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Mouth parts in insects

(Cutting and chewing type)

The process of feeding in insect is facilitated by different parts associated with the head, the mouthparts with evolution of different feeding habits, mouth parts of insect have been modified in various group to perform the ingestion of different types of food by different methods.

Cutting and chewing type or biting & chewing type :- This type of mouth parts are found in members of order orthoptera, Isoptera & coleoptera, grasshopper and lepidopterous larvae are common example. Cutting & chewing is supposed to be the most primitive and typical. This presumption is depends upon the finding of Psadition. From this type other variety of mouth parts may have been derived due to changes in the environmental conditions.

∴ Cutting & chewing mouth parts consists of the following parts :-

① Labrum :- It is flap like structure & forms the upper lip & closes the mouth cavity from the upper side. It is attached to clypeus & covers mandibles. It guide the food into mouth. Its inner surface carries gustatory sense organ.

② Mandibles :- A pair of mandible like

directly behind the labrum. Each mandible is a thick strong appendage with a broad triangular base having molar teeth lobe. Both mandibles are hinged to the head & move in a lateral manner by 2 sets of muscles the abductor & adductor muscle. The mandible are used to chew & grind the food.

(c) Maxillae :- The paired maxillae lie directly behind the mandibles. Each maxilla is a complicated masticating structure which is divided into several well marked parts as follows -

(i) Cardo - is the triangular basal sclerite which is attached to head capsule and serves as hinge for the movement of remainder of the maxilla.

(ii) Stipes :- is the central portion or body of the maxilla, rectangular in shape. The stipes is situated above the cardo & is the basis for the remaining part of maxilla. On the outside of the stipes is a more or less distinct sclerite known as palpifer to which palpus is attached.

(iii) Galea :- is the outer (lateral) lobe articulated at the end of the stipes. It is 2 segmented, the basal segment being termed the subgalea.

(iv) Lacinia :- is the inner (lateral) lobe articulating at the apex of the stipes. In general form, it is usually mandible like with a series of teeth along mesal edge.

(v) Maxillary palp :- is 5 segmented, antenna like appendage which arises from the lateral side of the stipes. It is sensory in function.

(d) Labium :- This structure forms the lower lip &

closes the mouth cavity from below. It appears to be a single unit but really consists of 2nd pair of maxillae which have fused to form a single functional structure. The following parts may be distinguished :-

Submentum - is the flat, leaf like basal part

Mentum :- is the central portion or body which bears a pair of 3 segmented labial palps on each side.

Prementum or Ligula - is the apical portion and typically has 4 terminal lobes born on the distal margin. The median pair are the glossae & the lateral pair the paraglossae.

(e) Hypopharynx :- or Tongue arises from the floor of mouth cavity and it is usually attached to the inner wall of the labium. The salivary gland opens through it.

