MILLIMETRE-WAVE SPECTRUM OF ANTI-$^{13}C_1$ AND $^{13}C_2$ ISOTOPOLOGUES OF ETHANOL AND APPLICATIONS TO RADIO ASTRONOMY

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The rotational spectra of the two monosubstituted $^{13}C$ isotopologues of the anti conformer of ethanol have been measured between 80 and 800 GHz using three different spectrometers at the Cologne Laboratory Astrophysics group. The data set was constrained for fitting with a standard Watson-S reduction Hamiltonian by rejecting transitions from high-lying states showing significant perturbation with the gauche states and by averaging some small methyl torsional splits.
This treatment is compatible with the needs for a first astrophysical search in several hot cores where the parent molecule has been already identified[abc]. Observations we carried out towards G34.3+0.15 to specifically search for $^{13}C$-ethanol with the IRAM-30m single-dish telescope are presently being analyzed. I will present the preliminary results as well as upper limits obtained from spectral surveys of other hot cores. Further observations with higher-sensitivity interferometers are envisaged.

[a]Zuckerman B, Turner BE, Johnson DR, Clark FO, Lovas FJ, Fourikis N, et al. *Astrophys J* 1975; 196: L99−L102.
[b]Millar TJ, Olofsson H, Hjalmarson A, Brown PD. *Astron. Astrophys* 1988; 205: L5−7.
[c]Millar TJ, MacDonald GH, Habing RJ *Mon Not R Astron Soc* 1995; 273: 25-9.