

ISOLATION AND CHARACTERIZATION OF PARTIAL  
MITOCHONDRIAL COI GENE FROM HARPACTICOID  
COPEPOD, *Leptocaris canariensis*  
(LANG, 1965), UMT STRAIN.

KHOR WAI HO

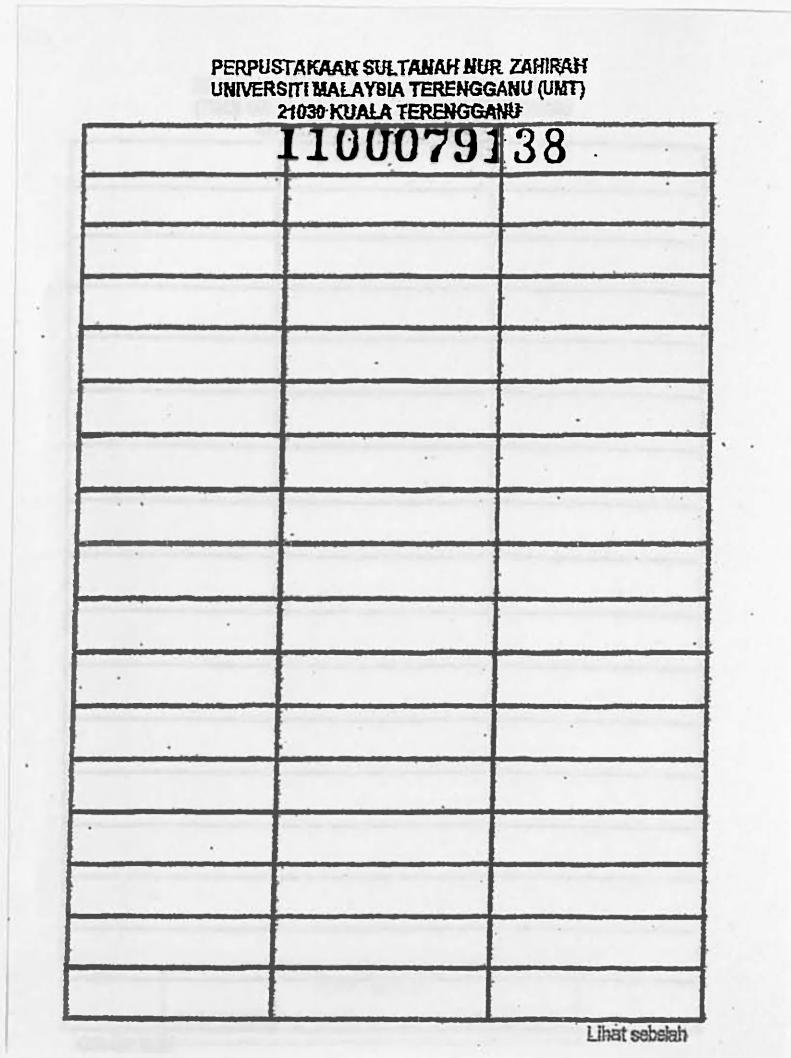
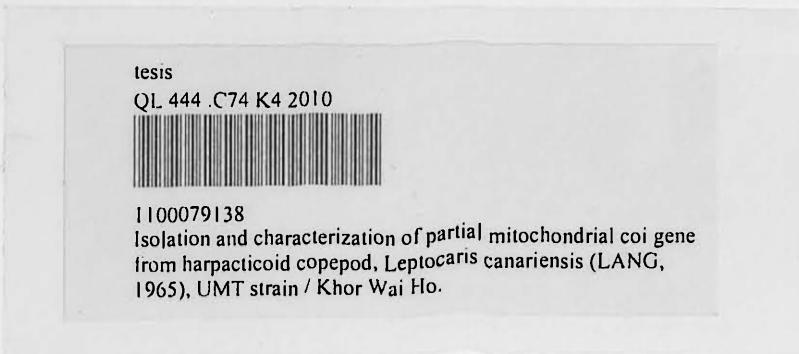
MASTER OF SCIENCE (AQUACULTURE)  
UNIVERSITI MALAYSIA TERENGGANU  
MALAYSIA

