BBC NEWS

Milky Way's sweetness throughout

A simple sugar that is an ingredient of life has been found for the first time in a relatively hospitable part of the galaxy.

As molecules go, glycolaldehyde is not an impressive one, but its link to the origins of life make it significant.

It can react to form ribose, a key constituent of the nucleic acid RNA.

The study, in Astrophysical Journal Letters, is important as it shows organic molecules in a region of space where planets could form.

Glycolaldehyde was first discovered toward the galactic centre in 2000. But the extreme conditions there made it unclear if the molecule could form in the rest of the galaxy.

To find out, Maria Teresa Beltran of the University of Barcelona and colleagues trained the Plateau de Bure array of radio telescopes on a large star-forming region called G31.41+031, about 26,000 light years away.

Known as a hot molecular core, the region is dense with newly formed stars. In the radio emission from the core, the team found several radio and microwave signatures of the presence of glycolaldehyde.

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> Roberto Neri, Institute for Millimetre Radio Astronomy

Comparison of those spectral signatures with a computer model of how the molecules form on tiny grains of interstellar dust suggest the glycolaldehyde is a few hundred thousand years old.

"The importance of this discovery lies in the fact that the glycolaldehyde has been detected towards a region where planets orbiting newly formed stars are expected to exist - and planets could be the cradle of life," says co-author of the study Claudio Codella of the Institute of Radio Astronomy in Florence, Italy.

The results will spur further research to look for complex molecules that up to now have only been seen in the galactic centre.

"The search for prebiotic molecules in star-forming regions is still in the fledgling stages but the door is open now," says co-author Roberto Neri, an astronomer at the Institute for Millimetre Radio Astronomy, home to the Plateau de Bure facility.

"I believe that many more of these molecules will show up in the near future," he adds.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7747795.stm

Published: 2008/11/25 12:52:12 GMT