

THE QUALITY OF BOER GOAT SPERM PRESERVED IN INSTANT COMERCIAL DILUTORS

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ABSTRACT

The aim of the research was to study the quality of sperm Boer Goat preserved in an instant commercial dilutor (AndroMed) in differents equilibration. The result showed that volume, pH value, concentration, motility, live-dead cell and the rate of abnormal sperm of fresh Boer Goat are all in normal range. When semens were equilibrated, there were no significant differences between the three differents times on sperm quality before freezing (motility 71.5 % to. 76.5 %, but it were different ($P < 0.005$) in motility and live dead sperm post thawing (motility 35 % to 27 %). Recently field result showed that 75.3 % female pregnant using Artificial Insemination. The equilibration of 2 hours was considered as the best time of equilibration compared with other treatment.

Key words: Sperm quality, Boer goat, live-dead, Dilutor

INTRODUCTION

Most of Indonesian local goats are of indigenous breeds. These goat are characterized by relatively low production both milk and meat, and we are facing faced on the problem of decreasing genetic quality of local goat. Cross breeding programme through the implementation of Insemination Artificielle is attempted to be an alternative for increasing and improving native goat performance by introducing superior gen.

Numerous dilutors have been used to dilute and to store mammalian semen. In most cases dilutor of goat semen include egg yolk, skim milk or chemical for regulation osmolarity and pH (Masuda *et al*, 2004; Yamashiro *et al*, 2006). Recently, It was reported that if the ejaculated spermatozoa can be collected with minimizing the effect of accessory reproductive fluid, it would be possible to enhance sperm motility and survival rate for preservation (Yamashiro *et al*, 2006). Preliminary study was done to evaluate the quality of semen of this Boer Goat using 7 differents formulated dilutors, the result showed that individual motility after freezing and thawing was higher when semen was diluted with tris base extender than those with skim milk (Anonymous, 2004).

The purpose of this experiment was to test the capability of commercial dilutors available named AndroMed for both pre-equilibration at 5 °C and post thawing to maintain the quality of sperm of Boer goat.

MATERIALS AND METHODS

Semen was collected from 10 Boer Goat with average of ages about 29 months, weight 90 – 130 kg by means of artificial vagina. These animals were reared in Research Station of Animal Husbandry at Sumber Sekar, Malang. The dilutors were prepared by extend 1:4 AndroMed with Aqua bides. The respective commercial dilutors being used consisted of aqua bides, fructose, Glycerol, Acidium Citrium, Buffer, Phospholipids and antibiotics.

Semen quality evaluation were done by standard protocol to determine the volume from each ejaculation as well as its colour, pH Value, motility rate and abnormality rate. Only Ejaculates with minimum at 70 % its motility were processed for this experiment.

The percentage of motiles and % live-dead spermatozoa were determined at 2, 3, 4 hours of equilibration at cooling temperature at 5 °C. Meanwhile, the % live-dead spermatozoa was tested using 2 different staining technique using Eosin Nigrosin and dual staining Hoescht 33158-Propidium Iodide (H-33158-PI) to evaluate apoptosis and necrosis cell being observed. Motility and live-dead spermatozoa were subjected to arcsin transformation prior to variance analysis. Data were expressed as mean \pm Standard Deviation.

RESULTS AND DISCUSSION

Semen samples of Boer Goat collected were subjected to the evaluation of their quality before used in experiments. Compare the Boer goat semen quality with other goat, all parameters are all in normal range (Gangyi *et al*, 2001, Hafez, 1993). The results of evaluation of the quality fresh Boer goat semen being used for this research are shown in Tabel 1.

When semen samples were exposed, there were no differences quality of sperm among the 3 treatments at 2, 3 and 4 hour of equilibration, but after freezing or post thawing using the same dilutors, the motility and live-dead sperm at 2 hours equilibration treatment was significantly better than those of the other treatment ($P < 0.05$) (Table 2).

Table 1. Fresh Semen Characteristic of Boer Goat

No.	Characters	X \pm SD
1.	Volume (ml)	1.37 \pm 0.23
2.	Concentration (10^6 /ml)	3.698 \pm 52.30
4.	Motility (%)	80 \pm 0.00
5.	Live-dead spermatozoa (%)	83.30 \pm 3.21
6.	Abnormal spermatozoa (%)	9.7 \pm 1.54

Table 2. Quality of Boer goat semen on different time of equilibration and its influence in post thawing motility

Characters	Time of Equilibration		
	2 hours	3 hours	4 hours
Pre-equilibration			
1. Motility (%)	71.5 \pm 1.50	69.0 \pm 1.00	67.5 \pm 2.01
2. Live-dead sperm (%)	67.8 \pm 3.80	61.7 \pm 5.30	57.8 \pm 4.30
Post Thawing			
1. Motility (%)	35 \pm 1.6	28.0 \pm 2.5	27 \pm 2.6
2. Live-dead sperm (%)	40.07 \pm 1.9	34.74 \pm 1.2	32.95 \pm 2.1

Meanwhile, recently result of the implementation of Artificial Insemination using freezing semen in the Area Tulungagung Regency in East Java base on the Non Return Rate (NRR) is about 75.30 % of 108 pregnant females were pregnant.

CONCLUSION

There no differences on the efect affect of equilibration time of 2, 3, 4 hours using commercial instant dilutors. The best quality of post thawing semen is 2 hours of equilibration.

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