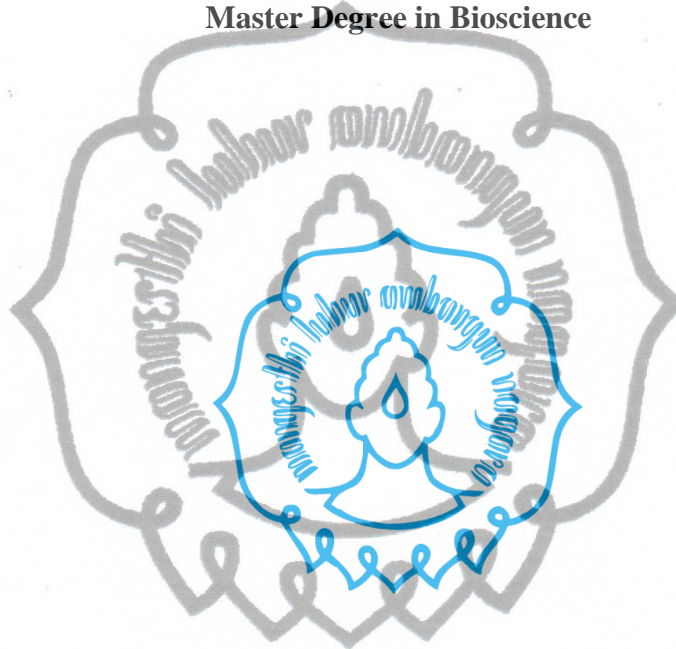


**The Effect of Phyprozyme HP Supplemented Diets on Growth performance  
and Body Weight Composition of Nile tilapia (*Oreochromis niloticus*)**

**THESIS**

**Submitted for Partial Fulfillment of Requirement of Postgraduate Program for  
Master Degree in Bioscience**



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**SEBELAS MARET UNIVERSITY**

**SURAKARTA**

**2020**

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**DECLARATION**

I hereby declare that the thesis entitled **(The effect of Phyprozyme HP Supplemented Diets on Growth Performance and Body Weight Composition of Nile tilapia (*Oreochromis niloticus*)** has been compiled by myself and is the result of my own investigations. It has neither been accepted nor submitted for any other degree. All the sources of information have been duly acknowledged.

This research report belongs to the Department of Bioscience, Sebelas Maret University. Any intention to use it whether for publications or any other purpose should first be directed to the Department of Bioscience and to the supervision team.

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Date... 21-8-2020 .....

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## ABSTRACT

Nile tilapia (*Oreochromis niloticus*) is currently one of the main species of aquaculture, making it important to world fish farming. Supplementation of enzymes in feed is one of the possible options for improvement of the nutritional value of fish feed. This study was conducted to know the effect of phyprozyme HP supplemented diets on growth performance and body weight composition of Nile tilapia. Phyprozyme HP enzymes are standardized to contain a combination of Protease, Xylanase, Hemicellulose, and Phytase. The Mean Final Weight (MFW), Weight Gain (WG), Average Daily gain (ADG), Feed Conversion Ratio (FCR), Specific Growth Rate (SGR), and Survival Rate (SR) were determined. This research used Completely Randomized Design (CRD) with eight treatments and two replicates: T1 control (0.0), T2 (0.05), T3 (0.12), T4 (0.19), T5 (0.26), T6 (0.33), T7 (0.40), and T8 (0.47) g phyprozyme HP/ kg<sup>-1</sup> feed. Nile tilapia with the average initial weight of (11.9 ± 8.6 g) were stocked into hapa nets (70×45×90 cm<sup>3</sup>) 20 fish / hapa net and were fed three times daily (8:00 AM, 12:00, and 16:00 PM) at feeding rate of 5% of the total body weight. After 56 days of feeding, there were significant differences (P<0.05) on growth performances among dietary treatments. The growth of the fish fed T6 (0.33 g) showed higher MFW (435.30 ± 13.44), WG (84.85 ± 5.02), ADG (3.6 ± 0.21), SGR (9.45± 0.07) compared to other treatments (P<0.05). The best feed conversion ratio (FCR) was achieved with T6, T5 and T7 followed by T3, T4, T2, and T1 but the T8 had the worst FCR. There were no significant differences in survival rate (SR) among the eight dietary treatments (P>0.05). Proximate analysis of the carcass of *O. niloticus* indicated, there were no significant differences between the treatments in terms of moisture and protein contents of body composition. The highest value (81.52 ± 2.96) of moisture was observed with fish fed (T8) and the lowest value (77.65 ± 3.32) was obtained with fish fed (control). The highest value of protein (11.68 ± 0.72) was observed with (initial weight) and the lowest value (7.43 ± 0.12) was obtained with fish fed (control). There was a significant difference (P<0.05) in crude fat and ash contents between initial weight and other dietary treatments. Crude fat content was highest in initial weight (2.45 ± 0.49) and lowest in fish fed (T2) (0.39 ± 0.02). The ash content was highest in T7 (2.67 ± 0.28) and lowest in fish fed (T6) (1.47 ± 0.06). Based on the results, it concluded that supplementation of phyprozyme HP in tilapia diets can improve the growth performance and may even have negative effects with higher doses.

