A NOTE ON THE DIGESTIVE ENZYMES OF THE PRAWN, *CARIDINA WEBERI*

EVEN THOUGH much work has been done on the digestive enzymes of decapod crustaceans by a number of workers (see Vonk, 1961, for literature) comparatively little attention seems to have been paid so far to this aspect of study in the prawns. Gopalakrishnan (1957) reported the digestive enzymes in *Penaeus indicus*.

The present investigation describes the results of experiments to determine the nature and action of the digestive enzymes of *Caridina weberi*, the common prawn of Marathwada region. The activity of the enzymes on carbohydrates was determined by methods used by Yonge (1926) and Somogyi (1930). The products of fat digestion were estimated by the direct titration of the fatty acid formed with sodium hydroxide solution using phenolphthalein as the indicator and products of protein digestion by Sorenson's formol titration method. In the enzymic experiments the pH of the medium was controlled by suitable buffers, namely, Sorenson's M/15 phosphate buffer pH 5.3 to 7.7 for carbohydrates, M/10 citric acid, M/5 sodium phosphate buffer of McIlvaine, pH 3 to 6.6 followed by 0.2N phosphate-sodium hydroxide buffer of Britton and Welford pH 6.6 to 12.2 for protein and the method adopted by Nicol (1930) for fat digestion. The temperature was maintained at 30°C by an electrically controlled thermostat.

The results of these experiments showed that the digestive system of *C. weberi* is effective on carbohydrates, fats and proteins. The digestive gland was found to contain a strong enzyme system which can hydrolyse a variety of carbohydrates like maltose, lactose, sucrose, starch and glycogen but not regenerated filter paper. The activity-pH curve when plotted for the action of amylolytic enzyme showed that the digestive activity is at its maximum at pH 6.8. The temperature of destruction for amylase is found to be between 65°C and 70°C. The optimum pH for glycogenase was found to be 7.0 and the enzyme is completely destroyed at 70°C.

The lypolytic enzymes present in the digestive gland of *C. weberi*, though weak, are able to act on amyl acetate and olive oil. The optimum pH for the lipase activity was found to be 7.4 and the enzyme was destroyed at about 65°C. The proteases are capable of acting on different types of proteins like gelatin, fibrin, casein and peptone. The enzyme is active at pH 7.0 and continues to be so upto pH 7.8. Experiments to determine the pH optimum, using the Sorenson's formol titration method did not give satisfactory results. The temperature of destruction for protease is about 70°C.

A full account will be published elsewhere. We wish to express our sincere thanks to Prof. S. Mehdi Ali for kindly providing facilities to carry out the work and for his keen interest.

Zoology Department,
Marathwada University, Aurangabad.

R. NAGABHUSHANAM
B. CHINNAYYA

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