

**A SEARCH FOR THE DIGESTIVE ENZYMES IN GUT  
FLUID OF  
*HOLOTHURIA SCABRA* JAEGER, 1833  
(*Echinodermata : Holothuroidea*)**

**Thampoe Eswaramohan and Padmini Krishnarajah**  
Department of Zoology, University of Jaffna, Sri Lanka

**Vasanthi Arasaratnam**  
Department of Bio Chemistry, University of Jaffna, Sri Lanka

A monthly survey of sampling on *Holothuria scabra* in Jaffna lagoon, Sri Lanka, from June 1998 to June 1999 was made to evaluate the digestive enzymes in its gut fluid. The gut fluid collected from eviscerated alimentary canal contained enzymes to hydrolyze starch, casein and oil. The mean volumes of fluid in fore gut and mid gut were 1.2 ( $\pm 0.638$ ) ml and 6.0 ( $\pm 0.233$ ) ml respectively. The mean pH value of mid gut fluid was 6.1 ( $\pm 0.24$ ). The mean carbohydrase, protease and lipase activities, in one milliliter of mid gut fluid were 35.11 ( $\pm 12.41$ ) U, 12.32 ( $\pm 3.41$ ) U and 3.59 ( $\pm 0.61$ )  $\times 10^3$  U respectively. The mean amount of reducing sugars, free amino acid & peptides and free fatty acids were 0.54 ( $\pm 0.20$ ) g/l, 0.07 ( $\pm 0.03$ ) g/l and 48.12 ( $\pm 10.0$ ) g/l respectively. The results showed that this animal seems to have higher carbohydrase activity than protease and lipase activities, even though it is a sediment feeder's animal. When the activities of the digestive enzymes in gut fluid was studied in different periods of an year, the activities were least in the month of April. But in April gonadal development of *Holothuria scabra* is maximum. The observation suggests that the organism contains least digestive enzymes during its reproductive period.