

FOOD WASTE FERTILISER

Micro-organisms that turn food waste into fertiliser

Challenge

Each year, more than 700,000 tonnes of food are wasted in Singapore. Put into context, that is equivalent to the weight of over 50,000 double decker buses, and the number is only expected to increase over time. Despite the sheer scale of the problem, only 19 percent of total food waste was recycled in 2020.

For A*STAR researchers and its industry partners, the real challenge lies in developing innovative food waste management solutions that can effectively process a particular waste stream while converting it into products of higher economic value.

Our Solution

Researchers from A*STAR's Institute of Chemical and Engineering Sciences (ICES) have collaborated with Westcom Solutions, a local enterprise specialising in food waste reduction and recycling services, to create a novel food waste digester. Compared with existing technologies, their digester uses specially developed microbes that can efficiently break down local food waste, which tends to have higher levels of oil and salt.

The treatment process converts food waste into an odourless organic fertiliser that can be repackaged and sold without further treatment.

Not only can the digester process both cooked and uncooked food waste, but it is also faster than other solutions in the market, requiring only 24 hours. It also has a low operating temperature of 30 to 40°C, unlike conventional technologies which may operate at 80°C to 120°C, allowing it to save energy.



Summary



Breaks down food waste into odourless fertiliser



Takes only 24 hours as compared with other food digesters in the market which typically take a week or more



Works effectively with local food waste



Low operating temperature potentially saves electricity and reduces operating costs

Potential Applications



Reduction of Singapore's food waste across sectors from manufacturing to retail

