SERUM MINERAL PROFILE OF ASSAM LOCAL GOAT OF HILLS ZONE DURING DIFFERENT PHYSIOLOGICAL STAGES

D.J. Kalita, B.C. Sarmah, B.N. Bhattacharyya and D.C. Milli*

Department of Animal Physiology,
College of Veterinary Science, A.A.U., Khanapara, Guwahati - 781 022, India

ABSTRACT

Mineral profile of Assam Local Goat of Hills Zone have been studied during pre-puberal, puberal post-puberal and pregnancy. The level of macro minerals viz., Ca, P and Mg were significantly (P<0.05) higher in pregnant goat. The level of these three macro minerals were apparently higher in pre-puberal stages followed by puberal and post-puberal stages. Fe and Zn concentration was significantly (P<0.05) low in pre-puberal stages from the rest of the three groups. Significantly (P<0.05) high concentration of Cu was observed in pre-puberal and pregnant from puberal and post-puberal group. Mn and Mo concentration did not differ significantly among the groups.

Minerals are the key factor in the action of some enzymes and hormones. Decrease growth rate and reproductive disorder may result from the lower concentration of mineral in circulation (Martson et al., 1972). The present study was undertaken to elucidate the mineral profile of Assam Local goat of Hills zone at different stages of growth and pregnancy.

Assam local goats belonging to different physiological status namely pre-puberal (6-10 months), puberal (10-12 months), post-puberal (12 months and above) and pregnant (above two months of pregnancy) were selected from Diphu and adjacent villages of Karbianglong district of Hills Zone. The number of animals in each group were sixteen. Blood samples were collected early in the morning before the animals were let loose for grazing. The serum were separated and processed as per Fick et al. (1979). The macro minerals Ca, Mg and micro minerals Cu, Fe, Zn, Mn and Mo were estimated in Atomic Absorption Spectrophotometer (AAS). The inorganic phosphorus was estimated chlorimetrically as per the method of Taussky and Shorr (1953). The data generated from the study were statistically analyzed following the method of Snedecor and Cochran (1967).

Results of the experiment have been presented in Table 1. All the three macrominerals namely Ca, P and Mg concentration were observed high in pre-puberal stage compared to puberal and post-puberal stages. The decrease concentration of Ca, P and Mg with increase in age might be due to decrease rate of resorption (McDowell, 1985) and assimilation (Annenkov, 1982). Higher values for Ca, P and Mg in younger ruminant were also reported by Patel et al. (1971) and Aken et al. (1991). All these three macro mineral concentrations were observed significantly (P<0.05) higher in pregnant than in other groups. The significantly higher-concentration in pregnant goat might be due to increase absorption and retention as a result from the demand of growing fetus (Georgievskii, 1982). Both Fe and Zn concentration increased gradually with age. Patel et al. (1991) and Aken et al. (1971) observed similar trend for Fe and Zn concentration in cattle respectively. Fe concentration in pregnant group was apparently low from that of post-puberal group and it might be due to increase plasma volume (Soliman and Amrousi, 1965). Zn concentration in pregnant group was significantly higher (P<0.05) from the rest of

* Department of ARM, C.V. Sc., A.A.U., Guwahati-22.
Table 1. Serum mineral profile of Assam Local Goat of Hills Zone

<table>
<thead>
<tr>
<th>Stages of animal</th>
<th>Ca (mg%)</th>
<th>P (mg%)</th>
<th>Mg (mg%)</th>
<th>Fe (ppm)</th>
<th>Zn (ppm)</th>
<th>Cu (ppm)</th>
<th>Mn (ppm)</th>
<th>Mo (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepuberal</td>
<td>9.13±0.44a</td>
<td>3.96±0.21a</td>
<td>2.83±0.08a</td>
<td>2.53±0.14a</td>
<td>0.68±0.08a</td>
<td>0.61±0.07a</td>
<td>0.64±0.04a</td>
<td></td>
</tr>
<tr>
<td>Puberal</td>
<td>8.84±0.30a</td>
<td>3.67±0.24a</td>
<td>2.57±0.15a</td>
<td>3.38±0.17b</td>
<td>0.62±0.07b</td>
<td>0.51±0.06a</td>
<td>0.55±0.05a</td>
<td></td>
</tr>
<tr>
<td>Postpuberal</td>
<td>8.61±0.25a</td>
<td>3.58±0.29a</td>
<td>2.56±0.15a</td>
<td>3.86±0.18b</td>
<td>0.61±0.07b</td>
<td>0.51±0.06a</td>
<td>0.55±0.05a</td>
<td></td>
</tr>
<tr>
<td>Pregnant</td>
<td>10.08±0.29b</td>
<td>5.19±0.30b</td>
<td>3.53±0.19b</td>
<td>3.44±0.28b</td>
<td>0.69±0.05a</td>
<td>0.64±0.05a</td>
<td>0.64±0.04a</td>
<td></td>
</tr>
</tbody>
</table>

Superscript bearing different letter in the same column is significant (P< 0.05).

the three groups. Prasad et al. (1989) observed low level of Zn in pregnant goat which is contradictory to our findings. These might be due to variation of ration and fodder available.

REFERENCES