

**ABSTRACT**

**The Effects of *Insulin Transferin Selenium* (ITS) Supplementation on Mice (*Mus musculus*) Embryos Vitrification Media at Morula Stage Towards the Viability of Blastomere Cells using *Fluorescence* Techniques after *Warming***

Didi Yudha Prawira

**ABSTRACT**

This research aimed to evaluate the influence of *Insulin Transferin Selenium* (ITS) supplementation on mice (*Mus musculus*) embryos vitrification media at morula stage towards the viability of blastomere cells using *fluorescence* techniques after *warming*. The experimental animals used were female mice strain Balb/C which were superovulated using *Pregnant Mare Serum Gonadotropin* (PMSG) and *Human Chorionic Gonadotropin* (hCG), subsequently monomating was carried out. Seventeen hours after vaginal plug examination, the mice were sacrificed by cervicalis dislocation, next the tuba fallopii was removed and fertilization pockets were torn. *In Vitro Fertilization* was done, then cultured for 72 hours to become morula stages. The morula embryos were classified into four groups: without ITS, ITS with 5 µg/100 ml, 10 µg/100 ml, and 15 µg/100 ml of concentration. Each treatment group was put into 0,25 ml *ministraw* and stored into liquid nitrogen for a week then warmed immediately. The post-warmed embryos were colored using fluorescent mark (*Hoechst* and *Propidium Iodide*) and cultured for 30 minutes. Observation of the viability of blastomere cells for morula embryos was done using *fluorescent* microscope. Based on the statistical analysis, it demonstrated that there were no significant differences between the treatment group  $p > 0,05$ , but significant differences between P3 (15 µg/100 ml) and without ITS group  $p < 0,05$ . Nevertheless, if it was investigated based on the viability calculation of the blastomere cells morula embryo development, it proved that 15 µg/100 ml of ITS could increase the viability of blastomere cells morula embryo by 63% compared to 16% without ITS. In conclusion, the distribution of *Insulin Transferin Selenium* (ITS) supplementation concentration on vitrification media had been functioning optimally in increasing the viability of blastomere cells morula embryos after being warmed.

**Keywords:** Vitrification, *Insulin Transferin Selenium*, Morula, *Fluorescence*.