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-  TECH

SCIENTISTS IN SINGAPORE DISCOVER UNEXPECTED NEW USE FOR CHICKEN FEATHERS: ‘OUR LATEST DEVELOPMENT CLOSES A CYCLE’

The team has reportedly filed a patent and is looking for further funding as it tests its stability and durability.

By Susan Elizabeth Turek December 13, 2023

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The **most common** bird species in the world may soon have a starring role in the clean energy movement thanks to previously unrecognized potential.

As reported by **Futurity**, researchers at ETH Zurich and Nanyang Technological University Singapore discovered that elements of chicken feathers can be used in fuel cell membranes.

In order to do this, scientists turned the fluff's keratin — a protein also found in human hair — into fibrils, with the organic material replacing the expensive **toxic forever chemicals** typically found in the membranes.

Given the abundance of chicken feathers, the membrane is three times cheaper to manufacture. The electricity is created with hydrogen and oxygen, meaning it doesn't produce carbon dioxide, which has been linked to the **overheating of our planet** and **extreme weather events**.

"I've devoted a number of years to researching different ways we can use **food waste** for renewable energy systems. Our latest development closes a cycle: we're taking a substance that releases CO2 and toxic gases when burned and [using] it in a different setting," Raffaele Mezzenga, a professor of food and soft materials at ETH Zurich, **said**.

Approximately 44 million tons of chicken feathers are burned annually, as Futurity pointed out, releasing pollution that negatively affects **air quality**.

There have been **numerous studies on ways** to repurpose the down, however.

According to **Modern Farmer**, pioneering efforts were led by research chemist Walter Schmidt, who was looking to help the environment and company profits back in 1993. Schmidt received a patent for his work on obtaining fibers from chicken feathers **in 1998**.

However, researchers involved in the latest study have more to do before bringing their **technology** to market.

“Hydrogen is the most abundant element in the universe — just unfortunately not on Earth,” Mezzenga added, speaking to **Futurity** about one of the anticipated challenges.

The team has **reportedly** filed a patent for the keratin membrane and is looking for further funding as it tests its stability and durability.