Why Uranus and the other planets of the solar system are better prospects than Mars in understanding biological life

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Abstract

This an opinion article about why uranus and the other planets of the solar system are better prospects than mars in understanding biological life.

Firstly, it wasn't long ago, but back in 2003, when the precursor of the neutral amino acid Glycine, Aminoacetonitrile was found in the *β*[2] *Sagittarii*[1] interstellar medium, and later the Murchison meteorite findings, all began opening a wide range of questions on whether the amino acids themselves were present outside of the Earth's atmosphere.

Hypotheses were made that the meteorites may have been in contact with the atmospheres of many planets, Earth's included, and the Halley comet itself was found containing amino acids, but the contact with the atmosphere of Earth as a cause of this detected biological material on the samples of meteorites, remains an "enforced hypothesis" and perhaps verosimile. Why is not the transfer from a planetary object, such as Uranus, to another via meteorites and comets an alternative hypothesis[2]?

Other studies have shown that the Uranian clouds contain organic compounds which we know can be found as byproducts too, and not solely as chemical lone entities. An example is H_2S, a gas found in our and other organisms within limited concentrations, which has also been discovered in the Uranus atmosphere[4]. It would be easy to hypothesise, alternatively to the theory that a lone chemical gas flying in the atmosphere, whilst ignoring the contribution of biology, that by taking i tinto account, it could be concluded that a cloud of germs could be suspended in high concentrations within Uranus's atmosphere to potentially escape X-rays also found on Uranus. Maybe this nebulised suspension or solution acts as a survival mechanism for bacteria from X-ray exposure or other climatic conditions. To support this reasoning, the latest studies also demonstrate that Venus has bacteria producing phosphine[5].

Further, on an empirical viewpoint, Uranus spins around its "poles", however its pole is in the same position as our equator is towards the sun (lined up with the sun) in equal amounts as when it is not, making it viable for potential life on it, due to heterogenous exposure for at least a period of time (approximately 42 years, 21 alternate years), making it viable for some life-favouring conditions every 21 years, supposedly, however, it is not easy to explain this either, and pragmatic investigation would be more enlightening and less elusive than a conjecture. For example, one could even suppose that in the 21 years with unfavourable conditions, the cloud could move around the Uranus ring, perpendicular to the planet, but parallel and in line with the Sun during those years, or the could be evenly distributed between the two in an equilibrium, like a gas exchange between membranes, but there would have to be some tangible evidence that could verify or falsify this and provide us with real answers.

Studies on other planets are also scarce, Uranus[6], as a matter of fact, was only explored once by the Voyager 2 probe, but to understand organic life it would help not to exclude other planets and to explore all of them too, with more sophisticated and quicker probes we currently have, compared to previous missions that may not have revealed as much information as these, because of less precision and accuracy in the instruments employed, it would also be less expensive than it would have been over 40 years ago.

No conflicts of interest to disclose.

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