EVALUATION OF ULVAN DERIVED FROM *Ulva ohnoi* CULTURED IN AN INTEGRATED MULTI-TROPHIC AQUACULTURE SYSTEM

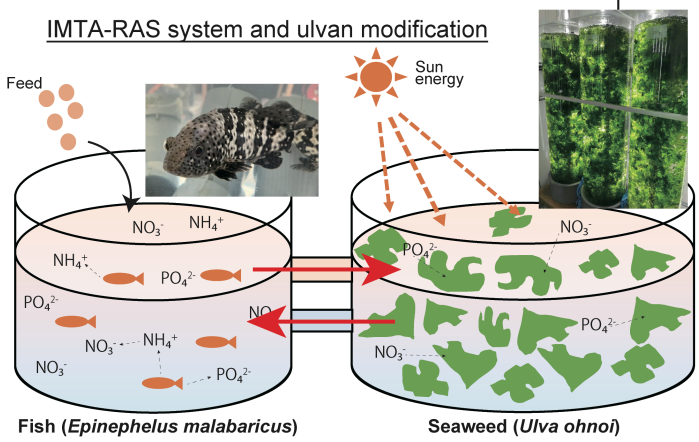
Yonamine R*, Hiratsuka Y, Yoshida I, Yoshida M, Takemura A

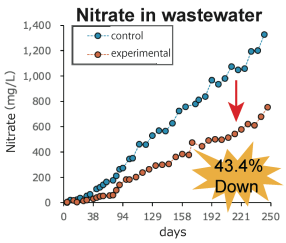
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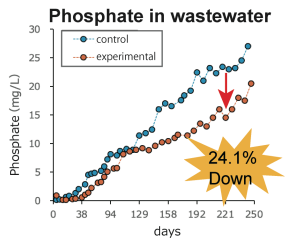
BLUE & GREEN REVOLUTION

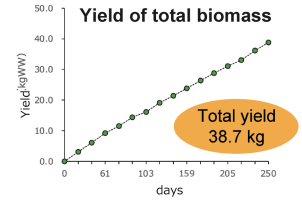
Introduction

IMTA-RAS system and ulvan modification

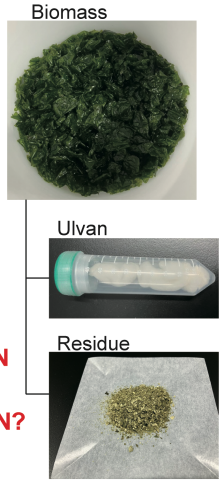








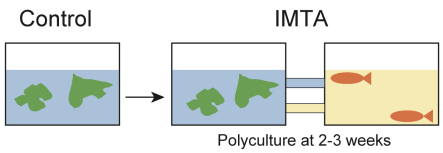
from BIOMASS PRODUCTION to BIOMASS VALORIZATION?



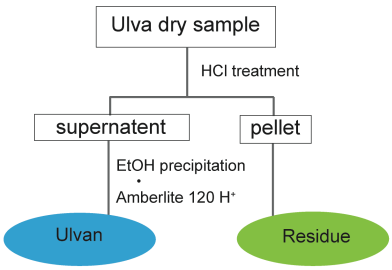
Objective : Effect of polyculture conditions on ulvan yield and characteristics Effect of salinity on ulvan properties

Materials and methods

Culture



Ulvan extration



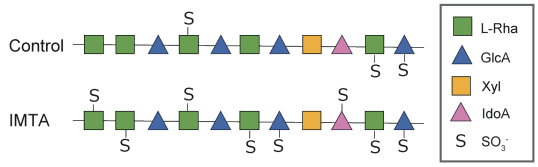
Anaylsis

- Phenol sulfuric acid method
- *m*-hydroxybiphenyl method
- Ion chromatography
- HPAEC-PAD
- ICP-MAS
- vario MAX cube elemental analyzer

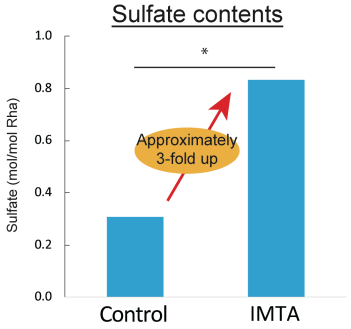
Result 1 : Wastewater effect for ulvan and residue

Ulvan structure

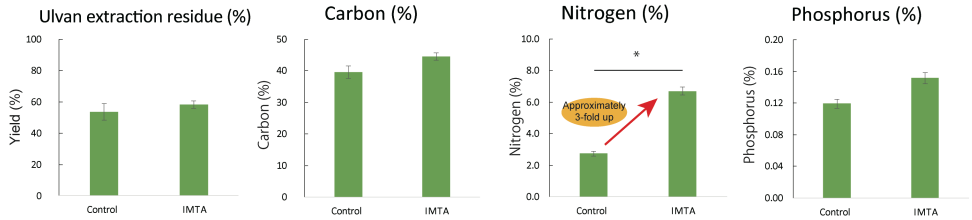
	Rha	Xyl	GlcA	IdoA	SO_3^-
Control	1.0	0.1	0.7	0.2	0.3
IMTA	1.0	0.1	0.7	0.1	0.8



Sulfate contents

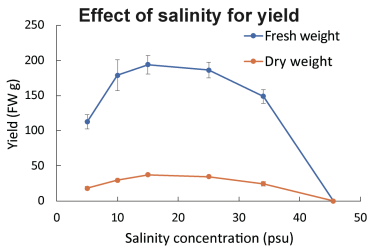


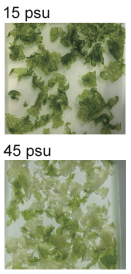
Residue of element components



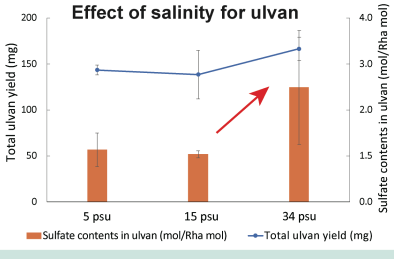
Result 2 : Salinity effect for ulvan

Effect of salinity for yield





Effect of salinity for ulvan



Concept

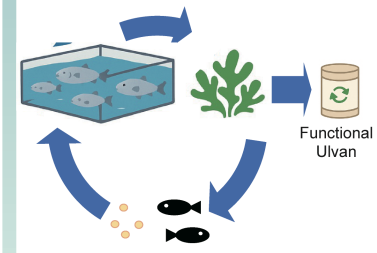
Environment change (nutrients, salinity)

↓

Cell wall remodeling (sulfate contents)

↓

Functional properties & Biomass valorization



Take-home message

(1) IMTA culture of *U. ohnoi* enhanced **ulvan sulfation (~3-fold)** without changing its monosaccharide composition.

(2) Extraction residue showed **higher nitrogen** content, indication potential as a protein resource.

(3) Ulvan sulfation is responsive to culture conditions such as salinity.

Acknowledge

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