CONSTRUCTIONS OF pASPTE 1301 VECTOR FOR GENETIC MANIPULATION OF MICROALGAE

LIM PEI LING

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

2008

CONSTRUCTION OF pASPTE 1301 VECTOR FOR GENETIC MANIPULATION OF MICROALGAE

By

Lim Pei Ling

Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science (Biological Sciences)

Department of Biological Sciences
Faculty of Science and Technology
University Malaysia Terengganu
2008

JABATAN SAINS BIOLOGI
FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

PENGAKUAN DAN PENGESAHAN LAPORAN
PITA I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **Construction of pASPTE 1301 Vector for Genetic Manipulation of Microalgae** oleh **Lim Pei Ling** , no.matrik: **UK 12849** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains (Sains Biologi), Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

Disahkan oleh:

.....
Penyelia Utama
Nama:
CopRasmi:

DR. CHA THYE SAN
Pensyarah
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu.

Tarikh: 4/5/2008

.....
Penyelia Bersama (jika ada)
Nama:
CopRasmi:

Tarikh: .....

.....
Ketua Jabatan Sains Biologi
Nama:
CopRasmi:

PROF. MADYA DR. AZIZ BIN AHMAD
Ketua
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

04 MAY 2008
Tarikh: .....

DECLARATION

I hereby declare that this thesis entitled **Construction of pASPTE 1301 Vector for the Genetic Manipulation of Microalgae** is the result of my own research except as cited in the references.

Signature .....

Name : Lim Pei Ling .....

Matrix No. : UK 12849 .....

Date : 04.05.08 .....

ACKNOWLEDGEMENTS

First and foremost, I would like to offer my sincerest gratitude to my supervisor, Dr. Cha Thye San. His kind support, advice and guidance helped me in all the time of research and writing of this thesis. I also appreciate for his detailed and constructive comments throughout this study.

I gratefully thank to master students, especially Willy Yee who always kindly grants me his time to give me guidance and valuable advice during my research. It is my pleasure to express my appreciation to Puan Normaizainti and others lab assistants for their assistance during my lab work especially in Molecular Biology Lab.

Furthermore, I wish to express my warm and sincere thanks to my housemates for their support and encouragement, especially See Soo Yin, Chiong Ai Hua, Tiun Siew Mond and Wilonita A/P Win. In addition, my deepest gratitude goes to my family for their unflagging love and support throughout my life.

Last but not least, I would like to thank again to all people who have helped and inspired me during my final year project.

ABSTRACT

Antisense palmitoyl-ACP thioesterase will suppress the production of palmitic acid in plant fatty acid biosynthesis and could reduce the level of palmitate in plant. Thus, the nutritive value and the industrial uses of vegetable oils can be increased. The 35S-AP fragment contains antisense palmitoyl-ACP thioesterase cDNA was extracted then amplified by PCR using PTEAP-F1 and PTEAP-R2 primers. The DNA fragment (~1600 bp) was successfully recovered from the gel slide and was cloned into pCAMBIA 1301 vector. The putative recombinant clones were screening with colony PCR to confirm the presence of DNA insert, with three different primer combinations: PTEAP-R2/PTEVR2; PTEAP-F1/PTE-VF1 and PTEAP-F1/PTEAP-R2. The Presence of the DNA interest was further confirmed by digesting the plasmids with *Bam*HI and *Sal*I restriction enzymes.