JET COOLED ROTATIONAL SPECTRA OF LASER ABLATED URACIL AND THYMINE

M. ISABEL PENA, VANESA VAQUERO, JUAN C. LÓPEZ, and JOSÉ L. ALONSO, *Grupo de Espectroscopía Molecular (GEM), Departamento de Química Física y Química Inorgánica, Facultad de Ciencias, Universidad de Valladolid, E-47005 Valladolid, Spain*.

The rotational spectra of the nitrogen bases uracil[a] (m.p. 335 °C) and thymine[b] (m.p. 316 °C) have been observed in the 6-18 GHz frequency range by using a Laser-Ablation Molecular Beam Fourier Transform Microwave Spectrometer (LA-MB-FTMW).[c] The nuclear quadrupole coupling hyperfine structure corresponding to the presence of two ^{14}N atoms has been completely resolved for both molecular systems. The rotational spectrum of all uracil ^{13}C and ^{15}N monosubstituted isotopomers in their natural abundance are being observed. Following the characterization of these isotopomers, the uracil structure in gas phase will be obtained.

[a] R. D. Brown, P. D. Godfrey, D. McNaughton and A. Pierlot, *J. Am. Chem. Soc.*, **110**, 2329 (1988)
[b] R. D. Brown, P. D. Godfrey, D. McNaughton and A. Pierlot, *J. Chem. Soc. Chem. Commun.*, 37, (1989)
[c] A. Lesarri, S. Mata, J. C. López and J. L. Alonso, *Rev. Sci. Instrum.*, **74**, 4799 (2003).