

PROGESTERONE IMPREGNATED VAGINAL SPONGE IS BETTER COMPARED TO INJECTABLE PROGESTERONE FOR THE INDUCTION OF ESTRUS IN GOAT

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ABSTRACT

Healthy breedable does were synchronized for estrous either with natural progesterone impregnated intravaginal sponges (AVIKESIL-S, for 15 days *in situ*, n=20) or long acting progesterone (50 mg, 0.2 ml/doe, i.m., P-Depot, n=20) at an interval of 3 days for 5 occasions. Both the group of does received 125 µg cloprostenol on the day of sponge withdrawal or after the completion of injectable progesterone treatment. Another group of does (n=20) were maintained under routine managemental practices without any hormonal treatment. In brief, the does treated with vaginal sponge had better exhibition of estrus as compared to other does.

Keywords: Doe, Estrous synchronization, Intravaginal Sponge, PGF_{2α}, Progesterone,

Estrous synchronization induces tight estrus within a short period of time, and improves pregnancy and prolificacy rates; hence this is one of the techniques applied to improve the breeding in goats. In the present study, an attempt was made to improve reproductive efficacy in does by using two progesterone therapies.

Sixty normal healthy breedable does within first to third parity mostly thriving by foraging and concentrate were divided into three different groups. A group of does (n=20) was synchronized for estrous using intravaginal sponges impregnated with natural progesterone and the sponges were left *in situ* for 15 days. Another group (n=20) received long acting progesterone (50 mg, 0.2 ml/does, P-Depot) through intramuscular route at an interval of 3 days on 5 occasions. Both groups received 125 µg cloprostenol on the day of sponge withdrawal or after completion of intramuscular progesterone treatment. The control group (n=20) was maintained under routine managemental practices receiving no hormonal treatment. Following treatment, the estrus characteristics like estrus induction, induction interval, duration of estrus, behavioural characteristics, physical

signs were observed. The grading of estrus behaviour was denoted on the basis of behavioural and physical characteristics of drug induced animals on 4 point scale and the analysis of variance of such grading are presented.

The progesterone treatment induced estrus in 80-90% of the treated does in the present study (Table 1). The optimum response of does to synchronization in this study could be due the fact that these does were maintained under under good nutrition. In fact, overt estrus occurred in 60% does that were fed with low energy diet in comparison with 93% and 100% does fed medium and high dietary energy (Kusina *et al.*, 2000).

The estrus induction interval was similar ($p>0.05$) following sponge impregnated or injectable progesterone treatment (Table 1), however, the interval observed in the present study was shorter compared to an earlier study (De *et al.*, 2015). On the contrary, otehrs reported 23.7 ± 15.8 h induction interval (Fonseca *et al.*, 2005). Furthermore, the duration of estrus was higher ($p<0.05$) in sponge treated does compared to those administered progesterone injections (Table 1). Other have reported lower as well as higher duration of estrus as compared to the present study (Fonseca

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Table 1: The characteristics of estrus in does with or without progesterone treatment.

Response of does	Preogesterone Sponge, n=20	Progesterone Injectable, n=20	Control, n=20
Estrus Induction	90%	80%	-
Estrous induction interval	35.82±0.41 h	39.17±0.50 h	-
Duration of estrus	36.20±0.63 ^a h	31.99±0.46 ^b h	35.63±0.81 ^a h
Estrous characteristics	n=18	n=16	n=11
Restlessness	83.3%	68.7%	81.8%
Wagging of tail	100%	100%	100%
Vocalisation	100%	87.5%	100%
Homosexual behaviour	83.3%	50%	54.5%
Clustering around buck	100%	87.4%	81.8%
Micturition	55.5%	62.5%	45.4%
Buck teasing	100%	100%	100%
Vaginal discharge	88.8%	62.5%	72.7%
Edema of vulva	100%	87.5%	81.8%
Vaginal congestion	100%	100%	100%
Dialation of cervix	100%	100%	100%
Grading (1-4) estrus behaviour	3.47±0.16 ^a	3.29±0.26 ^b	3.21±0.18 ^b

p<0.05, Means bearing same superscript in a column are similar

et al., 2005 and De *et al.*, 2015).

Intravaginal sponge treated does exhibited pronounced behavioural signs of estrus when all the characters were taken into consideration (Table 1). However, in intramuscular treated group, these signs were moderate to intense in many cases and they are more or less similar to control does (Table 1). Behavioural signs with respect to above characteristics were almost similar as reported earlier in goats exhibiting natural estrus (Ghosh and Das, 2002). Estrous behaviour rating was highest (p<0.05) in intravaginal sponge treated does as compared to other treatment and control group (Table 1). Similar results were reported earlier in Black Bengal does treated with Progestagen and PGF_{2α} (Ghosh and Das, 2002). In brief, intravaginal sponge treated animals exhibited an effective synchronization of estrus.

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