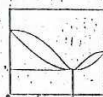


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# RESONANCE RAMAN SPECTRA OF SOME RIFAMYCINS

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Rifamycins form an important group of antibiotics whose structures are characterized by a mainly aliphatic ansa-bridge connecting two opposite positions of a substituted naphthohydroquinone (or naphthoquinone) chromophore. These compounds have been thoroughly studied by means of several physical methods. However Raman spectroscopy has not been yet employed although it is a powerful tool especially under resonance conditions. We therefore decided to investigate the resonance Raman spectra of Rifamycin SV, its Na salt and Rifampicin, under various physical conditions, in order to characterize the vibrational modes of both the ground and the excited electronic states of the naphthohydroquinone chromophore. The detailed analysis of the Raman bands and their excitation profiles allowed us to establish that the modes due to C=O and C-O-H groups are remarkably resonance Raman active. These groups are strongly involved in the  $\pi \rightarrow \pi^*$  transition and their modes are responsible for the vibrational structure of the excited electronic state. A single electronic transition occurs in the visible region of the solution spectra. The Raman excitation profiles show that the band intensities depend more on the 0-1 vibronic transitions than on the 0-0 purely electronic transition. The results are explained on the basis of the very recent vibronic theories (1) giving the elements of the scattering tensor in terms of a multimode approach.

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(1) P.M. Champion and A.C. Albrecht Chem. Phys. Letters 82 (1981) 410.