RELATIONSHIP BETWEEN SERUM PROTEIN AND OVARY PROTEIN OF CHANNA PUNCTATUS (BL.)

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This paper deals with study of ovary protein and serum protein during ovary maturation. A reciprocal relationship has been established between these two parameters. The lowest level of ovary protein and highest level of serum protein in spent stage suggest that serum protein is related with maturation.

The capacity of living organism for storing proteins is limited and relatively small but it furnishes certain essential component to living tissues. The proteins are of paramount importance not only because of their specific chemical and physiochemical properties but also because they appear to confer upon various types of cells and their biological characteristics. Proteins in blood plasma serve a number of purposes including regulation of water and electrolyte balance, providing antibodies etc. 1-4. The aim of present study is to find out the relationship between serum protein and ovary protein of Channa punctatus.

MATERIALS AND METHODS

Channa punctatus were collected from local fresh water resources of Distt. Meerut and Ghaziabad (U.P.) round the year. For the estimation of protein the
ovary was homogenised using chilled glass distilled water to form 10% homogenate and processed for Biuret method as described by Oser. For serum protein blood was taken from the hepatic portal vein just at the point where it joins the sinus venosus by means of a fine micropipette which was previously rinsed in a 3% sodium citrate.

RESULTS AND DISCUSSIONS

During stage II of the ovary there is a marked increase in energy dynamics and proteins constituents as compared to stage I, mainly due to metabolically active phase of the ovary. Higher biochemical component in developing ovary of *Claris batrachus* were also observed by Gupta and Joshi. In the present case conspicuous increase in the protein contents in stage III was noted, which depleted in stage IV of the ovary.

The serum protein, albumin and globulin in blood vary greatly in their bio-physiological activities and are active in regulating various biochemical processes in living system.

It was observed (Table 1) that during stage I the serum protein was 12.2 ± 0.84 mg/100 ml., it fell down to 11.8 ± 0.96 mg/100 ml during stage II, the trend followed and serum proteins were reduced to 8.6 ± 0.63 mg/100 ml of the blood and increased 15.4 ± 0.28 mg/100 ml in stage IV. On the other hand the lowest level of ovary

<table>
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<tr>
<th>Ovarian Stage</th>
<th>Protein (mg/100 ml)</th>
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<tr>
<td></td>
<td>Ovary</td>
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<tr>
<td>I</td>
<td>26.6 ± 2.32</td>
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<tr>
<td>II</td>
<td>36.2 ± 3.14</td>
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<tr>
<td>III</td>
<td>18.4 ± 1.48</td>
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<tr>
<td>IV</td>
<td>12.4 ± 1.22</td>
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Table I—Total protein contents in the ovary and blood serum of *Channa punctatus*.
Fig. 1—Relationship between serum protein and ovary protein in stage I.

Fig. 2—Relationship between serum protein and ovary protein in stage II.

Fig. 3—Relationship between serum protein and ovary protein in stage III.

Fig. 4—Relationship between serum protein and ovary protein in stage IV.
protein and highest level of serum protein (Figs. 1-4) in spent stage was also noted. This suggests that the serum proteins are related with gonadal maturation in the fish. The fall of serum protein level during the spawning period of fish is influenced to reduced feeding intensity and its utilization in the developing ovary.

Present observations are in line with the opinion of the earlier workers\(^2\) that protein requirements change with changes in the life cycle of the fish. Fletcher \textit{et al.}\(^2\) observed decline in protein concentration from 8-9\% to approximately 2-4\% in spawning sea water salmon. Albumin and globulin are also reported to deplete in \textit{O. gorbuscha} during spawning\(^3\). As in present case Dabrowski\(^1\) also reported that higher plasma proteins occur in prespawning period.

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REFERENCES