

CULTIVATION TRIAL OF *Gracilaria edulis*
(PULAI RIVER AND TANJUNG ADANG SPECIES)
IN TANKS AND POND

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**CULTIVATION TRIALS OF *Gracilaria edulis*
(PULAI RIVER AND TANJUNG ADANG SPECIES)
IN TANKS AND POND**

BY

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ABSTRACT

Gracilaria edulis from Sungai Pulai and Tanjung Adang were cultured in tanks and earth pond used for shrimp culture. Growth rates were measured from September to November 2002, observations on light, nutrients (ammonium, nitrite and ortho-phosphate) concentration and epiphytes were also done. *Gracilaria edulis* was harvested and its agars were extracted after alkali treatment (5 % NaOH, 80°C, 1 hr).

The growth rates in tank culture increased slightly although for almost half of the periods the growth rates decreased (0.0011 – 0.0143% day⁻¹). While for pond culture, there was almost no growth during the whole culture periods (-0.0760 – -0.5399 day⁻¹).

Agar yield and its quality from two different culture methods of *Gracilaria edulis* were unable to compete with the commercial powder agar from Japan and Thailand and strip agar from China. The agar yield from *Gracilaria edulis* cultivated in tanks had the highest agar yield (28.9-35.0%) as compared to pond (23.6-27.3%). The gelling temperatures of cultured samples (26-30°C) were lower than commercial agar (36-38°C) and its melting temperature (66.0-73.7°C) were much lower than commercial samples (86-88 °C).

As a conclusion, *Gracilaria edulis* is not commercially feasible for mariculture as sources of agar. Although it has high agar yield, its quality is low. Due to this, knowledge and understanding of the species, growing location of the species, the production process and seasonal variation are important before any cultivation is done.

ABSTRAK

Gracilaria edulis yang dikumpulkan dari Sungai Pulai dan Tanjung Adang telah dikulturkan dalam tangki dan kolam. Kadar pertumbuhan *Gracilaria edulis* telah dihitung and keamatan cahaya, kepekatan nutrient (ammonium, nitrit and ortho-phosphate) dan pertumbuhan epifit turut diperhatikan. Setelah pengkulturan, sampel-sampel dituai dan proses pengestrakkan agar dijalankan selepas rawatan alkali (5 % NaOH, 80°C, 1 jam).

Sehubungan dengan ini, kajian ke atas kadar tumbesaran relatif, % per hari *Gracilaria* dilakukan. Secara keseluruhannya, kadar pertumbuhan di tangki meningkat sedikit dan menurun semula pada kebanyakan masanya (0.0011 – 0.0143% day⁻¹) manakala di kolam pula menunjukkan kadar tumbesaran yang meleset pada sepanjang masa pengkulturan (-0.0760 – - 0.5399 day⁻¹).

Hasilan agar dan kualiti dari kedua-dua cara pengkulturan tidak setanding dengan agar-agar kormesial dari serbuk agar berjenama Japan dan Thai serta agar jenis kepingan dari China. Hasilan agar yang tertinggi dicatatkan oleh sampel dari tangki iaitu berjulat antara 28.9-34.6% jika dibandingkan dengan sampel kolam iaitu 23.6-27.4%. Suhu gelatin untuk sampel yang dikulturkan (26-30°C) juga lebih rendah jika dibandingkan dengan agar kormesial (36-38°C). Bagi suhu pencairan pula, sampel yang dikultur menunjukkan julat antara 66.0-73.7°C manakala agar kormesial pula antara 86-88 °C.

Kesimpulannya, *Gracilaria edulis* merupakan spesies yang kurang sesuai untuk dipasarkan secara komersial walaupun ia menunjukkan hasilan agar yang tinggi tetapi kualitinya rendah. Oleh itu, pengetahuan tentang kematangan spesies, lokasi strategik pengkulturan agar, proses pengestrakkan dan perubahan musim perlu difahami sebelum marikultur dilancarkan.