SUBMILLIMETER WAVE SPECTROSCOPY AND ISM SEARCH FOR A CHIRAL MOLECULE : 2-AMINOPROPANENITRILE

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The detection of chiral compounds in the interstellar medium is a great challenge andcould tell us the connection between the chemistry of the ISM and the origin of life on the primitive Earth. Chiral C-3 sugar, α-aminonitriles and cyanohydrins or the corresponding chloro-derivatives are intuitively the simplest chiral candidates consistent with the nature of the heteroatoms observed in the ISM. The aminoacetonitrile being observed in Sgr B2(N)[a] but not the simplest cyanohydrins and chloacetonitrile, our study was devoted to the 2-aminopropanenitrile, the methyl derivative of aminoacetonitrile and the precursor of alanine (an amino acid) by hydrolysis.
The measurements were made in Oslo and in Lille from 7 to 660 GHz. More than 2000 lines were assigned.
The search in Sgr B2(N) has been unsuccessful so far. The upper limit currently derived on the column density is comparable to the column density of aminoacetonitrile.
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[a] A. Belloche, K. M. Menten, C. Comito, et al., *Astron. Astrophys.* **482**, 179-196 (2008)