DETECTION OF THE TRIPLET HC_4N RADICAL BY FT MICROWAVE SPECTROSCOPY

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In contrast with that cyanopolyynes have been detected in laboratory up to $HC_{17}N$ and in interstellar space up to $HC_{11}N$, our knowledge on the linear form of HC_nN with even n number has been limited to only the HCCN radical by laboratory detection and interstellar observation. We report here a detection of the HC_4N radical in its triplet electronic ground state in the discharge of HC_3N (0.2%) diluted in Ar. A Fourier-transform microwave spectrometer equipped with a pulsed-discharge nozzle[a] has been used. The combination of discharge mixtures, the rotational structure, and the fine and hyperfine structure that is similar to the HCCN radical all indicated that the carrier of the spectrum is HC_4N with linear or quasilinear structure. Progress on the characterization of this new radical will be presented.

[a] Y. Ohshima and Y. Endo, *J. Mol. Spectrosc.* **153** 627(1992).