



UNIVERSITI PUTRA MALAYSIA

***THE EFFECT OF FEEDING SOY WASTE ON GROWTH PERFORMANCE
AND CRUDE PROTEIN COMPOSITION IN RED HYBRID TILAPIA***

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PERFORMANCE AND CRUDE PROTEIN COMPOSITION IN RED
HYBRID TILAPIA**

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CERTIFICATION

It is hereby certified that I have read this project paper entitled “The Effect Of Feeding Soy Waste On Growth Performance And Crude Protein Composition In Red Hybrid Tilapia”, by Muhammad Haziq bin Mohd Joha and in my opinion it is satisfactory in term of scope, quality, and presentation as partial fulfilment of the requirement for the course VPD 4999- Final Year Project.

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DEDICATIONS

This project paper is dedicated to Allah S.W.T., who had created me and made all things possible throughout this project,

To my family,

My father, Mohd Joha bin Che Lop

My mother, Juriyah binti Ismail

My siblings; Nur Sakinah, Muhammad Hazwan, Muhammad Afiq,
Muhammad Akmal, Nur Athirah, Izzul Muqri

My friends

And to all my teachers who have committed themselves towards the noble cause of education. Thank you for your continuous support and care.

May this will be your inspiration and motivation for your future endeavours

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CONTENTS

	Page No.
TITLE	i
CERTIFICATION	ii
DEDICATIONS	v
ACKNOWLEDGEMENTS	vi
CONTENTS	vii
LIST OF TABLES	x
LIST OF CHARTS	xi
LIST OF ABBREVIATIONS	xi
ABSTRAK	xii
ABSTRACT	xiv
1.0 INTRODUCTION	
1.1 Study background	1
1.2 Objective	1
1.3 Justification	2
1.4 Hypothesis	2

2.0 LITERATURE REVIEW

2.1 Aquaculture Industry In Malaysia	2
2.2 Tilapia	3
2.3 Red Hybrid Tilapia	4
2.4 Soy Waste	8

3.0 MATERIALS AND METHODS

3.1 Experimental Design	9
3.2 Experimental Diets	10
3.3 Feed Analysis	10
3.3.1 Sample Collection	10
3.3.2 Sample Preparation	11
3.3.3 Proximate Analysis	11
3.3.3.1 Dry matter and moisture content	12
3.3.3.2 Ash content	13
3.3.3.3 Crude protein	13
3.3.3.4 Crude fiber	16
3.3.3.5 Ether extract	17
3.4 Growth Measurement	18
3.5 Experimental Red Hybrid Tilapia Crude Protein Composition	18
3.6 Statistical Analysis	19

4.0 RESULTS	20
5.0 DISCUSSION	26
6.0 CONCLUSION	27
7.0 RECOMMENDATIONS	27
8.0 APPENDICES	28
REFERENCES	29



LIST OF TABLES

	Page no.
Table 1 : Tilapia Classification	28
Table 2 : Red Hybrid Tilapia Classification	4
Table 3 : Elements composition in Red Hybrid Tilapia meat according to different type of feed.	7
Table 4 : Composition of feed formulation .	10
Table 5 : Proximate Analysis results of all feed formulation.	20

LIST OF FIGURES

Figure 1 : Body weight	21
Figure 2 : Body length	22
Figure 3 : Body girth	24
Figure 4 : Crude protein composition of fish.	25

LIST OF ABBREBIATIONS

% : Percent

O.Mossambicus : *Oreochromis mossambicus*

O.Nilotocus : *Oreochromis niloticus*

°C : Degree Celcius

DM : Dry matter

g : Gram

cm : Centimeter

ANOVA : Analysis of Variance

ABSTRAK

Abstrak daripada kertas projek yang dikemukakan kepada Fakulti Perubatan Veterinar untuk memenuhi sebahagian daripada keperluan kursus VPD 4999- Projek Ilmiah Tahun Akhir

KESAN SISA SOYA PADA KADAR PERTUMBUHAN DAN KOMPOSISI PROTIN MENTAH DALAM IKAN TILAPIA MERAH

Oleh

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2016

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Salah satu kepentingan utama dalam penternakan ikan tilapia di dunia adalah untuk mengurangkan kos pengeluaran terutamanya pada kos makanan dan meningkatkan kadar pengeluaran dalam masa yang singkat. Hampas soya adalah salah satu bahan buangan sedia ada yang

