

# Chemical evolution and spectroscopy of some complex molecules which could be treated as the precursor of some bio-molecules in the interstellar medium

Liton Majumdar<sup>1</sup>, Ankan Das<sup>1</sup>, Sandip K. Chakrabarti<sup>1,2</sup>, and Sonali Chakrabarti<sup>1,3</sup>

<sup>1</sup>Indian Centre For Space Physics  
43 Chalantika, Garia Station Road, Kolkata 700084, India  
email: [liton.icsp@gmail.com](mailto:liton.icsp@gmail.com), [ankan.das@gmail.com](mailto:ankan.das@gmail.com)

<sup>2</sup>S.N. Bose National Center for Basic Sciences,  
JD-Block, Salt Lake, Kolkata, 700098, India  
email: [chakraba@bose.res.in](mailto:chakraba@bose.res.in)

<sup>3</sup>Maharaja Manindra Chandra College,  
20 Ramakanto Bose Street, Kolkata, 700003, India  
email: [sonali@csp.res.in](mailto:sonali@csp.res.in)

**Abstract.** This work reports the chemical evolution of adenine, alanine & glycine along with their precursor molecules during the collapsing phase of protostars. Since the abundances of these three molecules are not in the detectable range, we are proposing to observe some of its pre-cursor molecules to predict the abundances of these bio-molecules. We perform a higher order quantum chemical simulation to provide detailed spectroscopic knowledge of the precursor of these bio-molecules in the infrared and electronic range. These pre-biotic molecules could be produced in the gas phase as well as in the ice phase. Spectral properties significantly vary depending upon the environment around these molecules. To approximate recent observational/experimental features, we conduct our simulation for various astrophysical conditions. We found that our results are in line with the some recent experiments and observations.

**Keywords.** ISM: molecules — astrochemistry — stars: formation

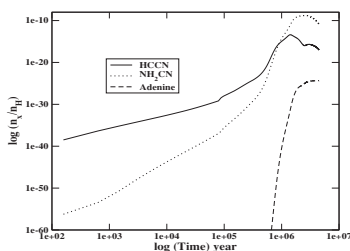


Figure 1. Chemical evolution of adenine with its two precursor molecules.

## Reference

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