

## EFFECT OF LUGOL'S IODINE ON ESTRUS INDUCTION AND FERTILITY RESPONSE IN TRUE ANESTRUS JAFFRABADI BUFFALOES

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### ABSTRACT

Anestrus is a functional disorder of reproductive cycle in cattle and buffalo which is characterized by absence of overt signs of estrus and also affecting the livestock enterprise to a great extent. Incidence of anestrus is more in buffalo than the cattle, and problem is severe during summer. The present study was carried out to see the efficacy of lugol's iodine for the initiation of ovarian cyclicity in postpartum true anestrus buffaloes. Confirmation of true anestrus in 20 buffaloes was done by finding smooth ovaries at rectal examination, out of 20, 10 buffaloes was treated with Lugol's iodine (1:50) ratio 30 ml I/U once only whereas, the remaining 10 buffaloes were serve as control for treated group and no treatment was given to such animals. The result for induction of estrus was 70% (7/10) and the conception rate was 85.71% (6/7). Lugol's iodine treatment is cheaper and effective means of management of anestrus but response has been variable.

**Keywords:** anestrus, conception rate, infertility, ovarian-cyclicity

### INTRODUCTION

Anoestrus is the major infertility problem in farm animals. It is important to note that anoestrus is abroad term, which indicates the lack of oestrus expression at an expected time. The meaning depends on age, weight, breed and history. Delay in expression of oestrus is beyond accepted average in anoestrus. It must be understood that a period of sexual quietness in animals is shown by complete absence of oestrus cycles. The incidence and management of the anoestrus have been recognised as age old problems in cattle breeding and there is wealth of documentation on various therapies to induce estrus in cow and buffaloes. The main native tract of Jaffarabadi buffaloes is Saurashtra region of Gujarat. These animals though very good milkers have a very high age at first calving and a long inter- calving period. Delayed resumption of postpartum estrous activity is a most vital factor responsible for poor reproductive efficiency of these animals. Various hormonal and non hormonal therapies have been used for induction of estrus and fertility in anestrus bovines by various workers. Ovarian massage is known to stimulate the cyclicity in some anoestrous cases. It is proved that the cervical stimulation with lugol's iodine

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at very low concentration as paint or intrauterine infusion gives better response in inducing oestrus.

## MATERIALS AND METHODS

The experiment was conducted at cattle breeding farm, Junagadh, Gujarat a total of 20 postpartum pluriparous Jaffrabadi buffalo were selected by rectal palpation. The age and the parity of the buffaloes ranged from 5 to 12 years. The animals in experiment had parities ranging from 2 to 6 The buffaloes which did not any signs of estrus 90 days postpartum were included in the study. The animals were divided in two groups of ten animals each, Group I (treatment group) were given Lugol's iodine (1:50) 30 ml I/U once only. Whereas the animals of Group II (control) animals served as control and no treatment was given. Beginning from the day of injection all the animal were observed for estrus twice a day at 7.00 am and 3.00 pm with a teaser bull. The buffaloes were observed for oestrus activity next day onwards a buffalo was said to be in standing estrus if it allowed the bull to mount. Any buffalo in standing estrus was inseminated with good quality semen

from the buffalo bulls stationed at farm. Artificial insemination was conducted 18 h after sign of estrus was clearly visible. The parameters measured were onset of estrus, duration of estrus, percentage of estrus and conception rate. Buffaloes were rectally palpated to confirm pregnancy 50 days after last AI. All the experimental animals were maintained as a group and were housed in semi open system. Each animal was fed with 30-35 kg of green fodder, 3-5 kg of concentrate (Amul dhan and Cotton seed cake). Management of these animals was nearly similar and they were released extensively during the day for free grazing.

## RESULTS AND DISCUSSION

A total of seven animals (70%) out of ten animals injected in group I, responded to the treatment. While out of the control group three animals exhibited heat signs. Out of the seven animals bred six animals conceived with a conception rate of 85.71%. Out of the three animals bred (control group) one animal conceived (conception rate of 33.33%). Various workers have reported variable response ranging from (45%

Table 1. Efficacy of Lugol's Iodine for induction of estrus in postpartum true anoestrus Jaffrabadi buffaloes.

Sl. No	Attribute	Group I (Treatment group)	Group II (Control)
1	Total No of animal treated	10	10
2	Response (animal induced)	7	3
3	Percentage response (%)	70	30
4	Animal bred	7/7	3/3
5	Animal conceived	6/7	1/3
6	Conception rate	85.71%	33.3%
7	Average No of AI / conception	3	2.75

to 91%) among cattle and buffaloes (Singh and Thakur 1999; Tomar 2004; Gupta *et al.*, 2011). The period of postpartum anoestrus is usually longer in buffalo than the cattle under similar management conditions (Jainudeen and Hafez, 1993), probably due to low LH secretion during early postpartum period (Perera, 2011) It is presumed that painting of Lugol's iodine on posterior part of the cervix causes local irritation and brings about reflux stimulation at anterior pituitary for secretion of gonadotrophins and consequently cyclicity. Lugol's iodine is an irritating solution and intrauterine infusion of Lugol's solution (0.5 to 1.0%) causes hyperemia (enhanced circulation) of uterine mucosa resulting into degree of iodine absorption from uterus. The absorbed iodine probably increases the metabolic rate of body through stimulating the thyroid hormone secretion (Sanchez, 1995). Increased metabolic rate trigger the ovarian functions by enhancing the energy utilization (El-Shahat and Badr, 2011). Injectable Lugol's iodine has also been used with the same assumption (Sarkar, 2005). Anoestrus is a multifactorial problem but its occurrence signals the inadequate nutrition, environmental stress, uterine pathology and improper managemental practices. The return of estrus in the three animals of control group may be explained due to correction in any one of the factors.

## CONCLUSION

Anoestrus is a multi-causative factors associated problem affecting livestock enterprise to a great extent. Diagnosis of the condition needs to be prompt and at the earliest to prevent its occurrence for effective treatment. Lugol's iodine treatment is cheaper and effective means of management of

anoestrus. The animals given Lugol's iodine had a better response percentage, faster heat induction and better conception rate.

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