Detections of Long Carbon Chains CH_3CCCCH, C_6H, *linear*-C_6H_2 and C_7H in the Low-Mass Star Forming Region L1527

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A richness of long carbon chains in the warm carbon chain chemistry (WCCC) region has been searched in the 42-44 GHz region by using Green Bank 100 m telescope. Long carbon chains C_7H, C_6H, CH_3C_4H, and *linear*-C_6H_2 and cyclic species C_3H and C_3H_2O have been detected in the low-mass star forming region L1527, performing the WCCC. The detection of C_7H is for the first time in molecular clouds. While the abundance ratios of carbon chains in between L1527 and the starless dark cloud Taurus Molecular Cloud-1 Cyanopolyyne Peak (TMC-1 CP) have a trend of decrease by extension of carbon-chain length, column densities of CH_3C_4H and C_6H are on the trend. However, the column densities of *linear*-C_6H_2, and C_7H are as abundant as those of TMC-1 CP in spite of long carbon chain, i.e., they are not on the trend. The abundances of *linear*-C_6H_2 and C_7H show that L1527 is rich for long carbon chains as well as TMC-1 CP.

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