**Key words:** Nile tilapia, Phyprozyme HP, Growth performance, Body weight composition

قال تعالى:

(وَهُوَ الَّذِي سَخَّرَ الْبَحْرَ لِتَأْكُلُوا مِنْهُ لَحْمًا طَرِيًّا وَتَسْتَخْرِجُوا مِنْهُ حِلْيَةً

تَلْبَسُونَهَا وَتَرَى الْفُلْكَ مَوَاحِرَ فِيهِ وَلِتَبْتَغُوا مِنْ فَضْلِهِ وَلِعَلَّكُمْ تَشْكُرُونَ )

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سورة النحل

صدق الله العظيم





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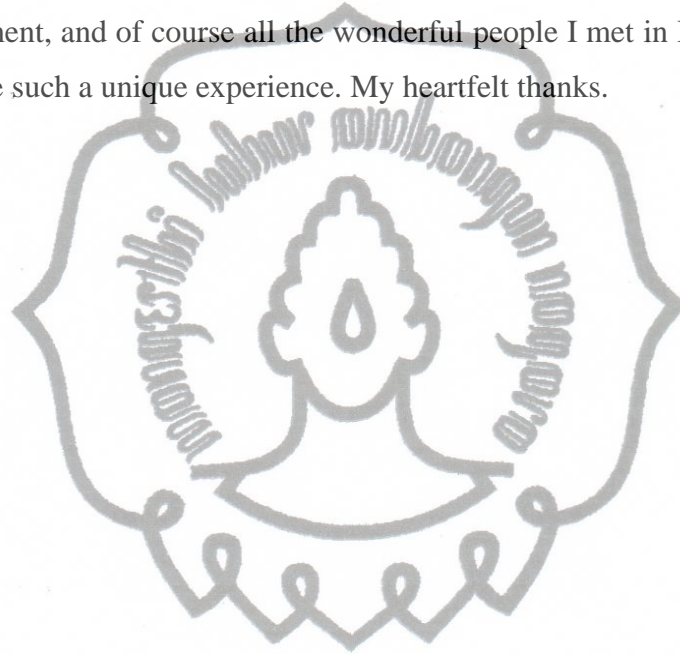
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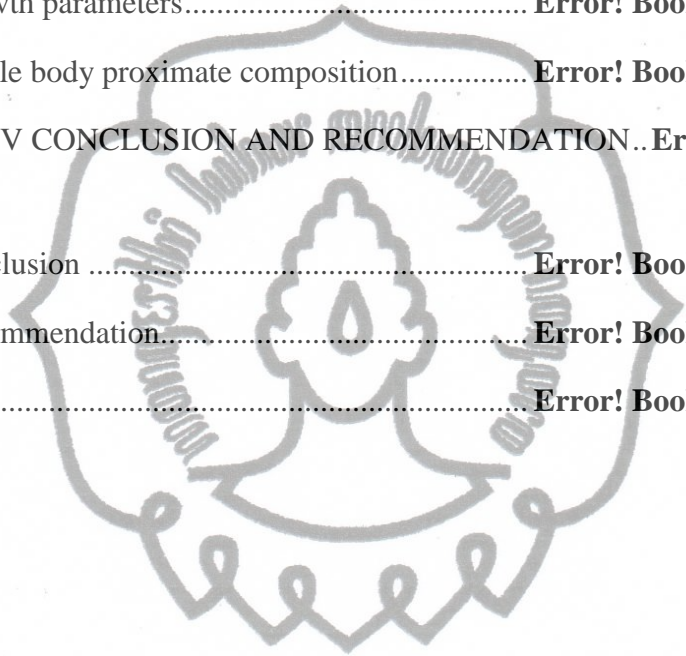
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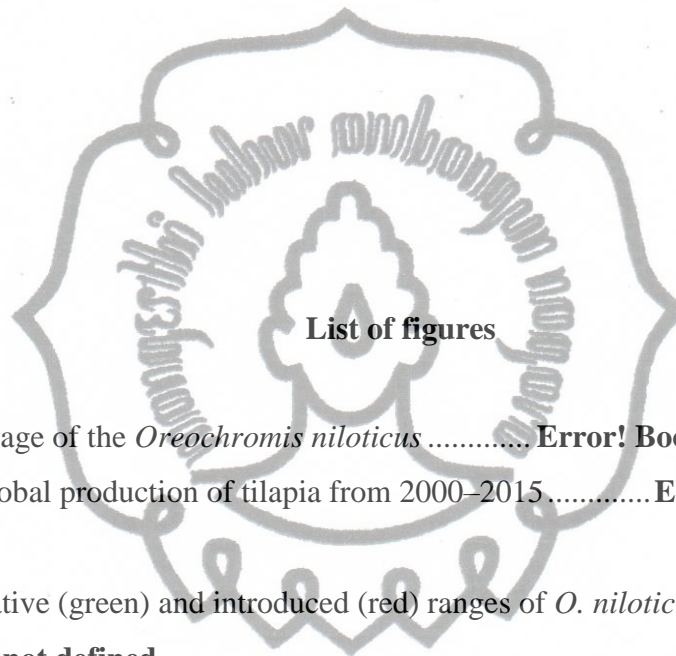


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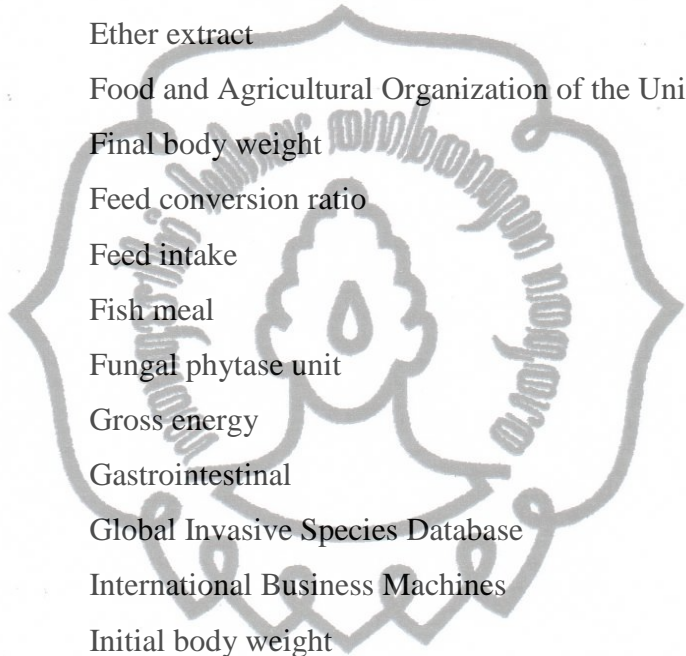
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### List of abbreviations

