MICROWAVE SPECTROSCOPY OF TWO ISOELECTRONIC RADICALS:
2,4,6-HEPTATRIYNYL, H_2C-C≡C-C≡C-C≡C-H, AND 2,4-HEXADIYNYLNITRILE, H_2C-C≡C-C≡C-C≡N

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The isoelectronic pair of radicals 2,4,6-heptatriynyl, H_2C-C≡C-C≡C-C≡C-H, and 2,4-hexadiynylnitrile, H_2C-C≡C-C≡C-C≡N, were produced in a pulsed discharge supersonic jet and detected by Fourier transform microwave spectroscopy. Seven rotational transitions of the heptatriynyl radical from N' = 4 to 10 and six rotational transitions of the hexadiynylnitrile radical from N' = 4 to 9 in the K_a = 0 ladder were observed between 6 and 17 GHz. For each species, over 50 hyperfine components were measured and assigned with an uncertainty of 5 kHz. Precise rotational, centrifugal distortion, spin-rotation, and various hyperfine coupling constants were determined for both H_2C_7H and H_2C_6N.