*Hayati* Juni 2005, hlm. 73-76
ISSN 0854-8587

# *In Vitro* Fertilization and Embryo Development of Vitrified Ovine Oocytes Stressed in Sucrose

**ITA DJUWITA'*, ARIEF BOEDIONO[1], SRIHADIAGUNGPRIYONO[1], IMAN SUPRIATNA[2], MOZES TOELIHERE[2], YUHARA SUKRA'**

**'Department of Anatomy, department of Reproduction and Obstetric, Faculty of Veterinary Medicine, Bogor Agricultural University, Kampus Darmaga, Bogor 16680**

Diterima 3 November 2004/Disetujui 13 April 2005

Experiments were conducted on the morphology, fertilization and embryo development rate of vitrified ovine oocytes matured *in vitro.* Three vitrification solutions were used for vitrification. PBS supplemented with 1% BSA, 30% ethylene glycol was added by one of three different sucrose concentrations, 1.00 M (VS,), 0.50 M ($VS_2$), and 0.25 M ($VS_3$). The results showed that the percentages of normal vitrified oocytes after warming were 78 and 63% in VS, and $VS_2$, respectively, which was significantly higher as compared for $VS_3$. The fertilization rates were 59 and 66% in VS, and $VS_2$, respectively, which were also significantly higher as compared with $VS_3$ (35%). Zygote viability after 18 h was 57; 43; and 40%, for VS,,$VS_2$, and $VS_3$, respectively, which was not significantly different. The incidence of polyspermic penetration increased with increasing sucrose concentration, i.e 23, 11, and 9% in VS,, VS,, and $VS_3$, respectively, as compared with unvitrified oocytes (4%). The cleavage rate of vitrified oocytes in VS, was 13.2% which was significantly lower ($p<0.05$) compared to those of unvitrified control oocytes (70.0%). Hence, a high sucrose concentration is beneficial for maintaining the oocyte structure during the processes of vitrification and thawing, which ultimately results in increased *in vitro* fertilization rates.