One Day National Online Webinar
on

Green Hydrogen Production Through a Biorefinery Approach

10-06-2021

Report on Webinar Organized

Title: Green Hydrogen Production Through a Biorefinery Approach

Date: 10-06-2021.

Resource Person: Dr. S. Venkata Mohan, Senior Principal Scientist, Department of Energy and Environmental Engineering, CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad – 500 007, India

Description of the Program:

Vignan's Foundation for Science Technology and Research is NAAC 'A' grade institution and secured good rank in Engineering category by the National Institutional Ranking Framework (NIRF).

The University as well as our department planned to organize a series of webinars on emerging technologies for faculty and research scholars to improve the research potentiality.

As the part of series of webinars department of Biotechnology organized one-day national online webinar on "Green Hydrogen Production Through a Biorefinery Approach". This programme has received an overwhelming response. About 372 Faculty members and research scholars from various engineering colleges and industry have participated.

Dr. S. Anil Kumar, Coordinator has welcomed the speaker and all the participants to the webinar. Dr. K. Srikanth, Associate Professor has introduced the resource person Dr. S. Venkata Mohan. In his talk, he highlighted the main objectives and importance of this webinar.

Dr. S. Venkata Mohan provided the Renewable/Green hydrogen production is now being considered a potential and futuristic energy carrier. Using waste feedstock for biohydrogen production through the biological process is one of the potential alternatives to fossil-based production and accounts for sustainability. Dark-fermentation/acidogenic process is now considered a sustainable route and a key technology for low-carbon green H2 production (refereed as Biohydrogen) mainly by using wastewater, agri-biomass and biodegradable waste as feedstock. Wild-type mono-cultures or consortia of anaerobic origin were used extensively for H2 production. Distributed metabolism of the individual microbial species or taxa present in the microbiome plays a major role. Rather than using mono-culture, using mixed culture as biocatalyst is always found beneficial due to the required synergy and diversified metabolism among the microorganism towards achieving relatively effective yields with simple operational requirements. Feedback or product inhibition caused by the co-production of fatty acids as

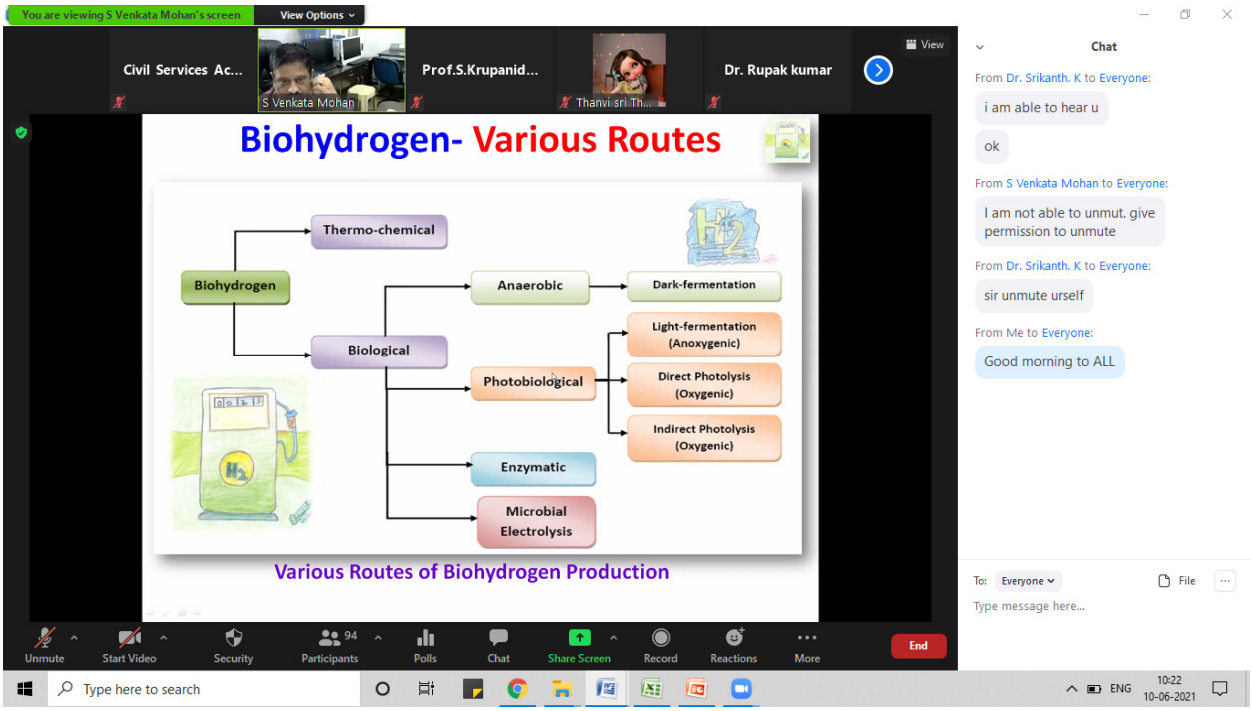
well as H2 itself are the major issues that limit process efficiency. Integration of dark-fermentation with other processes (mostly biological) showed promise in maximizing the product(s) synthesis and resource recovery by putting back the unutilized carbon into the ecological loop in the biorefinery approach. Integration with anaerobic digestion for CH4 production and hybrid process towards biohythane (Hydrogen compressed natural gas, H-CNG) production is practically now feasible to influx into the existing infrastructure. The dark-fermentation process using waste-based feedstock was operated and demonstrated at a pilot-scale capacity of 50,000 litres of H2 per day at CSIR-IICT, Hyderabad using enriched consortia as biocatalyst in a biorefinery mode to maximize resource recovery. This communication will discuss the research being carried out at CSIR-IICT on H2 production employing a closed-loop design with a multi-product portfolio.

