

## STUDIES ON CERTAIN BLOOD BIOCHEMICAL CONSTITUENTS IN NORMAL AND REPEAT BREEDING CROSSBRED COWS<sup>#</sup>

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ABSTRACT

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The biochemical profile of 45 repeat breeding crossbred cows cycling regularly and showing positive reaction to white side test and 10 normal crossbred cows were analyzed and result revealed that the difference in mean value of total plasma protein, albumin and globulin were non-significant in both the groups. However, albumin / globulin ratio was non-significantly higher in repeat breeder ( $0.80 \pm 0.07$ ) than the normal ( $0.68 \pm 0.14$ ) cows. Total plasma cholesterol was non-significantly higher in normal ( $125.6 \pm 4.86$  mg/dl) than repeat breeder ( $117.35 \pm 2.31$  mg/dl) cows.

**Key words:** Repeat breeding cows, Biochemical constituents

### INTRODUCTION

Certain biochemical constituents in blood during oestrus period have been found to be associated with fertility status of cow and their reproductive behaviour (Kumar *et al.*, 1986).

Under field conditions where managemental practices are not always up to the recommended levels, nutrient deficiency might be one of the causes for repeat breeding. Deficiency of one or more blood biochemical constituents not only impairs the reproductive harmony but, also directly influences either normal micro-flora to flare up or invasion of

exogenous pathogenic micro-organisms into genital tract (Dutta *et al.*, 1991).

### MATERIALS AND METHODS

The present experiment was carried out in military dairy farm, Jammu on 45 repeat breeding crossbred cows cycling regularly and showing positive reaction to white side test and 10 normal crossbred cows cycling regularly showing negative reaction to white side test. Blood samples (10 ml each) were collected from the jugular vein from all the animals at the time of oestrus in heparinised vials and immediately centrifuged for 15 minutes at 3000 r.p.m. After centrifugation, plasma was separated and collected in sterilized vials and stored at  $-20^{\circ}\text{C}$ . Total protein and albumin were estimated by Biuret method as described in diagnostic kit (Bayer Diagnostics Ltd., Baroda, India) while estimation of total cholesterol was done using the Wybenga and Pillegi method as described in diagnostic kit (RFCL Limited, Haridwar, India).

### RESULTS AND DISCUSSION

The mean value of plasma protein did not differ significantly between repeat breeder ( $6.99 \pm 0.22$  g/

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dl) and normal ( $6.97 \pm 0.51$  g/dl) cows. These findings are supported by the findings of Cetin *et al.* (2002) and Chandrarhar *et al.* (2003). However, Dhami *et al.* (2005) recorded significantly lower values of total serum protein in repeat breeder cows, whereas, Manjunatha *et al.* (2001) recorded higher level of serum protein in repeat breeder cows.

The non-significant difference in the plasma albumin between repeat breeder ( $2.66 \pm 0.09$  g/dl) and normal ( $2.70 \pm 0.14$  g/dl) cows was observed which were in agreement with the findings of Sahadev *et al.* (2007). These findings differed from the findings of Chandrarhar *et al.* (2002) who recorded significantly higher serum albumin in repeat breeder cows. However, Jayanthi *et al.* (2003) recorded significantly lower serum albumin in repeat breeder cows. Blood *et al.* (1989) reported that the serum albumin concentration is directly related to the number of services required for conception. In present study, the mean plasma values did not differ significantly indicating that some other factor might be responsible for repeat breeding problems.

Analysis of plasma globulin levels between the repeat breeder ( $4.28 \pm 0.23$  g/dl) and normal ( $4.29 \pm 0.56$  g/dl) cows were also observed to be non-significant which was in agreement with the results of Cetin *et al.* (2002). The albumin / globulin ratio was found to be non-significantly higher in repeat breeder ( $0.80 \pm 0.07$ ) than the normal ( $0.68 \pm 0.14$ ) cows. El-Sabaie *et al.* (1988) also reported that repeat breeder cows have higher albumin / globulin ratio than the controls, whereas, lower albumin / globulin value in repeat breeder cows was reported by Sahadev *et al.* (2007).

The plasma cholesterol level was non-significantly lower in repeat breeder ( $117.35 \pm 2.31$  mg/dl) cows than the normal ( $125.61 \pm 4.86$  mg/dl) cows. These findings were in agreement with the findings of Chandrarhar *et al.* (2003). However, Ahmad *et al.* (2004) recorded significantly higher values of cholesterol in repeat breeder than the normal cows. The non-significant difference in the level of

cholesterol between repeat breeder and normal cows indicated that cholesterol level was not a direct cause for repeat breeding in the present study.

It can be concluded from present study that the levels of total plasma protein, albumin, globulin, albumin globulin ratio and cholesterol in repeat breeder cows did not differ significantly from the normal cows and other factors might be the cause for repeat breeding syndrome in cows in present study.

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