

Khongsak Thiangtum 2012: Effect of Antioxidant on Semen Cryopreservation and Artificial Insemination in the Fishing Cat (*Prionailurus viverrinus*). Doctor of Philosophy (Agricultural Biotechnology), Major Field: Agricultural Biotechnology, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Anuchai Pinyopummin, D.Vet.Med.Sc. 70 pages.

The objectives of this study were to 1) study the effect of antioxidant on motility, viability and acrosomal integrity of frozen-thawed domestic cat sperm 2) study the effect of antioxidant on frozen-thawed sperm quality in the fishing cat 3) preliminary study on laparoscopic artificial insemination in the fishing cat. In experimental 1, antioxidant catalase (CAT) and superoxide dismutase (SOD) were added in extender for domestic cat sperm cryopreservation. In experiment 2, CAT, glutathione peroxidase (GPx) and vitamin E were added in extender for fishing cat sperm cryopreservation. In experiment 3, female fishing cats had been induced for follicle stimulation and ovulation by exogenous hormone before conducted laparoscopic artificial insemination with fresh semen. Cryopreservation significantly impaired sperm motility, viability and acrosomal integrity ($p < 0.05$) in both domestic cat and fishing cat. However, motility, viability and acrosomal integrity of frozen-thawed sperm in extender with and without the antioxidants were not significantly different. Ovarian assessment and artificial insemination were performed successfully by laparoscopy. However, all recipients had no pregnant.

In conclusion, semen processing and cryopreservation had negative impact on frozen-thaw fishing cat spermatozoa. However, antioxidant did not improve motility and acrosomal integrity in cryopreserved fishing cat spermatozoa. Variable respond was found for follicle stimulation in fishing cat. Laparoscopic artificial insemination is helpful technique as one component of applied conservation effort in the fishing cat.

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