2010

dn 9 773

1100079138

Perpustakaan Sultanah Nur Zahirah (UMT)  
Universiti Malaysia Terengganu



**ISOLATION AND CHARACTERIZATION OF PARTIAL MITOCHONDRIAL  
COI GENE FROM HARPACTICOID COPEPOD, *Leptocaris canariensis*  
(LANG, 1965), UMT STRAIN.**

**KHOR WAI HO**

**Thesis submitted in Fulfillment of the Requirement for the Degree of Master of  
Science (Aquaculture) to the Institute of Tropical Aquaculture  
Universiti Malaysia Terengganu**

**October 2010**

**ISOLATION AND CHARACTERIZATION OF PARTIAL MITOCHONDRIAL  
COI GENE FROM HARPACTICOID COPEPOD, *Leptocaris canariensis*  
(LANG, 1965), UMT STRAIN.**

**KHOR WAI HO**

**October 2010**

**Institute of Tropical Aquaculture**

Copepods, especially from the order Harpacticoida are gaining attention as superior viable live feed for larviculture. One of the possible local candidates being cultured in UMT is *Leptocaris canariensis* (Copepoda: Harpacticoida). However, little is known about the molecular aspect of this species. In this study, the partial mitochondrial COI gene from *L. canariensis* UMT strain was successfully amplified. A 582 bp partial mitochondrial COI gene sequence was obtained. Analysis of partial COI sequences of *L. canariensis* revealed 100% similarity among all the individual copepods, verifying the purity of *L. canariensis* maintained in UMT and the consistency of the optimized extraction and amplification protocols done in this study. BLAST analysis confirmed that the obtained sequences were from COI region and of copepod origin (with E-value < e<sup>-10</sup>). Phylogenetic analysis of *L. canariensis* along with selected outgroups from different taxa level further supports the purity of *L. canariensis* maintained and validates the taxonomy of *L. canariensis* up to the subclass level: Copepoda. This study will serve as the first documentation of molecular studies done on harpacticoids from the genus *Leptocaris*. The availability of *L. canariensis* partial COI sequence as reference will spearheads many more research in various fields in the near future.

**PEMENCILAN DAN PENCIRIAN GEN SEPARA MITOKONDRIA COI DARI  
KOPEPOD HARPACTIKOID, *Leptocaris canariensis* (LANG, 1965), STRAIN  
UMT.**

**KHOR WAI HO**

**October 2010**

**Institut Akuakultur Tropika**

Kopepod, terutamanya dari order Harpacticoida semakin mendapat perhatian sebagai makanan hidup yang lebih bermutu untuk pengkulturan larva-larva ikan. Salah satu calon tempatan yang dikultur di dalam UMT ialah *Leptocaris canariensis* (Copepoda: Harpacticoida). Namun, serba sedikit sahaja yang diketahui tentang aspek molecular spesis ini. Dalam kajian ini, gen separa mitokondria COI *L. canariensis* strain UMT telah berjaya diamplifikasi. Satu jujukan gen separa mitokondria COI yang bersaiz 582 bp telah diperolehi. Analisis terhadap jujukan-jujukan separa COI *L. canariensis* menunjukkan 100% persamaan antara semua individu *L. Canariensis* yang dikaji. Ini membuktikan ketulenan *L.canariensis* yang dipelihara di dalam UMT dan kejituhan protokol-protokol pengekstrakan dan pengamplifikasi yang telah diubahsuai. Analisis BLAST membuktikan bahawa jujukan-jujukan yang diperolehi memang berasal dari kawasan COI dan berasal dari kopepod (dengan nilai  $E < e^{-10}$ ). Analisis filogenetik terhadap *L. canariensis* dan kumpulan luar yang dipilih dari taksa yang berlainan menyokong lagi ketulenan *L. canariensis* yang dipelihara dan membuktikan taksonomi *L. canariensis* sehingga ke tahap subclass: Copepoda. Kajian ini merupakan dokumentasi kajian molekular yang pertama dilakukan ke atas harpaktikoid dari genus *Leptocaris*. Kewujudan jujukan separa COI *L. canariensis* sebagai rujukan akan merangsang lebih banyak kajian dalam pelbagai bidang pada masa akan datang.