

**MORPHOLOGY OF THE HEAD AND ITS APPENDAGES OF
THE GRASSHOPPER *PYRGOMORPHA CONICA* OLIVIER
(ORTHOPTERA: PYRGOMORPHIDAE).**

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(Received 30-10-2006)

INTRODUCTION

Grasshoppers and locusts are of great importance in many localities in the world. In Egypt, many aspects were studied concerning grasshoppers. Some items like morphology are still fragmentary. Morphological studies help in accurate identification of the species (Haggag, 2005) and perhaps to control it (Ibrahim, 1974).

The grasshopper *Pyrgomorpha conica* Olivier is common in several habitats in Egypt and perhaps represent a pest for seedlings (Ibrahim, 1968). Its morphology was not previously studied. The present work is dealing with the morphology of the head and its appendages.

MATERIAL AND METHODS

Adults and nymphs of the grasshopper *Pyrgomorpha conica* were collected from "Kom-Oshim" area in Fayoum Governorate, Egypt. The head and its appendages were treated by potash solution (10%), then were washed with distilled water and were kept in 70% alcohol. Illustrations were made using a camera lucida.

RESULTS AND DISCUSSIONS

The Head

The head capsule of *P. conica* is elongate in the form of an ascending cone with the face oblique in profile (Fig. 1). This is the case in *Poecilocerous bufonis*, Pyrgomorphidae (Shanbaky, 1965) and *Acrida pullucida* Acrididae (Ibrahim, 1974). The head capsule is subglobular in *Hieroglyphus nigroreptus* (Moizuddin, 1988). In *Tmethis pulchripennis* Pamphagidae (Shanbaky, 1965) and *Calephorus compresicornis* Acrididae (Ezzeldin, 1981), the head is subconical.

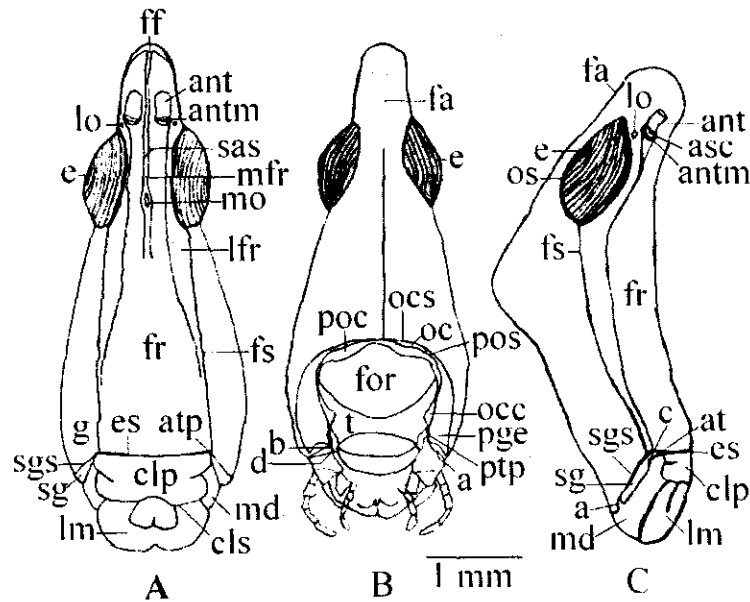


Fig. (1): Head capsule of *Pyrgomorpha conica*: A, anterior view; B, posterior view; C, lateral view. a, posterior mandibular articulation; ant, antenna; antm, antacorium; asc, antennal socket; at, anterior tentorial pit; b, articulation of maxilla; c, anterior mandibular articulation; clp, clypeus; cls, clypeolabral suture; d, articulation of labium; e, compound eye; es, epistomal suture; fa, fastigium; ff, fastigial furrow; fr, frons; fs, frontal suture; lfr, lateral frontal ridge; lm, labrum; lo, lateral ocellus; md, mandible; mfr, median frontal ridge; mo, median ocellus; oc, occiput; occ, occipital condyle; osc, occipital suture; os, ocular suture; pge, postgena; poc, postocciput; pos, postoccipital suture; ptp, posterior tentorial pit; sas, subantennal suture; sg, subgena; sgs, subgenal suture; t, tentorium.

The walls of the head capsule are continuously sclerotised on the anterior, dorsal and lateral surfaces, The posterior surface has a wide opening, the occipital foramen (Fig. 1B). The ventral region is occupied by the mouth appendages, and the ventral wall of the head capsule was reduced to a narrow membranous area that extends between the lateral margins of the hypopharynx and bases of mandibles and maxillae.

