A SEARCH FOR INTERSTELLAR CARBON-CHAIN ALCOHOL HC_4OH IN THE STAR FORMING REGION L1527

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We have made a sensitive search for the rotational transitions of carbon-chain alcohol HC_4OH with the frequency ragne from 21.2 to 46.7 GHz in the star forming region L1527 in Taurus with rich carbon-chain chemistry. The incentive of this observation was a laboratory detection of HC_4OH by the microwave spectroscopy. Despite achieving an rms of several mK in antenna temperature by the 45m telescope at Nobeyama Radio Observatory, the searche for HC_4OH was negative, leading to a 5 sigma upper limit corresponding to the column density of 4×10^{12} cm^{-2} based on the excitation temperature of 12.3 K. The upper limit indicates that the [HC_4-OH]/[HC_4-CN] ratio is less than 1.0. The ratio suggests that the cyanide species with carbon-chain structure is dominant in comparison with the hydroxyl one in L1527, which can be the opposite case of saturated compounds, $e.g.$ CH_3OH and CH_3CN, in hot cores and dark clouds.