Quantitative estimation of serum albumin changes in infected *Perdicula asiatica*

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**Abstract**

Albumins are the nutrient and carbohydrate free proteins. The important functions are for maintenance of acid base balance, Osmotic pressure of the blood and detoxification. There is a decrease in the albumin content of the Serum more in females. This may be its utilization by the parasite as nutrient molecules.

**Keywords:** quantitative estimation, serum albumin, perdicula asiatica

**Introduction**

Albumins are the nutrient and Carbohydrate Free proteins. They constitute slightly more than 50% of the serum proteins. They are produced in the liver and transported into the blood. From the blood, they get circulated throughout the body providing a nutrient protein molecules. They also occur in association with other macro molecules like hormones, lipids, bilirubins. They Possess high affinity for free fatty acids and negatively charged ions. They endowed with property of binding to anions very effectively. This property makes them to act as carrier proteins. Therefore, they have a very important function to perform in the body, i.e., detoxification. They bind to fatty acids that are insoluble, toxic and haemolytic and transport to the liver as soluble and insoluble non-toxic fatty acids. They also have another important function to play i.e. the maintenance of acid base balance and osmotic pressure of the blood. Due to their smaller molecular size and larger quantity they occur widely distributed and impart the capacity of water retention. Their absence, therefore, leads to the accumulation of fluids in the tissues and cause edema.


**Materials and Methods**

The experimental material of the present study viz., *Perdicula asiatica* were collected from different areas of Hyderabad. They were brought to the laboratory and maintained for 24 hours to acclimatize to laboratory condition. The blood was collected directly from the cardiac puncture into a dry and clean test tube without adding any anti coagulant. It was left in dark for 30 minutes and the blood was allowed to clot at the room temperature. The blood clot was separated from the wall of the test tube and it was centrifuged at 2000 rpm for 30 minutes. The serum was collected and stored in a refrigerator for the experimental assay. After collection of blood, they were decapitated and cut open. The sex of the host was recorded and the digestive system was isolated in physiological saline. The intestine was screened for Primasubulura alata infection when this nematode was present, host and the serum were taken as infected ones and in their absence hosts and the serum were treated as controls.

For biochemical parameters the serum from normal and infected male and female hosts were used. The albumins contents were estimated by the method of Reinhold Steward and Gilman (1946) [11].
Results

Results obtained on serum albumin content changes in *Perdicula asiatica* are shown in the tabular column. They indicate that normal albumin level in male and female hosts was 0.94±0.16 and 1.34±0.32 mg/100 ml serum respectively. The worm infection have been decreased its content by 10.6% in males and 57.3% in females, The decrease only in the latter was statistically significant.

**Table 1**: Albumin content in *Perdicula asiatica*

<table>
<thead>
<tr>
<th>Type</th>
<th>Control</th>
<th>Infected</th>
<th>Change</th>
<th>% Change</th>
<th>‘P’ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0.94</td>
<td>0.84</td>
<td>-0.10</td>
<td>-10.6</td>
<td>N.s.</td>
</tr>
<tr>
<td>S.D.</td>
<td>±0.16</td>
<td>±0.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>1.34</td>
<td>0.56</td>
<td>-0.78</td>
<td>-57.3</td>
<td>&gt;0.001</td>
</tr>
<tr>
<td>S.D.</td>
<td>±0.32</td>
<td>±0.03</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Values are expressed as mg/100 ml Serum

Discussion

Along with the blood protein there was also a decrease in the albumin content of the serum. The decrease in the albumin level may be its utilization by the parasite as nutrient molecules. The deprivation in the albumin level, however, is pathogenic to the host as its loss may lead to the change in the acid base balance of the blood and the water retention capacity. This may also possibly lead to edema of the host. However, the absence of any symptoms of edema indicates that the blood might be retaining some other molecules for this purpose. However, this needs further investigation. The decrease of albumins was more in females. This suggests that males are relatively more resistant to the helminth pathogenicity.

In the present investigations, the serum albumin content changes in *Perdicula asiatica* was compared to the observations of Krishnayya, 1988 [7] and Dharma Goud, 1991 [9].

Fig 1: Albumins male female control and infected

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References