

P16a **Spectral Line Survey of RCrA IRS7B in the 350 GHz band with ASTE**

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Recently, it is established that the chemical composition in the low-mass protostars varies from source to source. Two extreme cases are the hot corino (Ceccarelli et al. 2000) where various complex organic molecules are abundant, and the WCCC (Warm Carbon-Chain Chemistry) source (Sakai et al. 2008) where carbon-chain molecules are abundant. Understanding their origin is an important target for astrochemistry.

We have been conducting a spectral line survey covering from the mm to sub-mm wave region toward a low mass class 0 protostar in the Corona Australis (RCrA IRS7B), which have been recognized as a hot corino candidate. The surveys were carried out with ASTE and APEX. The survey with ASTE covers the 32 GHz region from 332 GHz to 364 GHz. We identified 16 molecular species and 16 isotopomers such as CO, CS, CN, NO, CCH, $c\text{-C}_3\text{H}_2$, HCO^+ , H_2CO , CH_3OH and so on. We found following features: 1) Complex organic molecules and long carbon-chain molecules were not detected in the 350 GHz band: 2) The rotation temperature of CH_3OH is ~ 16 K which is much lower than that in typical hot corino IRAS 16293-2422 (~ 85 K): 3) The deuterium fractionation ratio for CCH and H_2CO are obtained to be 0.06-0.01, which are an order of magnitude lower than that in the hot corino, 4) $c\text{-C}_3\text{H}_2$ whose production pathway is related to carbon-chain molecules, is abundant and its rotation temperature is similar to that of CH_3OH . These results suggest that the RCrA IRS7B is a borderline source between the hot corinos and the WCCC sources.