EFFECT OF COMBINATION ETHYLENE GLYCOL AND PROPANEDIOL AS INTRACELLULAR CRYOPROTECTANT ON MICE (*Mus musculus*) BLASTOCYST VIABILITY POST VITRIFICATION

Adinda Kresna

ABSTRACT

This objective of this research was to know the effect of combination ethylene glycol and propanediol as intracellular cryoprotectant on the viability of mice blastocyst. The experimental animals were female mice strain Balb/C which was superovulated using *Pregnant Mare Serum Gonadotropin* (PMSG) and *Human Chorionic Gonadotropin* (hCG), subsequently, monomating was carried out. Eighteen hours after vaginal plug examination, the mice were sacrificed, next the tuba fallopian was taken and fertilization pockets were torn. In Vitro Fertilization was done by placing the sperm and the oocyte in the same drop of medium, then cultured until became blastocyst. The blastocyst was classified into four groups: treatment one vitrified using ethylene glycol 30%, treatment two using propanediol 30%, treatment three using a combination of ethylene glycol 20% and propanediol 10%, and treatment four using a combination of ethylene glycol 10% and propanediol 20%. Each treatment group was put into the ministraw and stored in liquid nitrogen for a week then warmed immediately. Examination of the viability of blastocyst was done using an inverted microscope right after warming process. Based on the statistical analysis, it demonstrated that there were significant differences between single cryoprotectant and combination cryoprotectant group p<0.05, with the most significant differences between P1 (ethylene glycol 30%) and P4 (ethylene glycol 10% and propanediol 20%). In conclusion, combination of ethylene glycol and propanediol as an intracellular cryoprotectant in vitrification can maintain the viability of mice blastocyst. The best concentration combination based on this research was ethylene glycol 10% and propanediol 20%.

**Keywords:** Vitrification, Ethylene glycol, Propanediol, Blastocyst.