

Drink up, then eat the glass – the trend for edible food packaging and tableware

New technologies are being used to make edible packaging for food and drink. It could reduce what we send to landfill, but will it taste any good?

Flavoured, edible glasses from Loliware, made with agar, a seaweed-based gel.

Rich McEachran

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Picture the scene. You're at a party, drinking a cocktail. Once you've sipped, you eat the glass. Sounds a little on the wild side, but this is the image Loliware wants us to play in our heads.

The US start-up founded by Chelsea Briganti and Leigh Ann Tucker, who trained as product designers, has launched a "biodegredible" – biodegradable and edible – cup. Frustrated by the amount of disposable packaging discarded at events, the pair spent some time experimenting in a lab with several materials. They were looking for one that would allow them to create a cup that looks like a glass and also tastes good (the current flavour on offer is pink grapefruit and yuzu). They settled on agar, a seaweed-based gel.

Eating what your food and drink comes in isn't a new concept. Companies and chefs have been playing with the idea for some time. A decade ago, the Australian company Plantic designed a bioplastic made from corn starch and coloured with plant-based dyes, although apparently it tasted like stale bread. In 2012, Leicester-based Pepceuticals won a £1.3m European research contract to develop an edible coating for fresh meat, designed to improve shelf life as well as reduce waste. And Heston Blumenthal likes to wrap his salted-butter caramels in edible cellophane.

For Briganti, the edible glasses are an environmental no-brainer. "You can throw them in the grass or disintegrate them in a matter of minutes with hot water," she explains. The problem with disposable cups – including those made from corn plastic – is that they take months and sometimes years to degrade, often leaking chemicals in the process. "For every cup eaten [or composted], we are saving a plastic cup from entering the landfill," says Briganti. "Billions of plastic cups are entering the landfill every year. If Loliware replaces even a small percentage, that would have far-reaching impact."

There are doubts, however, over the cost (a pack of four is currently \$11.95/£7) and long-term sustainability. Cost is an issue for any new start-up; Loliware recently launched a campaign to raise \$1m to roll the product out across the US – scaling up production would help reduce the price. Briganti is confident that people will buy into the idea and hopes in the future to package the cups in some sort of edible box.

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And from edible glasses to bubbles of food. WikiPearls are small balls of food covered in an edible membrane made from biodegradable polymer and food particles. Or, in lay terms, food casing that mimics the design of the skin of soft fruit. These are the creation of food-technology connoisseur and Harvard bioengineer David Edwards. He and his team have produced an orange membrane containing orange juice, a tomato membrane filled with gazpacho and a grape membrane that holds wine. He believes the technology can be applied to contain any liquid, emulsion, foam or solid food substance and create any flavour. The resulting "bubble" can be carried around in your pocket and rinsed before consuming, in the same way as you might wash an apple before eating it.

Similar to WikiPearls with a fruit-like skin is the Ooho!, an edible water bottle created by three students at Imperial College London. They used spherification, the technique much beloved of Ferran Adrià and introduced at his Spanish restaurant elBulli. Initial demonstrations suggest that the product would need to be scaled up if it's to hold a significant amount of water and become commercially viable. The technology has potential though, says Edwards. "People in a village in Africa could become plastic-bottle-free and make things for themselves," he told the Harvard Crimson in 2012. "It's really exciting from a humanitarian point of view."

Edible packaging isn't without its critics. Some people feel that it being edible defeats the whole point of packaging – to protect the food from dirt and microbes. And there's a psychological barrier that people need to overcome when ingesting dissolving film or plastic. Food safety regulators will be concerned about the number of hands and surfaces food wrapped in edible packaging is likely to touch on its way to a shop shelf. And if it is decided that any edible packaging must be protected by more packaging, then it becomes self-defeating, to put it mildly.

Briganti believes the way to allay people's fears is to design a product that is as fun as it is environmentally friendly. Flavouring the edible glass "is designed to complement the drink so it becomes the twist to a cocktail, or an accent", to encourage people to make "the switch from plastic". Would it work for you?

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