mempunyai kandungan protein yang tinggi dan berpotensi untuk dijadikan sebagai salah satu bahan dalam makanan haiwan. Oleh itu, kajian ini bertujuan untuk mengenalpasti kesan hampas soya sebagai makanan pada prestasi pertumbuhan dan kandungan protein mentah dalam ikan Tilapia Merah Hibrid. Empat puluh lima ikan Tilapia Merah Hibrid telah dibahagikan kepada tiga kumpulan (Kumpulan 1: 40% hampas soya + 60% diet komersial; Kumpulan 2: 20% hampas soya + 80% diet komersial dan Kumpulan 3: kawalan, tiada kandungan hampas soya, 100% diet komersial). Analisis proksima terhadap diet formulasi telah dilakukan dan ia menunjukkan bahawa kandungan protein adalah tinggi dengan campuran hampas soya ke dalam diet. Keputusan menunjukkan bahawa dengan campuran hampas soya ke dalam diet komersial adalah signifikan dalam kumpulan yang mempunyai peratusan kandungan hampas soya paling tinggi berbanding kumpulan kawalan dari segi berat badan, panjang badan, ukur lilit badan dan komposisi protein. Sememangnya, kumpulan 1 yang mempunyai 40% komposisi hampas soya mengandungi kandungan protein dan lemak yang tinggi berbanding kumpulan yang lain. Hasil dari kajian ini, ikan dari kumpulan 1 adalah lebih cenderung untuk mempunyai prestasi pertumbuhan dan komposisi protein yang lebih baik.

Kata kunci: Tilapia Merah Hibrid, hampas soya, kadar pertumbuhan, komposisi protein

ABSTRACT

Abstract of the project paper presented to the Faculty of Veterinary
Medicine in partial requirement for the course VPD 4999 – Project.

THE EFFECT OF SOY WASTE ON GROWTH PERFORMANCE AND CRUDE PROTEIN COMPOSITION IN RED TILAPIA

By

Muhammad Haziq bin Mohd Joha

2016

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One of the commonest interests in tilapia farming worldwide is to diminish production cost particularly on the feeding cost and extends outputs in the shortest time. Soy waste is one of the locally available waste products which have high protein content and has potential to be used as one of the feedstuffs in animal feed. Hence, this study was aimed to determine the effect of feeding soy waste on growth performance and crude protein

composition in Red Hybrid Tilapia. Forty-five juvenile Red Hybrid Tilapia was divided into 3 groups (Group 1: 40% soy waste + 60% commercial diets; Group 2: 20% soy waste + 80% commercial diets; and Group 3: control, no inclusion of soy waste). Proximate analysis on formulated diet was done and it shows that protein content higher as the inclusion of soy waste increasing in the diet. Result shows that the inclusion of soy waste into commercial diet is significant in group with highest soy waste percentage as compared to control group in relation to its body weight, length, girth and the fish protein composition. Indeed, Group 1, which has 40% inclusion of soy waste contain high protein and fat as compared to other groups. Thus, the fish from group 1 is more likely to have better growth performance and protein composition.

Keywords: *Red Hybrid Tilapia, soy waste, growth performance, protein composition.*

1.0 INTRODUCTION

1.1 Study background

The demand for the cheap and affordable animal protein has been rising day by day due to consistent growth of human population. Aquaculture which is a major food industry with more than 45.5 million tons/year of fish production globally, is bracing itself up to face the challenges on this front (FAO, 2006). Aquaculture products are also cost effective, affordable and a good protein source. With an average annual growth rate of 8.9% over the past few decades that has been surpassing both terrestrial livestock meat production and capture fisheries. This indeed has become the fastest-growing industry in the food sector (Dey *et al.*, 2006). The aquaculture practices have also been significantly contributing substantially for the local food security and livelihood to fishermen and rural community (Faizah Shaharom *et al.*, 2011).

1.2 Justification

1. Lack of studies of the effect of using soy waste on growth performance and crude protein composition in Red Hybrid Tilapia.
2. To access the potential of soy waste to be included in total mixed ration of Red Hybrid Tilapia.

1.3 Objectives

1. To determine the nutrient content of soybean waste and commercial feed of Red Hybrid Tilapia.
2. To access the effects of feeding soy waste on growth performance and crude protein composition in Red Hybrid Tilapia.

1.4 Hypothesis

Ho: The intervention of soy waste into total mixed ration will not affect the growth performance and crude protein composition in Red Hybrid Tilapia.

Ha: The intervention of soy waste into total mixed ration will affect the growth performance and crude protein composition in Red Hybrid Tilapia.

2.0 LITERATURE REVIEW

2.1 Aquaculture industry in Malaysia

Initially in the early centuries, the fish farming techniques were limited to freshwater fishes but by the 20th century, new techniques were developed to breed saltwater species. The new successful methods for the aquaculture industry had really started blooming towards the end of 20th century and early 21st century (Dey *et al.*, 2006). Fish farmer then slowly started adopting improved techniques to gain more control over the fish

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