has some antimicrobial action and the decrease in levels of cholesterol by garlic extract may be attributed to reduced microbial population in the tissues. It is also known that garlic extract mimics the effects of JH and ecdysone[17]. It may therefore be presumed that garlic extract disturbs the balance of both endogenous JH and ecdysone level which ultimately results in the decline of cholesterol level in different tissues[18].

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PRESENCE OF ELASTIN AND COLLAGEN IN THE INNER LINING OF THE OESOPHAGUS IN THE SHRIMP *ALPHEUS EDWARDSI* (AUDOUIN)

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IN studies on the systematics and histophysiology of the alpheid shrimps of Waltair Coast, it was possible to study some histochemical points of interest, with regard to the internal lining of the oesophagus in *Alpheus edwardsi*.

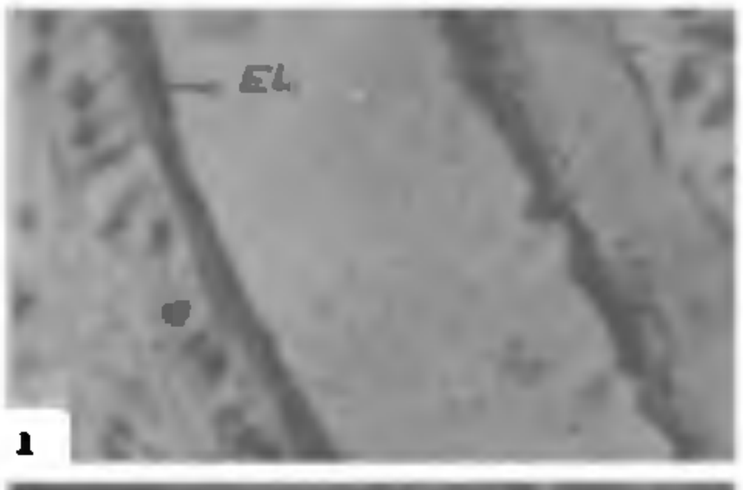
In *Alpheus edwardsi* the oesophagus is a very short tube running almost vertically at right angles to the long axis of the animal. The histological study on the oesophagus revealed that internally it is lined by two distinct layers, the outer thick layer and an inner hyaline layer. In most of the decapods so far investigated, these layers have been considered as chitinous and termed the outer layer as epicuticle and inner layer as endocuticle[1-6]. But the histochemical studies in the present investigations on the inner lining of the oesophagus revealed that, it is internally lined by an outer elastin layer and inner collagen layer.

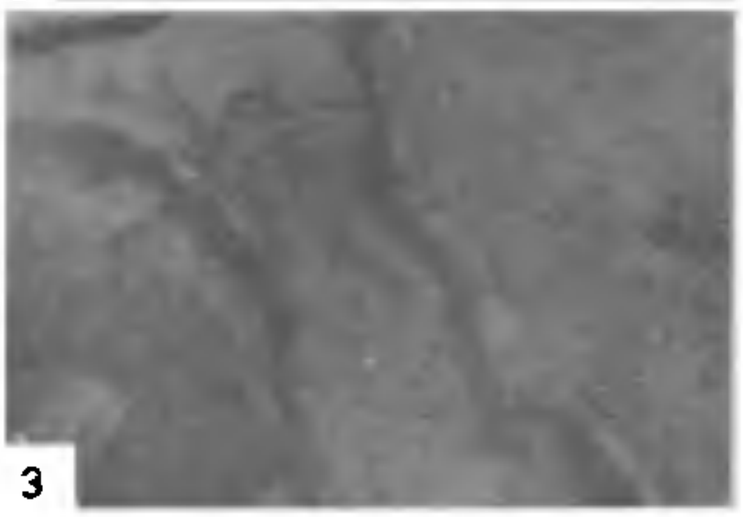
The elastin and collagen layers follow the basement membrane and a layer of epithelial cells, formed of columnar cells. These cells are with clear cytoplasm and centrally placed nuclei.

Aldehyde-fuchsin a specific stain for elastin indicated that the outer layer is made of elastin (figure 1). This layer also exhibited a positive reaction to periodic acid/schiff (PAS) which was resistant to saliva digestion. To confirm the elastin nature of the outer layer, sections were also treated with verhoeff's stain and Unna's Orcein stain. The outer layer stained black with verhoeff's and red with Orcein, clearly elucidating the elastin nature of outer layer.

Similarly the inner layer of the oesophageal lining was confirmed as collagen layer after staining with Mallory's triple stain and Heidenhain's Azan technique (figure 2). Further confirmation was made by treating this layer with analine blue, which gave a very strong response (figure 3). With verhoeff's stain the inner layer stained red showing the presence of collagen. The presence of collagen was also established by using Van Gieson's stain The combination of Orcein and Van Gieson's stain, demonstrated the presence of elastin and collagen in the same section. A moderately positive reaction occurred with Luxol fast blue G in methonal for elastin and collagen.

Thus it could be concluded that the inner lining of





Figures 1-3. Section of oesophagus. **1.** Outer elastin layer (Aldehyde-fuchin). **2, 3.** inner collagen layer, Azan technique and Analin Blue, respectively. EL. elastin. CL. collagen.

the oesophagus in *A. edwardsi* is formed by an outer elastin layer and inner collagen layer. Similar layers have also been reported in amphipods[7] and brachyuran crabs.[8] But so far there are no reports suggesting the elastin and collagen nature of lining of oesophagus either in prawns or in shrimps.

The results of the histochemical tests are illustrated in table 1.

TABLE 1

Histochemical reactions of elastin and collagen

Histochemical tests applied	Outer layer elastin	Inner layer collagen
Aldehyde-fuchsin	++	—
Periodic acid/schiff	++	—
Verhoeff's reaction	++	+
Orcein	++	—
Mallory's triple stain	—	++
Azan technique	—	++
Analine blue	—	++
Van Gieson's stain	—	++
Orcein/Van Gieson	+	+
Luxol fast blue G in methonal	+	+

++ = Strongly positive; + = Moderately positive

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EFFECT OF CULTURE FILTRATES OF *ASPERGILLUS TERREUS* AND TERREIC ACID ON CELL PERMEABILITY OF GREEN GRAM *(VIGNA RADIATA* (L) WILCZEK) SEEDLINGS

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THE phenomena of soilphytotoxicoses have been known for a long time[1]. However, there are only a few reports which indicate that the metabolic products of soil microflora may render the soil toxic to higher plants[2-4]. The members of the genera *Aspergillus* and *Penicillium* mainly live as saprophytes in soil[1]. Certain species of these genera are known to produce secondary metabolites in soil, which are toxic to plants. Patulin is toxic to wheat crop[5]. A correlation has been observed between the patulin produced by *Penicillium expansuum* Link em. Thom on apple tree root and leaf debris with apple soil sickness[6]. Oxalic acid produced by *Aspergillus niger* and aflatoxin produced by *A. flavus* is known to cause seedling diseases in groundnut[7,8]. *A. terreus* isolated from paddy fields has been tested on green gram which is grown as a pure crop in rice follows, after the harvest of the first crop of paddy. It is found that the organism is toxic to green gram seed germination and growth (unpublished data in this department). Altered cell permeability resulting in the loss of intracellular materials appears to be a common feature during the