

SEARCHES FOR β -ALANINE AND PYRIMIDINE TOWARD ORION-KL

R. FUJIMORI, K. KAWAGUCHI, *Faculty of Science, Okayama University, Okayama 700-8530, Japan*;
T. NAKAJIMA, H. OGAWA, *Department of Physical Science, Graduate School of Science, Osaka Prefecture University, Osaka 599-8531, Japan*.

Watanabe et al.^a have searched for α -alanine in Ori-KL with the Nobeyama 45-m radio telescope. Blagojevic et al.^b expected that β -alanine may have a larger abundance than α -alanine in interstellar space. In meteorites the abundance ratio of glycine, β -alanine, α -alanine is reported to be 1 : 2.35 : 0.26. Pyrimidine may be related to the nucleic acid base such as uracil and searched by Kuan et al.^c In the present study, we carried out deep searches for β -alanine and pyrimidine toward Ori-KL by using a new waveguide-type sideband-separating receiver in the 3 mm band installed at Nobeyama 45-m telescope. Low noise characteristic of the receiver made it possible to high sensitive observation in wide frequency range. The rotational transitions of β -alanine and pyrimidine were not detected with upper limit abundances of $2.9 \times 10^{14} \text{cm}^{-2}$, $8.8 \times 10^{12} \text{cm}^{-2}$, respectively. The upper limit for pyrimidine is an order of magnitude lower than the previous^c. Many un-identified lines have been detected and the carriers will be discussed.

^aS. Watanabe, S. Kubota, K. Kawaguchi, Y. Kasai, and T. Momose, 61st Ohio State University International Symposium on Molecular Spectroscopy, WH11 (2006).

^bV. B. Blagojevic, S. Petrie, and D. K. Bohme, *Mon. Not. R. Astron. Soc.* **339**, L7 (2003).

^cY. J. Kuan, C. H. Yan, S. B. Charnley, Z. Kisiel, P. Ehrenfreund, and H. C. Huang, *Mon. Not. R. Astron. Soc.* **345**, 650 (2003).