

ABSTRAK

EVALUASI LAJU PERTUMBUHAN, KADAR KARAGINAN DAN PRODUKSI BIBIT RUMPUT LAUT KOTONI (*Kappaphycus alvarezii*) HASIL KULTUR JARINGAN

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Penelitian ini bertujuan untuk menganalisis perbedaan laju pertumbuhan, kadar karaginan, serta efektivitas penggunaan bibit rumput laut kotoni (*Kappaphycus alvarezii*) hasil kultur jaringan dari tempat dan periode yang berbeda. Penelitian dilaksanakan selama 35 hari pemeliharaan di Kecamatan Ketapang, Kabupaten Lampung Selatan menggunakan metode *long line*. Perlakuan yang digunakan terdiri atas bibit rumput laut non kultur jaringan, bibit kultur jaringan lama (2018) dari BBPBL Lampung dan bibit kultur jaringan baru (2023) dari BPBL Ambon. Parameter yang diamati meliputi pertumbuhan bobot mutlak, laju pertumbuhan harian, kadar karaginan, *gel strength*, dan kualitas air. Data dianalisis menggunakan analisis ragam (ANOVA) dan uji lanjut Duncan pada taraf nyata 10%.

Hasil penelitian menunjukkan bahwa perlakuan bibit memberikan pengaruh nyata terhadap pertumbuhan bobot mutlak ($p = 0,087$), laju pertumbuhan harian ($p = 0,031$), dan kadar karaginan ($p = 0,093$) dan *gel strength* (Monte Carlo Sig = 0,028). Perlakuan kultur jaringan lama menghasilkan pertumbuhan bobot mutlak tertinggi sebesar $241,46 \pm 32,88$ g, laju pertumbuhan harian tertinggi sebesar $4,59 \pm 0,31\%$ per hari, kadar karaginan tertinggi sebesar $22,48 \pm 0,45\%$, serta nilai *gel strength* tertinggi sebesar $744,09 \pm 38,35$ g/cm². Kondisi kualitas air selama penelitian secara umum masih mendukung pertumbuhan *K. alvarezii*. Berdasarkan hasil penelitian, bibit kultur jaringan lama berpotensi digunakan sebagai bibit unggul karena mampu meningkatkan pertumbuhan dan kualitas rumput laut dibandingkan bibit non kultur jaringan maupun kultur jaringan baru.

Kata kunci: *Kappaphycus alvarezii*, kultur jaringan, laju pertumbuhan, karaginan, *gel strength*.

ABSTRACT

EVALUATION OF GROWTH RATE, CARRAGEENAN CONTENT, AND SEED PRODUCTION OF TISSUE-CULTURED COTTONII SEAWEED (*Kappaphycus alvarezii*)

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This study aimed to analyze differences in growth rate, carrageenan content, and the effectiveness of using tissue-cultured cottonii seaweed (*Kappaphycus alvarezii*) seedlings originating from different locations and cultivation periods. The study was conducted over a 35-day cultivation period in Ketapang District, South Lampung Regency, using the long-line method. The treatments consisted of non-tissue-cultured seedlings, old tissue-cultured seedlings (2018) obtained from BBPBL Lampung and new tissue-cultured seedlings (2023) obtained from BPBL Ambon. The observed parameters included absolute weight growth, daily growth rate, carrageenan content, gel strength, and water quality. Data were analyzed using analysis of variance (ANOVA) followed by Duncan's multiple range test at a 10% significance level.

The results showed that seedling treatment significantly affected absolute weight growth ($p = 0.087$), daily growth rate ($p = 0.031$), carrageenan content ($p = 0.093$) and gel strength (Monte Carlo Sig = 0.028). The old tissue-cultured seedlings produced the highest absolute weight growth of 241.46 ± 32.88 g, the highest daily growth rate of $4.59 \pm 0.31\%$ per day, the highest carrageenan content of $22.48 \pm 0.45\%$, and the highest gel strength value of 744.09 ± 38.35 g/cm². Overall, the water quality conditions during the study were still suitable to support the growth of *K. alvarezii*. Based on the results, old tissue-cultured seedlings have the potential to be used as superior seedlings because they were able to improve seaweed growth and quality compared with non-tissue-cultured and new tissue-cultured seedlings.

Key words: *Kappaphycus alvarezii*, tissue culture, growth rate, carrageenan, gel strength.