

TECHNICAL REPORT: CONCEPTION RATE OF *IN VITRO* PRODUCED BOVINE EMBRYOS AFTER VITRIFICATION BY CRYOTOP METHOD



Basso, A. C.¹; Silva, J.C.B.²; Sanches, B.V.¹; Fortes-Pontes, J.H.¹;

Mattos, M.C.C.³; Sartori, R.⁴

¹In Vitro Brasil Ltda, Mogi Mirim-SP, Brasil; ²Embryo Sys Reprodução Animal, Ouro Fino, MG, Brasil; ³Departamento de Reprodução Animal e Radiologia Veterinária, FMVZ, UNESP, Botucatu, SP, Brasil; ⁴Departamento de Zootecnia, ESALQ, USP, Piracicaba, SP, Brasil
andreabasso@invitrobrasil.com.br

Introduction

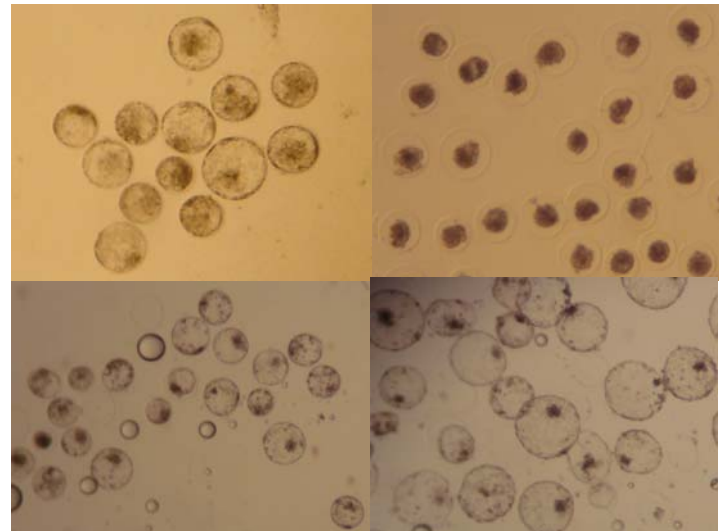
Cryopreservation of *in vitro* produced (IVP) bovine embryos is a key step to improve the commercialization of genetic material. IVP embryos differ considerably from those produced *in vivo*, providing physical and morpho-physiological characteristics that make them more sensitive to cryoinjury (VAJTA 2000, Anim Reprod Sci, 60:357-364). Furthermore, IVP embryos from Zebu cattle seem to be even more sensitive to traditional slow freezing. However, satisfactory conception rates have been obtained when these embryos are vitrified.

Material and Methods

Transfer of IVP vitrified embryos from Gir (Girolando) and Simbrasil donors, performed by this team, showed that conception rates was 61.1% (n = 36) and 50.0% (n = 10) at 30 days, respectively. Based on these results, the aim of this report was to evaluate the conception rates of IVP fresh or vitrified embryos from Nellore cows, on the same commercial farm. The experiment was conducted at Eldorado's farm, Itapetininga, SP, Brazil. After *in vitro* fertilization using conventional semen, embryos were vitrified at the expanded blastocyst stage (Bx) by Cryotop method with cryoprotectants solutions of Ethylene Glycol (EG) + Dimethyl sulfoxide (DMSO).

Results

The conception rates of 480 IVP fresh embryos were 49.4 and 40.8% at 30 and 60 days, respectively. The IVP vitrified embryos showed 47.7% (n=44) of conception.



(A) Expanded Blastocysts with seven days of culture before vitrification; (B) Embryos immediately after thawing; (C) Embryos with 24 hours of culture post-thawing; (D) Hatched blastocysts with 48 hours of culture post-thawing.

Conclusion

These results, combined with the other reports with the same technique, have established that vitrification is an applicable alternative to improve the viability of IVP cryopreserved embryos, possibly by preventing the intracellular ice formation and by promoting less damage to embryonic cells.

Keywords: bovine, embryo, in vitro fertilization, vitrification.

ACKNOWLEDGEMENTS: Golin Group