The frons (Fig. 1A, fr) is triangular sclerite, separated from the clypeus by a distinct epistoaml suture (es); limited from the gena on each side by an impressed line, the fronto-genal suture or subocular suture (fs), that extends from the antero-ventral side of the compound eye to the anterior articulation of the mandible. This

agrees with *Acrida* (Ibrahim, 1974) and *Poecilocerus* (Shanbaky, 1965) but differs from *Calephorus* (Ezzeldin, 1981) in which it extends from the lower angle of the compound eye toward the anterior articulation of the mandible. The frons is crossed laterally by a pair of longitudinal ridges (lfr), extending from bases of the anterior articulations of mandibles. This is the same as in *Acrida* (Ibrahim, 1974), *Calephorus* (Ezzeldin, 1981) and *Poecilocerus* (Shanbaky, 1965). In the case of *Tmethis* (Shanbaky, 1965) there is a short ridge extending from the lower angle of the eye and merging down as it runs venterally and disappear below the antennae.

On each side of the upper ends of the frons, just antero-dorsal to the compound eyes, two sockets are situated in which the antennae are implanted (asc). This agrees with *Acrida* and *Calephorus*, but differs from *Tmethis* which has the antennary sockets located antero-ventral to the compound eyes and *Poecilocerus* which has the antennary socket situated on each side of the upper point of the frons anterior to the compound eyes.

Just below the level of the median ocellus, a short transverse subantennal suture (sas) is laid on either side, this agrees with *Acrida*, *Poecilorus* and *Tmethis*, but differs from *Calephorus* in which this suture lays on each side, just below the antennal socket.

The lateral ocelli (lo) lay between the antennae and the compound eyes on each side. Two median frontal ridges (mfr) enclose the median ocellus (mo) which is implanted in the frons nearly in level with the lower ends of the compound eyes. The median frontal ridges run close to each other more or less parallel till they disappear venterally. These ridges are the same in *Calephorus* and *Poecilocerus*, but differ from *Acrida* and *Tmethis* in which they approach each other toward the vertex, being confined between the bases of the antennae where the frons acquired a prominent ridge furrowed along its middle line.

In the profile (Fig. 1C), the head of *P. conica* shows more or less a straight dorsal surface and slightly incurved and oblique frontal surface. The bottom of the curvature lies below the median ocellus and therefore the oral region appears somewhat bulging. The vertex is prolonged anteriorly 1 mm in male and 2 mm in female beyond the eyes to form the fastigium (fa). This latter is slightly rounded apically with deep fastigial furrow to merge with the frons, upper fastigial foveole is present. The grooves of the temples extend along the lateral part of the fastigium, from near the compound eyes anteriorly. *Tmethis* and *Acrida* have no temple or fastigial foveole which is well developed in the family Pyrgomorphidae (Uvarov, 1928).

The ventral edge of the lateral cranial wall carry a horizontal submarginal suture, the subgenal suture (sgs) that extends between the anterior and posterior articulations of the mandibles. The two subgenal sutures are connected anteriorly with the epistomal suture over the bases of the mouth parts. The narrow marginal sclerites on the sides of the cranium below the subgenal sutures represented the subgenal areas (sg) (peristome of Snodgrass, 1931).

On the posterior surface of the head (Fig. 1B), the occipito-postgenal area is included between the faint-marked occipital suture (pos). This latter lays closely surrounding the occipital foramen (for) dorsally and laterally. The occiput and postgena are continuous with each other forming a hors-shoe shaped band or arch, the narrow dorsal surface of the arch is the occiput (oc) corresponding to the vertex and the lateral areas behind the gena are the post genae (pge). Posterior to the occipital suture is the post occipital rim of the head, widens above and below on each side and narrows inbetween and to which the neck membrane is attached. Ventro-laterally, the postocciput is produced on each side into a small process, the occipital condyle (occ) to which the anterior cervical sclerites are articulated. The postoccipital suture forms internally a ridge on which the muscles of the neck and the prothorax that move the head are inserted. Laterally, the postoccipital ridge is elevated as a high plate from the ventral ends of which the posterior tentorial arms proceed inward. The roots of the tentorial arms appear externally as long open slits (ptp) in the lower ends of the postoccipital suture.

