

THE EFFECT OF DIFFERENT PHOTOPERIOD ON SURVIVAL
AND MORPHOLOGICAL CHANGES OF NILE TILAPIA
(Oreochromis niloticus) FRY

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**THE EFFECT OF DIFFERENT PHOTOPERIOD ON SURVIVAL AND
MORPHOLOGICAL CHANGES OF NILE TILAPIA (*Oreochromis niloticus*) FRY**

By

Ami Ruslan bin Haji Mohd Ruslan

**Research Report submitted in partial fulfillment of
the requirements for the degree of
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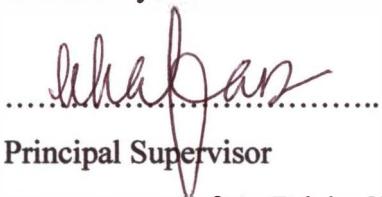
**DEPARTMENT OF MARINE SCIENCE
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
UNIVERSITI MALAYSIA TERENGGANU**

**DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled:

The Effect of Different Photoperiod On Survival And Morphological Changes Of Nile Tilapia (*Oreochromis niloticus*) Fry by Ami Ruslan b. Hj Mohd Ruslan, Matric No. UK 18427 have been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree of Science (Marine Biology), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

Verified by:

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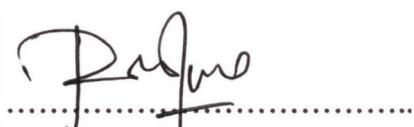
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TABLE OF CONTENTS

| | Page |
|--|-------------|
| ACKNOWLEDGEMENTS | ii |
| LIST OF TABLES | v |
| LIST OF FIGURES | vi |
| LIST OF APPENDICES | vii |
| LIST OF ABBREVIATIONS | viii |
| ABSTRACT | ix |
| ABSTRAK | x |
| CHAPTER 1 : INTRODUCTION | |
| 1.1 Introduction | 1 |
| 1.2 Habitat and biology | 2 |
| 1.3 Overview on Tilapia Culture Worldwide and in Malaysia | 3 |
| 1.4 Taxonomy | 6 |
| 1.5 Justification of study | 8 |
| 1.6 Objectives | 8 |
| CHAPTER 2 : LITERATURE REVIEW | |
| 2.1 Tilapia body shape and external morphology | 9 |
| 2.2 Rearing of fry and fingerlings of Nile tilapia | 10 |
| 2.3 Factors affecting tilapia growth | 10 |
| 2.4 Photoperiod | 12 |
| 2.4.1 Photoperiod and fish growth | 13 |

CHAPTER 3 : METHODOLOGY

| | | |
|-------|----------------------------|----|
| 3.1 | Sampling site | 17 |
| 3.2 | Experimental set up | 18 |
| 3.2.1 | Experimental procedures | 20 |
| 3.3 | Feeding frequency | 20 |
| 3.4 | Nile tilapia morphometrics | 21 |
| 3.5 | Statistical analysis | 22 |

CHAPTER 4 : RESULTS

| | | |
|-------|--|----|
| 4.1 | Survival rate | 23 |
| 4.2 | Morphological changes | |
| 4.2.1 | Fish total length (TL) and body depth (BD) | 25 |
| 4.2.2 | Fish total length (TL) and body depth (BD) increment | 26 |
| 4.2.3 | Fish body depth (BD) and total length (TL) ratio | 28 |
| 4.2.4 | Deformity | 29 |

CHAPTER 5 : DISCUSSION

| | | |
|-----|---|----|
| 5.1 | Fish survival and morphological changes | 30 |
|-----|---|----|

CHAPTER 6 : CONCLUSION

| | |
|-------------------|----|
| REFERENCES | 36 |
|-------------------|----|

| | |
|-------------------|----|
| APPENDICES | 39 |
|-------------------|----|

| | |
|-------------------------|----|
| CURRICULUM VITAE | 41 |
|-------------------------|----|

LIST OF TABLES

| Table | Page |
|---|------|
| Table 2.1: Photoperiod effects on fish of some freshwater and marine | 13 |
| Table 2.2: Literature report on the extended light periods on the growth and survival of larvae and juvenile of several species of fin fish. | 14 |
| Table 4.1: Range in percentage of survival rate and number of deformity value of <i>O. niloticus</i> in different treatment of 15 days culture period | 24 |
| Table 4.2: Mean BD and TL value of <i>O. niloticus</i> in different treatment of 15 days culture period | 25 |
| Table 4.3: BD:TL ratio value of <i>O. niloticus</i> in different treatment of Day 0 and Day 14 | 28 |

