

Mouth parts of Insects 2

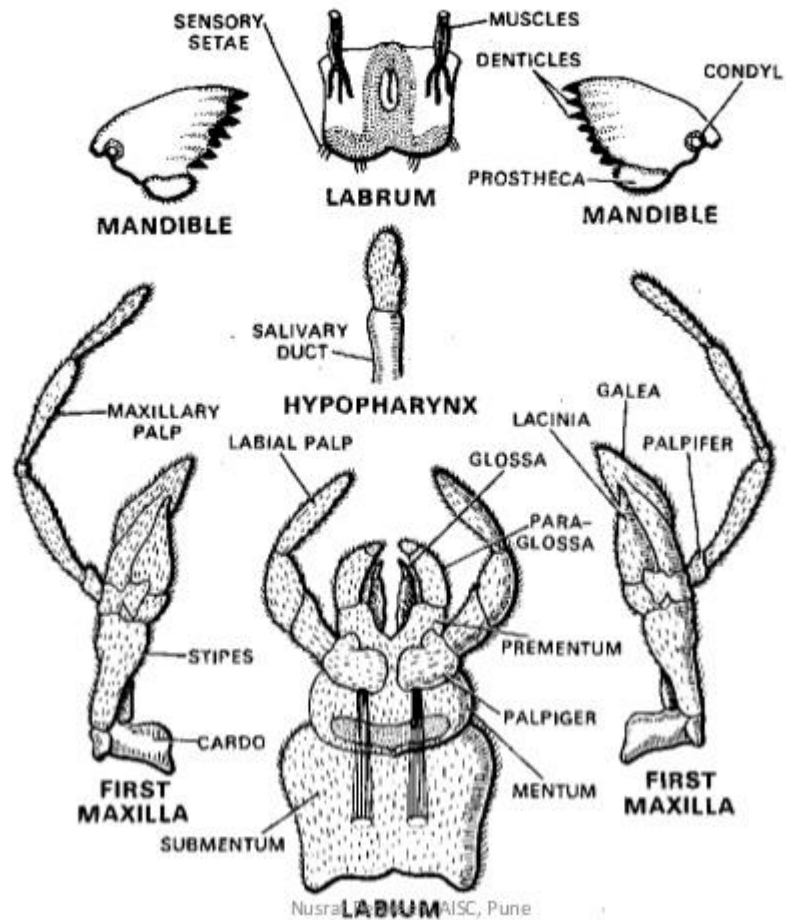
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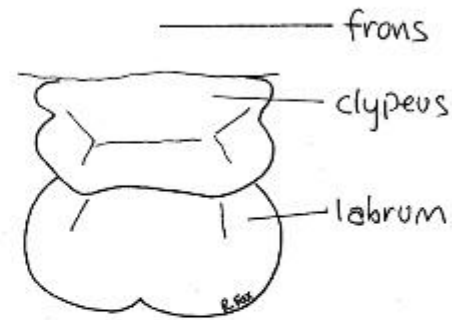
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Biting and chewing

- basic and most primitive type of mouthparts
- grasshopper, cockroach and beetles
- **i. Labrum**
- **ii. Epi-pharynx**
- **iii. Mandibles**
- **iv. Maxillae**
- **v. Labium**
- **vii. Hypopharynx**



- **i. Labrum:**
- flap like bilobed structure attached to the clypeus.
- It helps to guide the food into the mouth and also holds the food in position so that mandibles can act on it.