The tentorium

The tentorium (t) (Fig. 2A) has a form of a horizontal X-shaped chitinous brace between the lower angles of the cranial walls. The central body of the tentorium or corpotentorium (ct) forms a large well-sclerotised triangular body concaved on its ventral surface. This central body is braced by four main stays or arms. The anterior tentorial arms (ata) arise from the lateral parts of the epistomal ridge. They are dorso-ventrally compressed hollow invaginations of the head wall. Their broad bases extend from points above the mandibular articulations halfway to the median line of the face. These roots or bases appear externally as transverse slits, the anterior tentorial pits (atp), laid just before the anterior articulations of the mandibles on the epistomal suture. On joining the central body of the tentorium, the two anterior arms fuse mesally together to form a small triangular plate, the laminatentorium (lt) that merge posteriorly into the tentorial body. The anterior tentorial arms are broad and diverging away from each other. The posterior tentorial arms arise as short invaginations from the posterior wall of the head. Their origin is

indicated externally by the posterior tentorial pits (ptp) in the ventral ends of the postoccipital suture. A thin flat tendon, the dorsal tentorial arm (dta) arises dorsally from the base of the inner end of each anterior arm and extends upwards and anteriorly to the wall of the cranium just before the lower angle of the compound eyes. The dorsal tentorial arms, are not connected with the cuticla of the head similar to *Calephorus* (Ezzeldin, 1981), *Tmethis* and *Poecilcerous* (Shanbaky, 1965) and *Acrida* (Ibrahim, 1974), Also, a pair of thin muscle tendons arise ventrally on the laminatentorium. These are the tendons of the adductor muscles of the maxillae.

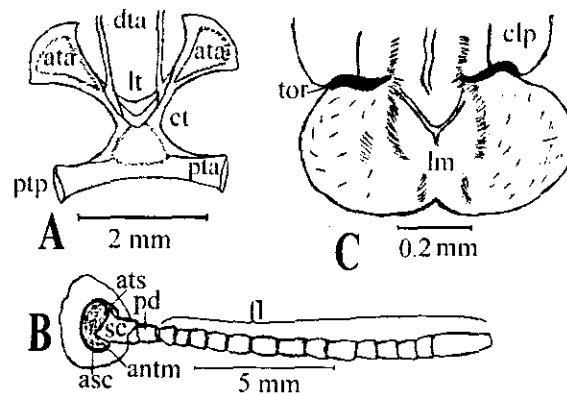


Fig. (2): A, tentorium (dorsal view); B, antenna; C, labrum. antm, antacorium; asc, antennal sclerite; ata, anterior tentorial arm; ats, antartis; clp, clypeus; ct, corporotentorium; dta, dorsal tentorial arm; fl, flagellum; lm, labrum; lt, laminatentorium; pd, pedicel; pta, posterior tentorial arm; ptp, posterior tentorial pit; sc, scape; tor, torma.

The head appendages

The antennae of *Pyrgomorpha conica* (Fig. 2B) are filiform type and shorter than the head and pronotum together. They consist of two basal segments, a scape and a pedicel followed by a long slender segmented flagellum as in *Poecilcerous* and *Tmethis*. In *Caliphorus*, it is subensiform or slightly lanceolate, while in it is ensiform *Acrida*. They are situated each on either side of the frons dorso-mesal to the compound eyes. Antennae of *Caliphorus* and *Poecilcerous* are placed on the upper end of the frontal area between the compound eyes. Antennae of *Tmethis* are laying awide from the eyes and ventral to them in the mid region of the frons. The base of antenna sets into an antennal socket, formed by the antennal sclerite, and the base of the antenna stretches a broad circular elastic membrane, the antacorium (antm). The antenna of the male and female is about 5 and 7 mm,

respectively. Of the two basal segments, the proximal one or the scape (sc) is the largest and widest. It is articulated to the rim of the antennal socket by a small process, the antartis (ats) on the latero-ventral angle of its base. The motion of the scape on the head, however, is limited to a vertical plane. The second basal segment of the antenna, the pedicel (pd), is globular as in *Poecilocerus* while it is cylindrical in *Caliphorus*, *Tmethis* and *Acrida*. Proximally, the pedicel carries two knobs which articulate with respective articular cups at the distal end of the scape, thus forming a sort of dicondylic articulation that restricted the movement of the pedicel almost in the horizontal plane. The pedicel bears a number of small depressions on its distal margin. According to Albrecht (1953), these contain a sensory organ known as Jonston's organ. The flagellum (fl) is broken up into 14 segments in male and 13 in the female. The three terminal segments are incompletely separated especially the two penultimate segments. The apical joint is larger and ellipsoidal with its apex flattened.

