

# A\*Star, Singapore firm develop system that turns food waste into odourless fertiliser in 24 hours

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Nuria Ling/TODAY

The patented microbe treatment breaks down local food waste including bones, dough, tofu and sugar cane safely and effectively.

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SINGAPORE — Entrepreneur David Tan set up a company to reduce and recycle waste in 2016, and imported 10 machines from Japan to convert food waste into fertiliser.

But the micro-organisms from Japan could not effectively decompose curry, leftover food items from hotpot meals, and other dishes in Singapore that tended to be higher in oil and salt than Japanese food.

Mr Tan, the chief executive officer of Westcom Solutions, turned to the Singapore Institute of Technology and was put in touch with the Agency for Science, Technology and Research (A\*Star).

Four A\*Star researchers from its Institute of Chemical and Engineering Sciences were seconded to Westcom from last year under the agency’s Technology for Enterprise Capability Upgrading (T-Up) scheme.

After some trial and error with various microbes in A\*Star’s collection, the researchers came up with one that could digest one tonne of food waste into 100kg of organic fertiliser in 24 hours — much faster than the seven days or more provided by most other solutions.

The company and A\*Star showcased the technology on Monday (Dec 10) at Pandan Loop Industrial Estate to Mr Koh Poh Koon, Senior Minister of State for Trade and Industry, and to reporters.

The microbial treatment, developed and patented in Singapore, breaks down food waste including bones, dough, tofu and sugar cane safely and effectively.

The end-product is odourless fertiliser in powder form, which does not need further treatment.

The microbial treatment has turned Westcom’s fortunes around, helping it capture a slice of the global food-waste processing market worth an estimated US\$31.7 billion (S\$43.4 billion).

Singapore generated more than 800,000 tonnes of food waste last year, and only 16 per cent of it was recycled.

Westcom declined to comment on its revenue, but A\*Star said that it amounted to “millions” in the past year. The bulk of its revenue (70 per cent) now comes from overseas markets including China, and its Singapore clients include DBS bank, Jurong-Clementi Town Council and Khoo Teck Puat Hospital.

Westcom’s microbial treatment has another benefit — it has a low operating temperature of about 40°C, unlike others which may operate at 80°C to 120°C.

This results in electricity savings of up to 50 per cent.

The company — where its five research-and-development staff members now make up a quarter of its total headcount — and A\*Star are exploring other collaborations.

They include solutions for biodegradable plastic waste, which is commonly thrown away together with food waste, as well as for large animal bones from abattoirs and butcheries.

For its overseas markets, Westcom has also created microbes to convert human waste to fertiliser. There is keen interest in the Chinese market, where a “Toilet Revolution” was launched by Chinese President Xi Jinping in 2015 to improve toilet facilities in tourist areas across the country.