



**S<sup>2</sup>AQUA**

Laboratório Colaborativo  
Sustainable and Smart Aquaculture

# DEVELOPMENT AND OPTIMIZATION OF HATCHERY *Codium tomentosum* CULTIVATION METHODS FOR OFFSHORE PRODUCTION

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## 1. Introduction

European seaweed industry is growing and one of the species that is showing high potential for cultivation, in Portugal, is *Codium tomentosum* due to its applications. Recently, it has emerged as a valuable source of neuroprotective and anti-inflammatory agents in the cosmetic and pharmaceutical industries. It has antibacterial effects, especially against Gram-negative bacteria. It is also used in Integrated Multi-Trophic Aquaculture (IMTA), it is a promising cash crop for both animal and human nutrition, offering various health benefits.

## 2. Goals

Currently protocols for offshore cultivation of *C. tomentosum* are lacking. The main goal of this project is to develop and optimize methods for its offshore cultivation.

## 3. Methods

To achieve this, we performed four experiments at 18°C, 16L:8D and light intensity 20 or 60  $\mu\text{mol m}^{-2} \text{s}^{-1}$ , respectively for 1&3 and 2&4, with F/2 media:

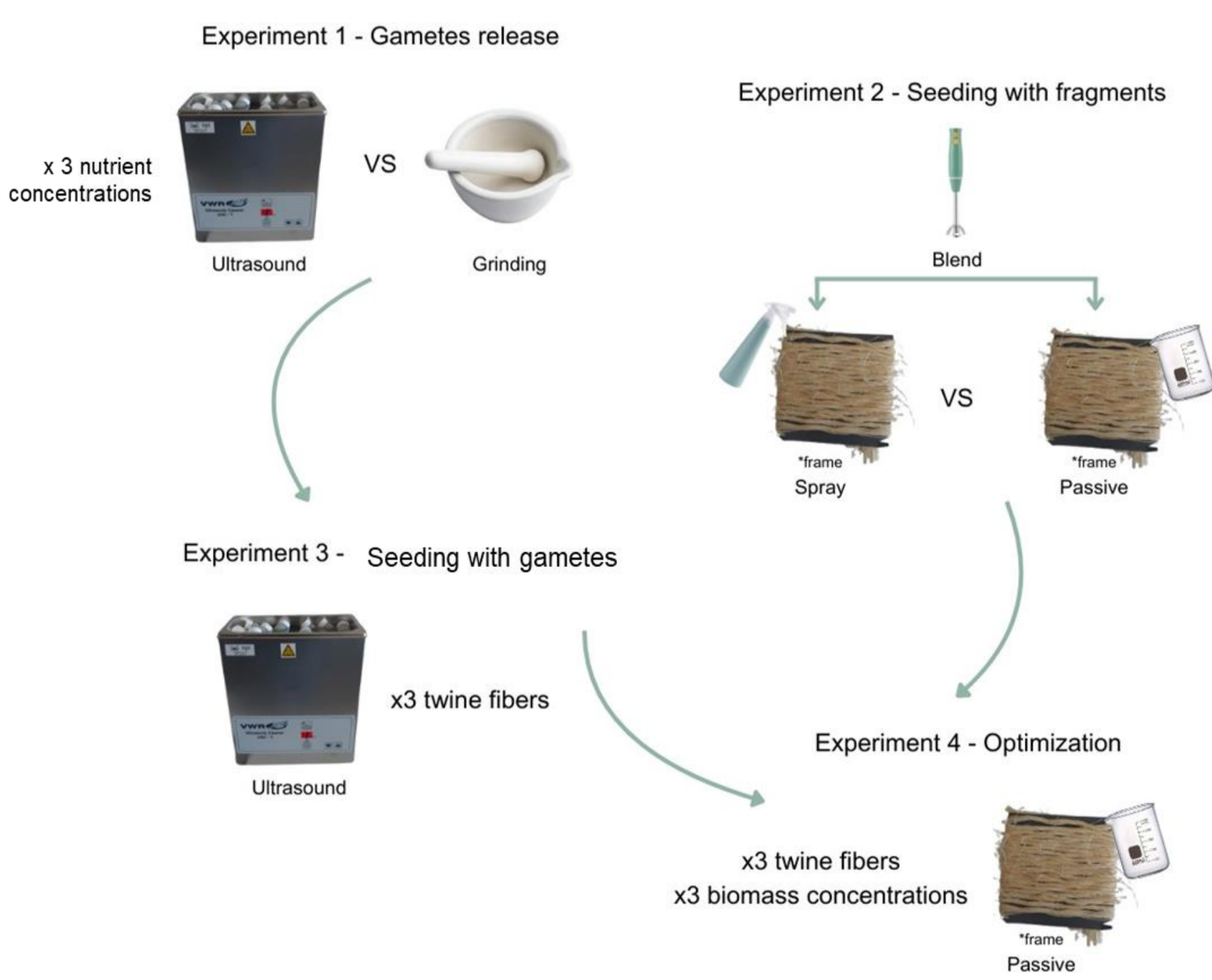


Fig. 1- Scheme of the methods.

