

Title:	Optimal conditions for cold-shock induction of triploidy in red tilapia
Type:	Article
Source (ISSN):	AQUACULTURE INTERNATIONAL (0967-6120)
Status:	A paid open access option is available for this journal
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Volume (Issue):	22(3): 1163-1174
DOI:	10.1007/s10499-013-9736-4
Abstract:	<p>Production of sterile triploid red tilapia [<i>Oreochromis mossambicus</i> (Mozambique tilapia); Peters, 1852 x <i>Oreochromis niloticus</i> (Nile tilapia); Linnaeus, 1758] is an effective strategy to overcome their prolific breeding. Optimal conditions for cold-shock induction of triploidy in red tilapia were investigated by experimentally examining two variables: appropriate temperature of the shock and duration of shock treatment. A constant time after insemination of 4 min was used to determine the best combination of temperature (6, 7, 8, 9, 11, 13, 15 A degrees C) with different durations of shock (10, 20, 30, 40, 50 min) with resultant ploidy level verified karyotypically. Shock duration for 30 min at a temperature of 9 A degrees C was found most effective in producing maximum triploidy (98.7 %) with higher rates of hatching (63.2 %) and survival up to yolk-sac stage (75.8 %). The chromosome count confirmed that triploid percentages were higher when cold shock was used for longer durations at each temperature;</p>

	however, hatching rates were generally decreased. The maximum triploid yield (82.1 %) obtained was higher than the yield obtained using heat shock (72.7 %) in red tilapia previously. The application of the results of this study has the potential to greatly improve the production of triploid red tilapia in commercial aquaculture.
Keyword:	Chromosome Manipulation; Sterile Tilapia; Sterile Stock; Red Tilapia; Triploidy Induction; Turbot Scophthalmus-Maximus; Oreochromis-Niloticus L.; Dicentrarchus-Labrax L; Nile Tilapia; Heat-Shock; Sea Bass; Fish; Growth; Performance; Aquaculture
Related URL:	<ol style="list-style-type: none">1. http://link.springer.com/article/10.1007%2Fs10499-013-9736-42. http://www.researchgate.net/publication/259634246 Optimal conditions for cold-shock induction of triploidy in red tilapia