Optimizing Ulva Aquaculture for Industry: From Genes to Ecosystems

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Abstract

The aquaculture of *Ulva* species is expanding rapidly due to their high productivity, environmental adaptability, and diverse applications across multiple industries. However, large-scale and sustainable cultivation remains a challenge, as the genetic diversity and systems biology of *Ulva* are still poorly understood. To develop resilient and high-yielding crop strains, fundamental research is needed to unravel the genetic mechanisms underlying key traits such as growth, reproduction, and stress tolerance. Particularly, large-scale *Ulva* cultivation requires a deeper understanding of strain selection, physiological responses, life-cycle, and ecological interactions to optimize yield and biochemical composition while ensuring environmental sustainability. This talk will highlight the importance of integrating molecular, ecological, and physiological studies to optimize *Ulva* aquaculture and establish a scientifically informed foundation for industrial-scale production.
technology development.

Speaker Introduction

Sophie Steinhagen is Associate Professor at the University of Bergen (Norway) and docent at the University of Gothenburg (Sweden). After conducting her PhD in Molecular Ecology (GEOMAR Helmholtz Centre for Ocean Research, Germany) she investigated the green seaweed biodiversity, their phylogenetic relationships, and species-specific traits. Her current research explores the interplay between environmental factors and genomic set up of seaweeds, unraveling the secrets behind the content of high-value compounds and setting baselines for breeding programs in European seaweed crop strains to support a sustainable seaweed aquaculture and flourishing Blue Economy.