Finally, vote of thanks was given by Dr. Ch. Anjani Devi, she thanked every participant for their active participation during entire session. She also expressed the gratitude to the Resource Person, Dr. S. Venkata Mohan, for sharing of latest research issues with all participants. Also, she expressed her sincere thanks to Dr. L. Rathaiah Garu Chairman, Vignan,s group of institutions, Vice-Chancellor Dr. M.Y.S. Prasad and HOD, for giving an opportunity to organize this webinar.

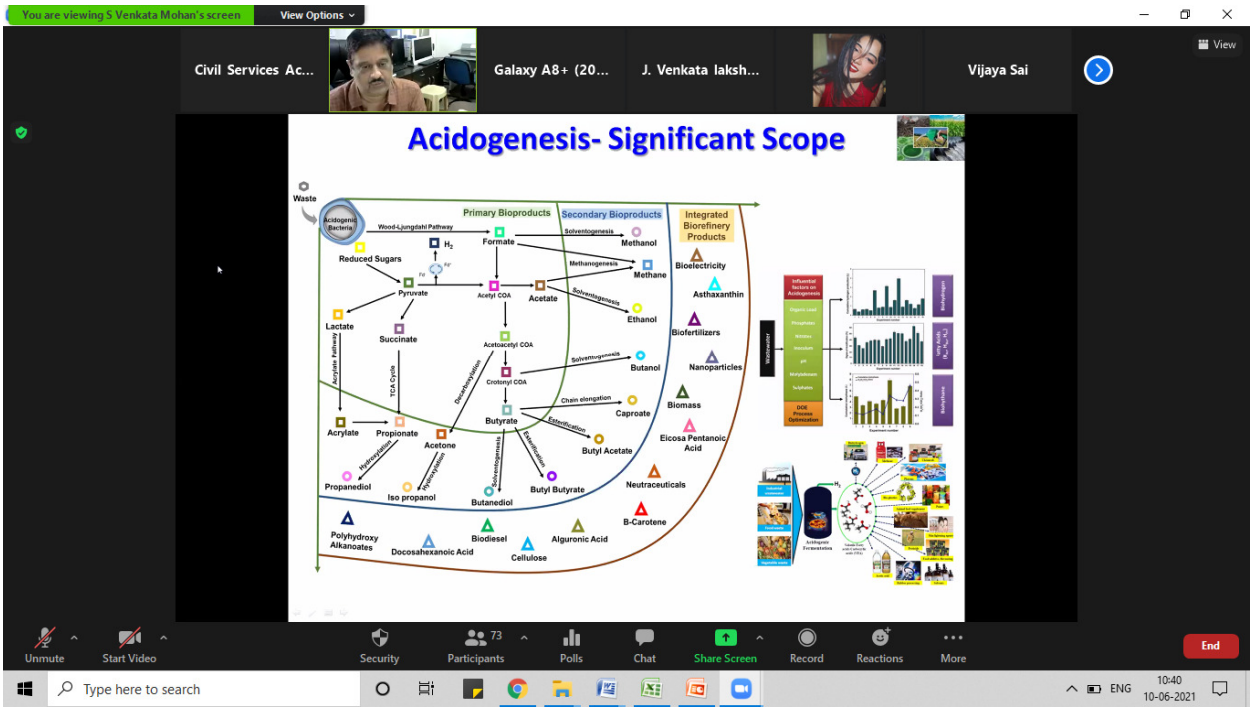
At the end the session the feedback of the participants was very positive and motivational for the organizers. The participants felt very happy for conducting the webinar on "Green Hydrogen Production Through a Biorefinery Approach". They have learned the importance of green gases and the procedure involved in green hydrogen production. They said that, this program was very useful and helpful for them in their research work and guiding the projects to the students. All the participants appreciated the sessions by our Resource Person and the arrangements made by the organizers.

Snapshots of the Program:

1. Invitation of the Programme



2. Screen Shot of the Programme



3. Screen shot of SnapGene tool.