FINGERPRINTS OF NITROGENOUS BASES BY LASER ABLATION FOURIER TRANSFORM MICROWAVE SPECTROSCOPY

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The rotational spectrum of the nitrogenous base cytosine (m.p. >300 °C) has been observed in the 5-18 GHz frequency range using a Laser-Ablation Molecular Beam Fourier Transform Microwave Spectrometer (LA-MB-FTMW)[a]. Four tautomeric species have been detected in the supersonic expansion. The unambiguous assignment of the spectra to the various tautomer structures is based on the markedly different values of the quadrupole coupling constants of the three ^{14}N nuclei, which act as fingerprints for the identification of the various species. The relative energies of the various species are estimated from the relative intensities of the spectra. Preliminary results on adenine (m.p.>360 °C) and guanine (m.p. >300 °C) are also presented.

[a] A. Lesarri, S. Mata, J. C. López, J. L. Alonso, *Rev. Sci. Instrum.* 74 (2003) 4799.