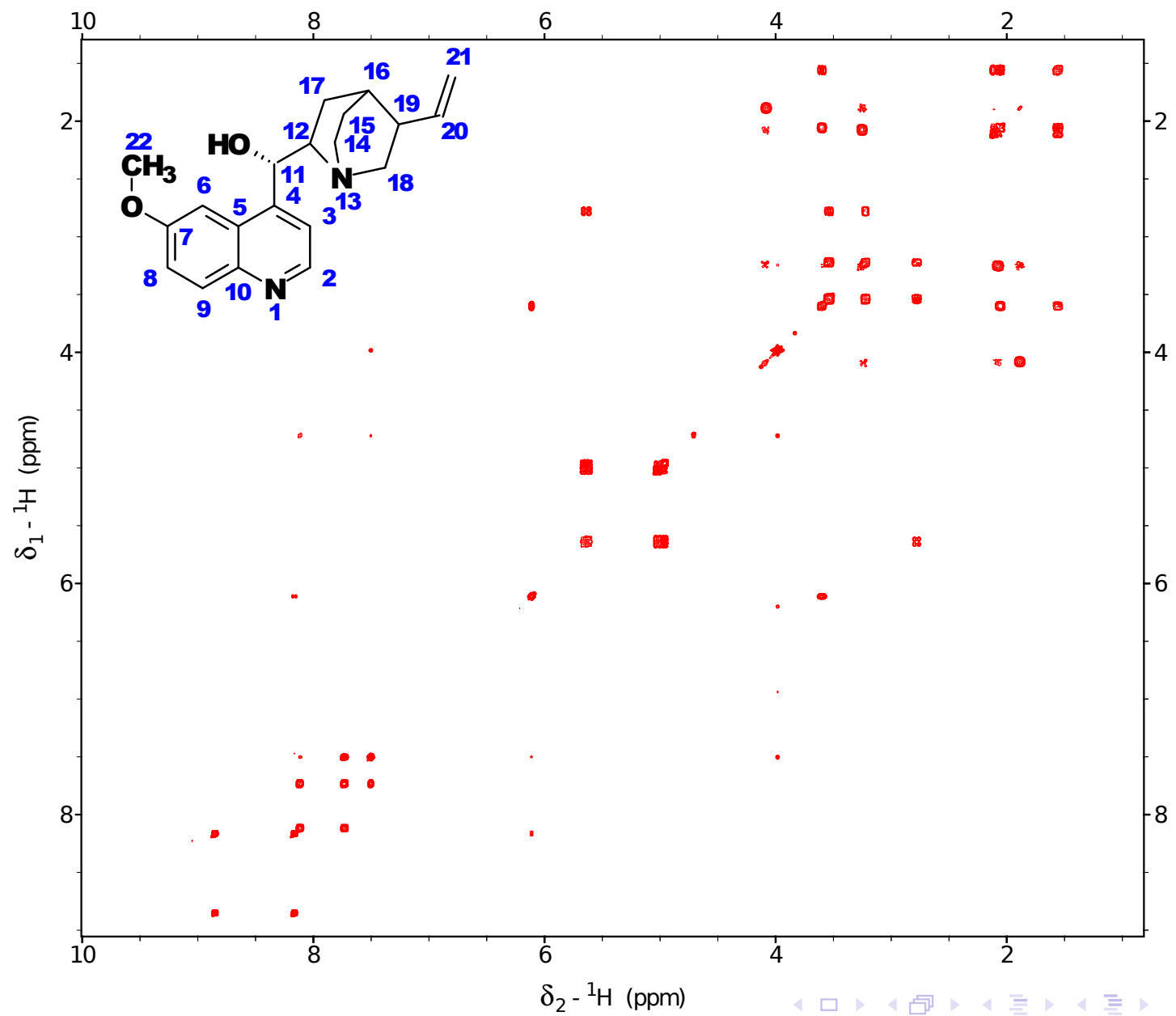


1H QUININE

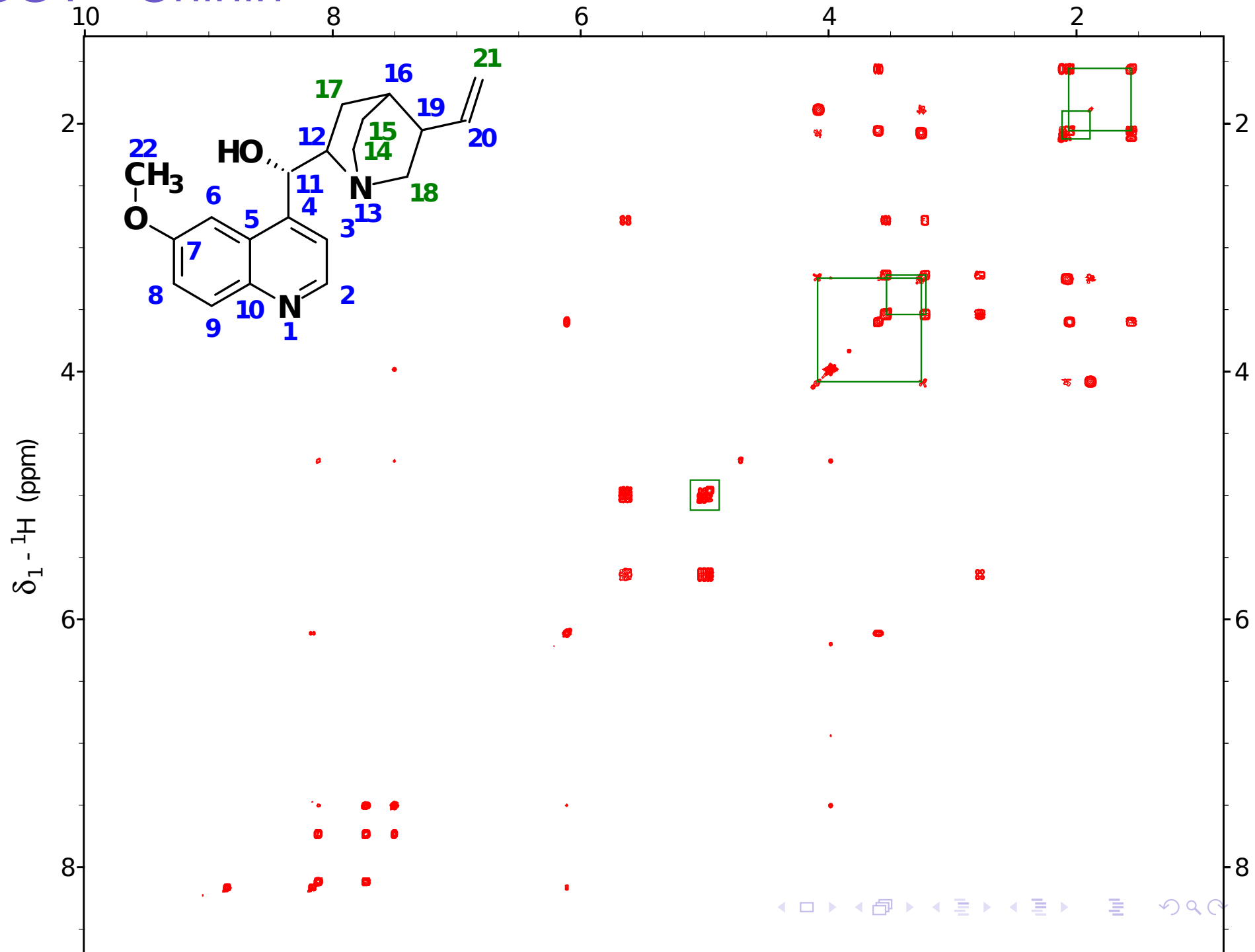


9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm

COSY - Chinin



COSY - Chinin



Next topic

^1H - ^1H through space correlations (NOESY, ROESY)