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HISTOPATHOLOGY AND HEMATOLOGY OF EPIZOOTIC ULCERATIVE SYNDROME (EUS)-POSITIVE SNAKEHEAD (OPHICEPHALUS *STRIATUS*)

ERLINDA C. LACIERDA

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By

ERLINDA C. LACIERDA

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LIST OF ABBREVIATIONS

ADB	-	Asian Development Bank
ANOVA	-	Analysis of Variance
B & B	-	Brown and Brenn's Gram Stain
BF-2	-	Bluegill Fry
BFAR	-	Bureau of Fisheries and Aquatic Resources
BFS	-	Binañgonan Freshwater Substation
CFU	-	Colony Forming Unit
EPC	-	Epithelioma Papulosum Cyprini
EUS	-	Epizootic Ulcerative Syndrome
G	-	Giemsa Stain
GMS	-	Gomori Methenamine Silver Stain
HCl	-	Hydrochloric Acid
H & E	-	Hematoxylin and Eosin Stain
IDRC	-	International Development Research Centre of Canada
LSD	-	Least Significant Difference
MCHC	-	Mean Corpuscular Hemoglobin Concentration
MG	-	Mycotic Granulomatosis
MS 222	-	Tricaine Methanesulfonate
NACA	-	Network of Aquaculture Centres in Asia and the Pacific

ODA	-	Overseas Development Administration
PAS	-	Periodic acid-Schiff Stain
RSD	-	Red Spot Disease
SEAFDEC/AQD	-	Aquaculture Department of Southeast Asian Fisheries Development Center
SGV	-	Sand Goby Virus
SHRV	-	Snakehead Rhabdovirus
SHV	-	Snakehead Fish Virus
TMS	-	Tigbauan Main Station
UDRV	-	Ulcerative Disease Rhabdovirus
UM	-	Ulcerative Mycosis
ZN	-	Ziehl Neelsen Acid Fast Stain

LIST OF FISH SPECIES

Common Name	Scientific Name
African Catfish	*Clarias gariepinus*
American Eel	*Anguilla rostrata*
Atlantic Croaker	*Micropogonias undulatus*
Atlantic Menhaden	*Brevoortia tyrannus*
Atlantic Salmon	*Salmo salar*
Ayu	*Plecoglossus altivelis*
Barramundi	*Lates calcarifer*
Bighead Carp	*Aristichthys nobilis*
Black Fish	*Platycephalus fuscus*
Bluegill	*Lepomis macrochirus*
Brook Trout	*Salvinelus fontinalis*
Brown Trout	*Salmo trutta*
Burnett Salmon	*Polydactylus sheridani*
Catfish	*Clarias macrocephalus*
Channel Catfish	*Ictalurus punctatus*
Chinook Salmon	*Oncorhynchus tshawytscha*
Climbing Perch	*Anabas testudineus*
Coho Salmon	*Oncorhynchus kisutch*
Common Carp	*Cyprinus carpio*
Croaker	*Johnius* sp.
Crucian Carp	*Carassius carassius*

Common Name	Scientific Name
Eel	*Anguilla vulgaris*
European Eel	*Anguilla anguilla*
Flat Fish	*Psettodes* sp.
Flat-tailed Mullet	*Liza dussumieri*
Formosan Snakehead	*Channa maculata*
Freshwater Eel	*Fluta alba*
Freshwater Prawn	*Macrobrachium* sp.
Goat Fish	*Upeneus bensasi*
Goby	*Glossogobius giurus*
Goldfish	*Carassius auratus*
Gouramy	*Trichogaster pectoralis* *T. trichopterus*
Gudgeons	*Oxyeleotris* sp.
Indian Catfish	*Heteropneustes fossilis*
Japanese Eel	*Anguilla japonica*
Japanese Trident Goby	*Tridentiger obscurus*
Java Carp	*Puntius* sp.
Largemouth Bass	*Micropterus salmoides*
Manila Sea Catfish	*Arius manilensis*
Mekong Catfish	*Pangassius sutchi*
Milkfish	*Chanos chanos*
Mullet	*Mugil cephalus*
Nile Tilapia	*Oreochromis niloticus*
Perch	*Perca fluviatilis*
Pike	*Esox lucius*
Pinfish	*Lagodon rhomboides*

Common Name	Scientifc Name
Plaice	*Pleuronectes platessa*
Rainbow Trout . . .	*Salmo gairdneri*
Rosy Barb	*Puntius conchonius*
Thai Catfish . . .	*Clarias batrachus*
Sand Goby . . .	*Oxyeleotris marmoratus*
Siganid	*Scatophagus argus*
Silver Barb . . .	*Puntius gonionotus*
Silver Perch . . .	*Bairdiella chrysura*
Silvery Theraponid . .	*Therapon plumbeus*
Snakehead . . .	*Ophicephalus striatus* *Channa striatus*
Sockeye Salmon . .	*Oncorhynchus nerka*
Southern Flounder . .	*Paralichthys lethostigma*
Spot	*Leiostomus xanthurus*
Weakfish	*Cynoscion regalis*
Whiting	*Sillago ciliata*
Yellow Fin Bream . .	*Acanthopagrus australis*

Abstract of dissertation submitted to the Senate of Universiti Pertanian Malaysia in fulfillment of the requirements for the degree of Doctor of Philosophy

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ERLINDA C. LACIERDA

July 1995

Chairman: Prof. Mohamed Shariff, Ph.D.

Faculty: Fisheries and Marine Science

Epizootic ulcerative syndrome is an ulcerative disease of wild and cultured freshwater fishes in Asia and the Pacific. Despite the bulk of research done on the syndrome for the past 10 years, the primary pathogen remains an enigma.

This study was undertaken to understand the progressive development of EUS lesions through histopathology and hematology of EUS-positive snakehead (*Ophicephalus striatus*).

Regular monitoring of snakeheads in Laguna de Bay, Philippines from October 1990 to February 1993