The compound eyes are fairly prominent ellipsoidal structures situated near to the apex of the head. They are pointed in front and obliquely truncate behind as in *Acrida* (Ibrahim, 1974) and *Poecilocerus* (Shanbaky, 1965). Each compound eye measures about 1.7 mm in length and 2 mm in width and is whitish in colour with 7-9 black bands. In *Acrida*, (Ibrahim, 1974) the compound eyes are straw-yellow in colour with 6-8 longitudinal dark brown bands. Those of *Tmethis* and *Poecilocerus* (Shanbaky, 1965), *Locusta migratoria*, (Albrecht, 1953), *Dociostaurus* and *Sphingonotus* (Roa and Gupta, 1939) are dark blue without any bands. Each eye was surrounded externally by an ocular suture (os) that corresponded with an internal ocular ridge.

The ocelli: There are three ocelli: a median ocellus (mo) and two lateral ocelli. The median ocellus is situated inbetween the median frontal ridges in level with the lower margins of the compound eyes, similar to *Poecilocerus*, (Shanbaky, 1965) and *Acrida* (Ibrahim, 1974). In *Tmethis* (Shanbaky, 1965), it is ventral to the antennae and the compound eyes. The lateral ocelli lays dorsal to the antennary socket between the antennae and the compound eyes. Each lateral ocellus is placed quite close to the upper margin of the compound eye just below the margin of the fastigium. The ocelli are glistening and yellowish white in colour, the median is round in outline, while the laterals are moreorless ellipsoidal.

The clypeus and the labrum (Fig. 2C) form together a broad free flap hanging before the mandibles from the lower edge of the frontal region. The clypeus (clp) is posteriorly divided by two lateral grooves into anticlypeal and postclypeal

areas similar to *Acrida* (Ibrahim, 1974), *Poecilocerus* (Ezzeldin, 1981). In *Tmethis* (Shanbaky, 1965) it is divided by a transverse suture. The ventral margin of the postclypeus is bilobed while it is trilobed in *Tmethis* and straight in *Poecilocerus*. The clypeo-labrum is made up of two closely opposed walls, the anterior is sclerotized and the posterior is membranous forming the clypeal and lateral epipharynx respectively. The labrum (lm) is a broad, freely movable and slightly asymmetrical plate, attached to the ventral margin of the clypeus. Its ventral edge was notched mesally. Exetrnally, there is a median rectangular area on the basal half of the labrum limited venterally by a transverse groove corresponding with an internal ridge. In the lateral angles of the epipharyngeal wall (Fig. 2C) between the labrum and the clypeus, there are two small sclerotised bars, the tormae (tor). The lateral parts of the labral region of this wall are concave and fit closely over the smooth rounded anterior surface of the mandible. A median Y-shaped thickening of the cuticla of the labrum forms a ridge on the epipharyngeal wall. The backward directed arm of the stem is very short. Asymmetrical bands of posteriorly directed setae are present on the epipharynx. This asymmetry of the setae could be attributed to the difference in shape of the two mandibles. Minute sense organs are also scattered over this surface. A group of similar sense organs are laid at each side of the ventral notch. The median area of the basal half of the labral epipharyngeal surface forms a low fold. This fold is continued upwards on the clypeal region, between the inner recurved ends of the tormae, and then extends into the mouth. A sinuous groove runs along the fold which begins in between the diverging arms of the Y-shaped ridge and passes between the tormae and then enlarging into a deep median channel that continue into the wall of the mouth and pharynx. Between the arms of the tormae there are four asymmetrical located oval groups of small peg-like sense organs, partly covered from the sides by fringes of long recumbent setae.

The mandibles (Fig. 3) are powerful and heavy sclerotised, short and hollow jaws with a triangular thickened base and strong broad cutting margins. Each mandible has a dicondylic hinge of articulation with the head, with two articulating points, one anterior (c) and one posterior (a). In the anterior articulating area, the mandible carries a condyle and a cavity, both of which interlocked with corresponding notch and condyle of the head. The posterior articulation bears a condyle which fits into a cavity in the ventral margin of the subgena (mandibularia). The articulating points are laid on the anterior and posterior angles of the outer margin of the triangles of the mandible base.

