

TECH OFFER

Efficient & Sustainable Bioconversion Of Food Waste To Edible Protein



KEY INFORMATION

TECHNOLOGY CATEGORY:

Sustainability - Food Security

Waste Management & Recycling - Food & Agriculture

Waste Management

Foods - Ingredients

TECHNOLOGY READINESS LEVEL (TRL): **TRL5**

COUNTRY: **SINGAPORE**

ID NUMBER: **TO174807**

OVERVIEW

One-third of the food produced globally is lost or wasted. At the same time, millions of people are hungry and unable to afford a healthy diet. Having said that, food loss and waste could potentially impose food security and impact the world with nutrition, socioeconomic, and environmental issues.

This technology offer is a process technology that provides an efficient and environmentally friendly approach to utilise agri-food side stream and convert it to a valuable, high protein biomass.

The technology develops precision approaches, i.e., the proper treatment methods for food waste, specific separation means for target ingredients, suitable strains for protein production, and optimized operational conditions for the fermentation process. The process also utilises the inexpensive agri-food side stream as the novel feedstock for protein fermentation.

The technology is available for R&D collaboration and test bedding, with partners that are interested in valorisation of food waste to value-added edible protein. The technology owner is also keen to license and commercialize this technology.

TECHNOLOGY FEATURES & SPECIFICATIONS

Some key features of the technology are as follows:

- Bioconversion of food waste to edible protein
- Food waste can be effectively treated to obtain the target ingredients
- Suitable membrane technology separates target ingredients from treated food waste efficiently
- Specific strains can be isolated and used for the protein fermentation

POTENTIAL APPLICATIONS

- Food waste treatment (enzymatic, physical and chemical methods)
- Membrane technology application (e.g., target ingredients separation)
- Strains isolation and culture
- Fermentation process optimisation
- Foods (e.g., alternative protein, sensory characteristic, nutritional benefit)

UNIQUE VALUE PROPOSITION

- Customised process and condition
- Environmentally sustainable food production through bioconversion
- Cost-efficient development with food waste as novel feedstock
- Scalable fermentation process
- CO₂ mitigation by biomass growth which can lessen the environmental burden

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