

EFFECTS OF THREE DIFFERENT DIETS ON THE POPULATION  
DENSITY AND GROWTH RATE OF ROTIFER, *Brachionus plicatilis*

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MASTER OF SCIENCE  
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BY COURSEWORK**

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**NURUL NADIAH BINTI ABU HASAN**

**Thesis Submitted in Fulfillment of the Requirement for the Master  
of Science Aquaculture in the Faculty of Tropical Aquaculture  
(AKUATROP)**

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**2012**

## DEDICATION

This is specially dedicated to both of my beloved parents,  
Mr. Abu Hasan B. Ali and Mdm. Puteh Binti Md Noor for their support  
and blessing throughout my journey.

Thank you also to all of my siblings for their never ending support,  
encouragement and advise.

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patience in me.

-Thank you-

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degree of Master of Science.

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**NURUL NADIAH BINTI ABU HASAN**

**July 2012**

**Supervisor: Associate Professor Zaleha Kassim, Ph. D.**

**Faculty: Institute of Tropical Aquaculture (AKUATROP)**

Rotifer, *Brachionus plicatilis* has been long known that they act as live food to the fish larvae which lack of DHA, EPA, and AA. There are three species of microalgae species used which are *Nannochloropsis*, *Isochrysis*, and *Pavlova*, to increase the biochemical composition of the rotifer also affect their population density, growth rate, and body size of the rotifer. Higher population density of rotifer has been obtained with *Nannochloropsis* sp. treatment (50.667 ind ml<sup>-1</sup>) followed with *Pavlova* sp. treatment (38.333 ind ml<sup>-1</sup>). The lowest population density of rotifer occurred in *Isochrysis* sp. treatment (31.333 ind ml<sup>-1</sup>). Specific growth rate of rotifer is higher when they are fed with both *Pavlova* sp. and *Nannochloropsis* sp. ( $r=0.232\text{ d}^{-1}$ ) while *Pavlova* sp. have lower rate of specific growth ( $r=0.163\text{ d}^{-1}$ ). Determination of the microalgae treatment which produce higher population density and higher specific growth rate can leads to the understanding the effects of diet to the rotifer population and growth rate.

Abstrak thesis yang telah dikemukakan kepada Senat Universiti Malaysia Terengganu sebagai memenuhi keperluan untuk ijazah Master Sains.

**KESAN TIGA MAKANAN YANG BERLAINAN TERHADAP  
POPULASI DAN KADAR PERTUMBUHAN ROTIFER, *Brachionus  
plicatilis***

**NURUL NADIAH BINTI ABU HASAN**

**July 2012**

**Supervisor: Associate Professor Zaleha Kassim, Ph. D.**

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Rotifer, *Brachionus plicatilis* telah lama diketahui fakta bahawa ia merupakan makan hidup yang penting untuk larva ikan tetapi ia kekurangan unsure-unsur DHA, EPA dan AA. Di dalam kajian ini, hanya tiga spesis mikroalga yang digunakan; *Nannochloropsis* sp., *Isochrysis* sp., and *Pavlova* sp.. Pengkayaan menggunakan *Nannochloropsis* sp. telah mencapai nilai paling tinggi untuk pertumbuhan populasi ( $50.667 \text{ ind ml}^{-1}$ ) diikuti oleh pengkayaan menggunakan *Pavlova* sp. ( $38.333 \text{ ind ml}^{-1}$ ). Pertumbuhan populasi adalah paling rendah apabila menggunakan mikroalga *Isochrysis* sp. ( $31.333 \text{ ind ml}^{-1}$ ). *Pavlova* sp. dan *Nannochloropsis* sp. mempunyai kadar pertumbuhan yang sama ( $r=0.232 \text{ d}^{-1}$ ) manakala *Isochrysis* sp. mempunyai kadar pertumbuhan yang paling rendah ( $r=0.163 \text{ d}^{-1}$ ). Penggunaan mikroalga untuk menghasilkan kadar populasi dan kadar pertumbuhan yang paling tinggi dapat menambahkan pemahaman tentang kesan-kesan penggunaan mikroalga terhadap populasi dan pertumbuhan rotifer.