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Effect of intra vaginal progesterone pessaries and PMSG on fecundity rate in Malabari goats*

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ABSTRACT

Oestrus was synchronized in Malabari goats using 45 mg Fluorogestone Acetate (FGA group; n=14) or 60 mg Medroxy Progesterone Acetate (MAP group; n=14) intra vaginal sponges or Controlled Internal Drug Release (CIDR group n=12) device containing 0.332 g natural progesterone. These intra vaginal sponges or devices were kept in situ for 18 days in all 3 groups and 600 I.U. PMSG was administered intra muscularly to all the does at the time of sponge or CIDR removal. Breeding at induced oestrus was done by natural service or A.I. at 48 and 60 hours of sponge or CIDR removal. This study indicated that the fecundity in Malabari goats could be improved and the incidences of twins and triplets could also be artificially increased by oestrus synchronization procedures.

Key words : Progesterone pessaries, PMSG, FGA, MAP, CIDR, fecundity, goats

Ovulation in goat is effectively controlled by injection of Pregnant Mare Serum Gonadotrophin (PMSG) around the time of cessation of intravaginal treatment with sponges containing Medroxy Progesterone Acetate (MAP; Bongso *et al*., 1982), Fluorogestone acetate (FGA; Ritar *et al*., 1984) or with Controlled Internal Drug Release (CIDR) device (Ritar *et al*., 1989). However, the fecundity rate following intravaginal sponges in combination with PMSG has not been studied in detail in Malabari goats. Hence, the present investigation was undertaken to study the effect of oestrus synchronizing agents and PMSG on fecundity rate in Malabari goats.

MATERIALS AND METHODS

This study was conducted on Malabari goats maintained at Livestock Research Station, Kattupakkam of Tamil Nadu Veterinary and Animal Sciences University. Oestrus was synchronized using 45 mg Fluorogestone Acetate (FGA group; n=14) or 60 mg Medroxy Progesterone Acetate (MAP group; n=14) intra vaginal sponges or Controlled Internal Drug Release (CIDR group; n=12) device containing 0.332 g natural progesterone. These intra vaginal sponges or devices were kept *in situ* for 18 days in all 3 groups. At the time of pessary removal, 600 I.U. PMSG was administered intra muscularly to all the does.. Seven does in each FGA and MAP groups and six does in CIDR group were bred by natural service (N.S. groups) and the remaining half of each group was artificially inseminated (A.I. groups) using frozen semen twice at 48 and 60 hours of sponge or CIDR removal. Twelve untreated does were bred by natural service (n = 6) or AI (n = 6) twice at 12 hours interval during natural oestrus and served as control group. All the does were maintained up to kidding and fecundity rate in each treatment group was calculated.

RESULTS AND DISCUSSION

Numbers of kids born in FGA, CIDR and control groups through breeding by natural service were higher (Table) contrary to MAP group. FGA group gave 20.00 per cent triplet birth. There was a marked improvement in all the treated N.S. and A.I. groups than the control N.S. and A.I. groups except in MAP - N.S. group, where the number of kids per doe was 1.25. Fecundity was maximum in the FGA - N.S. group. These results were in agreement with those of Dhinsa *et al.* (1971) and East and Rowe (1989). But Ishwar and Pandey (1990) observed a lower fecundity of 1.33 in oestrus synchronized goats using progestagens. The results of the present study clearly indicated that the oestrus synchronized goats responded well to the PMSG in terms of number of ovulations. Even though all the treated goats received an equal amount of PMSG, the

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Table 1. Fecundity of oestrus synchronized Malabri goats

Treatment		No. of does inseminated	No. of does kidded	No. of kids born	No. of kids per doe	Singleton (per cent)	Twins (per cent)	Triplet (per cent)
FGA	NS	7	5	11	2.20	-	80	20
	AI	7	4	6	1.50	50	50	-
MAP	NS	7	4	5	1.25	75	25	-
	AI	7	3	5	1.67	33.33	66.67	-
CIDR	NS	6	5	9	1.80	20	80	-
	AI	6	5	8	1.60	40	60	-
Control	NS	6	5	7	1.40	60	40	-
	AI	6	3	4	1.33	66.67	33.33	-

reduced fecundity in MAP - N.S. group might have been due to poor viability of embryos (Wishart and Young, 1984) caused by change in the uterine and oviduct environment or variations in ovulation rate because of persisting follicles following PMSG treatment. However, Ritar *et al.* (1984) reported that 100 per cent of the does treated with 45 mg FGA sponge for 18 days plus 600 I.U. PMSG injection at 48 hours before sponge removal had ovulated.

In this study, birth of twins and singletons were noticed in all the treatment and control groups whereas triplets were observed only in FGA - N.S. group. Incidence of twins were higher in N.S. group of FGA and CIDR groups than their A.I. groups. These observations were in agreement with Bongso *et al.* (1982) and Alacam *et al.* (1985) and Holtz and Sohnrey (1992). Low twinning observed in MAP group in the present study might have been due to the individual variation in response to PMSG and different types of progestagens or progesterone. The triplets observed in FGA - N.S. group of present study was comparable to the quadruplets and triplets reported by Verma *et al.* (1990) following FGA plus PMSG treatment. In general , N.S. group of all oestrus synchronised and control groups showed higher percentage of kidding rate when compared to A.I. groups except MAP group. Ritar *et al.* (1990) attributed the lesser conception rate in goats with A.I. to the sperm concentration in the semen used for A.I, and problem with the transport of frozen - thawed spermatozoa through the reproductive tract of the goat.

The differences observed in fecundity between N.S. and A.I. group of the treated and control groups were in agreement with Zygoyiannis *et al.* (1989) who reported a higher fecundity in naturally bred goats than in artificially inseminated goats with frozen semen. This might be due to variation in sperm concentration (Ritar and Ball, 1993) and effects of semen freezing process. Hence, it is concluded that the fecundity in Malabari goats can be improved and the incidence of twins and triplets birth, can also be artificially increased by oestrus synchronization procedures.

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