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: MAJOR BIOTECHNOLOGY

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SPERM / SPERMATOZOA / CRYOPRESERVATION / RED SNAPPER

WIROJ HIRUNCHAIYAPUCK : SPERM CRYOPRESERVATION OF RED SNAPPER *Lutjanus argentimaculatus* Forsskal, 1775. THESIS ADVISOR : ASSISTANT PROFESSOR PADERMSAK JARAYABHAND, Ph.D. THESIS COADVISER : PORCHAM ARANYAKANANDA, Ph.D. 76 pp. ISBN 974-635-007-2

The study on sperm characteristics of Red Snapper *Lutjanus argentimaculatus* Forsskal, 1775 revealed that they are similar to most teleosts with round head shape and lack of acrosome. Average sperm density was 20.94×10^6 cells per ml. Sperm motility ratings between 9-10. Average sperm motility and percent of live sperm detected by Eosin-Nigrosin stained were 50.99%, was 69.43%, respectively.

The next part of this study involved types of diluent and cryoprotectant. It was found that the effect of diluent on sperm preservation was not significant ($P = 0.233$). However, Modified Cortland Solution, Alsever's Solution and Glucose Normal Saline Solution as diluent gave higher percent of live sperm than other. The study on two types of cryoprotectant showed that DMSO gave a significant higher percent of live sperm than that of glycerol ($P < 0.001$). The linear equation between percent of live sperm and time when using DMSO is $Y = 46.07 - 9.58X$ ($R^2 = 0.888$) where as Y = percent of living sperm by counting from LDS (Live-dead stain) and X = natural logarithm of storage time (day). 188 days of the experiment.

The study on freezing methods, i.e. rapid freezing method, slow freezing method and pelleting method by checking percent of live sperm was also conducted. It was found that the pelleting method resulted in the highest percent of live sperm ($P < 0.001$) There was no significantly difference among thawing method, i.e. thawing in low temperature, room temperature and high temperature (60°C) ($P = 0.215$).

Finally can be concluded from this study that Alsever's Solution + 10% DMSO freezing by pellets method and thawing in 60°C is the best procedure for sperm cryopreservation. This procedure results in $75.67 \pm 10.89\%$ of live sperm.

ภาควิชา.....

สาขาวิชา.....เทคโนโลยีชีวภาพ

ปีการศึกษา.....๒๕๓๙

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ลายมือชื่ออาจารย์ที่ปรึกษา.....

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