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SHORT COMMUNICATION

Effect of preservation at refrigeration temperature on bacterial load and quality of buck semen*

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ABSTRACT

The bacterial load in buck semen preserved under refrigeration temperature(8-12°C) was assessed by Pour Plate Method. The mean bacterial load showed an increasing trend from zero to 48 hours of preservation. However, there was no significant correlation between the bacterial load and semen quality.

Key words: Buck semen, refrigeration temperature, bacterial load

Artificial Insemination of goats has gained momentum in recent years. Semen gets easily contaminated by microbial organisms during collection and preservation. The nutrients in the diluent are also conducive for microbial growth. Perusal of literature shows extensive work on bacterial load of bovine semen, but works on buck semen are scanty. Hence, the present study was undertaken to assess the effect of preservation of buck semen under refrigeration temperature.

Semen was collected twice weekly with the help of sterilized artificial vagina from six Malabari crossbred bucks aged 2–2½ years maintained under identical managemental conditions at the Artificial Insemination Centre, College of Veterinary and Animal Sciences, Mannuthy, Thrissur. Two ejaculates were collected per animal per day and a total of six collections from each buck were used in the study. The seminal plasma was removed by centrifugation of semen and then reconstituted in sterile phosphate buffered saline. The reconstituted semen was then diluted ten fold in Tris diluent. (Tris hydroxy methyl amino methane 2.72 g, Citric acid 1.46 g, Fructose 1.13 g, Egg yolk 10 ml. Benzyl Penicillin 1000 IU/ml, Streptomycin Sulphate 1000 ug/ml, Distilled water ad 100 ml). It was then kept in a water bath at 37° C and transferred to a refrigerator where the temperature was between 8 - 12° C. The bacterial loads of fresh, reconstituted preserved semen at zero, 24 and 48 hours were assessed by Standard Pour Plate Technique (Cruickshank *et al.*, 1975). The sperm motility and abnormalities were also assessed at the respective stages. The statistical analysis was according to Snedecor and Cochran (1967).

The mean bacterial load, percentage of sperm motility and sperm abnormalities in buck semen at zero, 24 and 48 hours of preservation are shown in Table 1. There was no significant difference ($P<0.05$) in the bacterial load of semen at zero and 24 hours of preservation and also between 24 and 48 hours. However, there was a significant difference in the bacterial load between zero and 48 hours of preservation. This is in accordance with that of Ahmed *et al.* (1987) and Kher and Dholakia (1987) who found that the bacterial load in diluted, chilled semen was more than fresh semen. The

Table 1: Bacterial load, sperm motility, major sperm abnormalities and acrosome abnormalities of buck semen under refrigeration temperature (8-12° C)

	0 hours	24 hours	48 hours
Bacterial load (organism/ml)	41563.89 ± 5359.58	56611.11 ± 8236.55	86458.33 ± 35433.74
Sperm motility (%)	73.47 ± 4.53	70.55 ± 0.17	62.50 ± 1.27
Major Sperm abnormality (%)	2.97 ± 0.37	3.68 ± 0.51	4.74 ± 0.48
Acrosome abnormality (%)	7.20 ± 0.58	8.58 ± 0.60	9.31 ± 0.66

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sperm motility decreased progressively with days of preservation. The sperm abnormalities and acrosome abnormalities increased with days of preservation. However, no significant correlation was found between the bacterial load and semen quality at any stage of preservation. The proper maintenance of the temperature in the refrigerator is also a crucial factor, the failure of which might have led to an increase in the bacterial load.

It may be concluded that hygienic measures during collection and processing of semen are essential to check the increase in the bacterial load in the buck semen.

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