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SHORT COMMUNICATION

Effect of hormone treatment on oestrus response in prepubertal indigenous goats of Assam

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ABSTRACT

Six indigenous prepubertal goats aged 6 months of age were fed medroxy progesterone acetate (MAP) orally @ 5 mg/ animal/day for 13 days followed by intramuscular injection of 650 I.U. of PMSG on the day of withdrawal of progesterone. The animals exhibited oestrus within 42.88±3.84 hours after PMSG injection. However, another 6 indigenous prepubertal goats received sterile normal saline treatment, exhibited oestrus after 50.83±6.63 days of saline treatment. The age and body weight at first oestrus in hormonally treated and saline treated groups of animals were 199.79±1.66 days and 6.68±0.09 kg, respectively and 233.33±5.74 days and 7.95±0.15 kg, respectively.

Key words : Prepubertal goats, MAP, PMSG, oestrus induction

In Assam, goat rearing for economic upliftment of farmers is well established. To explore the potentialities of indigenous goats considerable scientific approaches have been made in recent years (Dutta, 1988; Sharma, 1991). For obtaining maximum productivity, expansion of reproductive life through reduction of prepubertal period from 10 months (Talukdar, 1994) of indigenous goat is essential. A scientific approach with the use of hormones is therefore, proposed to shorten the prepubertal life of indigenous goats of Assam.

Twelve numbers of prepubertal indigenous goats of Assam aged 6 months were divided into treatment and control groups, consisting of six animals in each group. The animals were maintained in the animal shed of the Department of Animal Physiology, Faculty of Veterinary Science, Khanapara, under semi-intensive system of management. The animals of treatment group were fed medroxy progesterone acetate (MAP) orally at the rate of 5 mg/animal/day for 13 days followed by 650 IU of PMSG (Folligon) intramuscularly on the day of withdrawal of progesterone. However, the animals of control group received sterile normal saline treatment.

Oestrus was observed after the treatment at every 2 hour intervals by parading a vasectomized buck and also by visual observation throughout the study period. The very first appearance of courtship between male and female was considered as the onset of oestrus. Age and body weight of all the experimental animals were recorded prior to treatment, at the end of treatment and at the onset of oestrus. The data were analysed statistically according to the methods of Snedecor and Cochran (1994).

In treatment group, all prepubertal indigenous goats of Assam responded and exhibited oestrus within 42.88 ± 3.84 hours after PMSG injection. The present finding is in agreement with that findings reported by earlier workers in prepubertal goats : 1-2 days (Ryot and Vadnere, 1989) and 48 hours (Pendleton *et al.*, 1992). Treatments with progesterone hasten the onset of oestrus and are more effective when combined with GnRH (Patterson *et al.*, 1990). It may be due to the fact that progesterone treatment allows better synthesis and storage of pituitary gonadotrophins and consequently higher gonadotrophic surge on withdrawal of progesterone. Another possible explanation could be due to early development of follicles after gonadotrophin administration (Kathiresan, 1993). However, the control group of animals required much longer time interval (50.83 ± 6.63 days after saline treatment) to exhibit natural oestrus.

The average age and body weight at first oestrus (Table) in hormonally treated animals were significantly lower (199.79 ± 1.66 days and 6.68 ± 0.09 kg, respectively) that to control group (233.33 ± 5.74 days and 7.95 ± 0.95 kg,

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Table 1. Onset of first oestrus and body weight in hormonally treated and control prepubertal indigenous goats of Assam in relation to their age

Group	Age at first oestrus (days)	Time interval between PMSG/saline treatment and onset of oestrus	Body weight prior to treatment (kg)	Body weight at oestrus (kg)
Treatment	199.79 ± 1.66	42.88 ± 3.84 (hrs)	6.05 ± 0.17	6.68 ± 0.09
Control	233.33 ± 5.74	50.83 ± 6.63 (days)	6.18 ± 0.20	7.95 ± 0.15
't' value	5.59**	-	0.4909^{NS}	6.98**

** P<0.01, ^{NS}Non significant

respectively, P<0.01). Similar findings were also reported by Talukdar (1994) and Dutta (1996) in goats.

Application of progesterone treatment for a period of 13 days followed by PMSG injection could result in induction of oestrus in prepubertal indigenous goats of Assam with reduction of prepubertal life from 10 months to 6 months of age.

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