



efil: 7402

# 1100076155

LP 2 FASM 1 2009



1100076155

Effects of different feeding ratio on waste excretion of lionhead goldfish (*Carassius auratus*) / Abdul Rahman Ariffin.



PERPUSTAKAAN SULTANAH NUR ZAHIRAH  
UNIVERSITI MALAYSIA TERENGGANU (UMT)  
21030 KUALA TERENGGANU

## 1100076155


Lihat sebelah

**HAK MILIK**  
PERPUSTAKAAN SULTANAH NUR ZAHIRAH UMT

EFFECTS OF DIFFERENT FEEDING RATIO ON WASTE EXCRETION OF  
LIONHEAD GOLDFISH (*Carassius auratus*)

By  
Abdul Rahman Bin Ariffin

Research Report submitted in partial fulfillment of  
the requirements for the degree of  
Bachelor of Science Agrotechnology (Aquaculture)

Department of Fisheries Science and Aquaculture  
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU  
2009

This project report should be cited as:

Rahman, A. A., 2009. Effects of different feeding ratio on waste excretion of Lionhead goldfish (*Carassius auratus*). Undergraduate thesis, Bachelor Science of Agrotechnology (Aquaculture), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu, Terengganu. 35p.

No part of this project report may be reproduced by any mechanical, photographic, or electronic process, or in the form of phonographic recording, nor may it be stored in a retrieval system, transmitted, or otherwise copied for public or private use, without written permission from the author and the supervisor(s) of the project.



**FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN  
UNIVERSITI MALAYSIA TERENGGANU**

**PENGAKUAN DAN PENGESAHAN LAPORAN  
PROJEK ILMIAH I DAN II**

Adalah ini diakui dan disahkan bahawa laporan ilmiah bertajuk:

Effects of Different Feeding Ratio on Waste Excretion of Lionhead Goldfish (*Carassius auratus*), (Kesan Perbezaan Nisbah Pemakanan Terhadap Sisa Buangan Ikan Emas Kepala Singa (*Carassius auratus*)) oleh Abdul Rahman Bin Ariffin, No.Matrik UK14421 telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Perikanan Dan Akuakultur sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Agroteknologi (Akuakultur), Fakulti Agroteknologi dan Sains Makanan, Universiti Malaysia Terengganu.

Disahkan oleh:

Penyelia Utama

Nama: **MASDUKI MOHAMMAD MORNI**  
Pensyarah  
Cop Rasmi: Jabatan Sains Perikanan dan Akuakultur  
Fakulti Agroteknologi dan Sains Makanan  
Universiti Malaysia Terengganu  
21030 Kuala Terengganu

Tarikh: 29/4/09

Penyelia Kedua (jika ada)

Nama:

Cop Rasmi

Tarikh: .....

## DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

Signature : ..... *Ar Rahman* .....  
Name : Abdul Rahman Bin Ariffin  
Matric No : UK 14421  
Date : ..... *04/05/2009* .....

## ACKNOWLEDGEMENT

First of all, I would like to extend my special gratitude and appreciation to my supervisor, En. Masduki Bin Mohammad Morni for his assistance, comments, and guidance throughout my project. Thanks a lot to staffs of Freshwater Hatchery, and Anatomy and Physiology Laboratory (MAF) for helping me during my project. Besides that, my heartfelt gratitude towards my friends especially all my housemates who had given support to me when I came across difficulty during the period of my project. Thanks to my family who gave support to me even though they are far away from me. Finally, my appreciation goes to those who have contributed direct or indirectly to this project.

## ABSTRACT

Lionhead Goldfish (*Carassius auratus*), is one of the popular ornamental fish not only in Malaysia but also in the world. New hobbyist will tend to take this goldfish as their pet because they attracted to the colour and varieties species of the goldfish. However, they do not know the quantity of food that suitable for the goldfish so that the water quality in their aquarium will maintain in a good condition. This study was conducted to study the effects of different feeding ratio on waste excretion of *C. auratus* and to determine the most suitable feeding ratio for the *C. auratus*. This will be a guideline for a new hobbyist in the concept of husbandry in ornamental fish. The study was conducted in three weeks period, which in that particular time, one week been used to adapt and stable the fish in 12 aquariums with the surrounding environment, one week for acclimatized the fish with three feeding ratio which are 2%, 3% and 4% of BW/day, while in last week, the water sample from the aquariums were taken every 4 hours for 72 hours. The water sample were analyzed for concentration of ammonia, nitrite, nitrate, TN feces and total suspended solid (TSS). It shown that there was significance different ( $P < 0.05$ ) between the treatment which feeding ratio of 4% of BW/day gave a higher concentration of ammonia and also in TSS. While there was no significance different in TN feces between the three treatments ( $P > 0.05$ ). The feeding ratio of 2% of BW/day should be chosen as it had given a positive impact in maintaining a good water quality in the aquarium. While the most suitable time to change the water was at 16 hour after feeding even the food given were 2%, 3%, or 4% of BW/day.



## ABSTRAK

Ikan emas Kepala Singa (*Carassius auratus*), merupakan salah satu ikan hiasan yang popular bukan sahaja di Malaysia malahan di seluruh dunia. Para peminat baru pasti ingin menjadikan ikan emas ini sebagai haiwan peliharaan mereka kerana mereka tertarik akan warna dan kepelbagaian spesiesnya. Namun begitu, kebanyakan mereka tidak mengetahui jumlah makanan yang sesuai diberikan kepada ikan emas tersebut bagi memastikan kualiti air di dalam akuarium sentiasa dalam keadaan yang baik. Kajian ini dijalankan bagi mengenal pasti kesan pemberian makanan mengikut nisbah yang berbeza terhadap penyingkiran bahan buangan dan menentukan nisbah pemberian makanan yang sesuai bagi ikan emas tersebut. Hal ini akan menjadi garis panduan kepada para penghobi baru dalam konsep penjagaan ikan hiasan. Kajian ini dijalankan dalam tempoh 3 minggu, iaitu minggu pertama digunakan untuk menstabil dan menyesuaikan ikan emas yang diletakkan dalam 12 akuarium dengan keadaan sekeliling, minggu kedua adalah untuk menyesuaikan ikan emas dengan nisbah pemberian makanan yang berbeza iaitu 2%, 3% dan 4% makanan mengikut berat badan sehari. Pada minggu terakhir, sampel air dari setiap akuarium akan diambil untuk setiap 4 jam untuk tempoh 72 jam. Sampel air tersebut akan dianalisis untuk kandungan ammonia, nitrite, nitrate, TN najis serta jumlah mendakan pepejal. Terdapat perbezaan yang nyata ( $P < 0.05$ ) antara rawatan iaitu nisbah pemberian makanan sebanyak 4% mengikut berat badan sehari telah menunjukkan konsentrasi yang tinggi pada kandungan ammonia dan jumlah mendakan pepejal. Namun begitu tiada perbezaan yang nyata pada kandungan TN najis antara ketiga-tiga rawatan ( $P > 0.05$ ). Nisbah pemberian makanan sebanyak 2% mengikut berat badan harus dipilih kerana memberi impak positif dalam mengekalkan kualiti air yang baik dalam akuarium. Manakala masa yang sesuai untuk penukaran air ialah 16 jam selepas pemberian makanan walaupun nisbah pemberian makanan ialah 2%, 3%, dan 4% mengikut berat badan sehari.