LABORATORY DETECTION OF HC_6N

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A linear triplet isomer of HC_6N has been detected in a supersonic molecular beam by Fourier transform microwave spectroscopy. A total of 85 hyperfine components from six rotational transitions between 8 and 18 GHz were measured to an uncertainty of 5 kHz; a similar set of transitions were detected for the ^{15}N isotopic species, produced using an isotopically enriched precursor gas sample. The spectroscopic constants for both species, including the fine and hyperfine coupling constants, were determined to very high accuracy, and these allow calculation of the entire radio spectrum to a fraction of 1 km s^{-1} in equivalent radial velocity. Triplet HC_6N is a highly polar, low-lying isomer; measurements show it to be about ten times more abundant than a ring-chain isomer recently detected with the same spectrometer, which may indicate that it is the lower-energy isomer, contrary to previous calculations.