



Effect of Culture Media and Epidermal Growth Factor on In Vitro Oocyte Maturation in the One-Humped Camel (*Camelus dromedarius*)

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Abstract: Culture conditions for in vitro embryo production (IVP) in domestic species have been improved in recent years. Despite the low reproductive performance, camels are probably the last large domestic species to experience the benefit from these in vitro culture techniques. The aim of the present study was to compare the in vitro maturation (IVM) of camel oocytes in different culture media. The effect of epidermal growth factor (EGF) on camel oocyte maturation was also examined.

Oocytes (n=8805) were aspirated from 604 camel ovaries during the breeding season. Selected oocytes were cultured in TCM-199 and CR1aa media at 38.5 °C, under 5% CO₂ for 40 h. Oocytes were also matured in culture media supplemented with EGF (20 ng/ml). Maturation of camel oocytes was assessed at end of incubation. Assessment of cytoplasmic maturation of camel oocytes was carried out through 4 grades (G0, G1, G2 and G3) of cumulus cell expansion. Nuclear maturation rate (MII) was calculated based on number of oocytes with 1st polar body.

In the present study, retrieval rate of camel oocytes was 14.58%. TCM-199 and CR1aa culture media for camel oocytes showed no significant differences in cytoplasmic maturation expressed as G3 cumulus expansion (66.02%, 63.43% respectively) and nuclear maturation expressed as MII (77.90%, 79.01 % respectively). Addition of EGF (20 ng/ml) to the TCM-199 maturation medium significantly increased the proportion of camel oocytes reaching cytoplasmic maturation rate (G3, 72.46%) and nuclear maturation metaphase II (MII, 87.93 %). When present in CR1aa maturation medium, EGF significantly improved cytoplasmic maturation rate (G3, 68.28%) of camel oocytes. Hence, our data indicate that TCM-199 and CR1aa media are suitable for in vitro maturation of camel oocytes. EGF supplementation improves camel oocyte maturation especially in TCM-199 culture medium.

Keywords: Camel oocytes, culture media, in vitro maturation, epidermal growth factor.