# Scientists create food packaging material that kills bacteria

**Singapore** PERISHABLES such as fruit and meat are often at the mercy of harmful bacteria, especially when left for a long time outside the refrigerator.

To salvage such food items, scientists have created a biodegradable packaging material that can kill harmful bacteria and fungi that sprout on fresh produce.

The packaging also extends the lifespan of strawberries by up to a week. Berries kept in ordinary boxes stay fresh for only four days.

The material – which resembles plastic – was created by researchers from Nanyang Technological University (NTU) and Harvard TH Chan School of Public Health in the United States.

The material is made from corn protein, starch and other naturally derived substances, and is infused with a cocktail of natural antimicrobial compounds such as the oil from thyme, and citric acid.

Lab experiments found that when the material detected rising humidity levels and enzymes from harmful bacteria, its fibres released minuscule amounts of the antimicrobial compounds that got rid of the bacteria.

The compounds can kill bacteria or fungi growing on both the food and the material.

Dangerous microbes that thrive in food include E.coli and listeria, which causes one of the most serious forms of food poisoning.

The packaging is suitable to hold food items such as raw meat, fish, fruit, vegetables and ready-to-eat meals, said Professor Mary Chan, the director of NTU's Centre for Antimicrobial Bioengineering who co-led the project.

She added that the team's aim is to replace conventional plastic packaging with the new material that will also double the shelf life of produce.

"Vegetables are a source of wastage because even if they are refrigerated, they will continue to respire, leading to spoilage after a week or two.

"With the anti-microbial packaging, there is a chance to extend their shelf life... and also make the vegetables and fruits look fresh with time," she said.

Prof Chan noted that while there is anti-microbial packaging already available in the market, the team's material is believed to be the only one that is both biodegradable and able to release the bacteria-killing compounds only when needed, such as when there is a rise in humidity. — The Straits Times/ANN