



Strawberries kept in the smart film lasted three days longer than a control group | Photo source [Nanyang Technological University](#)

Innovation > Food & Drink > Produce stays fresh longer with smart, antimicrobial food packaging

PRODUCE STAYS FRESH LONGER WITH SMART, ANTIMICROBIAL FOOD PACKAGING

 FOOD & DRINK

The smart wrapping releases natural compounds capable of killing E.Coli and various fungi

potting: A team of scientists working on sustainable nanotechnology recently created a smart packaging solution that keeps meat and fruit fresh for longer. Developed by researchers at the NTU (Nanyang Technological University Singapore)-Harvard T. H. Chan School of Public Health Initiative for Sustainable Nanotechnology (NTU-Harvard SusNano), the packaging is made from non-toxic, naturally-occurring materials that are also biodegradable. Made from starch, corn protein, thyme and citric acid, among other materials, the packaging responds to the presence of additional humidity or enzymes that indicate that produce is ripening.

When the fibres in the packaging sense harmful bacteria such as E.Coli and Listeria forming, they release microscopic amounts of antimicrobial compounds that help prevent the contamination of the produce. In lab tests, strawberries wrapped in the new packaging stayed mould-free for seven days, while fruit kept in the traditional plastic boxes stayed fresh for only four days. Further advancement of the design is part of the collaboration's strategic goal of promoting sustainable food technology for long-term use.

Sustainable packaging is attracting the attention of innovators of all kinds, from Icelandic designer Valdís Steinarsdóttir's bioplastic made from discarded animal hides, to US-based Hazel Technologies' sachets of preservatives that moderate the air around fresh produce.

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Takeaway:

The smart packaging developed by NTU-Harvard SusNano tackles two important sustainability issues: food waste and plastic pollution. **Eight to ten per cent** of global greenhouse gas emissions are associated with food that is never eaten. By extending the shelf life of food, smart packaging can help to reduce the amount that needs to be thrown away. Replacing plastic with biodegradable materials addresses another problem: since the 1950s, more than **8.3 billion tonnes** of plastic has been produced and about 60 per cent of it has ended up in landfill or the environment. The NTU-Harvard SusNano solution is still in the development stage, and packaging innovations like this will need to be ramped up to commercial scales to make a significant impact on these important issues.