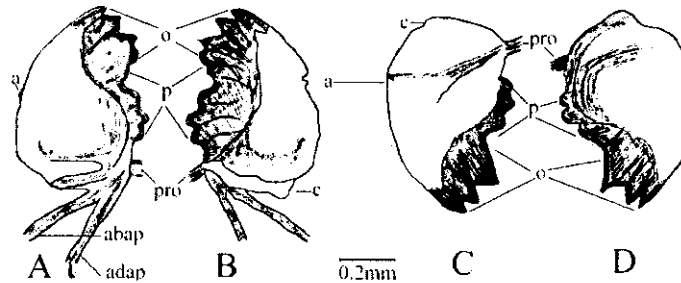


Fig. (3): The mandibles. A, B right; C, D left (inner and outer view). a, posterior articulation; abap, abductor apodeme; adap, adductor apodeme; c, anterior articulation; o, incisors; p, molar area; pro, prostheca.

This double hinged arrangement restricts its movements to a horizontal plane only. Each mandible possesses two apodemes. The first is large inner adductor apodeme (adap) consisting of two large thin blades situated in opposite planes and borne upon a common stalk arose from the articular membrane at inner angle of the mandibular base and laid in the lateral angle between the anterior and the posterior arms of the tentorium. The second is a small abductor thin plate-like apodeme (abap) arising from the articular membrane close to the outer margin of the mandibular base and near the posterior articulation (a). The distal edge of each mandible presents an anterior incisor (o) and posterior molar areas (p). The first forms the compressed and toothed apical parts of the jaw; the second forms a broad grinding surface on the anterior median face closer to the base of the mandible. The mandibles are not bilaterally symmetrical, with the left mandible little bigger than the right one. Also, there is no symmetry between both mandibles either in number of the teeth or in their arrangement. In *P. conica*, the right mandible has four incisors and four molars similar to *Acrida* (Ibrahim, 1974). Four incisors and seven molars are present in *Poeciloceris* (Shanbaky, 1965), three incisors and seven molars in *Tmethis* (Shanbaky, 1965) and five incisors and four molars in *Caliphorus* (Ezzeldin, 1981). The incisors are pointed while the molars are more or less equal in height forming a circular area. The left mandible has five pointed incisors and three low reduced molars. In *Acrida* it has five incisors and five molars, in *Caliphorus* seven incisors and five molars, in *Tmethis* it had four incisors and five molars and in *Poeciloceris* left mandible has four incisors and five molars. The shape of incisors and molars enables grasshoppers to consume their preferred food type (Squittier and Capinera 2002; and Smith and Capinera, 2005). At the base of each molar area of

the mandibles, a flat bunch of hairs are projected inward, the protheca (pro). The two bunches come together anterior to the mouth opening when the mandibles are closed, serving thus evidently to prevent escape of masticated food material from between the jaws.

The maxillae (Fig. 4A) consists of the cardo (cd), stipes (st) with well-developed palpifer (plf), two terminal lobes, lacinia (lc) and galea (ga), and five segmented palpus (plp). The cardo (cd) is roughly triangular sclerite suspended from base of the cranium (lower margin of the postgena) by a single articulation point on its dorsal extremity. Anterior to this, there is a long arm to which the apodeme (p) of the promoter muscle is attached. The cardo presents an irregular topography on its external surface and is marked into several areas by the lines of strong branching ridge (r) on its internal surface. The distal part of the external surface of the cardo has a deeply impressed pit (bp) which marked the site of an internal process on which one of the adductor muscles were inserted. The ventral margin of the cardo is articulated with the base of the stipes by a long and flexible hinge line, the cardo-stipial suture, where both sclerites form together an abrupt angle.

Crampton (1916) differentiated the cardo into two lobes; that part proximal and posterior to ridge (r) as juxtacardo and the rest of the sclerite as the veracardo. Snodgrass (1928), however, considered the ridge a mere strengthening device only and not evidence that was a composite sclerite.

