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Effect of feeding *Trigonella foenum graecum* seeds on post partum anoestrus Murrah buffaloes

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Abstract

Eight postpartum anestrus buffaloes were identified based on history that were not coming to estrous (45 to 90 days), further confirmed by both rectal palpation and ultrasonographic examination which showed ovarian inactivity, absence of follicles and corpus luteum on both ovaries. 200gm of *Trigonella foenum graecum* seeds powder was orally administered daily for 24 days for selected animals. Out of eight postpartum anestrus buffaloes, five animals showed estrous on an average period of 16-24 days.

Keywords: Postpartum anestrus buffalo, *Trigonella foenum graecum* seeds, ultrasonography, estrous

Introduction

Anestrus is a functional disorder of reproductive cycle in buffalo which is characterized by absence of overt signs of estrous and also affecting the livestock economy to a great extent [1]. Postpartum anestrus in buffaloes is the delay in resumption of ovarian cyclic activity characterized by inadequate follicular development and absence of ovulatory follicle [2] that leads to long calving interval and a big challenging problem associated with buffalo reproduction in India. Buffaloes were diagnosed for anestrus on the basis of absence of estrous signs three months postpartum and detected by teaser bull twice a day, smooth ovaries with the corpus luteum at two consecutive 10 days interval [3].

Incidence of postpartum anestrus in buffaloes was reported to be 31 per cent to 42 per cent for five months and above after calving [4]. The incidence of non-cyclic buffalo was found to be high in summer and it was 59.70 per cent and about 36.75 per cent in spring season [5, 6].

Diagnosis of postpartum anestrus is based on information that animal is not displaying the overt signs of estrous even after 60–90 days post-partum [7]. On per rectal examination performed twice at 10 days interval, it is observed that smooth, small and inactive ovaries with absence of corpus luteum in true anoestrus buffalo [8, 9]. Application of transrectal real time ultrasonography to study bovine reproduction has been found very useful in identifying CL in the ovary. An accuracy in detecting a CL was 95.7% with ultrasonography compared to 85% with rectal palpation was reported [10]. True anoestrus in post partum buffaloes was identified by small round, smooth firm ovaries with no CL [1].

Various hormonal preparations such as synthetic estrogen, gonadotropins, progestational compounds (CIDR, Crestar), eCG-GnRH - PGF2 α - GnRH pregnant mare serum gonadotropin (PMSG), and prostaglandins associated with fixed-time artificial insemination (FTAI) have been tried for the treatment of anoestrus with variable success rates [11]. The major constraints in use of various hormonal preparations are high cost, non availability of commercial preparation and some of them even showed adverse effects. Therefore it is a need of hour to find out suitable, effective and cheap alternative therapy to meet this requirement. The 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 *Trigonella foenum graecum* seeds on amelioration of anestrus in postpartum buffaloes.

Materials and Methods

Trigonella foenum graecum is a leguminous herb belonging to fabaceae, cultivated throughout the world especially in the Asia and North African countries [12]. The chemical composition of *Trigonella foenum graecum* seeds consists of 20-25% proteins, 45-50% dietary fiber, 20-25% mucilaginous soluble fibre, 6-8% fixed fatty acids and essential oils, and 2-5% steroidal saponins.

Moreover, some minor components such as alkaloids (trigonelline, cholin, gentianine, carpaine etc), free unnatural amino acids (4-hydroxyisoleucine) and individual spirostanols and furastanols like diosgenin, gitogenin and yamogenin have also been identified and determined as the main component for its various biological effects [13].

The present research work was carried out in post partum anestrus graded Murrah buffaloes in organized 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.

A total number of eight postpartum anestrus buffaloes were selected 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 selected animals were fed orally with 200gm of *Trigonella foenum graceum* seeds powder (Fig 2) daily for 24 days.



Fig 1: *Trigonella foenum graceum* seeds



Fig 2: *Trigonella foenum graceum* seeds powder



Fig 3: Smooth and inactive ovary



Fig 4: Smooth ovary of 1.13cm length

Results and Discussion

The postpartum anestrus buffaloes were first identified based on history that animals which were not coming to heat for a period of 90 days. The identified animals were examined per rectally twice at 10 days interval which showed small and smooth inactive ovaries with absence of follicles and corpus luteum on both ovaries [7, 3]. On transrectal ultrasonographic genital monitoring, the anestrus buffaloes showed small round, smooth firm ovaries with no CL (Fig3) which is in agreement with Kumar *et al.*, 2020 [1] and Shyam *et al.*, 2010 [14]. The effect of *Trigonella foenum graceum* seeds powder on ameliorating the postpartum anestrus buffaloes after oral 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 [15].

Table 1: Ameliorative effect of *Trigonella foenum graecum* seeds on postpartum anestrus buffaloes

Parameters	Treatment group
Animals treated	8
Animals induced estrous	5 (65%)
Onset of estrous from initiation of treatment (days)	13.0±0.0 (12-14)

Reference

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