## 4. Preliminary Results

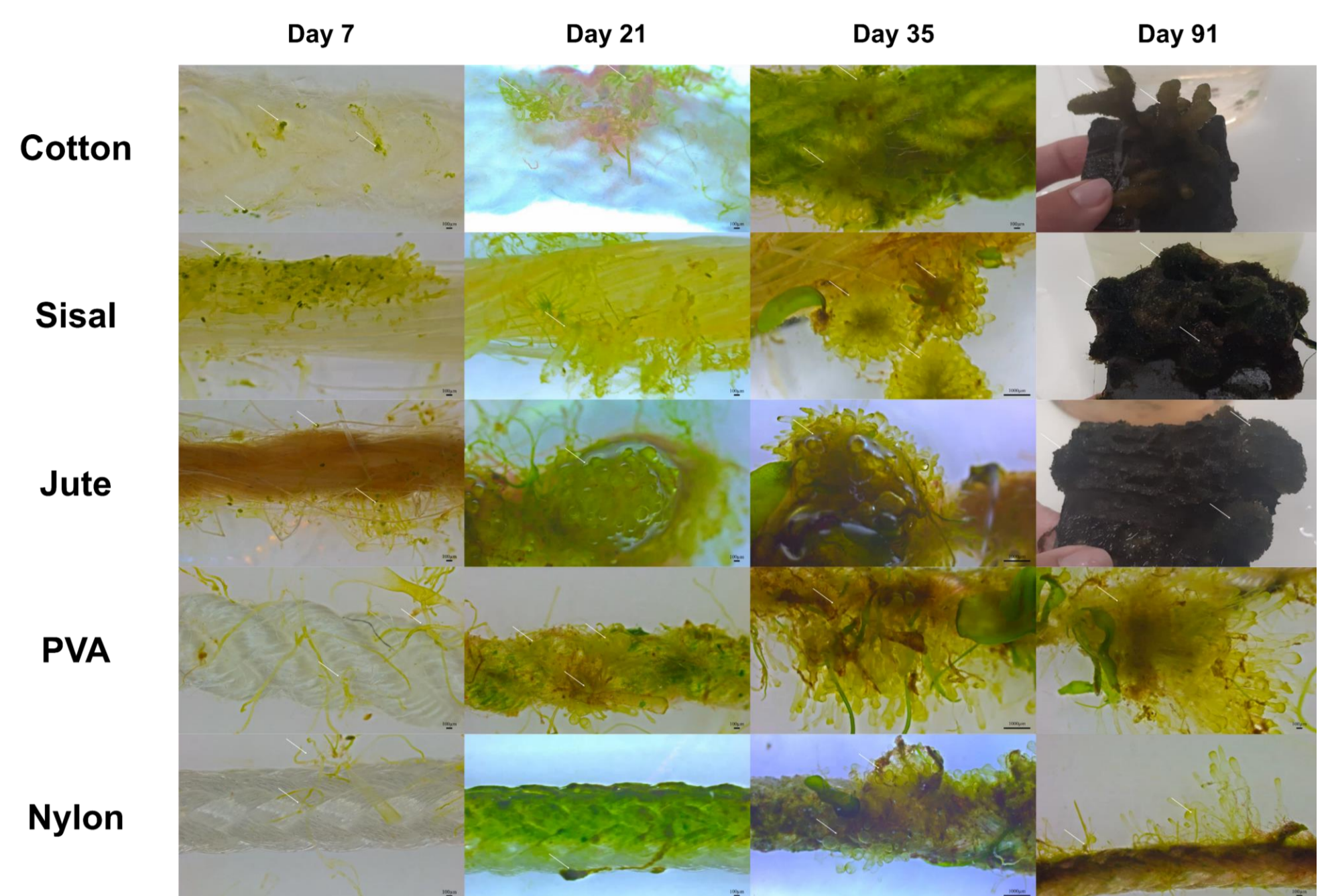


Fig. 2- Seeding method with fragments using the passive method (Exp 2).

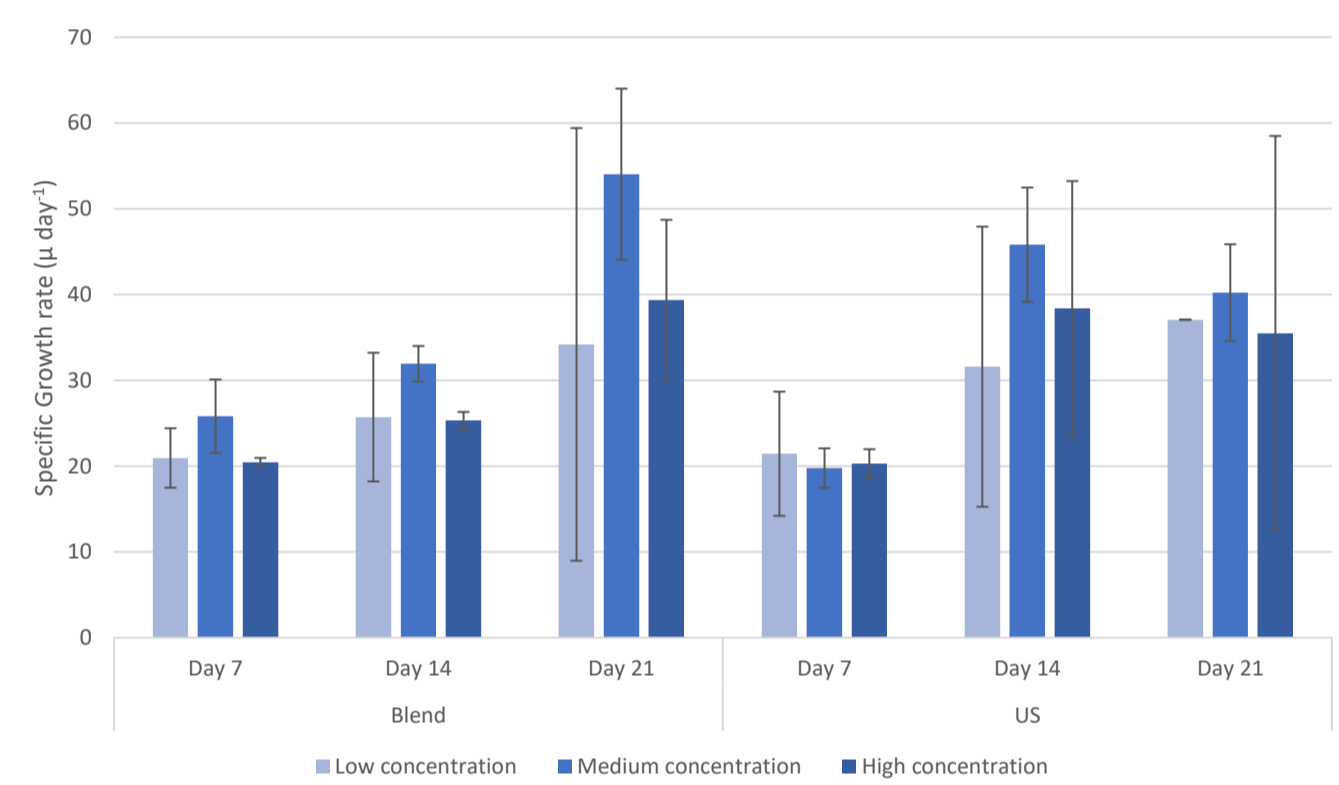


Fig. 3- Comparison of growth (SGR) from gametes released from grinding and ultrasound methods of *C. tomentosum*, at 3 different nutrient concentrations (Exp 1).

