

INTRODUCTION OF TRIPLOIDY IN IKAN BAUNG,
Mystus nemurus USING TEMPERATURE SHOCK

ROSSITA HJ. SHAPAWI

FAKULTI SAINS GUNAAN DAN TEKNOLOGI
UNIVERSITI KOLEJ
(UNIVERSITI PUTRA MALAYSIA)
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BY

ROSSITA HJ. SHAPAWI

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FACULTY OF APPLIED SCIENCE AND TECHNOLOGY
UNIVERSITI KOLEJ
(UNIVERSITI PUTRA MALAYSIA)
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1100024021

DEDICATED TO :

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ABSTRACT

A study was carried out to investigate the possibility of inducing triploid in ikan baung, *M. nemurus* with temperature shocks (cold and heat). The eggs were subjected to cold (0, 2, 5 and 7°C at 2, 5, 7 and 10 minutes duration) and heat (35, 38, 40 and 42°C at 0.5, 1, 1.5 and 2 minutes duration) water temperature shock, 2 minutes after fertilization. Determination of ploidy was carried out on 7-weeks-old fry through the assessment of erythrocyte nuclei measurement. Triploid was observed when eggs subjected to cold shock at 0, 2 and 7°C at 5, 7 and 10 minutes duration, 5°C at all duration tested and 38°C at 2 minutes duration. One hundred percent diploid were observed in the control group. Cold shock treatment at 10 minutes duration yielded 100% triploidy, while the rest was 80%. In the heat shock treatment at 38°C at 2 minutes duration, the incidence of triploidy was found to be the least successful (50%). No triploids were observed when eggs treated at 0, 2 and 7°C at the duration of 2 minutes. All temperatures tested in the heat shock treatment, except for temperature 38°C at 2 minutes duration have failed to yield any triploidy.

The highest fertilization, hatching and survival rates of triploid groups were $84.68 \pm 6.61\%$, $48.78 \pm 7.79\%$ and $89.17 \pm 1.18\%$ respectively as compared to $85.8 \pm 3.15\%$, $80.5 \pm 2.60\%$ and $62.5 \pm 1.17\%$ in the control. There were no significant difference between diploid and triploid *M. nemurus* in growth (total length) up to 7 weeks of age.

ABSTRAK

Satu kajian telah dijalankan untuk mengetahui kemungkinan menghasilkan triploid ikan baung, *Mystus nemurus* dengan kejutan suhu (sejuk dan panas). Telur telah didedahkan pada air bersuhu sejuk (0, 2, 5 dan 7°C) pada tempoh 2, 5, 7 dan 10 minit dan suhu panas (35, 38, 40 dan 42°C) selama 0.5, 1, 1.5 dan 2 minit selepas 2 minit persenyawaan. Penentuan triploid telah dijalankan ke atas larvae berumur 7 minggu dengan kaedah pengukuran nukleus eritrosit. Triploid telah diperhatikan apabila telur didedahkan pada rawatan suhu 0, 2 dan 7°C pada tempoh 5, 7 dan 10 minit kejutan, 5°C pada semua tempoh yang diuji dan 38°C pada tempoh 2 minit. Seratus peratus diploid telah dihasilkan di dalam kawalan. Rawatan suhu sejuk pada tempoh 10 minit telah memperolehi 100% triploid, sementara pada tempoh lainnya adalah 80%. Pada rawatan suhu panas 38°C selama 2 minit, peratus triploid adalah paling rendah, iaitu 50%. Tidak ada triploid yang diperhatikan apabila telur dikenakan rawatan suhu 0, 2 dan 7°C selama 2 minit. Semua suhu yang diuji di dalam rawatan bersuhu panas kecuali untuk suhu 38°C selama 2 minit, gagal untuk memperolehi triploid.

Kadar persenyawaan, penetasan dan kemandirian tertinggi pada kumpulan triploid adalah $84.68 \pm 6.61\%$, $48.78 \pm 7.79\%$ dan $89.17 \pm 1.18\%$ masing-masing berbanding $85.8 \pm 3.15\%$, $80.5 \pm 2.60\%$ dan $62.5 \pm 1.17\%$ di dalam kawalan. Tiada perbezaan bererti diantara diploid dan triploid *M. nemurus* dari segi tumbesaran (panjang keseluruhan) sehingga berumur 7 minggu.