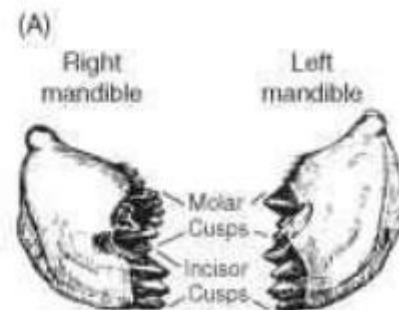
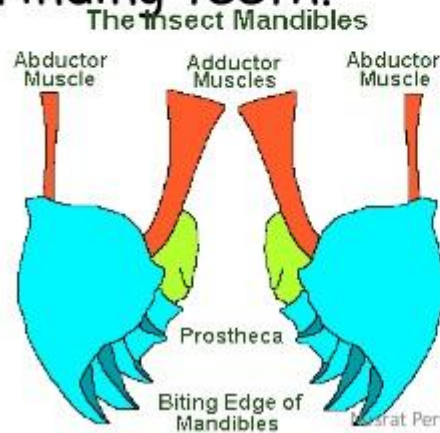
- ii. **Epipharynx** is identified as a swollen area of the ventral surface of the labrum, which is an organ of taste.

- **iii. Mandibles:**
- They are also called as primary or true jaws
- and concerned with chewing and grinding the food.

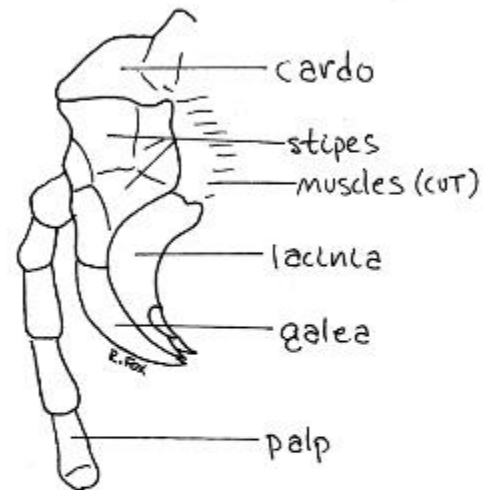


Nusrat Perveen, MSc, Pune

- movement produced by abductor (outer) and adductor (inner) muscles.
- heavily sclerotized
- Distal teeth are sharply pointed and area called incisors or cutting teeth.
- The proximal teeth are called molar or grinding teeth.



- **iv. Maxillae:**
- They are called as secondary jaws or accessory jaws.
- May be employed for grasping/cutting/chewing food.
- The basal segment, known as the cardo, joins the maxilla to the head.
- This is joined to the central body of maxilla, the stipes.
- On the outer side of the stipes is a more or less distance sclerite known as the palpifer to which the palpus is attached.



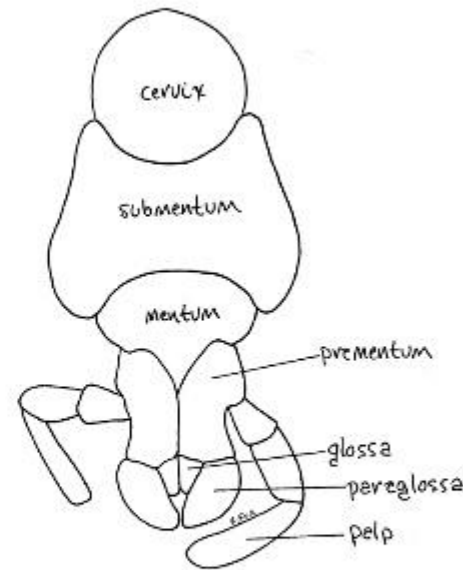
- Antennae like five segmented Palpi, bears tactile hairs and also probably organs of smell or taste.
- On the distal end of the stipes there are two lobes.
- The outer lobe is called galea and the inner lobe lacinia which is toothed.

The Insect Maxillae (one side only)

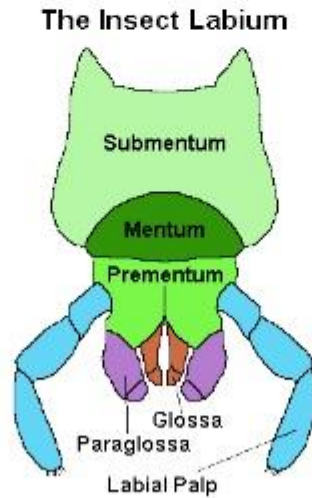


v. Labium:

- It closes the mouth cavity from below or behind.
- It consists of three median sclerites viz. submentum, mentum and prementum
- On the lateral side of the prementum, there are two small lateral sclerites called palpiger bearing 7 segmented labial Palpi.



