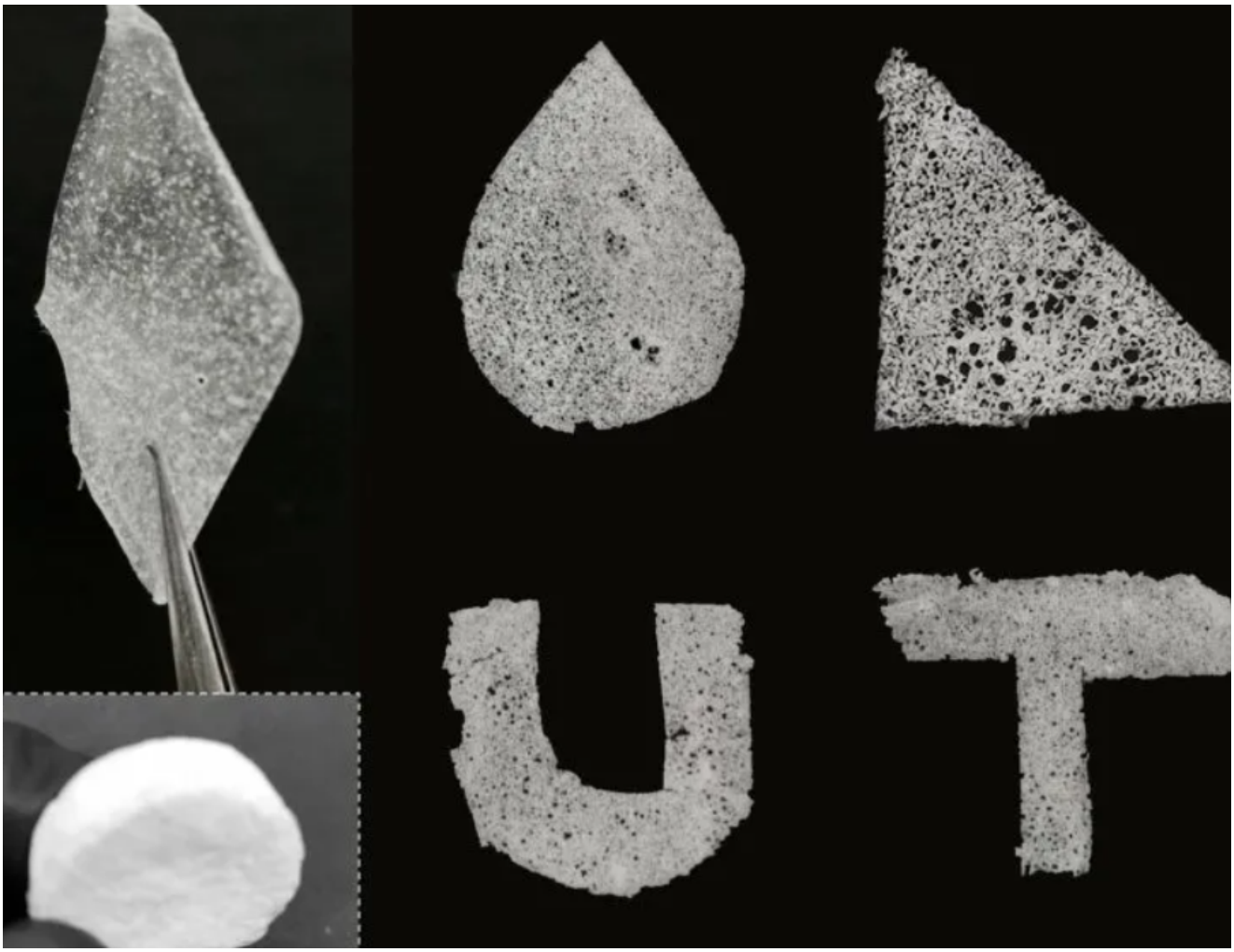
DRINKS & SMOOTHIES

Researchers Develop a Low-Cost Gel Film Able to Pull Water from the Air even in the Driest of Climates

By bestfolkmedicine · 01/06/2022 · 3 min read



More than one-third of the global population lives in drylands. In these areas, water shortages are significant.

ezstandalone.cmd.push(function () { ezstandalone.showAds(122); });

Therefore, a team of engineers and scientists from the University of Texas at Austin created a one-of-a-kind solution that may be of aid to the people from these areas by providing them with clean drinking water.

