SEARCHING FOR INTERSTELLAR GLYCOLAMIDE: A COMPREHENSIVE ROTATIONAL STUDY AND A RADIOASTRONOMICAL SEARCH

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Herein we present a laboratory rotational study of glycolamide ($OHCH_2CONH_2$) and an astronomical search for this molecule, a glycine isomer, and also one of the simplest peptide molecules that could reasonably be observed in the interstellar medium (ISM). Using a battery of state of the art rotational spectroscopic techniques in the frequency and time domain, [a] around 1500 transitions have been newly assigned. Based on the reliable frequency predictions, we report an accompanying radioastronomical search for glycolamide in the well known high-mass star forming region Sgr B2(N) using the ALMA imaging spectral line survey ReMoCA. [b] Glycolamide was not detected in this source, and we report corresponding upper limits to the column density, showing that glycolamide is at least around 6 times less abundant than acetamide.[c]

[a] L. Kolesniková, E. R. Alonso, S. Mata, and J. L. Alonso, APJS, 229 (2017), 26-34 and references therein.

[b] A. Belloche, R. T. Garrod, H. S. P. Müller, K. M. Menten, I. Medvedev, J. Thomas, Z. Kisiel, A&A, 628 (2019), A10.

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