- Distally prementum bears two pairs of lobes.
- The outer pair is called paraglossae and inner pair glossae.

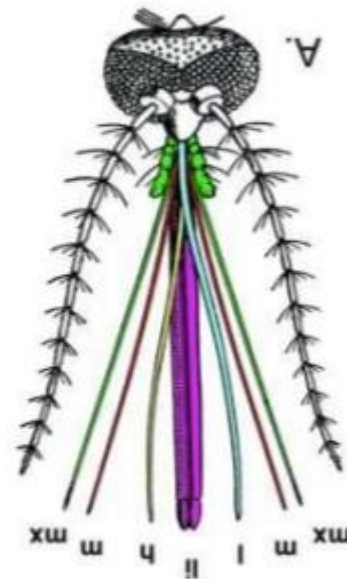


vi. Hypopharynx is located medially to the mandibles and the maxillae.

- It is behind the preoral cavity and in front of the labium.
- The hypopharynx is mostly membranous and closely associated with the salivary glands and/or salivary ducts.
- The hypopharynx functions as a tongue, moving food around in the preoral cavity..



- In mosquito, mouth parts are **piercing & sucking** type i.e. they are adapted for piercing the tissues of animal or plants to suck blood or plant juice.
- The mouth parts consist of labium, labrum-epipharynx, hypopharynx, mandibles & maxillae
- Mouth parts:-
 - Labium:-
- _The labium is modified to form a long, straight, fleshy tube called proboscis.
- It has a deep labial groove on its upper side.



- At the distal end of labium is a pair of small tactile **labella** which are reduced labial palps.
- **Function:-**
- The labial groove lodges all other mouthparts.
- During piercing, labella guides the mandibles & maxillae.
- The whole labium bends back to allow needle like mouthparts to go in the flesh.

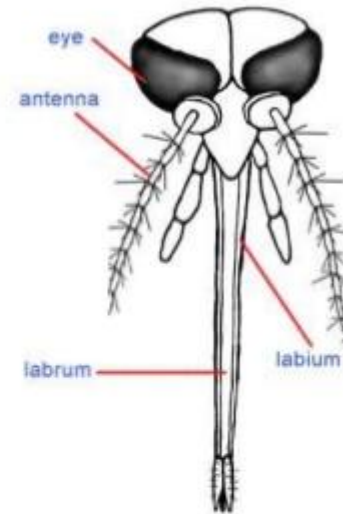


– **Labrum**

- The labrum is long & needle like with ventral groove.
- **Function:-**
- This structure appears C - shaped in transverse section having a groove called food channel.

