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Sugars from space? Do they prove evolution?

Jonathan Sarfati

To a chemist, a sugar is not just that sweet crystal added to coffee and tea. Rather, sugars are one family of chemicals containing lots of hydroxyl groups (OH) attached to a carbon skeleton (*polyols*). Sugars are vital components of life, e.g. the 5-carbon (5C) sugars ribose and deoxyribose are part of the skeletons of our information storage molecules, RNA and DNA respectively. Ribose is also an essential component of the energy currency of life, adenosine triphosphate (ATP). The 6C sugar glucose is a basic energy source for plants and animals, and they are joined in chains to form the cellulose of plant cell walls, as well as the energy storage molecules starch (plants) and glycogen (animals). Common sugar, sucrose, found in sugar cane and to a lesser extent in sugar beet, is actually a combination of two 6C sugars, glucose and fructose.

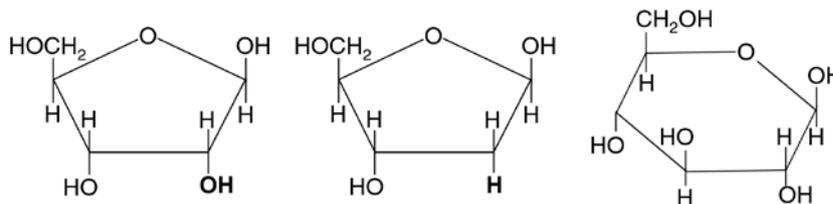
The ultimate origin of sugars is a huge problem for those who believe in *abiogenesis*, the idea that non-living chemicals evolved into living cells without any intelligent input.¹ Abiogenesis has been such a difficult problem for the materialistic world view that various antitheists, such as Eugenie Scott of the so-called National Center for Science Education;² and Richard Hutton, the producer of the *Evolution* series shown on PBS(USA) and SBS(Australia); try not to answer tough questions about abiogenesis.

Instead, they claim it is not part of evolution, which is simply not true, given its common name 'chemical evolution'. It has also been included as a part of the 'General Theory of Evolution', defined by the evolutionist Kerkut as 'the theory that all the living forms in the world have arisen from a single source which itself came from an inorganic form'.³

But according to some recent headlines, abiogenesis has virtually been solved by the discovery of sugars in meteorites. Supposedly this shows that sugars could be produced in space, then rained down on Earth to be incorporated into the first organisms. But what is the correct story?

What was found?

Researchers led by Dr George Cooper of the NASA Ames Research Center in California analysed the much-studied Murchison meteorite and the less-well-known Murray meteorite.^{4,5} Both are a type of meteorite called *carbonaceous chondrites*, because they contain small nodules called *chondrules*. They are claimed to be the most primitive objects in the solar system, and the most likely to have organic (carbon-containing) molecules. They used a reliable technique called gas chromatography–mass spectrometry (GC–MS) to detect the different molecules, in the form of compounds with large silicon/carbon groups. They also studied the ratios of carbon and hydrogen *isotopes*, i.e. different forms of the same element. They found that they were enriched in the heavier isotopes ¹³C and ²H, which is consistent with an extraterrestrial origin for most of the molecules, rather



Sugars are vital components of life. The 5-carbon (5C) sugars ribose and deoxyribose (left and middle) are part of the skeletons of our information storage molecules. Glucose (right) is an important energy source for plants and animals.

than contamination from Earth.

They found evidence of lots of different chemicals with names unfamiliar to non-chemists, but in extremely tiny amounts. In fact, there was only one proper sugar found, and this contained only three carbon atoms. They also found a number of related compounds, the most abundant being the sugar alcohols, ethylene glycol (2C, better known as antifreeze), and glycerol (3C), but even glycerol made up only about 0.001% of the mass, and the other compounds were far less abundant. There were none of the sugars familiar to most people.⁶ The fact that these sugars are not common in living organisms is good evidence against biological contamination from Earth.

The researchers have proposed several possible ways these compounds could have been produced, including the ‘formose reaction’ starting from formaldehyde, which itself might have been formed from carbon monoxide and hydrogen.

The real science stops here with the last section, and as always, creationists dispute no *observations* made by evolutionists; i.e. we agree that the meteorite does contain organic compounds, probably of extraterrestrial origin. The difference is how we *interpret* the observations.

What should we think?

