

EFFECT OF 17 α -METHYLTESTOSTERONE ON THE
GROWTH, SURVIVAL AND SEX REVERSAL OF
Macrobrachium rosenbergii (de Man)

TAN KIM HOOI

FACULTY OF FISHERIES AND MARINE SCIENCE
UNIVERSITI PERTANIAN MALAYSIA
SERDANG, SELANGOR

1994

EFFECT OF 17 α -METHYLTESTOSTERONE ON THE GROWTH, SURVIVAL
AND SEX REVERSAL OF Macrobrachium rosenbergii (de Man).

By

TAN KIM HOOI

A project report submitted to the Faculty of Fisheries and
Marine Science of Universiti Pertanian Malaysia as a
partial fulfillment of the requirement for the degree of
Bachelor of Science Fisheries.

FACULTY OF FISHERIES AND MARINE SCIENCE
UNIVERSITI PERTANIAN MALAYSIA
SERDANG, SELANGOR
1994

1100023825

UNIVERSITI PERTANIAN MALAYSIA
FAKULTI PERIKANAN DAN SAINS SAMUDERA
PSF 499 - PROJEK DAN SEMINAR

BORANG PENGESAHAN DAN KELULUSAN LAPORAN AKHIR PROJEK

Nama Penuntut : TAN KIM HOOI

No. Matrik : 27855


Nama Penyelia Utama : Prof. Dr. ANG KOK JEE

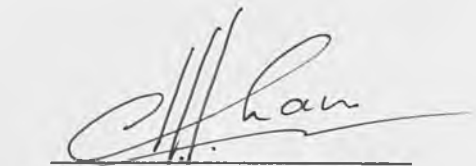
Nama Penyelia Kedua : Dr. CHAN HOOI HAR

Tajuk Projek : EFFECT OF 17 α -METHYLTESTOSTERONE ON THE
GROWTH, SURVIVAL AND SEX REVERSAL OF
Macrobrachium rosenbergii (de Man).

Dengan ini disahkan bahawa saya telah menyemak laporan
akhir projek ini dan

- (i) semua pembedulan yang disarankan oleh pemeriksa-
pemeriksa telah dibuat, dan
- (ii) laporan ini telah mengikut format yang diberikan
dalam Panduan PSF 499 - Projek dan Seminar, 1994,
Fakulti Perikanan dan Sains Samudera, Universiti
Pertanian Malaysia.


(Prof. Dr. ANG KOK JEE)


(Dr. CHAN HOOI HAR)

Tarikh : 15-4-94

15/4/94

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to my supervisors, Prof. Dr. Ang Kok Jee and Dr. Chan Hooi Har for their guidance, advice and encouragement throughout this entire project. Their patience and willingness to give suggestions and criticisms during the preparation of the manuscript are also very much appreciated.

I am grateful to the staff of the Hatchery Unit and Pond Complex, Faculty of Fisheries and Marine Science for their kind assistance in this project.

Finally, I would like to thank my girlfriend, Bong Chieng, for her constant support and contribution to this project; Mum and Dad, for their support from day one.

This project is funded by IRPA Project 50367-J01.

Abstract

Experiments were conducted to determine the potential for promoting growth and controlling sex of Macrobrachium rosenbergii by administration of synthetic androgen, 17 α -methyltestosterone (MT). Four experiments were done. For Experiment 1 and 2, orange eggs and grey eggs were immersed in MT solution at dose range from 2.5 to 10 ppm, respectively. In Experiment 3, larvae day 2 to postlarvae day 15 (PL₁₅) were fed with Artemia supplemented with MT (5 and 10 ppm); whereas in Experiment 4, larvae day 2 to PL₁₅ were fed with Artemia supplemented with MT (5 ppm), followed by pellet incorporated with MT (60 ppm).

Significant growth was observed in the prawn that received continuous MT treatment (Experiment 4) ($P < 0.01$). The period for larval rearing was significantly reduced in dietary MT-treated groups ($P < 0.01$). Immersion of eggs were not effective in enhancing growth of M. rosenbergii. MT treatment did not alter the sex ratio from the expected 1:1 male to female ratio ($P > 0.05$). No significant differences ($P > 0.05$) were seen in the survival rate of PL, although significant differences ($P < 0.05$) were observed in survival rate of larvae in dietary MT-treated groups. The failure to induce sex reversal in M. rosenbergii was discussed.

Abstrak

Kajian dijalankan untuk menentukan potensi androgen sintetik, 17α -metiltestosteron untuk mempercepat tumbesaran and kawalan seks Macrobrachium rosenbergii. Sebanyak empat eksperimen telah dibuat. Eksperimen 1 and 2 masing-masing melibatkan rendaman telur kuning and telur kelabu di dalam larutan MT yang berkepekatan daripada 2.5 sehingga 10 ppm. Dalam Eksperimen 3, larva hari ke-2 sehingga postlarva hari ke-15 (PL_{15}) diberi makan Artemia yang mengandungi MT (5 dan 10 ppm), manakala untuk Eksperimen 4, selepas larva hari ke-2 sehingga PL_{15} diberi Artemia yang mengandungi MT (5 ppm), postlarva seterusnya diberi makan pelet yang mengandungi MT (60 ppm).

Tumbesaran yang signifikan ($P < 0.01$) diperhatikan dalam Eksperimen 4. Jangka masa untuk ternakan larva dikurangkan pada udang yang menerima makanan yang mengandungi MT ($P < 0.01$). Rendaman telur tidak mempercepatkan tumbesaran secara efektif. MT didapati tidak merangsang pertukaran seks di mana nisbah seks adalah hampir sama dengan nisbah seks yang dijangkakan, 1:1 ($P > 0.05$). Tidak terdapat perbezaan yang bererti ($P > 0.05$) terhadap kadar kemandirian postlarva, walaupun terdapat perbezaan bererti ($P < 0.05$) terhadap kadar kemandirian larva yang menerima makanan yang mengandungi MT. Faktor-faktor yang menyebabkan kegagalan pertukaran seks M. rosenbergii dibincangkan.