LIST OF FIGURES

| Figure | | Page |
|---------------|---|-------------|
| Figure 1.1 | Production cycle of <i>Oreochromis niloticus</i> . | 3 |
| Figure 1.2 | Image of <i>Oreochromis niloticus</i> | 7 |
| Figure 3.1 | Map of Setiu, Terengganu | 17 |
| Figure 3.2 | Setting up of experiment with different photoperiod. | 19 |
| Figure 3.3 | Measurement of TL and BD on each sample | 20 |
| Figure 4.1 | Changes in fish total length, TL mean increment after 15 days experiment. | 27 |
| Figure 4.2 | Changes in fish body depth, BD mean increment after 15 days experiment | 27 |

LIST OF APPENDICES

| Appendix | Page |
|---|-------------|
| Appendix 1: External anatomy of tilapia | 39 |
| Appendix 2: Diagrammatic sequence showing the breeding of tilapia | 39 |
| Appendix 3 : Range in percentage of SGR value of <i>O. niloticus</i> in different treatment of 15 days culture period | 40 |

LIST OF ABBREVIATIONS

| | | |
|--------------------|---|-------------------|
| $^{\circ}\text{C}$ | - | degree celcius |
| L | - | liter |
| ppt | - | part per thousand |
| % | - | percent |
| cm | - | centimeter |
| < | - | less than |
| > | - | more than |
| g | - | gram |

ABSTRACT

Long-day photoperiods are considered as an effective managerial tool in manipulating fish growth and morphology in a number of fish species. In this study, three different photoperiod regimes were exposed to Nile tilapia (*Oreochromis niloticus*) fry in order to determine the fish survival. Besides that, the other purpose of this study is also to investigate the effect of different photoperiods toward fish morphological changes. Fish total length, TL fish body depth, BD and deformities were accessed at three different photoperiod treatments of T1(12L:12D), T2(16L:8D), T3(24L:0D), and control. Growth and development of the fries increased with increasing photoperiod duration in all treatments throughout the two weeks experiment. The best performance for TL and BD was recorded in treatment with continuous light (24L:0D). No deformities was observed in all treatments conducted in this study. The highest percentage of survival rate was recorded at photoperiod T3(24L:0D) and the lowest was at T1 (12L:12D). The results from this study indicate that extended light increases the growth of Nile tilapia fry because during this stage, the fish are more sensitive with light and also other environmental factors.

KESAN PENDEDAHAAN JANGKAMASA CAHAYA YANG BERBEZA TERHADAP KELANGSUNGAN HIDUP ANAK IKAN TILAPIA, *Oreochromis niloticus* DAN JUGA PERUBAHAN MORFOLOGI.

ABSTRAK

Jangkamasa cahaya yang panjang merupakan satu cara yang berkesan untuk memanipulasikan pertumbuhan dan morfologi sesetengah ikan. Di dalam kajian ini, tiga jangkasama cahaya yang berbeza telah digunakan untuk mengetahui kelangsungan hidup anak ikan Nile tilapia (*Oreochromis niloticus*). Selain itu, tujuan lain untuk kajian ini adalah bertujuan untuk mengetahui tentang kesan jangkamasa cahaya yang berbeza terhadap perubahan morfologi ikan ini. Panjang keseluruhan ikan (TL), kedalaman badan (BD) dan kecacatan ikan dilihat dan diperhati daripada tiga jenis jangkasama cahaya yang berbeza iaitu T1(12L:12D), T2(16L:8D), T3(24L:0D) dan juga control. Tumbesaran untuk TL dan BD anak ikan tilapia bertambah dengan penambahan cahaya sepanjang dua minggu eksperimen dijalankan. Kesemua ikan juga menunjukkan pertumbuhan normal bagi semua jangkamasa cahaya. Selepas 15 hari eksperimen dijalankan, pertambahan yang paling tinggi untuk panjang badan dan kedalaman badan dicatatkan di jangkamasa cahaya T3 (24L:0D). Peratus kelangsungan hidup adalah paling tinggi di T3 dan paling rendah pada T1. Keputusan ini menunjukkan pemanjangan cahaya menambah pertumbuhan anak ikan kerana pada peringkat ini, ikan lebih sensitif terhadap perubahan cahaya dan juga faktor-faktor persekitaran yang lain.