

Silk leaf maker says material could aid space journeys (w/ Video)

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Silk leaf. Credit: Julian Melchiorri

A graduate of the Royal College of Art has developed a synthetic biological leaf. Potential applications range from the material being used on buildings' facades, or even for support on space journeys for oxygen.

Julian Melchiorri talked about his project, called Silk Leaf, which has been on show at the Royal College of Art. Silk Leaf, he said, a man-made, biological [leaf](#). He said it involves a material extracted directly from the fibers of silk. Melchiorri said the synthetic biological leaf he developed, which absorbs water and carbon dioxide to produce oxygen, is like a real leaf, and could enable long-distance space travel, according to a report in Dezeen. This material, he said, has an amazing property.

"I extracted chloroplasts from plant cells, and placed them inside this silk material." The material work and breathes as a leaf does. "It's very light...low energy-consuming." He also said, "My idea was to use the efficiency of nature in a man-made environment." The synthetic leaf could, among other applications, be used to make long-

distance space travel that much more imaginable.

The Dezeen report includes pictures of the leaf transformed into lighting and building applications. He said he thought about applications on smaller and larger scales. He imagined its being used as a free surface in interior design, or for outdoor applications. "So facades, ventilation programs... You can soak up air from outdoors, pass it by way of these biological filters and then carry oxygenated air inside."

He also noted the leaf material may be applicable to space travel. "NASA is researching different ways to produce oxygen for long-distance space journeys to let us live in space," he said. "This material could allow us to explore space much further than we can now." A CNET article called it "an oxygen factory for [space travel](#)." Writing in CNET, Eric Mack brought the significance of the NASA idea to light in asking, "what if we could take those biological [oxygen](#) factories into space with us, but [without](#) all the land, sun, water, soil, and gravity that forests tend to require?"

The Silk Leaf project was developed by Melchiorri as part of the Royal College of Art's Innovation Design Engineering course in collaboration with Tufts University silk lab.

More information:

www.dezeen.com/2014/07/25/movi...-l-leaf-space-travel/

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