The low-cost gel film consists of abundant materials capable of pulling out water from the air, even where it's the driest.

ezstandalone.cmd.push(function () { ezstandalone.showAds(130); });

Low-Cost Gel Film: Key to Providing Clean Water to People in Dry Climates?

The materials enabling the reaction in the gel film cost only $2 per kilo and one kilo can make more than 6 liters of water on a daily basis in places with less than 15 percent relative humidity and 13 liters in areas with up to 30 percent of relative humidity.

This solution published in the *Nature Communications* journal is a continuation of previous breakthroughs of the team, including the capacity to pull out water from the atmosphere and the use of this tech to make self-watering soil.

ezstandalone.cmd.push(function () { ezstandalone.showAds(131); });

But, these techs were made for high-humidity environments.

The new work, according to Guihua Yu, professor of materials science and mechanical engineering at Cockrell School of Engineering's Walker Department of Mechanical Engineering, is focused on providing practical solutions to the people living in the driest and hottest places on Earth.

He adds that this solution may help millions of individuals without continuous access to drinking water to have water-generating devices that are simple and easy to use at home.

ezstandalone.cmd.push(function () { ezstandalone.showAds(132); });

How Was the Low-Cost Gel Film Created?

The team used renewable cellulose and konjac gum, a common kitchen ingredient, as a hydrophilic skeleton.

The open-pore structure of gum speeds up the capturing of moisture. And, another component was thermo-responsive cellulose with hydrophobic interaction upon heating. It helps release the water right away so the overall energy input for water production is lowered.

On the other hand, other efforts to pull water from the air are energy-intensive and don't produce a significant amount.

ezstandalone.cmd.push(function () { ezstandalone.showAds(133); });
Though 6 liters may not sound like much, the team says that making thicker films or absorbent arrays with optimization may significantly boost the yielded water.

According to the researchers, the reaction is simple. It decreases the scaling up challenges and the achievement of mass usage.

The head of the paper and a former doctoral student in Yu's lab, Youhong Guo, and now a post-doctoral researcher at the Massachusetts Institute of Technology, notes that it's not something you'll need a degree to use.

ezstandalone.cmd.push(function () { ezstandalone.showAds(134); });
It's so simple that everyone can make it at home supposing they have the materials.

This cost-friendly film is flexible and can be molded into various sizes and shapes, depending on the needs that the user has.

To make the film, you need a gel precursor that includes all of the necessary ingredients in a mold. This process requires around two minutes. Then, it needs to be freeze-dried, the mold peeled off, and then used.

ezstandalone.cmd.push(function () { ezstandalone.showAds(135); });
This research was funded by the US Department of Defense's DARPA. Water for soldiers in dry climates is a major part of the project. But, the team hopes that one day, this could be something that all people can purchase and use at home due to its simplicity and efficiency.

Sources:

SCI TECH DAILY

AZOM

Read online: https://bestfolkmedicine.com/2022/06/21052/

Downloaded on 23/11/2026

DISCLAIMER: We do not provide medical advice and nothing contained herein shall be construed as medical advice. The contents such as text, comments, graphics, images, videos and other content contained on this site are for informational purposes only. Statements on this website have not been evaluated by the Food and Drug Administration, and are not intended to diagnose, treat, cure or prevent any disease. Always consult your personal physician before starting any fitness or exercise program or changing dietary habits. The content of this site is not intended to be a substitute for professional medical advice, diagnosis, or treatment. It is not a substitute for a medical exam, nor does it replace the need for services or counsel provided by medical professionals.