

Study of some serum trace minerals in cyclic and non-cyclic surti buffaloes

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Feeding of balanced ration is essential for growth and reproduction. Breeding efficiency appears to be correlated with concentrations of trace elements (Kumar and Vadhve, 1984). In recent years, the interest in nutritional significance of trace minerals in animal reproduction has markedly increased. The imbalance or deficiency of trace elements leads to inactive ovaries and repeat breeding in dairy animals. (Hidiroglou, 1979). Therefore, the present study was aimed to relate the blood profile of these compounds (Cu, Co, Zn, and Iron) with fertility status in Surti buffaloes.

Material and Methods

Twenty-four Surti buffalo cows maintained at Buffalo Breeding Farm, Hingoli were selected for experimental work. All the animals were examined clinically to ascertain the status of genital organs. On the basis of above examinations the animals were categorized into two groups.

Fertile - 12 cyclic buffaloes exhibiting sign of oestrus evidenced by the presence of GF/CL on the ovary formed this group.

Infertile - 12 infertile Buffaloes, which had not shown any sign of oestrus since last two months and had smooth non-functional ovary, formed this group.

Blood samples were collected from the cyclic and infertile buffaloes in sterilized vials by jugular venipuncture. All aseptic precaution were taken prior to collection. Serum was separated and were stored at -20°C with 1-2 drops of Merthiolate (0.01%) till laboratory analysis. Serum concentration of trace

minerals viz. Cu, Co, Zn, and Iron were determined by Atomic Absorption Spectrophotometer. For statistical analysis of the data, two mean comparison described by Snedecor and Cochran (1967) was followed.

Results and Discussion

The average serum Copper level of cyclic buffalo was 1.2 ± 0.44 and non-cyclic buffalo 0.36 ± 0.06 PPM. Non-significant difference was recorded in the present study. The present findings are not in agreement with Newar et al (1999) who recorded the average serum Copper level in anoestrous and cyclic buffaloes as 0.60 ± 0.02 and 1.08 ± 0.02 PPM respectively. They found the level significantly higher on the day of oestrus.

Hidiroglou (1979) reported that dietary supplementation of copper improved the reproductive performance of cattle. Deficiency in copper was probably due to dietary imbalance and unavailability of copper in soil and forages.

The average serum cobalt of cyclic buffalo was 0.44 ± 0.08 and non-cyclic buffalo 0.47 ± 0.06 PPM. Non-significant difference was recorded in the present study.

Vhora et al (1995) reported that the serum level of cobalt were significantly higher in normal cyclic than postpartum anoestrous cows.

The few studies, which are available, are not sufficient to reflect as to how precisely cobalt participates in reproductive processes.

Table : 1. Serum levels of important trace minerals in fertile and infertile Surti buffaloes

Serum Constituents	Normal cyclic (Mean \pm SE)	Non-cyclic (Mean \pm SE)	't' Value
Copper	1.2 + 0.44	0.36 + 0.06	1.91 NS
Cobalt	0.44 + 0.08	0.47 + 0.06	0.3 NS
Zinc	5.76 + 1.22	4.20 + 0.51	0.75 NS
Iron	2.39 + 0.64	1.01 + 0.22	2.05 NS

The average concentration of Zinc in cyclic buffalo was 5.76 ± 1.22 and non-cyclic buffalo 4.20 ± 0.51 PPM. The Zinc level recorded in cyclic buffalo were higher than that of in non-cyclic buffalo. Non-significant difference was observed in the present study. Newar et al (1999) recorded serum Zinc level 0.56 ± 0.05 and 1.78 ± 0.03 PPM in anoestrous and cyclic Swamp buffaloes. The levels were found significantly higher on the day of oestrus. The present findings are not in agreement with these findings. Although naturally occurring Zinc deficiency is rare in livestock but there are numerous reports of improvement in reproductive performance following dietary zinc supplementation.

The average serum Iron level of cyclic buffalo was 2.39 ± 0.64 and non-cyclic buffalo 1.01 ± 0.22 PPM. Iron level recorded in cyclic buffalo were higher than that of in non-cyclic buffaloes. In the present study a non-significant difference was recorded statistically. The present findings are higher than that of Newar et al (1999) who recorded 1.26 ± 0.04 and 2.20 ± 0.09 PPM in anoestrous and cyclic swamp buffaloes. Iron, being an integral component of Hb, is a very important trace element. However, its

deficiency has rarely been observed in grazing livestock due to its abundant availability in all natural feeds.

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Scientific study published by "Nature" backs-up OIE strategy on tackling emerging diseases

Paris, 22 February - A study published by Nature (February 21st) brings scientific confirmation to the strategies and priorities long advocated by the World Organisation for Animal Health (OIE) which, will now pursue with even more emphasis.

For the last few years, OIE messages have been on early detection and rapid response to emerging and re-emerging animal diseases, including zoonoses (diseases transmissible to humans) in order to safeguard global animal and public health.

The prevention and control of emerging and re-emerging animal diseases - linked with globalisation, climatic changes and human behaviour leading to environmental changes - can best be led by well governed Veterinary Services. Also, solidarity by richer countries toward developing countries is crucial to the development of the needed technical capacity of the latter and will benefit the entire international community.