Biodegradable plastic | Photo source U.S. Department of Agriculture on Flickr

NEW PROCESS TURNS FOOD WASTE INTO BIODEGRADABLE PLASTICS

SCIENCE

A new company has devised a way to turn food and agricultural waste into bioplastics.

According to the Food and Agriculture Organisation of the United Nations, each year around one-third of the food produced for human consumption — approximately 1.3 billion tons — is lost or wasted. Much of this waste is caused by throwing away food that has gone bad or is not fit for sale. We have seen a number of ways to reduce this type of food waste, such as systems that eliminate food packaging and dynamic pricing platforms that encourage customers to buy food before it goes out of date. But now there is a way to reuse food waste by turning it into plastics.

Full Cycle Bioplastics has developed the technology for converting organic waste into a naturally occurring polymer called polyhydroxyalkanoate (PHA), that degrades without harming the environment. Full Cycle's process takes inedible food waste, agricultural by-products and used paper and cardboard, breaks these down and turns them into feedstock for naturally-occurring bacteria, which consume the waste and convert it into PHA. The PHA is then dried and processed into a finished resin, ready for use in the manufacture of anything from plastic forks to car parts. Used products made from PHA can later re-enter the recycling system and be used as feedstock to create new PHA.

Rather than produce the bioplastics itself, Full Cycle Bioplastics hopes to license its technology to large waste producers and handlers, such as landfills, food or beverage processors, and paper mills, who are then able to produce the bioplastic on site and sell on. The company estimates that a

typical producer could generate between 75 and 500 USD of revenue per ton of waste processed. Could this model be applied to other types of recycling?

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