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TITLE: Pre-biotic molecules in shocks: the case of L1157

ABSTRACT BODY:

Abstract Body: Interstellar molecules with a peptide link -NH-C(=O)- , like formamide (NH_2CHO) and isocyanic acid (HNCO) are notably interesting for their potential role in pre-biotic chemistry. For first time, we report the detection of both molecules towards the protostellar shock L1157-B1 and L1157-B2, with the IRAM 30m telescope. Analysis of the line profiles shows that the emission arises from the outflow cavities associated with B1 and B2. From a simple rotational diagram analysis, molecular abundance of $\approx (0.4\text{--}1.1)\times 10^{-8}$ and $(3.3\text{--}8.8)\times 10^{-8}$ are derived for NH_2CHO and HNCO, respectively. The shock regions B1 and B2 appear to be among the richest Galactic sources of HNCO and NH_2CHO molecules. We have observed a narrow linear correlation between their abundances, suggesting that the two species are chemically related. Comparison with astrochemical models favours molecule formation on ice grain mantles, with NH_2CHO generated from hydrogenation of HNCO.

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