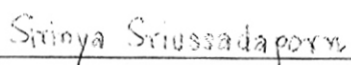
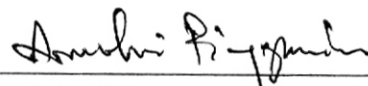


Sirinya Sriussadaporn 2008: Factors Affecting In Vitro Maturation of Canine Oocytes.  
Master of Science (Agricultural Biotechnology), Major Field: Agricultural Biotechnology,  
Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Anuchai  
Pinyopummin, D.Vet.Med.Sc. 53 pages.

The purposes of this study was to investigate the factors influencing *in vitro* maturation of canine oocytes. In Expt I: cumulus–oocyte complexes harvested from ovaries were subjected to IVM in four media (SOF, TCM 199, Ham-F10, and DMEM/F12). After culture for 48 h, oocytes were stained and examined for nuclear maturation. There were no significant differences in the percentage of meiosis resumption (GVBD-MII) and percentage of nuclear maturation (metaphase II, MII) of oocytes cultured in different media. In Expt II: the effects of the antioxidants, Trolox or Melatonin supplemented in IVM medium at different concentrations (i.e., 50, 100, 250 and 500  $\mu\text{M}$ ) on nuclear maturation of canine oocytes were examined. There were no differences in the ability of oocytes to complete nuclear maturation among treatments, although the percentage of meiosis resumption was higher ( $P < 0.05$ ) when using melatonin at 500  $\mu\text{M}$  compared to 50  $\mu\text{M}$ . In Expt III: the effects of artificial activation using either ionomycin or ethanol on nuclear maturation of canine oocytes were investigated. The percentage of meiosis resumption of oocytes activated with either ionomycin or ethanol before subjected to IVM (0 h) was lower ( $P < 0.05$ ) than those of other treatments and the control. The rate of nuclear maturation to MII stage was higher ( $P < 0.05$ ) in oocytes activated with ethanol at 24 h of IVM when compared to the other groups. In Expt IV, *in vitro* culture system for *in vitro* matured and fertilized (IVM/IVF) oocytes was examined. Percentages of IVM/IVF oocytes that developed to the 2-cell, 3–4-cell, and 5–7-cell stages were higher ( $P < 0.05$ ) following culture in SOF than BRL cell co-cultures. *In vitro* development of embryos to the 8-16 cell stage did not difference between either system.



Student's signature



Thesis Advisor's signature

21 / May / 08