

Information and Networking Event EU-India TTC Call on



Waste to Renewable Hydrogen

HORIZON-CL5-2025-04-D2-13

Centre of Excellence in Microbiome (CoEM)

An initiative of the Govt. of Kerala under KSCSTE, Kerala, India





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Current Location: KINFRA Film & Video Park, Kazhakkootaam, Sainik School P.O, Thiruvananthapuram, Kerala, India



The Centre of Excellence in Microbiome is a premier research institution dedicated to advancing knowledge on the microbiome across all forms of life.



To study the potential and Application of microbiome in health towards One-Health perspective

Biomanufacturing & Bioprospecting Developing products and process through synthetic biology and fermentation approached

Microbes & Environment To study and develop solutions for various environmental Issues through microbial application

Entrepreneurship Supporting To support the entrepreneurial skills and to develop products or technologies, testing services

Project Title



Development of a Novel Bioprocess to Harness Hydrogen from Biomass through Advanced Microbial Technology

- To generate Hydrogen, cost effectively and Eco-friendly though sustainable approach
- Helps to solve the agricultural wastes, left overs, plant pollutants (eg. Water hyacinth), invasive weeds, food wastes which is a major issue of waste management in Kerala
- Works in Two stages Hydrogen production stage and Enrichment stage

Stage I: Production of H2 through modified anaerobic digestion of biomass





• Microbial consortiums from rich sources will be formulated to promote the hydrolysis alone as a time-controlled process



Phase 3• Hydrogen production from hydrolysed biomass
in continuous stirred tank reactor systemConsortium promoting acidogenesis and acetogenesis



Partners sought for: Large scale setting up of the system, Hydrogen purification and storage.



Project Relevance and Strategic Importance

Sustainable Waste Management Solution -Integrates thermophilic and fermentative microbes to create a zero-waste loop

No need of high temperature systems and use of fossil fuels

Transforms low-value waste into valuable energy

Increased yield of Hydrogen compared to existing workflows





Thank You