

Effects of Fenugreek Seed Extract on in vitro Maturation and Subsequent Development of Sheep Oocytes

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Abstract : The present study was conducted to determine the role and optimum concentration of fenugreek seed extract during in-vitro maturation on in-vitro maturation and developmental competence of Neaimi sheep oocytes following in-vitro fertilization. The Cumulus Oocyte Complexes (COCs) collected from sheep slaughterhouse ovaries were randomly divided into three groups, and they were matured for 24 hrs. in maturation medium containing fenugreek seed extract (0, 1 and 10 $\mu\text{g ml}^{-1}$). Oocytes of a control group were matured in a medium containing 1 $\mu\text{g ml}^{-1}$ estradiol 17 β . After maturation, half of oocytes were fixed and stained for evaluation of nuclear maturation. The rest of oocytes were fertilized in vitro with fresh semen, then cultured for 9 days for the assessment of the developmental capacity of the oocytes. The results showed that the mean values of oocytes with expanded cumulus cells percentage were not significantly different among all groups ($P < 0.05$). But nuclear maturation rate of oocytes matured with 10 $\mu\text{g ml}^{-1}$ fenugreek seed extract was significantly higher than that of the control group. The maturation rate and development to morula and blastocyst stage for oocytes matured at 10 $\mu\text{g ml}^{-1}$ fenugreek seed extract was significantly higher than those matured at 1 $\mu\text{g ml}^{-1}$ of fenugreek seed extract and the control group. In conclusion, better maturation and developmental capacity rate to morula and blastocyst stage were obtained by the addition of 10 $\mu\text{g ml}^{-1}$ fenugreek seed extract to maturation medium than addition of 1 $\mu\text{g ml}^{-1}$ estradiol-17 β ($P < 0.05$).

Keywords : fenugreek seed extract, in vitro maturation, sheep oocytes, in vitro fertilization, embryo development

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