



FIGS. 3-4. Fig. 3. Transverse section of oesophagus showing the inner collagen layer (Azan technique). Fig. 4. Transverse section of oesophagus showing the inner collagen layer (Aniline blue). CL—Collagen.

The Table I shows the main histochemical tests employed and their reactions.

TABLE I
Tests for elastin and collagen

Histochemical tests applied	Outer layer (elastin)	Inner layer (collagen)
Periodic acid/Schiff (PAS)	++	-
PAS/saliva	++	-
Aldehyde-fuchsin	+++	-
Orcein/Van Gie-on	++	++
Verhoeff's reaction	++	++
Luxol fast blue G in methanol	+	+
Mallory's triple	-	++
Azan	-	++
Aniline blue	=	+++

+++ = Intensely positive, ++ = strongly positive, + = moderately positive, - = Negative.

It could be concluded that the lining of the inner wall of the oesophagus is made up of an outer elastin and an inner collagen layers. There have been several histological and histochemical studies on decapod

brachyurans⁴⁻⁶, but until now there are no reports suggesting the elastin and collagen nature of oesophageal lining. The presence of elastin as an inner lining of the stomodaeum and proctodaeum in amphipods has been documented^{7,8}.

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A NOTE ON THE INFESTATION OF
BARNACLE, *BALANUS AMPHITRITE AMPHITRITE*
(DARWIN) ON THE PRAWN, *PENAEUS*
MONODON FABRICIUS

THOUGH ecto commensals like barnacles are not pathogenic they create problems to prawn culturists. Johnson¹ has remarked that the frequent moulting of prawns does not allow enough time for the barnacles to become established on the exoskeleton. However the following stray cases of fouled shrimp have been reported. One fouled white shrimp in Florida was recorded by Joyce². Dawson³ identified *Balanus amphitrite* nivas (Darwin) and *Balanus improvisus* from the white shrimp in South Carolina. He also reported an unidentified species of *Balanus* from Mississippi. A fresh-water shrimp, *Macrobrachium obione* was caught in Galveston Bay, with barnacles attached to its exoskeleton (Johnson¹). Overstreet⁴ noticed fouling organisms on shrimp during ecdysial period. In this report, a brief account is given on the infestation of barnacle, *Balanus amphitrite amphitrite* (Darwin) on the marine prawn *Penaeus monodon* Fabricius cultured in a rectangular monofilament net cage, fixed in Kovalam back waters near Madras.

Out of 100 specimens reared in the cage, 60 were infested with barnacles. The affected specimens ranged from 103 mm to 112 mm in total length. Each prawn had 6 to 39 barnacles attached on both carapace and abdominal segments. Generally the

numbers were more on carapace than on abdominal segments (Figs. 1 and 2).



FIG. 1. Infestation of *Balanus, Amphitrite amphitrite* (Darwin) on the carapace of *Penaeus monodon* Fabricius.



FIG. 2. Infestation of *Balanus, Amphitrite amphitrite* (Darwin) on the abdominal segments of *Penaeus monodon* Fabricius.

The cage was stocked with prawns during September, 1977. After the monsoon rains, during the last week of December, the prawns were observed with 10 to 15 days old barnacles, which might have been released by the parents already settled in the cage. This observation confirms the view of Nair⁶, who reported heavy settlement of barnacles after rain during November and December. Karandae⁵ observed that low temperature during November-December favoured the breeding, releasing of the larval forms in large numbers, and their subsequent settlement on suitable substratum. Overstreet⁴ reported that the prawns cultured in cages for more than three months might become sluggish during post-monsoon period and give scope for the barnacle settlement. He was also of the opinion that during ecdysis, brown prawns use a muddy sandy substratum for feeding, and deprivation of this type of bottom in the cage apparently caused prawn to moult infrequently and subsequently accumulate considerable epizoid growth on it.

In the present observation high stocking density, lack of food, prolonged rearing period (September

to December) and absence of suitable substratum resulted in the irregularity in ecdysis among caged prawns, which created favourable conditions for the settlement of barnacles. Low temperature during post monsoon period also favoured large scale breeding of barnacles and their settlement. Even though the possibility of permanent establishment of barnacles seems to be remote due to frequent moulting nature of prawns, if it occurs in larger sized prawns, it may create economic problems to the prawn farmers.

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EFFECT OF LOW CONCENTRATIONS OF DDT ON THE GROWTH AND PRODUCTION OF MARINE DIATOM *SKELTONEMA COSTATUM* (GREV)

THE problem of pesticide toxicity in marine and estuarine habitats, has assumed greater importance in recent years as increasingly large amounts of pesticides are entering these environs through run off. Hence there is need for more information on the toxicity of pesticides to phytoplankton¹⁻⁴. DDT has been shown to affect phytoplankton¹. Even at very low concentrations, DDT was found to reduce photosynthesis and cell multiplication in diatoms¹⁻². Considering the persistence and ubiquitous distribution of DDT, its toxicity to the diatom *Skeltonema costatum* (Grev.) is investigated. The present report deals with the DDT toxicosis on the growth rate and productivity of this species of marine algae.

S. costatum, a small marine diatom⁵, was isolated from water samples, of Vellar estuary and cultured in enriched sea water medium of Guillard f/2. The salinity of the medium was 30 and the cultures