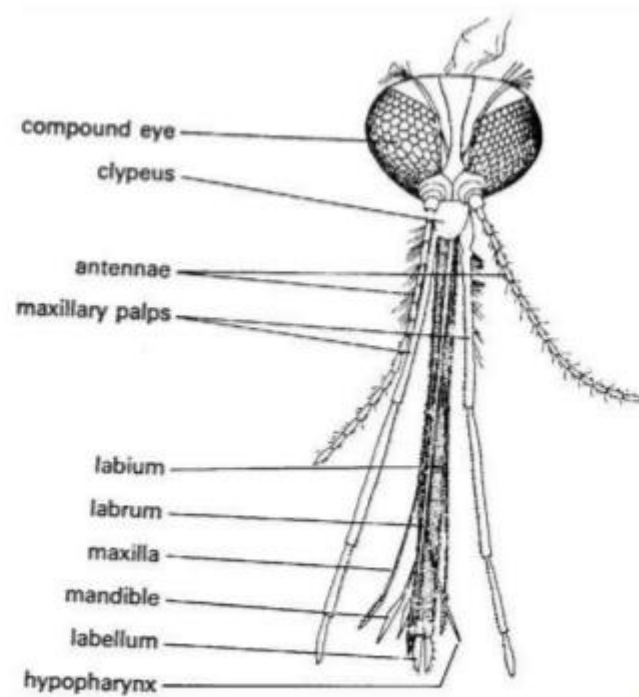
– **Hypopharynx:-**

- Food channel is closed below by a long, pointed & flattened plate, like a double edged sword, called hypopharynx. It possesses a salivary duct, opening at its tip.
- **Function:-**
- Through this duct saliva is poured to prevent coagulation of blood during sucking.

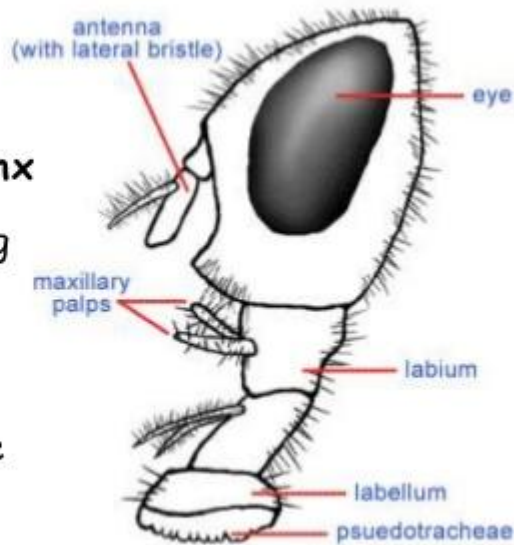


Mandibles & maxillae:-

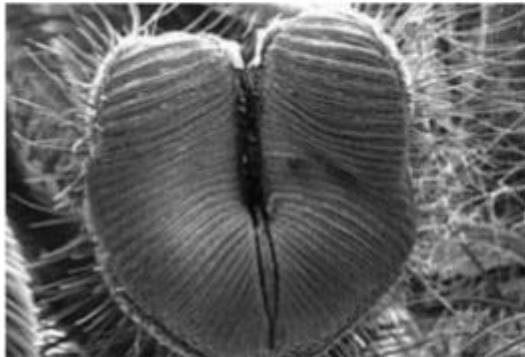
- long, needle shaped mandibles & maxillae.
- Mandibles end in sharp tiny blades, while maxillae into saw like blades bearing teeth.
- Function:-
- Mandibles & maxillae act as piercing organs.
- In male mandibles & maxillae are very short & functionless



- **Sponging Type of Mouth Parts (e.g. Housefly)**
- The prominent fleshy and retractile proboscis consists mainly of the labium
- The proboscis is grooved on its anterior surface, within this groove lie the **labrum-epipharynx** (enclosing the food canal) and slender **hypopharynx** (containing the salivary canal).
- **Mandibles** are absent.
- The **maxillae** have evidently become fused with the fleshy elbow of proboscis, and only the prominent single segmented maxillary palpi remains.



- The end of the proboscis is enlarged, sponge like and two-lobed which acts as suction pads.
- They are called labella.
- collect the liquid food and convey it to the food canal.
- These insects often spit enzyme-containing saliva onto solid foods to liquefy them and then sponge up the mixture.



- **SIPHONING TYPE OF MOUTH PARTS:**

- Mouth parts of butterfly and moths
- They are modified for sucking the juices from flowers or nectar from flowers
- The proboscis which helps in sucking the food is formed by apposition of two galea of 1st maxillae.



- **Maxillary** palps and labial palps are present in reduced condition.
- **Labium** or upper lip is reduced.
- **Mandibles** are absent
- **Hypopharynx** is absent.
- **Labium** is reduced to a triangular plate represented by a pair of labial palps.

