

BLOOD PLASMA PROTEIN PATTERN OF THE GREEN ASIAN
AROWANA (*Scleropages formosus*)

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SCHOOL OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
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2013

BLOOD PLASMA PROTEIN PATTERN OF THE
GREEN ASIAN AROWANA (*Scleropages formosus*)

By

Ou Xue Yi

Research Project submitted in partial fulfillment of requirements
for degree of Bachelor Science (Marine Biology)

Department of Marine Science
Faculty of Maritime Studies and Marine Science
UNIVERSITY MALAYSIA TERENGGANU
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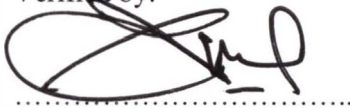


DEPARTMENT OF MARINE SCIENCE
 FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
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DECLARATION AND VERIFICATION REPORT
 FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled:
Blood Plasma Protein Pattern Of The Green Arowana
(Scleropages formosus)
 by Ou Xue Yi, Matric No. UK 22257 have
 been examined and all errors identified have been corrected. This report is submitted to
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LIST OF ABBREVIATIONS

11-KT	11-ketotestosterone
AFLP	Amplified fragment length polymorphism
CITES	Conventional on International Trade in Endangered Species of Wild Fauna and Flora
DNA	Deoxyribonucleic acid
E ₂	estradiol-17 β
ELISA	Enzyme-linked immunosorbent assay
GnRH	Gonotropin releasing hormone
GPL	Gill plate length
GR	Green arowana
GTH	Gonadotropic hormone
HL	Head length
IG	Indonesian golden arowana
kDA	kilo Dalton
MALDI-TOF	Matrix-assisted laser desorption/ionization mass spectrometer
MG	Malaysian golden arowana
ML	Mouth length
PCR	Polymerase chain reaction
PVDF	Polyvinylidene fluoride transfer
RAPD	Random amplified polymorphic DNA
RG1	Red grade one arowana

RG2	Red grade two arowana
RNA	Ribonucleic acid
SDS-PAGE	Sodium Dodecyl Sulfate Polyacrylamide Gel Electrophoresis
SL	Standard length
STS	Sequence-tagged site
TL	Total length
Vtg	Vitellogenin

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ABSTRACT

The Asian green arowana (*Scleropages formosus*) is an important ornamental fish. Currently, sex identification of this species is still a major problem in arowana farming due to lack sexual dimorphism which hinders sex selection during culture. In this study, the protein pattern of the blood plasma which consists of major hormones of the arowana were determined with SDS-PAGE, revealing an apparent band at approximately 200kDa in arowana samples with unknown gender. Immunoprobng with a monoclonal Anti-Vtg (Zebrafish) failed to detect the protein of interest, perhaps due to weak cross-reactivity and specificity of the antibody against arowana. This band possibly represents Vitellogenin (Vtg) based on the molecular weight and reference from other piscine species.

Keywords: Asian arowana, , plasma protein pattern , Vitellogenin

CORAK PROTEIN PLASMA DARAH UNTUK AROWANA ASIAN HIJAU

(*Scleropages formosus*)

ABSTRAK

Arowana atau ikan kelisa (*Scleropages formosus*) merupakan ikan yang penting dalam bidang ikan perhiasan. Kekurangan cara berkesan dalam pengenalpastian seks disebabkan oleh kekurangan dimorphisme seks bagi ikan kelisa merupakan masalah utama dalam bidang pembiakan kurungan arowana. Kajian ini menunjukkan pengenalpastian asas tentang corak plasma darah arowana hijau dengan menggunakan teknik SDS-PAGE. Dengan membandingkan protein plasma antara arowana jantan dan jantina yang tidak diketahui, terdapat perbezaan yang ketara ditunjukkan oleh jalur gel yang mempunyai berat molekul sebanyak 200kDa. Jalur protein tersebut tidak boleh bertindak balas dengan antibodi monoclon tikus Vtg tentang ikan zebra (JE-10D4, Biosense Laboratory, Bergen, Norway) dalam analisis Immunoprobng mungkin disebabkan ketindakbalas silang yang lemah dan specifisiti antibodi tentang arowana. Jalur protein tersebut mungkin mewakili Vitellogenin (Vtg) jika dibangidngkan dengan rujukan dan berat molekul species ikan lain.