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Short Communication

Enzymatic studies in normal and repeat breeder buffaloes

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ABSTRACT

The concentration of various serum enzymes in normal cyclic and repeat breeding buffaloes were studied. The mean levels of GPT and GOT were 11.04±0.96, 49.6±2.60 and 9.87±0.45, 53.22±1.83 units/L in normal cyclic and repeat breeding buffaloes, respectively, the differences were non-significant. Alkaline phosphatase and acid phosphatase levels were significantly higher in repeat breeding than normal cyclic buffaloes.

Key words : Buffaloes, Repeater, AKP, ACP, GOT, GPT

The nutritional deficiencies and enzymatic activity affect the normal reproductive behaviour and may lead to breeding problems. The present study is an attempt to investigate the levels of various serum enzymes, in normal and repeat breeding buffaloes.

The study was conducted at A.I. center, IVRI, Izatnagar. The buffaloes were in the age group of 4-12 years and between first and sixth lactation. Blood samples (10 ml) were collected from 6 normal cyclic and 16 repeat breeder buffaloes on day of estrus. The serum was lifted with the help of pasture pipette into a sterilized vial, and stored at -20°C until assayed. Serum phosphatase enzymes were estimated according to kind and kings (1954), Transferase enzymes were estimated by Reitman and Frankel (1957). The kits used for estimation of enzymes were procured from M/s. Qualigens Fine Chemicals (Mumbai), India.

Alkaline phosphatase concentration on the day of estrus was significantly ($P < 0.001$) higher in repeat breeder (71.09 ± 6.42 units/L) than normal cyclic buffaloes (28.60 ± 3.22 Units/L). These observations are comparable with the findings of Derashri *et. al.*, (1984).

The study revealed that the concentration of alkaline phosphatase in repeaters during estrogenic phase might indicate the possible early mobilization of glycogen there by resulting in depletion of energy stock in the endometrium and further it may lead to implantation impairment and death of the embryo during progestational phase. On the day of estrus the ACP level was observed significantly ($P < 0.05$) higher in repeater (1.6 ± 0.10 Units/L) than normal cyclic buffaloes (1.05 ± 0.20 Units/L). Similar observations have also been reported by Derashri *et al.* (1984) and Gandotra *et al.* (1993). In normal cyclic buffaloes low level of ACP during peak breeding period was associated with higher FSH, FSH/LH ratio, copper and estrogenic activities (Vadodaria, 1976). Mean value of GOT on the day of estrus, was slightly higher in repeat breeder buffaloes (53.22±1.83 Units/L) than normal (49.6±2.60 Units/L) which was in agreement with the Gandotra *et al.* (1993). This higher level of GOT might be due to uterine tissue damage and disruption of a cell integrity in repeat breeder buffaloes. The GPT level was 9.87±0.45 Units/L and 11.04±0.96 Units/L in normal cyclic and repeat breeder buffaloes, respectively. These findings are in agreement with the findings of Gandotra *et al.* (1993).

It may be concluded that the concentration of AKP and ACP was higher during estrus affecting fertility in repeat breeder animals. the GOT and GPT values did not differ significantly between normal cyclic and repeat breeding buffaloes indicating may not be responsible for repeat breeding condition.

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