Food out of thin air: How this startup transforms carbon dioxide into protein

A few years ago, Dr. Peter Rowe began to explore ways to produce single-cell protein from carbon dioxide (CO_2).

A Ph.D. graduate of the United Kingdom's (U.K.) Nottingham University, Rowe went on to set up the company, Deep Branch, to progress this work, according to Horizon – the European Union research and innovation magazine.

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Using similar technology to producing enzymes or brewing beer, Deep Branch's process involved culturing microbes in a bioreactor, said Rowe. Together with hydrogen as an energy source, the carbon dioxide is fed into a fermentation tank with the selected organisms. Once the fermentation is complete, the resulting material is dried to a powder, called Proton, which contains around 70% protein.

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Its product contains more protein than many soybean meals, says Deep Branch. Furthermore, the single-cell protein is more sustainable than conventional proteins used in livestock and aquaculture feeds.

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Furthermore, for Rowe, regional food security is an important consideration.

"Europe is almost completely reliant on South America for the protein we use to feed our animals," he said. "There's a high risk of extreme events, geopolitics, or even weather, disrupting that."

He sees Deep Branch's technology contributing to a more sustainable, circular economy.

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