ADC	Apparent digestibility coefficient
ADG	Average daily gain
ANF	Anti-nutritional factor
ANOVA	Analysis of variance



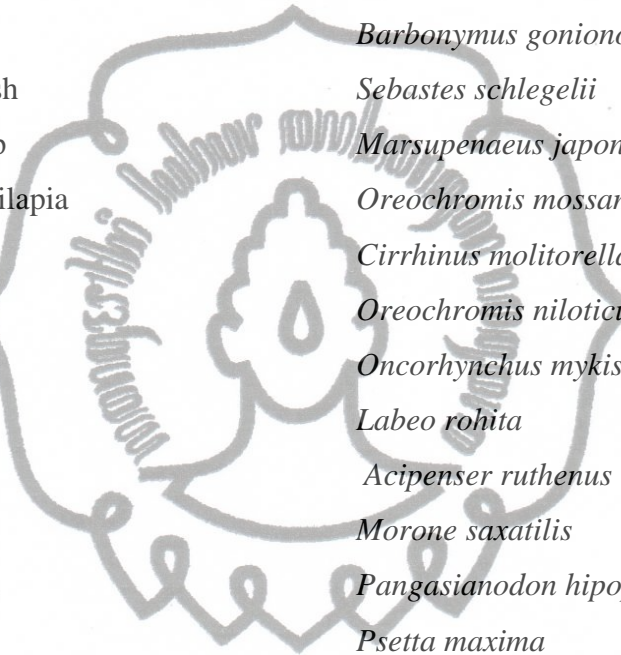
AOAC	Association of Analytical Chemists
CF	Crude fiber or commercial feed
CP	Crude protein
DGA	Directorate General of Aquaculture
DM	Dry matter
DMRT	Duncan multi-range test
DO	Dissolved oxygen
EAA	Essential amino acids
EE	Ether extract
FAO	Food and Agricultural Organization of the United Nations
FBW	Final body weight
FCR	Feed conversion ratio
FI	Feed intake
FM	Fish meal
FTU	Fungal phytase unit
GE	Gross energy
GI	Gastrointestinal
GISD	Global Invasive Species Database
IBM	International Business Machines
IBW	Initial body weight
ME	Metabolic Energy
MT	Metric tons
NFE	Nitrogen free extract
NRC	National Research Council
NSP	Non-starch polysaccharides
RB	Rice bran
SBM	Soybean meal
SGR	Specific growth rate
SPSS	Statistical package for the social science
SR	Survival rate

WG

Weight gain

**List of Common and Scientific Name of Fish**

<b>Common Names</b>	<b>Latin Names</b>
African catfish	<i>Clarias gariepinus</i>
Asian catfish	<i>Pangasius pangasius</i>
Atlantic salmon	<i>Salmo salar</i>



Blue tilapia	<i>Oreochromis aureus</i>
Brown-marbled grouper	<i>Epinephelus fuscoguttatus</i>
Channel catfish	<i>Ictalurus punctatus</i>
Chinook salmon	<i>Oncorhynchus tshawytscha</i>
Common carp	<i>Cyprinus carpio</i>
Crucian carp	<i>Carassius carassius</i>
Gibel carp	<i>Carassius gibelio</i>
Gurami	<i>Osphronemus goramy</i>
Java brab	<i>Barbonymus gonionotus</i>
Korean rockfish	<i>Sebastes schlegelii</i>
kuruma shrimp	<i>Marsupenaeus japonicus</i>
Mozambique tilapia	<i>Oreochromis mossambicus</i>
Mud carp	<i>Cirrhinus molitorella</i>
Nile tilapia	<i>Oreochromis niloticus</i>
Rainbow trout	<i>Oncorhynchus mykiss</i>
Rohu carp	<i>Labeo rohita</i>
Sterlet	<i>Acipenser ruthenus</i>
Striped bass	<i>Morone saxatilis</i>
Striped catfish	<i>Pangasianodon hypophthalmus</i>
Turbot fish	<i>Psetta maxima</i>
White leg shrimp	<i>Litopenaeus vannamei</i>

