IN - VITRO OBSERVATION OF *STREPTOCOCCUS AGALACTIAE* INFECTION IN FISH BY HISTOLOGY METHOD

SYAHAMIZ ROZA BINTI ARIF

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

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In-vitro observation of Streptococcs agalactiae infection in fish by histology method. / Syahanez Roza Arif.

Lihat sebelah

IN-VITRO OBSERVATION OF *STREPTOCOCCUS AGALACTIAE* INFECTION IN FISH BY HISTOLOGY METHOD

By
Syahanez Roza Binti Arif

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JABATAN SAINS BIOLOGI
FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: *IN-VITRO* OBSERVATION OF *STREPTOCOCCUS AGALACTIAE* INFECTION IN FISH BY HISTOLOGY METHOD oleh SYAHANEZ ROZA BINTI ARIF, no. matrik: **UK12250** 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: /Verified by:

.....

Penyelia Utama/*Main Supervisor*

Nama: **PROF. MADYA DR. MOHD EFFENDY BIN ABDUL WAHID**

Cop Rasmi: PROF MADYA DR. MOHD. EFFENDY ABD WAHID
Pengarah
Institut Bioteknologi Marin
Universiti Malaysia Terengganu
21030 Kuala Terengganu, Terengganu.

Tarikh: 11 Mei 2008

.....

Ketua Jabatan Sains Biologi/*Head, Department of Biological Sciences*

Nama: **PROF. MADYA DR. AZIZ BIN AHMAD**

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

Tarikh: 11 MAY 2008

DECLARATION

I hereby declare that this thesis entitle *In-vitro* Observation of *Streptococcus agalactiae* Infection in Fish by Histological Method is the result of my own research except as cited in the references.

Signature :
Name : Syahanez Roza Binti Arif
Matrix No : UK12250
Date : 11 MEI 2008

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ABSTRACT

It is very difficult to control Streptococcosis, since it always appear when the fishes are stressed by water quality. Moreover the bacterium is ubiquitous. This project is aimed at providing basic information that will help any further studies related to this infection. The focus of this study is to determine the exact time when the gills tissue of Tilapia are completely infected by the bacteria, *Streptococcus agalactiae* and also the histopathology effect towards the gills through histology processing. The sampling location is located at Kawasan Penternakan Ikan Air Tawar Berkelompok at Pantai Ali, Kuala Berang, Hulu Terengganu, Terengganu. The experiments covered the aspects of bacteria preparation, gills preparation and histological processing. Two concentrations of bacterial culture were tested which were $1X10^8$ cfu/mL and $1X10^6$ cfu/mL. For each concentration, the gills of the Tilapia were exposed to the bacterial culture every 30 minutes until 480 minutes. These resulted in 33 tissue slides being prepared and observed under light microscope including control slide. It was found that $1X10^6$ cfu/mL was enough to moderately infect the fish at 30 minutes where the epithelium lamella showed hyperplasia, hypertrophy and even aneurysms. The results showed that the higher the bacterial load per mL, the severe the lesions were observed on the gills. As this disease has started to spread around the world, the information obtained in this study is important to determine the beginning of the infection.

ABSTRAK

Streptococcosis adalah susah untuk dikawal kerana penyakit ini akan muncul apabila ikan tertekan dengan keadaan kualiti air. Lebih-lebih lagi bakteria berada di mana-mana. Projek ini adalah maklumat awal bagi meneruskan kajian yang lebih terperinci berhubung penyakit ini. Kepentingan projek ini adalah untuk menentukan kadar masa bila insang Tilapia dijangkiti sepenuhnya oleh bacteria ini dan juga kesan histopatologinya. Objektif projek ini pula adalah untuk meneliti kesan penyakit bakteria ini terhadap insang Tilapia melalui kaedah pemprosesan histologi. Kawasan lokasi pensampelan adalah di Kawasan Penternakan Ikan Air Tawar Berkelompok at Pantai Ali, Kuala Berang, Hulu Terengganu, Terengganu. Dan untuk bentuk kajian pula terbahagi kepada tiga bahagian utama iaitu penyediaan bakteria, penyediaan insang dan juga pemprosesan histology. Dua kepekatan bacteria telah dipilih iaitu $1X10^8$ cfu/mL and $1X10^6$ cfu/mL. Bagi setiap kepekatan bakteria akan mempunyai 16 keping slaid yang mana diselangi setiap 30 minit sehingga minit ke-480. Sebagai keputusan akhir, akan terhasil 33 keping slaid dan telah ianya telah diteliti di bawah mikroskop cahaya. Ini juga telah dibuktikan bahawa pada kepekatan $1X10^6$ cfu/mL minit ke-30 sudah cukup untuk menjangkiti ikan tersebut di mana insang menunjukkan hyperplasia, hypertrophy dan juga aneurysms. Keputusan telah menunjukkan bahawa semakin tinggi kepekatan bacteria dalam mL, semakin teruk perubahan yang akan berlaku terhadap insang. Ini adalah penting untuk mengetahui bagaimana penyakit ini mula menjangkiti dan bagaimana teruknya kesannya kerana penyakit ini sudah mula tersebar keseluruh dunia.