

A STUDY ON TREATMENT OF *Brucella abortus*  
FROM THE MEAT OF AN INFECTED ANIMAL (*Bovis*)  
BY USING COPPER SULFATE (CuSO<sub>4</sub>)

M. SUKATMA, D. S. MANAON

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LTM OF AGROTECHNOLOGY AND FOOD SCIENCE  
UNIVERSITY MALAYSIA TERENGANU

2007

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Perpustakaan Sultanah Nur Zahirah (UMT)  
Universiti Malaysia Terengganu

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A study on treatment of Piscinoodinium pillulare infection on lampam jawa (Puntius gonionotus) with coppersulphate (CuSO4). / K. Sumanthi Kanasan.



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**STUDY ON TREATMENT OF *Piscinoodinium pillulare* INFECTION ON  
LAMPAM JAWA (*Puntius gonionotus*) WITH COPPER SULPHATE**

**K.Sumathi D/O Kanasan**

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

**FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE  
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FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN  
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**BORANG PENGESAHAN DAN KELULUSAN LAPORAN AKHIR  
PROJEK PENYELIDIKAN TAHUN AKHIR  
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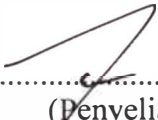
Tajuk Projek:

A STUDY ON TREATMENT OF *Piscinoodinium pillulare* INFECTION ON

.....  
LAMPAM JAWA (*Puntius gonionotus*) WITH COPPER SULPHATE

.....  
(CuSO<sub>4</sub>)  
.....

Dengan ini disahkan bahawa saya telah menyemak laporan projek tersebut dan semua pembetulan yang disarankan oleh pemeriksa-pemeriksa telah dibuat, laporan ini telah mengikut format yang diberikan dalam Buku Panduan Penulisan Tesis, Jabatan Sains Perikanan dan Akuakultur, Fakulti Agroteknologi dan Sains Makanan, Universiti Malaysia Terengganu pada tempoh masa yang diberi.

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## ABSTRACT

A study on the effects of treatment of *Piscinoodinium pillulare* infection on Lampam Jawa fingerlings with Copper sulphate was conducted in Marine Hatchery Universiti Malaysia Terengganu from December 2006 to February 2007. In the previous test, 0.08 ppm of copper sulphate calculated as 96-hour LC<sub>50</sub> acute toxicity of copper on the fingerlings. Fingerlings infected with this dinoflagellate parasite obtained from Pusat Pengembangan Akuakultur, Jitra, Kedah and treated with copper sulphate within this range for 96 hour. At the end of the experiment, the gills of the fingerlings were dissected out and fixed in 10% buffered formalin for histopathological studies. Histopathology of the infected fish shows that there was hyperplasia in secondary lamella with degeneration and reduced space between secondary lamellas. Histopathology of gills treated with copper sulphate shows that there was a synergistic effects that is there was increased hyperplasia and inflammation in gills of Lampam Jawa infected with *Piscinoodinium pillulare* and exposed to copper sulphate.

## ABSTRAK

Satu kajian rawatan jangkitan *Piscinoodinium pillulare* pada benih Lampam Jawa dengan kuprum sulfat telah dijalankan di Hatchery Air Masin, Universiti Malaysia Terengganu dari Disember 2006 hingga Februari 2007. Eksperimen yang dijalankan terlebih dahulu telah menunjukkan 0.08 ppm kuprum sulfat sebagai nilai 96 jam LC<sub>50</sub> ketoksikan akut kuprum yang boleh digunakan pada benih lampam Jawa. Benih Lampam Jawa yang telah dijangkiti dengan parasit dinoflagelat ini diterima dari Pusat Pengembangan Akuakultur, Jitra, Kedah dan telah dirawat dengan kuprum sulfat dengan lima kepekatan dalam julat 0.00 hingga 0.08 ppm. Pada akhir eksperimen, insang dari setiap kumpulan dikeluarkan dan diawet dalam 10 % buffered formalin untuk kajian histopatologi. Kajian histopatologi insang ikan yang dijangkiti parasit menunjukkan bahawa terdapat hyperplasia pada sekunder lamella dengan kemerosotan dan kurang ruang antara sekunder lamella. Histopatologi insang yang dirawat pula menunjukkan bahawa terdapatnya kesan sinergetik antara insang ikan Lampam Jawa yang dijangkiti dengan *Piscinoodinium pillulare* dan didedahkan kepada kuprum sulfat dimana hyperplasia and inflamasi jelas kelihatan.