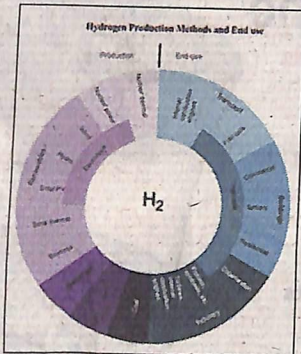# NITK Surathkal to generate hydrogen from food waste

'40% Of Food Wasted Daily In India'

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Mangaluru: After tasting success in generating methane from food waste, NITK, Surathkal, is working on generating hydrogen by Steam Biogas Reforming (SBR).

According to Vasudeva M, project investigator, Campus Waste to Energy Project, NITK, Surathkal, the project is funded through Maire Tecnimont Research Scholarships for Sustainable Development. The project is executed through the Maire Tecnimont Centre for Research in Waste Recycling and Circular Economy, a joint initiative of NITK, Surathkal, and Tecnimont Private Limited (TCMPL). It is funded through its corporate social responsibility.

Vasudeva said there is a demand for energy due to an increase in the global population. He said reports say approximately 40% of the food produced in India is wasted daily, and this percentage touches 50% on special occasions.

"The cost of food waste being generated is about Rs 92,000 crore per annum and the most interesting fact is, that it is equivalent to 17.6% of Indian military expenditure and 0.46% of Indian GDP. Fossil fuels are diminishing rapidly, and we need alternate fossil fuels with renewable and environment-friendly energy resources. Thus, hydrogen is believed to be a next-generation energy carrier. Of late, it is becoming popular," he added.

The sources of hydrogen are abundant - water, biomass, hydrogen sulphide, and even hydrogen-rich petroleum resources. Methods of hydrogen extraction from these sources were developed well before the 1970s, such as water electrolysis, coal gasification, natural gas reforming, and others.

The main issue with applying these methods is related to several parameters, including environmental impact, cost-effectiveness, commercial availability, reliability, and others.

But steam methane reforming (SMR) is widely used for hydrogen production from natural gas and methane-rich gases. The same will be adopted at NITK, Surathkal. The institution has already installed a 500kg food waste or bio-waste recycling plant, which is producing methane, currently used for cooking purposes in one of the hostels.

The hydrogen produced can be used in transportation, fuel cells, power generation, oil sands processing, and generation of industrial energy, said Vasudeva.

Platform for students, firms to connect

TIMES NEWS NETWORK

Mangaluru: College students, be it undergraduate, postgraduate or pursuing doctoral studies, constantly share their profiles with various organisations, in order to find career opportunities. Student profiles across skillsets and academic credentials, are also sought by a diverse set of organisations. In a bid to meet the needs of both, Robosoft Technologies and NITK Surathkal have partnered to develop a collaborative platform, where students and organisations can connect and interact directly, for multiple opportunities like projects, internships, or jobs.

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solutions, as it is built on Web 3.0 technologies, and hence personal data is owned entirely by the students and organisations they engage with. Students can share their profiles, and can even showcase their work in and outside their field, such as white papers, projects, studies, or research. In turn, organisations offering jobs or internships will be able to view relevant student profiles. Students can get recommendations for jobs, projects, or internships, based on their qualifications and interests, through artificial intelligence and machine learning tools. The discussion between the student and company are private.

Udaykumar R Yaragatti, former director (in-charge), NITK Surathkal, said: "We believe both the student community and the corporate world will benefit from this platform. It is a secure and decentralised platform, that uses blockchain in use cases, such as validating a student's profile. The platform will be built by NITK with the help of Sourav Kanti Addya and Mohit P Tahiliani."

Robosoft Technologies is providing support to the project, through strategic advisory, multidisciplinary research, development, and education in emerging technologies and applications. "Robosoft is happy to partner with NITK on this path-breaking project, which solves a consumer pain point creatively, through technology. This is just the beginning of the NITK-Robosoft relationship, as we both come together to solve societal problems through state-of-the-art research and technology," said Ravi Teja Bommireddipalli, managing director and CEO of the company. The proposed platform will be free-to-use, with no membership fees to avail of the services.

Hydrogen Production Methods and End use

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