EFFECT OF SERUM FREE MEDIA ON *IN VITRO* MATURATION, FERTILIZATION AND EMBRYO CULTURE OF OVINE OOCYTES

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CERTIFICATE

This is to certify that the thesis entitled "**EFFECT OF SERUM FREE MEDIA ON *IN VITRO* MATURATION, FERTILIZATION AND EMBRYO CULTURE OF OVINE OOCYTES**" submitted in partial fulfillment of the requirements for the Degree of **MASTER OF VETERINARY SCIENCE** in **ANIMAL REPRODUCTION, GYNAECOLOGY AND OBSTETRICS** to the Tamil Nadu Veterinary and Animal Sciences University, Chennai- 51 is a record of bonafide research work carried out by **SURESH. S**, under my supervision and guidance and that no part of the thesis has been submitted for the award of any other degree, diploma, fellowship or other similar titles or prizes and that the work has not been published in part or full in any scientific or popular journal or magazine.

Date : 24-11-2010
Place : Chennai-7.

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ABSTRACT

EFFECT OF SERUM FREE MEDIA ON *IN VITRO* MATURATION, FERTILIZATION AND EMBRYO CULTURE OF OVINE OOCYTES

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A total of 341 ovine ovaries were sliced to obtain 1,407 oocytes giving a recovery rate of 4.13 per ovary. Among the oocytes collected 38.81%, 46.06% and 15.14% were A, B and C grades respectively.

In experiment I, The percentage (mean % ±S.E) maturation rates of ovine oocytes matured in FBS group was 89.32±1.67, for BSA group was 80.10±1.64 and in wheat peptone group was 54.27±1.81. The difference in oocyte maturation rate was highly significant ($P<0.01$) between groups. The maturation rate of oocyte was significantly higher in the FBS group. The lowest maturation rate was observed in wheat peptone supplemented group.

The percentage (mean % ±S.E) development rates of 2, 4, 8-16 and morula stages of ovine embryos produced from FBS group were 75.00±1.88, 55.43±1.39, 36.41±1.30 and 19.57±0.82, in BSA group were 52.87±2.04, 40.13±1.23, 25.48±0.56 and 15.92±0.48 and in wheat peptone group were 44.44±0.77, 30.56±0.67, 21.29±0.70 and 10.19±0.31, respectively. The difference in the developmental rate of 2-, 4-, 8-16 cell and morula stages was highly significant ($P<0.01$) between groups. The morula yield was significantly higher in the FBS supplemented group and lowest in wheat peptone supplemented group.

In experiment II, the percentage (mean % ±S.E) nuclear maturation rates of ovine oocytes matured in FBS group was 69.15±1.07, in BSA group was 56.47±0.73 and in wheat peptone group was 35.26±0.79. The difference in oocyte maturation rate was highly significant ($P<0.01$) between groups. The nuclear maturation of oocytes was significantly higher in the FBS group when compared to BSA and wheat peptone supplemented groups. The lowest maturation rate was observed in wheat peptone supplemented group.

In experiment III, the percentage (mean % ±S.E) development rates in 2, 4, 8-16 and morula stages of ovine embryos produced from FBS group were 73.58±2.92, 58.77±2.01, 41.22±1.68 and 20.17±0.76, in BSA group were 74.22±2.56, 60.93±2.55, 42.97±2.20 and 24.21±1.28 and in wheat peptone group were 72.89±1.09, 57.01±0.76, 42.05±0.36 and 24.29±0.55, respectively. The number of morula developed was found to be higher in wheat peptone supplemented group followed by BSA and FBS groups. The difference between the groups was not significant.

It can be concluded that wheat peptone supplement in embryo culture alone yield better morula production.