THE EFFECT OF THYROXINE AND 17 BETA-ESTRADIOL ON VITELLIN SYNTHESIS IN THE OVARIES OF BANANA PRAWN, *Penaeus merguiensis* de Man, *IN VITRO*

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ABSTRAK

Fragmen-fragmen kecil ovari udang putih, Penaeus merguiensis yang belum matang dikultur dalam Media 199 yang terubahsuai selama 3 hari, bersama dengan rawatan $1x10^{-8}M$ 17β-Estradiol (E_2), $1x10^{-8}M$ Thyroxine (T_4) dan campuran $1x10^{-8}M$ 17β-Estradiol dan $1x10^{-8}M$ Thyroxine (E_2+T_4). Radioaktif ^{35}S-Methionin adalah dicampurkan bersama untuk menandakan vitelin yang baru disintesis. Ujikaji biokimia yang termasuk kaedah `Immunoprecipitation´, `TCA-precipitation´ dan `Protein Assay´ dibuat untuk menentukan vitelin-vitelin yang baru disintesis. Biosintesis vitelin dengan rawatan $1x10^{-8}M$ T_4 tidak mempunyai perbezaan beerti dari kawalan dan $1x10^{-8}M$ E_2 ($P > 0.05$), tetapi rawatan dengan $1x10^{-8}M$ E_2 mempunyai perbezaan beerti dari campuran $1x10^{-8}M$ T_4 dan $1x10^{-8}M$ E_2 dan juga kawalan ($P < 0.05$). Walaubagaimanapun, campuran $1x10^{-8}M$ T_4 dan $1x10^{-8}M$ E_2 tidak mempunyai perbezaan beerti dari $1x10^{-8}M$ E_2 ($P > 0.05$) tetapi ia mempunyai perbezaan beerti dari kawalan ($P < 0.05$). Campuran $1x10^{-8}M$ T_4 dan $1x10^{-8}M$ E_2 mendapat % vitelin terhasil yang paling tinggi iaitu (7.3 ± 7.4), diikuti oleh $1x10^{-8}M$ E_2 (5.1 ± 7.5) dan $1x10^{-8}M$ T_4 (3.5 ± 1.8). Kawalan yang tidak menerima apa-apa rawatan memberi nilai yang terendah (1.7 ± 1.0).

ABSTRACT

Fragments of immature ovaries of the Banana prawn, Penaeus merguiensis, cultured in Modified Media 199 for 3 days, were either treated with $1x10^{-8}M$ 17β-estradiol (E_2), $1x10^{-8}M$ Thyroxine (T_4) or a combination of $1x10^{-8}M$ Thyroxine and $1x10^{-8}M$ 17β-estradiol (E_2+T_4). Radioactive ^{35}S-Methionine were added to tag the newly synthesized vitellins. Biochemical analyses involving Immunoprecipitation, TCA-precipitation and Protein Assay were done to determine the newly synthesized vitellins. Vitellin biosynthesis following treatments with $1x10^{-8}M$ T_4 were not significantly different from control and $1x10^{-8}M$ E_2 alone ($P > 0.05$), but treatments with $1x10^{-8}M$ E_2 were significantly different from a combination of $1x10^{-8}M$ T_4 and $1x10^{-8}M$ E_2 and control ($P < 0.05$). However, combination of $1x10^{-8}M$ T_4 and $1x10^{-8}M$ E_2 was not significantly different from that of $1x10^{-8}M$ E_2 ($P > 0.05$) but it is significantly different from control ($P < 0.05$). Combination of $1x10^{-8}M$ T_4 and $1x10^{-8}M$ E_2 had the highest % vitellins synthesized (7.3 ± 7.4), followed by $1x10^{-8}M$ E_2 (5.1 ± 7.5) and $1x10^{-8}M$ T_4 (3.5 ± 1.8). The control which received only solvent gave the lowest value (1.7 ± 1.0).