



DEVELOPMENT OF FUNCTIONAL DIETARY FIBRE FROM PLANT-BASED FOOD WASTE

In collaboration with
School of Applied Sciences, Republic Polytechnic
Food and Nutrition Discipline,
School of Environmental and Life Sciences,
University of Newcastle, Australia



Centre for Sustainable Development



BACKGROUND

Food Waste

» One of biggest waste streams in Singapore - 744 million kg of food waste (2019)

30 by 30 Food Sustainability

- » Drivers: Geopolitical uncertainties & Climate Change
- » To Build Agri-food Industry's Capability and Capacity to Sustainably Produce 30% of Our Nutritional Needs by 2030

OBJECTIVES

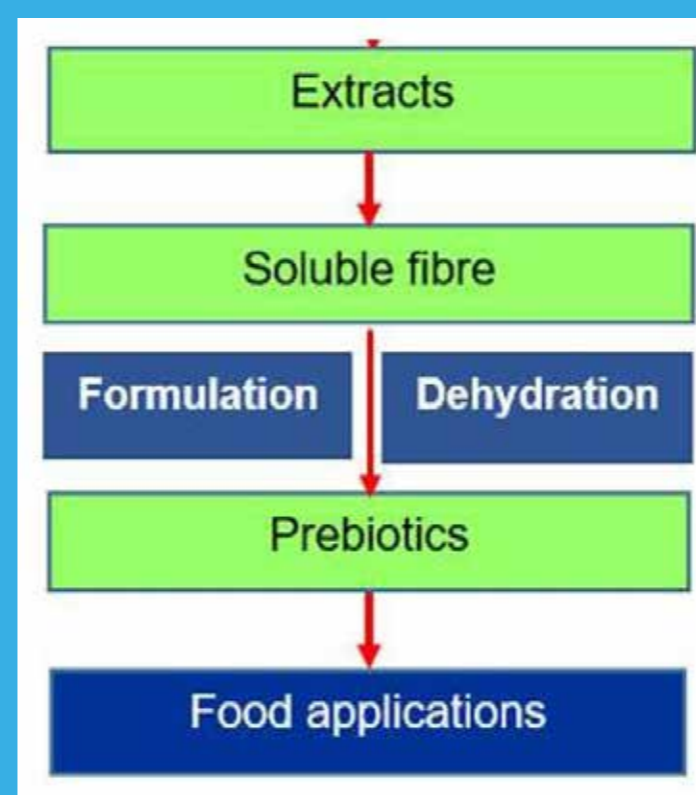
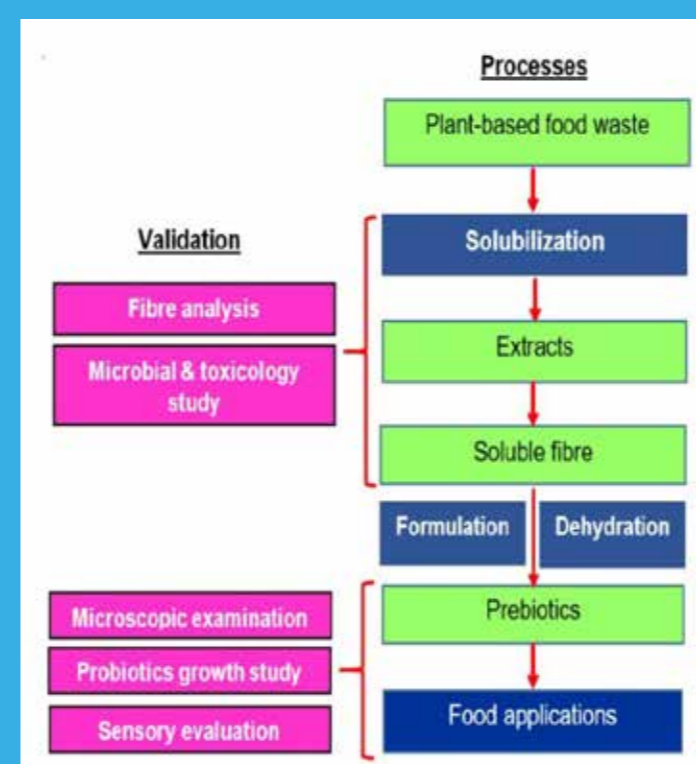
- » To extract dietary fibre from plant-based food waste
- » To formulate prebiotics from the extracted dietary fibre
- » To validate the functionality of the dietary fibre and prebiotics

PROPOSED METHODS

- » Plant-based Food Waste Contain Large Amounts of Insoluble Fibre (e.g. Okara - soya bean)
- » A new technology to Solubilize, Extract Fibre and Fractionate the Fibre into Prebiotics will be Developed
- » Dietary fibre analysis: Optimize and Solubilize the Extraction Processes
- » Microbial and Toxicology Studies: Extracts and Residues to Ensure They are Free of Pathogens and Toxins

PREBIOTICS FORMULATION: FOOD APPLICATIONS

- » Extracts: Contain Mostly Soluble Fibre and Saccharides
- » Combination of extracts from different plant-based food waste sources optimized
- » Prebiotics Mixture Formulated: Encapsulated and Spray-dried
- » Probiotics Growth Study: To Optimize the Formulation of Prebiotics
- » Sensory Evaluation: Conducted on Prebiotics Powder



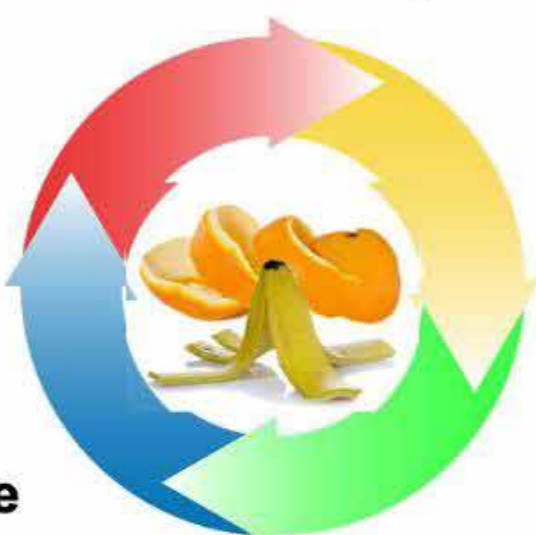
INNOVATION

Maximized valorisation

Circular economy model



Low cost and sustainable



Novel



Contribution:
30 by 30 Food Sustainability



SCAN TO LEARN MORE



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