中國半葉馬尾藻 *Sargassum hemiphyllum* var. *chinense* 組織及胚胎人工繁殖技術之研究

Study on artificial propagation of tissue and embryo culture of the *Sargassum hemiphyllum* var. *chinense*

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摘要

利用馬尾藻組織的附著器、柄及葉狀體建立一種簡易再生葉狀體的方法，並嘗試找出適合之培養基。2007年1月至10月期間，於澎湖縣西嶼鄉二崁、瓦硐及馬公市青灣內灣潮間帶處採集6種馬尾藻。將馬尾藻附著器、柄和葉狀體以藻膠培養基培育，結果匍枝馬尾藻Sargassum polycystum與中國半葉馬尾藻S. hemiphyllum var. chinense之附著器再生率為100%。再取此二種藻之附著器，利用褐藻膠固定化包埋後，以四種不同成分之藻膠：洋菜(086547)、純洋菜(A1296)、高凝膠強度洋菜(A9799)及卡拉膠(C1013)培養，也皆達100%。顯示馬尾藻之附著器適合作為人工種苗生產之極佳材料。

在澎湖海域養殖中國半葉馬尾藻，其可利用的種苗來源有兩類：一是附著器再生而來的藻苗、二為受精卵發育之種苗。天然環境下，馬尾藻在二月會有生殖托形成，從三月至五月則是卵的排放期。藻體釋出精子與卵最初的6-8小時內是受精效率最好的時機。培養在30℃的成長率是比15、20及25℃稍高。移至海上養殖，水深亦會影響藻體之生長。本研究發現中國半葉馬尾藻附繩養殖的確是可行的，同時也探討在陸上養殖池裡，促使藻苗附著穩固、不易脫落的最適生長條件。未來中國半葉馬尾藻養殖能否持續發展，勢必得仰賴在環境控制
下，經由有性生殖而能穩定供給的人工種苗。

關鍵字：馬尾藻屬，附著器，再生、中國半葉馬尾藻 Sargassum hemiphyllum var. chinens，受精卵
Abstract

Simple methods were established for thallus regenerations from holdfasts, stipes and blades of brown alga *Sargassum* spp., and determination of suitable medium. Six species of Genus *Sargassum* were collected at the intertidal zones of Chin-Wan, Wa-Tong, Er-Kan in Penghu from January to October, 2007. The holdfasts, stipes and blades of *Sargassum* spp. were cultivated with agar media, and the result showed that regenerate rates of holdfasts of *S. polycystum* and *S. hemiphyllum* var. *chinense* could reach 100%. Furthermore, the above two species were cultivated with four different media: agar(086547)·purified agar (A1296)·high gel strength agar(A9799) and carrageen (C1013) after being immobilized with algin. Regeneration rates of all combinations of treatments and samples also reached 100%. It suggested that holdfasts of *Sargassum* spp. could be excellent candidates for artificial seeds.

Cultivation of brown alga *Sargassum hemiphyllum* var. *chinense* in Penghu in the sea depends on two sources of seedlings: holdfast-derived regenerated seedlings and zygote-derived seedlings. Under natural condition, receptacle formation of the plants began in February, and the eggs were released from March to May. The effective fertilization time of eggs by sperm was found to be within 6~8 hours. However, growth was slightly accelerated if cultured at a temperature of 30°C compared to other culture temperatures of 15, 20 and 25 °C. The depth of water had a considerable effect. To explore the optimal condition for growing seedlings on substratum in land-based tanks for avoidance of detachment in this research. The findings of the present study suggest that the cultivation of *S. hemiphyllum* var. *chinense* on rope is viable. Furture, the sustainable development of *S. hemiphyllum* var. *chinense* farming will rely on a
stable supply of artificial seedlings via sexual reproduction under controlled conditions.

Key word: Sargassum, holdfast, regeneration, Sargassum hemiphyllum var. Chinense, fertilized egg