

CERVICAL MUCUS FERN PATTERN IN RELATION TO FERTILITY AND MICRO-MINERAL PROFILE IN ANESTRUS SURTI BUFFALOES SUBJECTED TO OVSYNCH ALONE AND IN COMBINATION WITH PRID

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ABSTRACT

Eighteen anestrus Surti buffaloes were subjected to Ovsynch or Ovsynch plus PRID or inseminated at spontaneous estrus (n=6 in each group). Overall conception rate was 77.8% in buffaloes with typical fern pattern as compared to 42.8% with atypical fern pattern. Serum copper, zinc, iron and manganese concentrations were similar ($p>0.05$) between animals during the study period.

Key words: Anestrus, Buffalo, Cervical mucus, Fern pattern, Ovsynch, Surti

Low reproductive efficiency in buffaloes remains a major economic problem globally. Various hormonal preparations were used in anestrus and subestrus buffaloes with variable success (Rathore *et al.*, 2006; Singh *et al.*, 2006). The present study investigated the impact of cervical mucus fern pattern and serum micro-mineral profile on conception rate in anestrus Surti buffalo subjected to estrus synchronization.

Eighteen Surti buffaloes between 45 and 120 days postpartum were included in the present study. Estrus was detected daily with the help of teaser bull parading during morning and evening hours. The animals not exhibiting overt signs of estrus were segregated and subjected to rectal palpation. The animals with smooth ovaries on rectal palpation at eleven-day interval were divided at random into three groups of six animals each. The first group was subjected to standard ovsynch protocol followed by fixed time inseminations (FTAI) twice, morning and evening, on day 10 of protocol. The second group buffaloes were inserted PRID (0.9 g of progesterone) intra-vaginally which was kept *in-situ* from day 0 to 7 of ovsynch protocol. Rest of the ovsynch protocol and FTAI was same as in

group-1. The third group control (no hormone therapy) buffaloes were inseminated at spontaneous estrus. The pregnancy was confirmed per rectally 60 days of last AI.

The procedures for arborization or fern pattern of cervico-vaginal mucus collected before AI were carried out as per the known standard pattern using a microslide. Blood samples (5-6 ml) were collected from all animals on day 0 (prior to treatment), day 4 (during treatment), day 8 (after cloprostenol inj.), and day of estrus / FTAI and on day 28 (18th day post-AI) by jugular vein puncture in serum clotting vacutainers, and serum separated was stored at -20°C until analysis. Serum was subjected to estimation of trace elements (copper, zinc, iron and manganese) on an Atomic Absorption Spectrophotometer.

The test of significance among and within the groups for micro elements profile was made by analysis of variance and the mean differences between and within the groups were tested using Duncan's multiple range test at 5% level of significance.

In the present study, the overall conception rate, irrespective of estrus synchronization group, was higher (77.8 vs. 42.8%, $p>0.05$) in buffaloes with

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typical compared to atypical fern pattern. However, the serum copper, zinc, iron and manganese and in acyclic Surti buffaloes was similar ($p>0.05$) within as well as between all the treatment and control groups including overall mean values at different days.

In brief, similar concentrations of various serum micro-minerals values between treated and control groups at different days or between groups suggested optimum nutritional supplementation and healthcare strategies adopted in the organized farm of Surti buffaloes. Nevertheless, the typical fern pattern was associated with better chances of conception in Surti buffalo.

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