outgrowth of antennule-like structure in the lobster *P. homarus* which was subjected to eyestalk ablation with a cauterizer. They conducted a series of experiments to find out the effect of eyestalk ablation on moulting and growth in *P. homarus* and reported that when ablated at the base of the eyestalk 90% of the lobsters developed the outgrowth of antennule-like structure after second or third moult. They also observed the structure to be in different forms either single, bifid or trifid. It is believed by them that the eyestalk contains Moult Inhibiting Hormone (MIH) and Gonad Inhibiting Hormone (GIH). Hence the removal of eyestalk results in some sort of hormonal disturbances leading to physiological and morphological changes. The lobster reported in the present investigation would have lost its right eyestalk accidentally during some phase of its life leading to similar changes in the physiology of the animal resulting in this outgrowth.

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BIOCHEMICAL STUDIES IN THE ESTUARINE CLAM *KATELYSIA OPIMA* FROM VELLAR ESTUARY

ABSTRACT

Studies on the changes in the biochemical constituents and calorific values have been carried out in the estuarine clam *Katelysia opima* (Gmelin) from the Vellar Estuary for the period of one year. Protein, carbohydrate and lipid were very low during spawning period and high in maturation period, the values are slightly higher in females than males. Mean calorific value found to be high in female than in males. Mean calorific value found to be high in female than in males. Changes in the biochemical components are mainly due to the reproductive cycle and also by food availability.

INFORMATION on the biochemistry of commercially important bivalves will be of use in cultural aspects. Various studies have been carried out on the biochemical constituents in relation to reproductive cycle in different bivalves. The present communication deals with biochemical changes in the estuarine clam *Katelysia opima* (Gmelin) collected from Vellar Estuary (11°30'N; 79°46'E) in relation to reproductive cycle.

Monthly samples of about 40-60 specimens of clams (30-35 mm size) were collected from the Vellar Estuary for one year from January to December 1987. The clams were allowed to remain in filtered estuarine water for one day to allow them to depurate. After the gonad examination, the animals were sorted into males and females and their soft tissues were used for biochemical estimations by using standard methods (Dubois *et al.*, 1956; Folch *et al.*,

1957; Raymont *et al.*, 1964). Calorific values were calculated using calorific equivalents of 5.65, 9.45 and 4.1 respectively for protein, lipid and carbohydrate (Brody, 1945).

TABLE 1. *Calorific values of (% cal.g^{-1} dry wt.)* Katelysia opima

Months	Male	Female
January 1987	3.53	3.73
February	3.87	4.56
March	4.06	5.05
April	4.01	4.87
May	3.91	4.35
June	3.76	4.61
July	2.56	3.86
August	2.87	3.48
September	3.15	3.91
October	3.46	3.81
November	2.93	3.31
December	3.01	4.01
Average	3.43	4.13

Monthly variations of biochemical constituents in males and females are presented in Fig. 1. Percentage of protein, carbohydrate and lipid values increased from January to March due to the maturation of gonads (Jayabal and Kalyani, 1986). Afterwards the values slowly decreased upto September due to active spawning. In Vellar Estuary clams like *Meretrix meretrix, M. casta* and *Katelysia opima* spawns once in a year, maturation of gonads takes place immediately after spawning through monsoon months (Jayabal and Kalyani, 1986). During monsoon months due to heavy inflow of freshwater in to the estuary the availability of food *i.e.* phytopalnkton population is less (George John, 1980; Jayabal, 1984), the biochemical values were also decreased. Highest values of biochemical constituents are recorded in March and lowest in September, related to the reproductive cycle of this clam as observed earlier in other bivalves (Balasubramanian *et al.*, 1979; George John, 1980; Jayabal and Kalyani, 1986). Generally values in the female were found to be slightly higher than male as reported in the hard clam *M. meretrix.* (Jayabal and Kalyani, 1986). Similarly the average value of calorific content in female is higher than in male as observed in *M. meretrix* (Jayabal and Kalyani 1986). Present work reveals that the biochemical changes in the estuarine clam *K. opima* are mainly influenced by reproductive cycle and also by food availability.

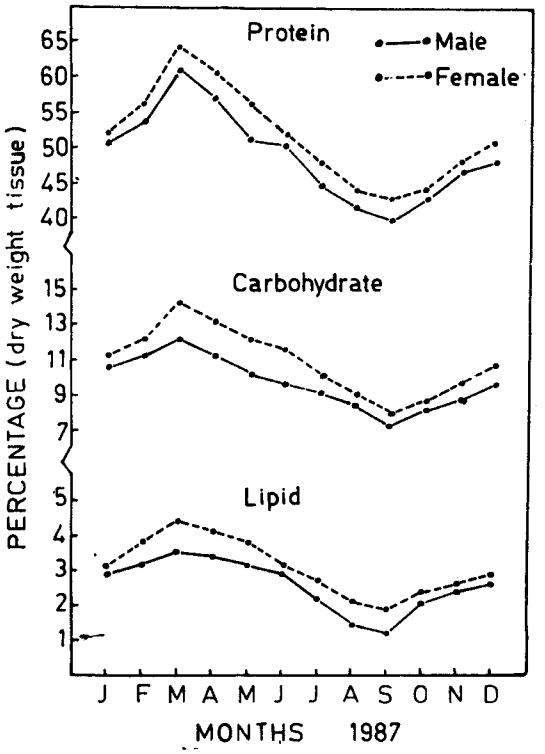

Fig. 1. Monthly variations in protein, carbohydrate and lipid in *Katelysia opima* (values percentage of dry weight).

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PELAGOSPHAERA LARVA FROM THE ARABIAN SEA

ABSTRACT

Pelagosphaera larva of *Sipunculus* sp. was present in the plankton of four stations (352, 362, 365 and 369) of Cruise No. 11 of FORV *SAGAR SAMPADA* and reported for the first time from the Arabian Sea. Only one specimen was present in the plankton collection of each station and they ranged from 2.0 mm to 3.0 mm in diameter.

A PELAGIC LARVA collected in the South Pacific between New Caledonia and New Zealand by the Italian ship *Liguria* was considered as an adult form of Sipunclulid by Mingazzini (1905) and named it as *Pelagosphaera.* Senna (1906) found some more smaller specimens in the collection of *Liguria* from the Indonesian and Sri Lankan waters and described them. He stated that Pelagosphaera is not an adult form, but the larva of some species of *Sipunculus.* Spengel (1907) also considered it as a larva of *Sipunculus* sp. Subsequently, *Pelagosphaera* was reported from Monterey Bayd, California by Health (1910), on the east coast of Annam by Dawyd off (1930), of southeast coast of Africa (Discovery Expedition) by Stephen (1941) and by Fischer (1947) in West Indian region. Fischer (1947) considered the west Indian *Pelagosphaera* larva belong to *Sipunculus polymotus.* Occurrence of *Pelagosphaera* larva in the Arabian Sea is recorded for the first time from Indian waters and reported here.

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Out of fortyfour plankton smaples collected at different stations during cruise No. 11 of FORV *SAGAR SAMPADA*, *Pelagosphaera* larva were present in the plankton of four stations only and particulars about them are given below.

The larva is spherical in shape and quite transparent showing internal structures clearly. The mouth is situated at the anterior pole and