H-BONDING NETWORKS IN SUGAR ALCOHOLS: IDENTIFYING GLUCOPHORES?

E. R. ALONSO, SANTIAGO MATA, CARLOS CABEZAS, ISABEL PEÑA, JOSÉ L. ALONSO, Grupo de Espectroscopia Molecular, Lab. de Espectroscopia y Bioespectroscopia, Unidad Asociada CSIC, Universidad de Valladolid, Valladolid, Spain.

The conformational behaviour of sorbitol and dulcitol has been investigated for the first time using a combination of chirped pulse Fourier transform microwave spectroscopy (CP-FTMW) coupled with a laser ablation (LA) source. The observed conformers have been found to be overstabilised by cooperative networks of intramolecular hydrogen bonds between vicinal hydroxyl groups stretching throughout the whole molecule. A common structural signature - involving hydroxyl groups in the H-bond - has been characterized and ascribed to the glucophore’s AH and B sites in accordance with Shallenberger’s old proposal.\textsuperscript{a,b}

\textsuperscript{a}R. S. Shallenberger, T. E. Acree, \textit{Nature}, 1967, 216, 480-482