A PRE-BIOTIC SPECIES: THE ROTATIONAL SPECTRUM OF OXIRANECARBONITRILE

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The three-membered ring molecule oxiranecarbonitrile is a prolate asymmetric rotor with components of the electric dipole moment along all three principal axes. We did the preparation of this molecule in our laboratory and measured its rotational spectrum in the frequency range 114 GHz-350 GHz using the fast scan submillimeter spectroscopic technique (FASSST). More than 200 transitions were assigned and precise spectroscopic constants were derived for this molecule. Oxiranecarbonitrile has been suggested to be an important precursor in the formation of biological molecules and may be present in interstellar clouds[a]. So far only rotational spectroscopic data in the frequency range 8-40 GHz were available[b] and we believe our contribution will pave the way for the interstellar detection of oxiranecarbonitrile.

[a] J. E. Dicken, W. M. Irvine, M. Ohishi, G. Arrhenius, S. Pitsch, A. Bauder, F. Mueller, A. Eschenmoser, *Origins Life Evol. Biosphere* **26**, 97 (1996).
[b] F. Mueller, A. Bauder, *J. Mol. Spectrosc.* **179**, 61 (1996).