

Evaluation of epidermal growth factor during *in vitro* maturation on meiotic status and embryonic development of red-rumped agouti (*Dasyprocta leporina* Linnaeus, 1758) oocyte



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INTRODUCTION

The red-rumped agoutis are considered one of the most important species for seed dispersal, soil aeration, and reforestation. Although its populations are considered stable, conservation strategies need to be employed, aiming to develop research on expanding the knowledge on this species, and to manage captive populations. An interesting conservation strategy would be the *in vitro* embryo production (IVEP). *In vitro* maturation (IVM) is a fundamental step for the development of IVEP, being the establishment of medium composition essential for the success of the IVM and *in vitro* embryo development (IVD). Studies in different mammals have shown the positive effect of 10 ng/mL of epidermal growth factor (EGF) on IVM and IVD rates.

OBJECTIVE

To evaluate the EGF on the IVM and IVD of red-rumped agouti oocyte (Fig. 1).

MATERIAL AND METHODS

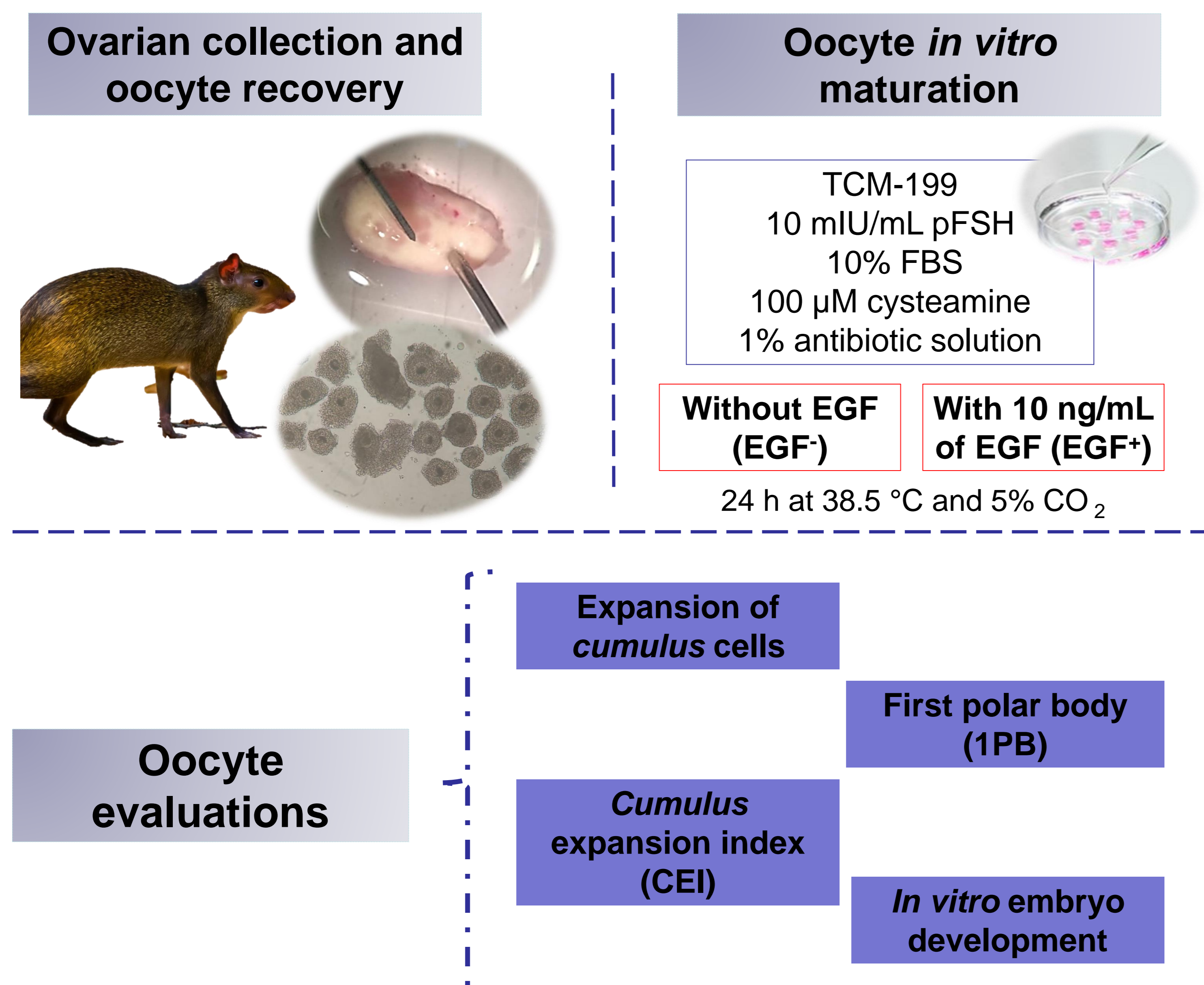


Figure 1. Oocyte recovery, *in vitro* maturation and artificial activation of *D. leporina* oocytes.

RESULTS AND DISCUSSION

In total, 114 immature oocytes were obtained from all ovaries with nineteen oocytes per female. Of these, 104 oocytes were considered viable and used for IVM. After the IVM, no difference ($P > 0.05$) was observed between oocytes matured in absence and presence of EGF for expansion of the *cumulus* cells, and rates of 1PB (Fig. 2A).

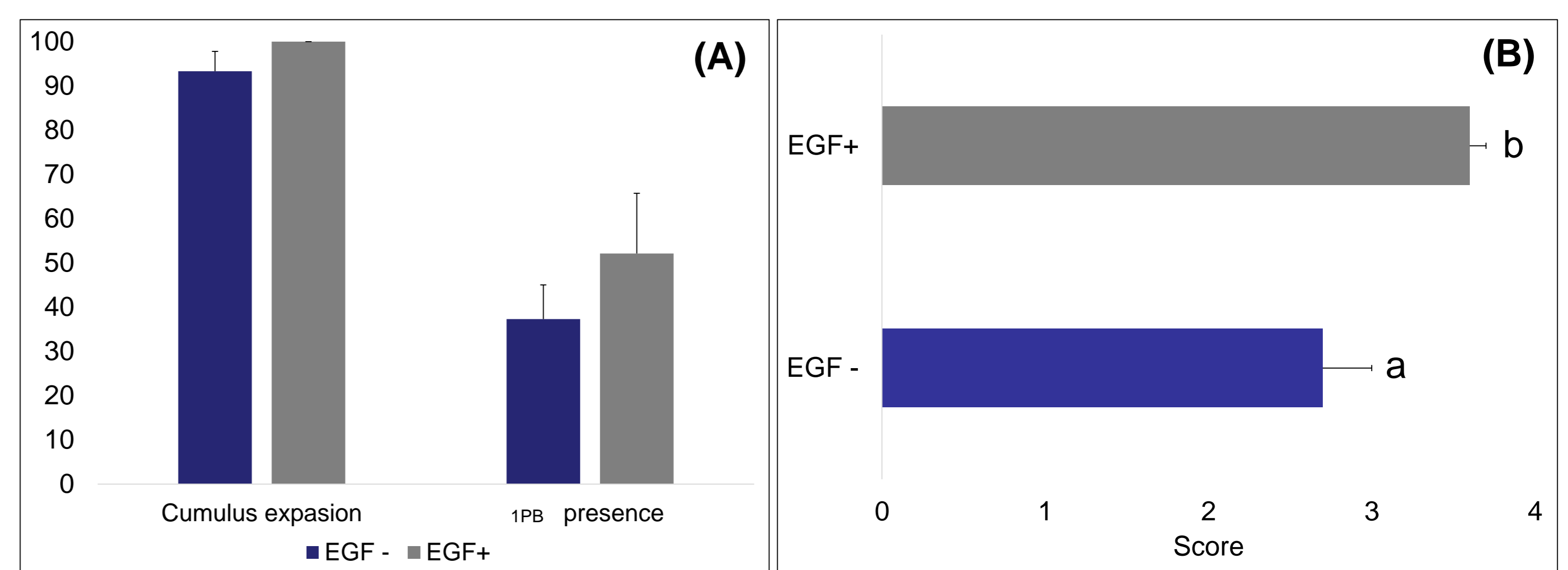


Figure 2. *In vitro* maturation of *D. leporina* oocytes. (A) Percentage of oocytes with *cumulus* cell expansion and presence of 1PB, (B) *Cumulus* cell expansion score (CEI).

