Biochemical constituents in the seminal plasma of NARI Suwarna strain of sheep

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Abstract
The present study was conducted in NARI Suwarna strain of sheep (60% Deccani, 30% Madgyal and 10% Garole) to find out the biochemical components of seminal plasma. Thirty six ejaculates were collected with an artificial vagina (AV) from all the six NARI Suwarna rams twice in a week and samples were centrifuged and seminal plasma was separated and stored at -20°C till biochemical estimation. The seminal plasma samples were subjected for analysis of cholesterol, albumin, total proteins, calcium, potassium, sodium and chloride. The present findings of all the estimated proteins and minerals in seminal plasma are within normal range. The mean values for total proteins, albumins, sodium varied within the NARI Suwarna rams with significant difference. However, the mean values for cholesterol, calcium, potassium, sodium, chloride and pH did not differ.

Keywords: Seminal Plasma, NARI Suwarna, Biochemical

Introduction
Biochemical estimates of seminal plasma (SP) are used for semen evaluation, since using semen characteristics alone are not completely satisfactory for semen appraisal in the current practice of commercial artificial insemination[1, 2]. Biochemical evaluation of ram semen and its relationship with physical characteristics are still completely unknown. Understanding reproductive physiology and more accurate and rological evaluations could be conducted to improve reproductive efficiency in rams. Several studies were conducted and reported about the biochemical composition of seminal plasma in different domestic livestock species. However, limited studies have been conducted in NARI Suwarna strain of sheep to find out the biochemical components of seminal plasma and hence, present study conducted.

Materials and Methods
The study was carried out on six mature NARI Suwarna rams (60% Deccani, 30% Madgyal and 10% Garole) at Department of Veterinary Gynaecology and Obstetrics, Veterinary College, Bidar, India. Bidar is located at 17.9°N 77.5°E lies at a central position in Deccan, a plateau at an elevation of 2300 ft from the sea level and lies between 17°35’ and 18°25’ north latitudes and 76°39’ east longitudes. The Bidar experiences semi-arid climate with extreme summer and coldest months are December and January and temperature varies between 20°C and 42°C. All the rams were monitored under uniform management conditions and reared under the semi-intensive housing system. Thirty six ejaculates were collected with an artificial vagina (AV) from all the six NARI Suwarna rams twice in a week and samples were centrifuged and seminal plasma was separated and stored at -20°C till biochemical estimation. The seminal plasma samples were subjected for analysis of cholesterol, albumin and total proteins as per the assay procedures mentioned in kits (Swemed Diagnostics, Bangalore) using Auto chemistry blood Analyzer (Artos Elita Swemed Biomedicals Pvt Ltd, Bangalore) and for analysis of calcium, potassium, sodium and chloride as per standard procedure by using Labyte, Electrolyte analyzer (Trivitron Health Care, Hyderabad). The data was analyzed as per standard procedures[3].

Results and Discussion
Ram wise biochemical constituents in seminal plasma of NARI Suwarna rams
The mean total proteins values were ranged from 3.04±0.16 to 4.29±0.16 mg/dL whereas the albumin levels 1.20±0.22 to 2.50±0.31 mg/dL. The mean cholesterol levels were ranged from
Conclusion
Based on the results, it was concluded that the mean values for total proteins, albumins, sodium varied within the NARI Swarna rams with significant difference however, the mean values for cholesterol, calcium, potassium, sodium, chloride and pH did not differ.

References

<table>
<thead>
<tr>
<th>Biochemical constituents</th>
<th>Ram no. 4668</th>
<th>Ram no. 5550</th>
<th>Ram no. 5514</th>
<th>Ram no. 5597</th>
<th>Ram no. 4931</th>
<th>Ram no. 5200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total proteins (mg/dL)</td>
<td>3.04±0.16a</td>
<td>3.16±0.24a</td>
<td>3.88±0.089ab</td>
<td>4.21±0.45ab</td>
<td>3.21±0.21ab</td>
<td>4.29±0.16a</td>
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<tr>
<td>Albumin(mg/dL)</td>
<td>1.70±0.23abc</td>
<td>1.20±0.22abc</td>
<td>1.90±0.12abc</td>
<td>1.90±0.25abc</td>
<td>1.40±0.063b</td>
<td>2.50±0.31a</td>
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<tr>
<td>Cholesterol (mg/dL)</td>
<td>39.76±3.243a</td>
<td>55.29±4.083a</td>
<td>53.95±6.118a</td>
<td>53.55±5.258a</td>
<td>43.11±4.881a</td>
<td>52.21±2.531a</td>
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<td>Calcium (m.mol/L)</td>
<td>4.29±0.21a</td>
<td>2.32±1.02a</td>
<td>2.61±0.75a</td>
<td>2.43±0.55a</td>
<td>2.84±0.55a</td>
<td>3.08±0.83a</td>
</tr>
<tr>
<td>Potassium (m.mol/L)</td>
<td>15.00±0.003a</td>
<td>15.00±0.000a</td>
<td>14.42±0.33a</td>
<td>14.01±0.72a</td>
<td>14.95±0.05a</td>
<td>13.22±0.80a</td>
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<td>Sodium (m.mol/L)</td>
<td>68.05±1.20a</td>
<td>65.80±0.61a</td>
<td>71.58±0.91a</td>
<td>69.95±1.50a</td>
<td>71.05±0.74a</td>
<td>71.08±0.87a</td>
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<td>Chloride (m.mol/L)</td>
<td>56.08±0.31a</td>
<td>56.00±0.26a</td>
<td>55.82±0.16a</td>
<td>56.65±0.40a</td>
<td>56.55±0.49a</td>
<td>56.25±0.50b</td>
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<tr>
<td>pH</td>
<td>6.40±0.15a</td>
<td>6.29±0.19a</td>
<td>6.41±0.17a</td>
<td>6.12±0.11a</td>
<td>6.50±0.17a</td>
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