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Ameliorative effect of *Saraca asoca* leaves on post partum anoestrus Murrah buffaloes

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Abstract

A total of 8 postpartum anoestrus buffaloes (45-90 days) were identified by rectal palpation at 10 days interval for identifying ovarian inactivity, absence of follicles and corpus luteum on both ovaries. Further confirmation of anoestrus was done by ultrasonographic examination. The selected anoestrus buffaloes were administered 130gm of air dried *Saraca asoca* leaves powder orally daily for 24 days. Out of 8 anoestrus buffaloes, 4 animals showed ameliorative effect by exhibiting estrous on an average period of 12- 14 days.

Keywords: postpartum anoestrus buffalo, *Saraca asoca* leaves, serum hormones, amelioration

Introduction

Anoestrus is one of the major causes of poor reproductive performance in buffaloes which results in long inter calving period [2, 5] True anoestrus is the condition where both the ovaries are smooth, small, inactive, absence of graafian follicle or corpus luteum [2, 10, 6]. It is a condition in which low progesterone levels in milk and blood and inactive ovaries or ovaries with poor follicular growth [12]. The onset of estrus cycle and initiation of ovulation during the post calving period in parturient buffaloes constitutes a major problem resulting in long postpartum anoestrus and delayed breeding with consequent serious economic losses in the milk production and in efficient reproduction [3].

Postpartum anoestrus in buffaloes is the delay in resumption of ovarian cyclic activity characterized by inadequate follicular development and absence of ovulatory follicle [16] that leads to long calving interval and one of the major causes of economic losses associated with buffalo reproduction in India. The incidence of anoestrus is higher in postpartum buffalo than the heifers.

Incidence of postpartum anoestrus occurs between 5 to 9 years and above at 32.55 per cent to 46.42 per cent. Anoestrus in parity one, two, three, four, five and six and above showed at about 40.00, 28.20, 24.32, 35.00, 35.71 and 39.13 per cent respectively [8]. In Murrah and graded Murrah buffalo anoestrus is about 29.12 per cent in overall India, about 60.58 per cent in Assam [4].

Various hormonal preparations have been tried for the treatment of anoestrus with variable success rates [9]. The major constraints in use of various hormonal preparations are high cost, non availability of commercial preparation and some of them showed adverse effect after use. Hence, the alternative medicine, herbal plants like *Saraca asoca*, *Leptadenia reticulata*, *Asparagus racemosus*, *Couroupita guianensis*, *unripe papaya*, *Trigonella foenum graceum*, *cucumber leaves*, *Aegele marmelos* etc can play an effective role in efficient treatment for anoestrus [13]. These herbal plants are easily available, cost effective and does not cause any side effects. Therefore the present study is to conduct on the evaluation of *Saraca asoca* leaves.

Saraca asoca (family Caesalpiniaceae) is a traditionally used medicinal herb in India. Leaves of *Saraca asoca* contain alkaloids, steroids, flavonoids, tannins, saponins, terpenoids, polyphenolics, glycosides and carbohydrates. Flavonoids such as quercetin, β -sitosterol, ceryl alcohol have been reported in *Saraca asoca* leaves. The steroidal compound, β -sitosterol along with calcium salt present in *Saraca asoca* leaves has estrogenic activity. In view of this effect of *Saraca asoca* leaves on amelioration of postpartum anoestrus in graded Murrah buffaloes.

Materials and Methods

The present research work was carried out to know the extent of amelioration of anestrus in post partum graded Murrah buffaloes in organised farms in and around Hyderabad, Rangareddy district so as to ensure similar feeding and managemental conditions. The experiment was carried out according to the guidelines and prior approval of institutional animal ethics committee (IAEC) I/2018-26/IAEC, CVSc, Hyderabad. *Saraca asoca* leaves were collected from around the premises of Rajendranagar, Hyderabad in the month February 2018 and was identified by Department of Botany, Osmania University, Hyderabad with the Voucher No. 113, Flowering plants of chittoor district Andhra Pradesh, India. The *Saraca asoca* leaves (Fig 1) were dried in shade, powdered and stored in air tight containers. Total of eight postpartum anestrus buffaloes were identified based on history that animals were not coming to heat for a period of 90 days and by rectal palpation at 10 days interval for identifying ovarian inactivity for the absence of follicles and corpus luteum on both ovaries. Further anestrus was confirmed by Ultrascan machine with B-mode scanner (Aloka). The animals were fed with 130gm of *Saraca asoca* leaves powder (Fig 2) orally daily for 24 days.



Fig 1: *Saraca asoca* leaves



Fig 2: *Saraca asoca* leaves powder

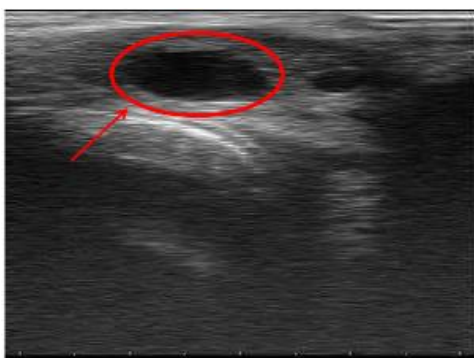


Fig 3: Smooth and inactive ovary

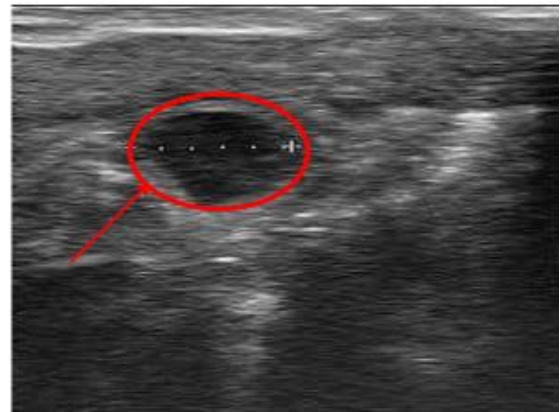


Fig 4: smooth ovary of 1.13cm length

Results and Discussion

The postpartum anestrus buffaloes were selected based on history that animals were not coming to heat for a period of 90 days. The animals on per rectal examination twice at 10 days interval were observed that smooth small inactive ovaries with absence of follicles and corpus luteum on both ovaries [1-7]. Further by transrectal ultrasonographic genital monitoring, the postpartum buffaloes showed small round, smooth firm ovaries with no CL (Fig3) which is in agreement with Kumar *et.al.*, 2020 [11] and Shyam *et.al.*,2010 [15]. The effect of *Saraca asoca* leaves powder on ameliorating the postpartum anestrus in buffaloes after feeding orally for 24 days showed as given below table 1. Out of 8 animals, four animals exhibited estrous. This is in similar findings of Rajkumar *et.al.*, 2008 [14].

Table 1: Ameliorative effect of *Saraca asoca* on postpartum anestrus buffaloes

Parameters	Treatment group
Animals treated	8
Animals induced estrous	4 (50%)
Onset of estrous from initiation of treatment (days)	13.0±0.0 (12-14)

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