Texte 7

ASTRONAUT BLOOD, SWEAT, TEARS, URINE AND SPACE DUST COULD BE USED

TO BUILD HOMES ON MARS

Researchers have created a building material that could be made in space from space dust and astronauts' bodily fluids such as blood, sweat, and tears.

If humanity is to ever build a habitat on the surface of the Moon or Mars, a building material

that can be created in-situ is vital. This is emphasized by the fact that it would cost $2 million to

transport just one brick to the surface of Mars. The process used to create the substance was

dubbed "AstroCrete". This means that potential Mars colonists will likely have to make use of the

materials already on the surface of the Red Planet to construct shelter and other vital facilities.

"Scientists have been trying to develop viable technologies to produce concrete-like

materials on the surface of Mars, but we never stopped thinking that the answer might be inside us

all along," University of Manchester researcher Aled Roberts said in a press release. His team

discovered that a common protein found in human blood plasma, known as human serum

albumin, has the potential to bind together dust found on Mars.

"We were previously looking at synthetic spider silk as a bio-based glue, and through chance

discovered that a protein from blood works even better," Roberts added. "We found the glue

worked really well on glass, so we inferred that it should also stick together sand since they are

both made of the same stuff, silica. And Mars dust is also primarily comprised of silica."

The scientists found that urea, a waste product that we excrete in urine, sweat, and tears,

could be added to AstroCrete to boost its compressibility strength by as much as 300 percent. That

means that the best performing AstroCrete the team tested was substantially stronger than the

concrete currently used on Earth.

In the study, the researchers calculated that six astronauts on a two-year mission could

create around 1,200 pounds of high-strength AstroCrete. "The material could be useful in space

since there is no other easy way to make construction materials like bricks or concrete," Roberts

declared.

The researcher also said the next steps for the research include investigating synthetic spider silk proteins as a binder instead of human blood.

Whilst AstroCrete is a space-age material, the team says its inspiration can be dated back to

medieval times when our ancestors mixed animal blood into building materials.

"It is exciting that a major challenge of the space age may have found its solution based on inspirations from medieval technology," Roberts said in the release. "The concept is literally blood-

curdling."

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Adapted from Newsweek

September 2021

(442 words)