

Nipon Sean-in 2009: Efficient cryopreservation of Humpback Grouper, *Cromileptes altivelis* (Valenciennes, 1828) spermatozoa. Master of Science (Marine Science), Major Field: Marine Science, Department of Marine Science. Thesis Advisor: Assistant Professor Suriyan Tunkijjanukij, Dr. Scient. 93 pages.

Chilled storage of Humpback grouper, *Cromileptes altivelis* (Valenciennes, 1828) sperm cells with 5 extenders were investigated to find the most suitable type of extender for its cryopreservation. Five extenders; Marine Fish Ringer (MFR), Extender 251 (E 251), Extender 189 (E 189), 0.1 M Sodium Citrate (CT) and 0.9% NaCl (NaCl) were tested. They proved to be appropriate extenders to use since no sperm motilled and sperm still alive at 216 h ( 60 h after chilled storage). There was also no significant difference ( $p>0.05$ ) in sperm motility when sperm was diluted with extender at 1:1, 1:4 and 1:9. Toxicity to sperm cells was studied with 5 different cryoprotectant i.e. Dimethyl acetamide (DMA), Dimethyl sulfoxide (DMSO), Methanol, Glycerol and Trehalose at 5%, 10% and 15% concentrations. The results showed significant difference ( $p<0.05$ ) of sperm motility at 5% DMSO was the best cryoprotectant. The hatching rates of the Humpback grouper eggs from fresh and cryopreserved sperm in 5% DMA and DMSO were significant difference ( $p>0.05$ ). The hatching rates of eggs from cryopreserved sperm in 5% DMSO was high. There was not significantly differences ( $p<0.05$ ) between fresh sperm and 5% of DMSO cryopreserved sperm but significant difference ( $p<0.05$ ) with 5% of DMA cryopreserved sperm.

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Thesis Advisor's signature