
Thesis Advisors: Assoc.Prof. Dr. Thevin Vongpralub, Asst.Prof. Dr. Suporn Katawatin, Asst.Prof. Dr. Monchai Duangjinda, Dr. Yupin Phasuk

ABSTRACT

The objective of this study were as followed: 1) to compared the quality of post-thaw bisected dairy cattle embryos frozen by slow freezing or conventional method and vitrification. 2) to compared post-thaw survival rate in objective (1). 3) to study of embryos sex determination by nested PCR. Seventy two dairy cattle embryos (Day 7–8) collected from superovulated heifers (HF) were assigned randomly to one of three groups: bisected embryo slow freezing, bisected embryo vitrification and intact embryo slow freezing (control). Morphology, cell alterations and in vitro survival were evaluated immediately after thawing or after 12 and 24 h. The rates of grade 1 to 2 embryo were significantly different between intact embryo slow freezing (77.27 %, 17/22), bisected embryo slow freezing (56.52 %, 13/23) and bisected embryo vitrification (34.78 %, 8/23) ($\chi^2$, P<0.05). After co-culture of bovine oviductal epithelial cells. Survival rate at 12 h. was significantly different between intact embryo slow freezing (90.90 %, 20/22), bisected embryo slow freezing (69.57 %, 16/23) and bisected embryo vitrification (47.83 %, 11/23) ($\chi^2$, P<0.01). The survival rates at 48 h. of embryo slow freezing, bisected embryo slow freezing and bisected embryo vitrification were as 81.82 % (18/22), 34.78 % (8/23) and 17.39 % (4/23) ($\chi^2$, P<0.01), respectively.

Sexing determination were used 46 parts of embryos to amplification of genes ZFX and ZFY. The proportion of male and female embryos were not significantly different (P>0.05) (53.65 and 46.34 %).

In conclusion, the manual section of embryo before freezing resulted in a significant decreasing in survival rates and sex determination by nested PCR showed highly accuracy to sexing bovine embryos.