

THE EFFECTS OF LOW DOSES OF 17 β -ESTRADIOL
ON OVARIAN MATURATION OF THE PENAEID PRAWN,
Penaeus merguensis de Man

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BORANG PENYERAHAN DAN KETULUHAN LAPORAN

AKHIR PROJEK

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Topik Projek: The effect of low dose of 17 β -estradiol on ovarian

maturation of *Penaeus merguensis*
de Man.

BY
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Dengan ini diisytiharkan bahawa saya telah menyerahkan laporan akhir projek ini
dan

(i) A project report in partial fulfilment of the requirement for the
Degree of Bachelor of Fishery Science

(ii) laporan ini telah mengikut syarat yang ditetapkan dalam Peraturan PBT
499 - Projek dan Seminar (1997), Fakulti Perikanan dan Sains
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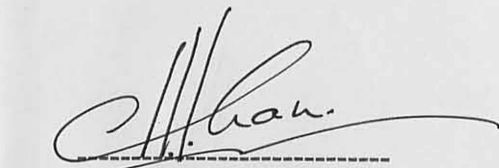
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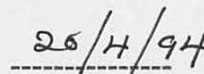
BORANG PENGESAHAN DAN KELULUSAN LAPORAN
AKHIR PROJEK

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

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ABSTRAK

Induk udang, *Penaeus merguensis* dari Pontian, Johor, telah digunakan untuk menyelidik kesan hormon steroid, 17 β -estradiol (E_2) secara *in vitro* dan *in vivo* dalam kematangan ovari. Kepekatan hormon yang digunakan adalah 0 M (kawalan), 1×10^{-12} M, 1×10^{-11} M, 1×10^{-10} M, 1×10^{-9} M dan 1×10^{-8} M. ^{35}S -Metionina digunakan untuk menentukan peratusan vitelin baru yang disintesis dalam tisu ovari di bawah keadaan kultur tisu. Keputusan menunjukkan peratusan vitelin yang disintesis *in vitro* dalam semua rawatan adalah lebih tinggi secara bererti ($P < 0.05$) berbanding dengan kawalan. Rawatan dengan 1×10^{-9} M E_2 memberikan peratusan vitelin sintesis yang paling tinggi. Rawatan E_2 ke atas induk betina udang yang tidak matang secara seks yang dipelihara dalam tangki bulatan berisipadu 8 tan dalam nisbah betina:jantan 5:2 untuk satu bulan menunjukkan bahawa tiada perbezaan bererti (Ujian julat pelbagaian) apabila berbanding dengan kawalan dari segi indeks gonadosomatik dan indeks gonad. Peneluran dan penetasan berlaku dalam masa kurang daripada dua minggu selepas rawatan dengan 1×10^{-12} M E_2 . Ini merupakan satu-satunya rawatan di mana dua ekor induk udang betina mencapai kematangan ovari ke peringkat III dan IV pada hujung eksperimen *in vivo*.

ABSTRACT

Adult *Penaeus merguensis* from Pontian, Johor, was used to investigate *in vitro* and *in vivo* effects of the steroid hormone, 17 β -estradiol (E₂) on ovarian maturation. Concentration of hormone used were 0 M (control), 1 x 10⁻¹² M, 1 x 10⁻¹¹ M, 1 x 10⁻¹⁰ M, 1 x 10⁻⁹ M dan 1 x 10⁻⁸ M. ³⁵S-Methionine was used to determine the percentage of newly synthesized vitellins in the ovarian tissues under tissue culture conditions. The results showed that the percentage of vitellin synthesized *in vitro* in all treatment group were significantly (P<0.05) higher than the controls. Treatment with 1 x 10⁻⁹ M E₂ gave the highest percentage of vitellin synthesized. E₂ treatment of sexually immature female prawns maintained for one month in 8 m³ circular cement tanks at a female:male ratio of 5:2 showed no significant difference (under multiple range test) when compared to the controls in both the gonadosomatic index and gonad index. Spawning occurred within two weeks after treatment with 1 x 10⁻¹² M E₂. This is the only treatment where two females with ovaries reaching stage III and IV were observed at the termination of the *in vivo* experiment.