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Digestive system of commercially important crustaceans and molluscs

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SHRIMP

- ❖ From the esophagus, food particles enter the anterior chamber, the second portion of the chitin-lined foregut.
- ❖ Many authors have called this the cardiac stomach. The anterior chamber has lateral longitudinal folds that permit it to expand when filling with food.
- ❖ The anterior chamber also has ventrally situated longitudinal ridges that lead back to the openings of the midgut glands in the caudad part of the posterior chamber, frequently called the pyloric stomach.



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- ❖ Walls of the anterior chamber contain a triangular structure consisting of a median tooth and a row of tooth-like denticles along each side.
- ❖ When food enters the anterior chamber, the muscles that insert on the chamber alternately contract and relax, thereby causing the median tooth to move against the denticles and lateral ridges.
- ❖ In so doing, this grinding apparatus, termed the gastric mill, breaks down the food into very fine particles



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- ❖ While food is within the anterior chamber, it is mixed with digestive juices that flow forward ventrally from the posterior chamber.
- ❖ The juices enter the caudad part of the posterior chamber viaducts that originate in the lumen, or cavity, of many-branched tubules constituting the paired midgut glands.
- ❖ Thus, the lumen of the tubules is continuous with the lumen of the gut.



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- ❖ Digestion of food takes place partly in the anterior chamber, partly in the posterior chamber, and partly in the tubules of the midgut glands.
- ❖ In the posterior chamber, there is a filter formed by two lateral ridges and one ventral median ridge densely covered with hair-like setae.
- ❖ Owing to this filter, only fluid and minutely divided food particles can pass from the posterior chamber into ducts leading to the midgut glands and thence into its branching tubules for further digestion.
- ❖ From the midgut glands, end products of digestion are readily absorbed into the hemolymph.



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LOLIGO

- ❖ The mouth leads into a hard and round muscular pharynx or buccal mass, containing a pair of horny jaws and an odontophore with a radula.
- ❖ The jaws resemble an inverted parrot's beak and are moved by strong muscles.
- ❖ The slender oesophageous leads from the buccal mass through the liver to the large, sac-like and thick walled muscular cliverticulum stomach, closely connected with a complex valve in between.



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- ❖ The stomach is followed by a short intestine, demarcated by a constriction from the rectum, which terminates in the anus at the base of the siphon.
- ❖ Two anal valves of doubtful function are attached to the sides of the anus.