Nevertheless, oocytes matured in the presence of EGF had a higher CEI when compared to oocytes matured in the absence of EGF (Fig. 2B). This index identifies that oocytes close to full expansion will present values close to 4, showing greater oocyte viability. After IVD, no difference ($P > 0.05$) was observed between oocytes matured in absence and presence of EGF for cleavage rates and morulae/cleaved (Fig. 3).

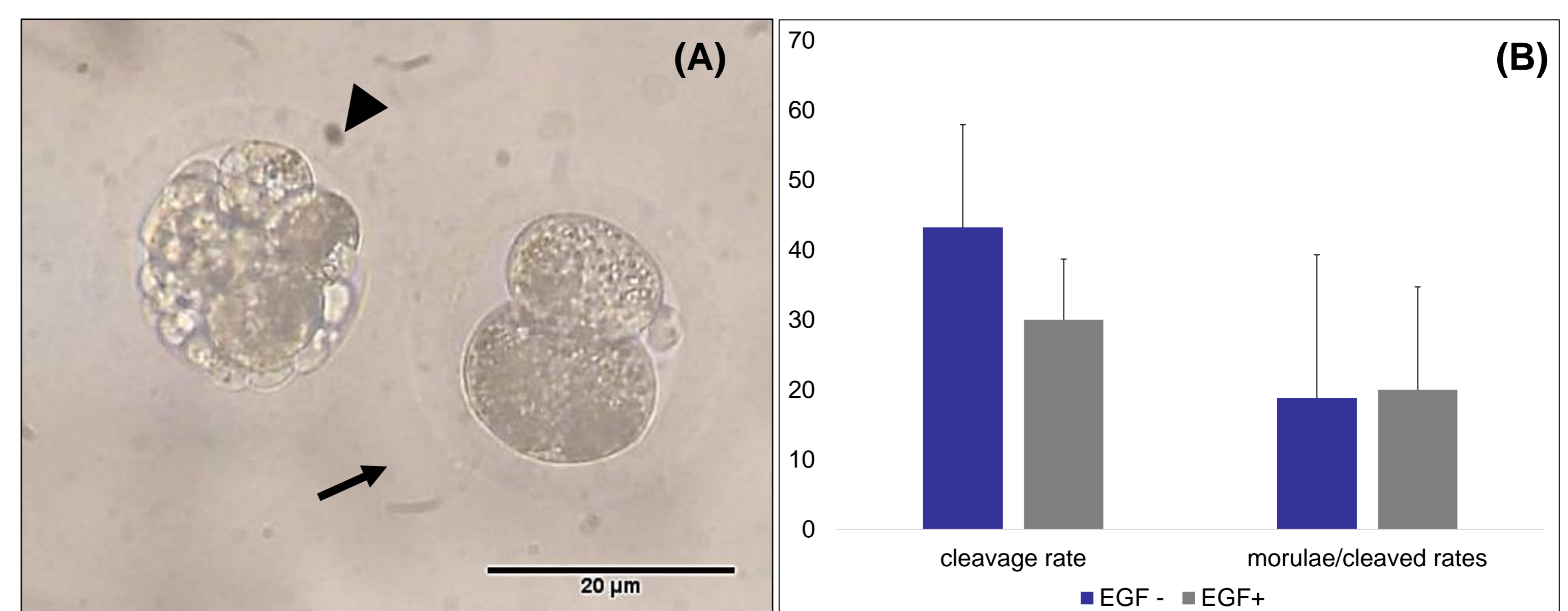


Figure 3. Evaluation of *in vitro* embryo development in *D. leporina* after activation with SrCl₂ and CB. (A) Presence of cleavage (arrow) and morulae (triangle) after 4 days of culture. (B) Percentage of cleavage and morulae/cleaved rates.

CONCLUSION

We describe initial data on the effects of EGF on meiotic potential and *in vitro* embryo development in red-rumped agoutis, suggesting that EGF is an interesting supplement for optimizing IVM media in this species.