A Report on

Expert Talk -

Innovation in Seaweed Farming: Towards Sustainable Approach

By

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Conducted by

Department of Biotechnology & Food Technology, GMIU, Bhavnagar.

on

03 February 2024

Introduction:

The Department of Biotechnology and Food Technology (DBT&FT) has organized an "**Expert Talk on *Innovation in Seaweed Farming: Towards Sustainable Tomorrow***" by **Dr. Vaibhav A. Mantri, Divisional Chair and Sr. Principal Scientist, Applied Phycology & Biotechnology Division, CSIR-Central Salt Marine Chemicals Research Institute, Bhavnagar, Gujarat** under the Student Startup Innovation Policy (SSIP 2.0) of Government of Gujarat. DBT&FT hosted an expert talk event on 3rd February 2024 (Saturday). It was a day (3 hours) session conducted and delivered a talk on seaweed farming and various innovation practices.

Seaweed, often overlooked in comparison to its terrestrial counterparts, harbours immense potential for innovation and sustainability in various industries. As we stand at the cusp of environmental challenges and burgeoning global populations, the exploration of seaweed farming emerges as a beacon of hope, offering a promising avenue towards a sustainable tomorrow. In this comprehensive discourse, we delve into the burgeoning field of innovation in seaweed farming, exploring its multifaceted dimensions, ecological significance, economic viability, and the transformative impact it promises to deliver on a global scale.

Seaweed, a diverse group of marine macroalgae, holds a pivotal position in marine ecosystems, contributing significantly to biodiversity, carbon sequestration, and ecosystem resilience. Its ecological importance extends beyond its role as a primary producer; seaweed forests serve as crucial habitats and nurseries for a myriad of marine organisms, while also playing a vital role in nutrient cycling and shoreline stabilization. Moreover, seaweeds possess remarkable biochemical properties, offering a rich source of bioactive compounds with potential applications in pharmaceuticals, nutraceuticals, and cosmeceuticals. Thus, the cultivation and utilization of seaweed represent a holistic approach towards sustainable resource management and ecosystem stewardship.

The traditional practice of seaweed farming, prevalent in many coastal communities worldwide, has laid the foundation for contemporary innovations in seaweed cultivation techniques. From rudimentary stake and line cultivation methods to sophisticated offshore cultivation systems, the evolution of seaweed farming reflects a convergence of traditional knowledge and modern technology. Innovations such as integrated multitrophic aquaculture (IMTA), which combines seaweed cultivation with fish or shellfish farming, exemplify the synergistic potential of harnessing diverse marine resources to enhance productivity and sustainability.

Furthermore, advancements in biotechnology and genetic engineering have unlocked new frontiers in seaweed breeding and bioprospecting, facilitating the development of high-yield, disease-resistant cultivars with desirable traits. Genetic manipulation holds immense promise for enhancing seaweed biomass productivity, improving nutritional profiles, and tailoring biochemical composition for specific industrial applications. However, ethical considerations and environmental implications must be carefully evaluated to ensure responsible innovation and mitigate potential risks associated with genetic modification.

In tandem with technological innovations, the emergence of seaweed biorefineries represents a paradigm shift towards a circular bioeconomy, wherein seaweed biomass is valorised and utilized in a cascading manner to extract a diverse array of value-added products. Seaweed biomass, rich in polysaccharides, proteins, lipids, and bioactive compounds, serves as a versatile feedstock for the production of biofuels, biochemicals, functional ingredients, and biodegradable materials. Moreover, seaweed-based biorefineries offer a sustainable solution for waste valorisation and carbon sequestration, mitigating greenhouse gas emissions and contributing to climate change mitigation efforts.

In conclusion, innovation in seaweed farming embodies the essence of sustainable development, offering a holistic solution to pressing environmental, socio-economic, and public health challenges. By harnessing the ecological, economic, and technological potential of seaweed cultivation, we can pave the way towards a sustainable tomorrow, characterized by resilience, prosperity, and harmony with nature. Through interdisciplinary collaboration, research, and policy support, we can unleash the transformative power of seaweed innovation, ushering in a new era of sustainability and abundance for generations to come.

Total **64 student** have attended the 3 hour session along with **20 faculty from both side**.

