

**Chapter-V -**

**Alimentary Canal**

### Alimentary Canal

The alimentary canal extends from the mouth, which is situated on the ventral side of the cephalic region between the mandibles. It suggests a natural division into three parts - 1) Fore gut, 2) Mid gut, 3) Hind gut.

1) Fore gut : The fore gut commences at the mouth and leads into a short oesophagus. The oesophagus opens into so called "stomach" which is continuous behind the mid gut.

The large spacious region of the fore gut which follows the oesophagus is generally termed as "stomach". It is divided into a large anterior portion, the cardiac stomach and a smaller posterior portion the pyloric stomach.

The cardiac fore gut is a large simple sac roughly spherical in shape.

The posterior wall of the cardiac fore gut is invaginated on its ventral surface to form cardopyloric valve separating cardiac region from pyloric region.

2) Mid gut : The mid gut or mesenteron is an extremely short portion of alimentary canal, being only 10 mm long in full grown crab (25 cm. carapace). From the mesenteron arise a pair of caeca the so called "pyloric caeca". This is an unfortunate designation as they do not arise from the pyloric region of the fore gut. Each caecum arises from the

side of the anterior part of the mid gut. It passes forwards as a narrow tube along side of the pyloric chamber and is closely applied to the posterolateral region of the cardiac chamber of the fore gut. The digestive gland arises at each side from the ventro-lateral region of the mid gut caeca.

3) Hind gut : The hind gut or intestine is a long narrow tube extending from the posterior end of the mid gut to the anus which opens on the ventral surface of the telson. Just before entering the abdomen the hind gut gives off from its right side a long coiled tube known as the hind gut caecum.

The caecum lies above the hind gut and the coils which are packed very closely together extend into the first segment of the abdomen. The narrow abdomen finally opens in to the anus on the ventral surface of the telson.

Examination of gut contents of Partelphusa jacquemonti :

It was found that gut contents of P. jacquemonti, consisted of fresh and decomposing matter, animal and plant organisms. The chief contents were decomposing leaves, sand particles, detritus, oedogonium, diatom, cladophora, spirogyra, earth worms and cladocerans of undigested parts of crabs. In few cases parts of the bodies of other decapoda had also been recorded.

Laboratory induced responses show that P. jacquemonti

can feed as macrophagus scavenger. This mode of feeding is confirmed by the gut content analysis which also reveals that small prey, fishfry are taken from the habitat on which the animal lives. The smaller food particles are held by chelae which take the food to the third maxillipede, latter hold them in such a position, convenient for tearing and cutting action of the incisor processes of the mandibles. It was also observed that crabs which lost their chelae, accidentally or due to mechanical injury pick up their food by lowering their mouth.

#### D i s c u s s i o n

Validity of crustacean decapod stomach into the 'cardiac' and pyloric division by Milne Edwards (1934) is doubted recently by Scheloske, Hanz-Werner (1976).

According to Milne Edward the border between cardiac and pyloric stomach is defined dorsally marked by the hind margin of the median tooth of the gastric mill and ventrally by "cardio-pyloric valve". In the stomach of the decapod crustacean this morphological defined border mostly does not coincide with the functional border of the stomach. Laterally the borders run zig-zag cutting up fused sclerites. The border cuts up the gastric mill a functional unit.

The Brachyura have a dorso-ventrally flattened body which is in thoracic region is always broader than long.

Correlated with the flattening of the body, the cardiac stomach is subspherical sac also slightly flattened dorso-ventrally and possess the common characteristic features which are common to all the types (Patwardhan 1935).

The presence of the ventral groove on the floor of the cardiac stomach is limited on either side a deep groove which leads backwards along the sides of the cardiac pyloric valve and opens into the ventral chamber of the pyloric stomach. The groove is covered over by linear rows of elongated setae. These setae drive backwards the food particles received in the groove. The ventral groove also acts as a channel which according to Yonge (1934) brings digestive juices from the mid gut into the cardiac stomach.

Crabs have been described by many authors as omnivorous animals including organic detritus and sand. In Paratelphusa guerini (Mecon 1937) observed that the earthworms are usually caught by the crabs when they are outside during the night or when come out during day. Jawale (1976) also observed earthworms to an extent of 5 per cent in the gut content of Barytelphusa guerini. These observations support the findings of the food contents in the gut of Paratelphusa jacquemonti. The presence of the molluscan gastropods (snails) *Limnaea accuminata* and bivalves *Lamilidens corrianus* are more to the extent of 15 per cent in the total animal matters. The high proportion of molluscan shell and indigestible

remains found in the sample may not necessarily be based on favour of these shelled items (Marte 1960). Similar observations had been made by Mecon (1937) in Paratelphusa quirini. Thus the presence of the parts of bodies of other crabs in gut contents of Paratelphusa jacquemonti suggests the cannibalistic nature of these animals at times as evidenced by above observations.

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