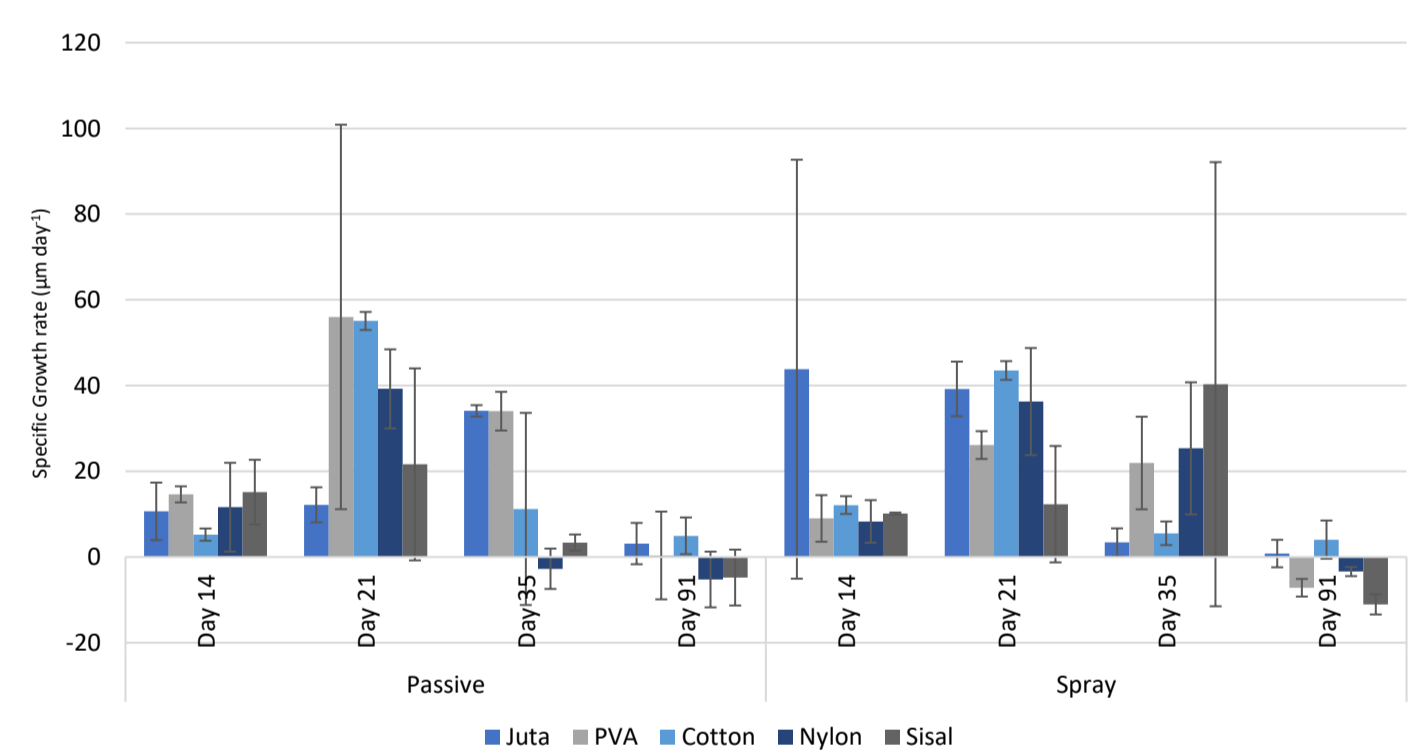


Fig. 4- Comparison of growth (SGR) of *C. tomentosum* fragments from the passive and spray methods (Exp 2).

## 5. Discussion and Conclusions

- There are no significant differences in the number of gametes released between the two methods tested, however, grinding led to more contamination in cultures.
- Filamentous substrates (twine) with hydrophilic properties resulted in increased growth.
- Preliminary results seem to indicate that the seeding method with fragments is faster than with gametes.
- In future offshore cultivation trials will be based on the results from this work, with the selection of best performing seeding method, twine and seeding density.

## Acknowledgments

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