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Glimpse of Expert Talk

Innovative in Seaweed Farming: Towards Sustainable Tomorrow

at

Department of Biotechnology & Food Technology,

Gyanmanjari Innovative University, Bhavnagar.


Innovations in Seaweed Farming:
Towards sustainable tomorrow
Prof. Dr. Vaibhav A. Mantri, PhD
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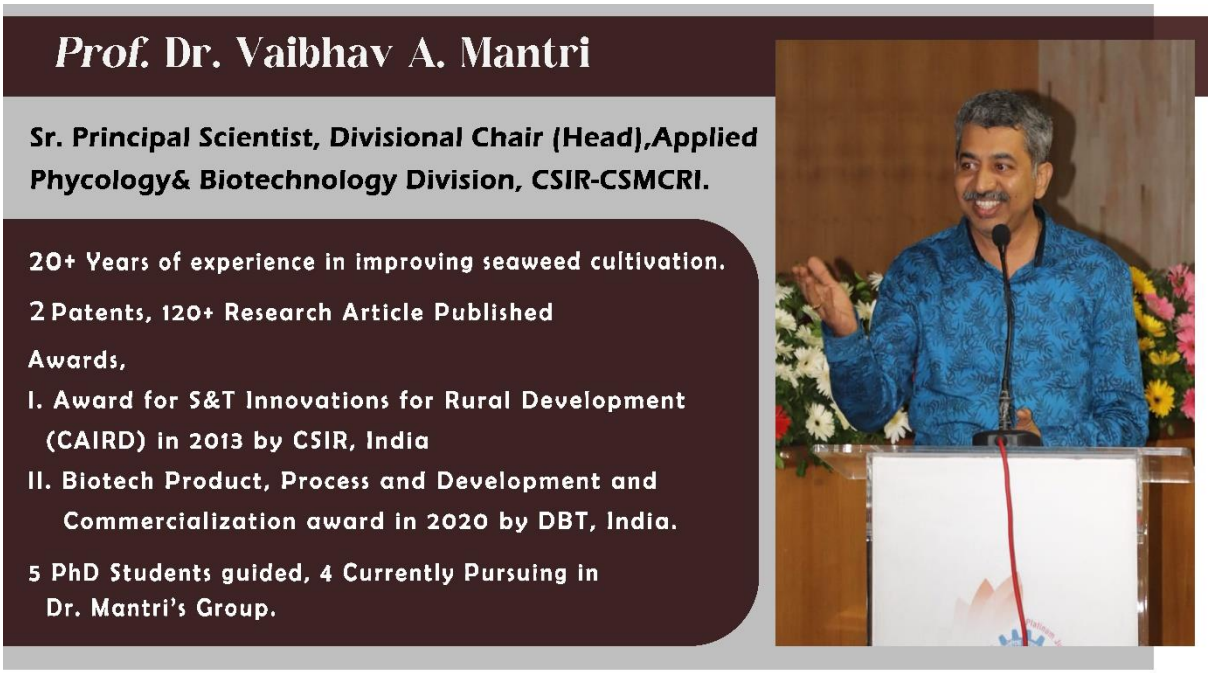

EXPERT TALK

Innovation in Seaweed Farming: Towards Sustainable Tomorrow

By Dr. Vaibhav Mantri **Date: 03 Feb 2024**

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Vote of Thanks To

Dr. Vaibhav A. Mantri

CSIR- Central Salt Marine Chemicals Research Institute, Bhavnagar

For his Expert Session at

Department of Biotechnology & Food Technology,

Gyanmanjari Innovative University, Bhavnagar.

We at the Department of Biotechnology & Food Technology, Gyanmanjari Innovative University (GMIU), Sidasar Road, Bhavnagar are very much thankful to **Dr. H. M. Nimbark** (Provost, GMIU, Bhavnagar), **Prof. Anish Vora,** (Director, Training and Placement**) Prof. Vedant Gaud** (Head, DBT&FT, GMIU) for their continues guidance and organizing the expert session GMIU, Bhavnagar on 3rd February 2024 for engineering, Pharmacy and Sciences students. We are also thankful to GMIU, and Bhavnagar management for providing a platform, resources, and various technical facilities including refreshments for students as well as all faculty mentors during this event.