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

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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 cervical 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.