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Effects of different light intensities and growth media on growth performance of freshwater lawn pennywort (Hydrocotyle sibthorpioides) / Yap Chee Heung.

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EFFECTS OF DIFFERENT LIGHT INTENSITIES AND GROWTH MEDIA ON GROWTH PERFORMANCE OF FRESHWATER LAWN PENNYWORT (*Hydrocotyle sibthorpioides* LAM.)

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This project report is submitted in partial fulfillment of the requirement of the degree of Bachelor of Science in Agrotechnology (Aquaculture)

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2006

This project report should be cited as:

Yap, C. H. 2006. Effects of different light intensities and growth media on growth performance of freshwater lawn pennywort (*Hydrocotyle sibthorpioides* Lam.). Undergraduate thesis, Bachelor of Science in Agrotechnology (Aquaculture), Faculty of Agrotechnology and Food Science, Kolej Universiti Sains dan Teknologi Malaysia, Terengganu. 47p.

ACKNOWLEDGEMENTS

First of all, I would like to express my deepest gratitude to my final year project supervisor, Dr Chuah Tse Seng in assisting me throughout this project. This thankfulness is gratefully extended to him for his endless supervision, assistance, comments and guidance that enable this project run smoothly.

Secondly, sincere thanks also to my co-supervisor, Dr Adzemi Mat Arshad for his concern and advice who has contributed to this project.

Besides, my heartfelt gratitude goes to Mr Sharol and other laboratory assistants for their cooperation and permission to use facilities in laboratory.

Appreciation is extended to my classmate, Yvone Xavera that has greatly helped me a lot in accomplishing the experiment.

Last but not least, I would like to thank my fellow friends in helping me in this project and my family that supports me in this study and also gives me spiritual support.

ABSTRACT

Freshwater aquatic plant, *Hydrocotyle sibthorpioides* was examined to determine the interaction between growth media and light intensity for its growth under glasshouse conditions. The plants were grown with two growth media, namely Hoagland solution with or without sand at three different light levels, namely 100% (800 – 1200 $\mu Em^{-2}s^{-1}$), 60% (480 – 720 $\mu Em^{-2}s^{-1}$) as well as 40% (320 – 480 $\mu Em^{-2}s^{-1}$). Generally, light could stimulate the growth of *H. sibthorpioides* when the light level was increased from 60% to 100% regardless of growth media. However, no significant difference was found in all growth parameters when light level was increased from 40% to 60%. *Hydrocotyle sibthorpioides* exhibited the highest amount of new leaves formed, dry weight of total new leaves and leaf area surface at 100% light level under Hoagland solution without sand medium, suggesting that growth of *H. sibthorpioides* is optimal when grown under this medium at 100% light level.

ABSTRAK

Tumbuhan akuatik air tawar, *Hydrocotyle sibthorpioides* telah dikaji untuk menentukan interaksi antara media pertumbuhan dengan keamatan cahaya untuk tumbesaran di bawah keadaan rumah hijau. Tumbuhan tersebut bertumbuh di bawah dua media pertumbuhan, yakni larutan Hoagland dengan atau tanpa pasir di bawah tiga keamatan cahaya yang berbeza, yakni 100% (800 – 1200 $\mu Em^{-2}s^{-1}$), 60% (480 – 720 $\mu Em^{-2}s^{-1}$) serta 40% (320 – 480 $\mu Em^{-2}s^{-1}$). Secara umum, cahaya mampu merangsangkan tumbesaran *H. sibthorpioides* apabila keamatan cahaya bertambah dari 60% ke 100% tanpa mengira media pertumbuhan. Walau bagaimanapun, tiada perbezaan yang signifikan diperolehi pada kesemua parameter pertumbuhan apabila keamatan cahaya meningkat dari 40% ke 60%. *Hydrocotyle sibthorpioides* mempamerkan kuantiti daun baru yang terbentuk, berat kering jumlah daun baru dan luas permukaan daun yang tertinggi pada keamatan cahaya 100% dalam medium larutan Hoagland tanpa pasir, mencadangkan bahawa tumbesaran *H. sibthorpioides* adalah optima apabila bertumbuh dalam media tersebut pada keamatan cahaya 100%.