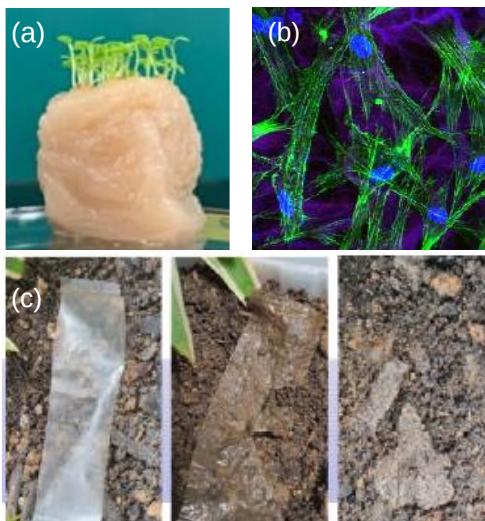


Keratinous Waste-to-Resource Circular Bioeconomy Platform

TECHNOLOGY OVERVIEW

The diversion of waste from either landfilling or incineration to boost the recycling rate has been embraced by the community. This work features the upcycling of keratin, an agro-industrial by-product, into a bioresource that can be developed into high value, specialised sustainable products.

The transformative technology is a modular and integrated sustainable close-loop waste valorization process where carbon footprint reduction occurs at source, during production and at the end of the product lifecycle. As an agile and non-selective process, homogeneous product can be derived from heterogenous waste streams in four steps. The conversion process also takes place without the need for high temperature rendering it energy efficient. The repurposed keratins can be used for agricultural, food and healthcare applications, amongst others.



Potential products developed from upcycled keratinous waste for (a) agriculture, (b) healthcare and (c) food applications

FEATURES & SPECIFICATIONS

- Application of extraction, biomass conversion and degradation technologies
- Robust technology applicable to stubborn waste streams
- Agile formability
- Ease of functionalization with compatible materials
- Customisable, application led performance
- Lower environment burden and product carbon footprint
- Supports close-loop bioeconomy

MARKET TRENDS & OPPORTUNITIES

- The sustainable products market, helmed primarily by the food & beverage, personal care and healthcare segments is seeing exponential surge both in market share and revenue.
- The sustainability industry will be witnessing a CAGR 25.6%, with waste management as one of the key growth areas.

POTENTIAL APPLICATIONS

- Agriculture
- Packaging
- Service Wares
- Healthcare