The ‘Big picture’

- The most important point to remember, more important than the chemistry, is that both creationists and evolutionists have biases. For the people who performed the research, the *Nature* editors, and the journalists who reported the results, the question was not ‘Did life evolve from non-life?’ Neither were they trying to find evidence to support either ‘yes’ or ‘no’. Rather, before even adducing the evidence, they have already made up their minds that the answer is ‘yes’—somewhat along these lines:

‘Well, of course life evolved from non-life, because we’re here! ... What’s that you suggest ... that life may have been designed? You just don’t understand the rules of science.’⁷ A designer is not part of science, even if the evidence supports that.’ As Dr Scott Todd pointed out, ‘Even if all the data point to an intelligent designer, such an hypothesis is excluded from science because it is not naturalistic’.⁸ As Dr Richard Lewontin said, ‘we must only allow materialistic explanations, because we can’t allow “a divine foot in the door”’.⁹

This faith commitment has been noticed even by non-creationists such as the information theorist Dr Hubert Yockey:

‘Research on the origin of life seems to be unique in that the conclusion has already been authoritatively accepted What remains to be done is to find the scenarios which describe the detailed mechanisms and processes by which this happened. One must conclude that, contrary to the established and current wisdom a scenario describing the genesis of life on earth by chance and natural causes which can be accepted on the basis of fact and not faith has not yet been written.’¹⁰

- This bias produces much wishful thinking, where every trace of organic molecules found is taken as evidence for chemical evolution. As will be shown below, this is contradicted by science. The wishful thinking occurs not only in the popular media, but also in the *Nature Science Update* commentary:

‘The findings therefore support a growing realization that, even in the frozen depths of space, lifeless chemistry can arrange the elements into molecular forms well along the road to primitive life.’¹¹

Even the acting director of astrobiology and space research at Ames, Kenneth Souza claimed:

‘This discovery shows that it’s highly likely organic synthesis crit-

ical to life has gone on throughout the universe. Then, on Earth, since the other critical elements were in place, life could blossom.’¹²

- But while Cooper himself was enthusiastic overall, he did sound a note of caution about the research:

‘What we found could just be interesting space chemistry, and polyols could be just relatives of the compounds that actually gave rise to early life.’¹²

I agree that it was ‘interesting space chemistry’, and actually have no problem with the researchers’ suggested production mechanisms such as the formose reaction, but this doesn’t mean that it was relevant to chemical evolution. Cooper concluded that more research was needed to learn whether this research was significant.¹²

Scientific problems

- One of the key evidences against contamination, the presence of non-biological sugars and their relatives, also seems like good evidence against chemical evolution. That is, that natural processes tend to produce gunk with little relevance to life.
- The amounts of these chemicals were tiny—far too low to contribute to biological processes. So this can also be interpreted as evidence *against* chemical evolution, by showing that under truly natural conditions (as opposed to unrealistic laboratory simulations), only trace amounts of these compounds are formed.
- The wide variety of compounds in itself counts as evidence against chemical evolution. Most of the alleged prebiotic simulations use pure compounds, and even then, the results are meagre, so how much worse would they be with the contaminated gunk produced in the real world?
- Sugars are very unstable, and easily decompose or react with other chemicals. This counts against any proposed mechanism to concentrate

them to useable proportions.¹³

- Living things require homochiral sugars, i.e. with the same ‘handedness’, but these ones would not have been.¹⁴
- Even under highly artificial conditions, the result of intelligent investigator interference, there is no plausible method of making the sugar ribose join to some of the essential building blocks needed to make DNA or RNA, let alone into RNA or DNA themselves. Instead, the tendency is for long molecules to break down into their building blocks.^{15,16}
- Even DNA or RNA by themselves would not be life, since it’s not enough to just join the bases (‘letters’) together, but the sequence of the letters must constitute meaningful information. The information depends on the letter sequence and this sequence is not a function of the chemistry of the letters.¹⁷
- Even this letter sequence would be meaningless without elaborate decoding machinery to translate this into amino acid sequences. I.e. the DNA stores the instruction code to form the enzymes and structural proteins needed for life. Unless the decoding machinery already existed, those instructions can never be read. Similarly, this article would be useless to a non-English-speaker, who lacks knowledge of the code of the English language to convert alphabetical letter sequences into concepts in the mind (information).¹⁸

Conclusion

Once again, this teaches us that we shouldn’t rely on pro-evolution newspaper headlines. As always, even if they have reported the scientific observations correctly, the observations must be interpreted. As shown, it is more plausible to interpret them in a Biblical creationist framework and apply well-attested chemical principles. The result is that not only do the observations provide no support for chemical evolution, they are actually

further evidence that chemical evolution is based on blind faith rather than fact.

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