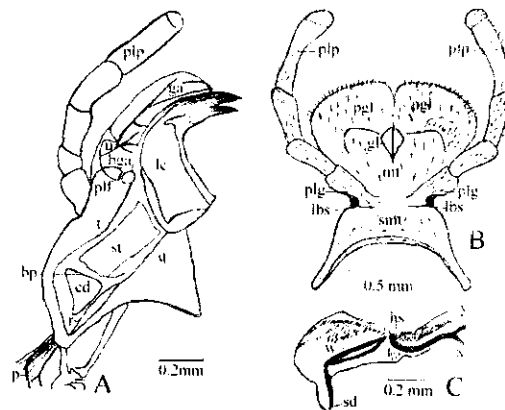


Figure (4): A, maxilla; B, labium; C, hypopharynx. bga, basigalea; bp, basal pit; cd, cardo; ga, galea; gl, golssa; hs, suspensorial bar; lbs, labial suture; lc, lacinia; mt, mentum; p, apodeme; pgl, paraglossa; plf, palpifer; plg, palpiger; plp, palp; r, ridge of cardo; sd, common salivary duct; sm, submentum; st, stipes; t, ridge between stipes and palpifer; q, submarginal ridge; u, lateral bar; w, lateral bar; x, mandibular arm; y, oral arm.

The stipes (st) is more or less rectangular structure, with its anterior surface membranous, while the posterior and lateral surfaces are sclerotised. On the inner surface of its posterior wall there is a submarginal ridge (q) on which one of the adductor muscles is attached, the outer part of the stipes is somewhat bulged to form a palpifer (plf). It is marked off from the rest of the stipes by an internal ridge corresponding to suture (t). Crampton (1916) also distinguished the body of stipes as the verastipes and the flange mesad of muscle bearing ridge as the juxtastipes. Laterally, the palpifer bear a long slender 5-segmented maxillary palp (plp). Its basal segment is short and thick; the second segment is slightly shorter than the first. The third and the fourth segments are more slender than the second. The terminal segment is the longest and is swollen at its free end. The palpal segments carry stiff sensory setae which are long and dense. The galea is carried by distal subdivisions of the palpifer called basigalea (Snodgrass, 1931).

The galea (ga) is a blade-like lobe and has a narrow base and a broad truncate distal end. Its inner margin laid against the lacinia is concave and its outer surface is modelled to fit the outer part of the posterior surface of the mandible, *i.e.*, convexed, against which it could be lightly closed. Its walls are weakly sclerotised especially the inner wall which is more or less membranous. Peg-like sense organs are scattered on this inner surface especially near the distal end. Its outer wall carries few scattered setae mainly on its distal part. The base of the galea is marked on the posterior wall by an internal ridge (u) upon which its single flexor muscle is inserted. When at rest, the two truncate distal edges of the galeae of both sides lay against each other with their tips fitting into the ventral notch of the labrum, thus covering mandibles ventrally.

The lacinia (lc), is situated on the distal end of the stipes and is capable of flexion anteriorly and posteriorly on an oblique axis with the latter. It is a tapering and heavily sclerotised lobe, with a broad base and a narrow curved distal end. The base of the lacinia is produced into small lobe that projected mesally beyond its hinge with the stipes. Distally it is terminated in two teeth turned inward, the posterior one of which is bilobed. The mesal surface of the lacinia is some what concave with shallow longitudinal groove between the bases of the teeth and fades gradually towards the base of the lacinia. This surface carries numerous setae directed toward the oral cavity.

The labium (Fig. 4B) is a movably sclerite articulated to the head capsule, a little behind the posterior tentorial pits. It is like the labrum, composed of two closely opposed walls which are fused together along their entire free margins but

are free from each other over their remaining areas. It is composed of a postmentum and a prementum, the latter carries the glossae, paraglossae and the labial palps.

The postmentum (Fig. 4, *smt*) is more or less a semicircular sclerite, having the dorsal margin concave and the lateral corners of this margin are fairly elongated. It is by these elongated basal corners that the labium is loosely articulated to the cranium. The cavity of the postmentum is occupied by the anterior part of the neck membrane which the labium joins on a line between the posterior tentorial pits.

The prementum (*mt*) is separated from the postmentum by the labial suture (*lbs*) which is distinct laterally but obsolete mesally. It is a trapezoidal plate which is medially cleft distally, the cleft is continued as a median groove up to about its half. Laterally, the prementum bears a distinct palpiger (*plg*) on each side of its base. Located behind the base of each palpiger, there are some minute setae. Each palpiger bears a three segmented labial palp (*plp*). The first segment is the shortest, the second and the third are subequal. Tip of the third segment is swollen and covered with short sensory setae. As in the maxillary palps, the labial palps have scattered long setae with short ones inbetween.

The paraglossae (*pgl*) are huge scoop-like lobes, both of them form a semicircular structure, convex on the outer surface and concaved internally. Each paraglossa is separated from the prementum by a distinct suture. The glossae are rudimentary cone-like structures, the left glossa is vestigial, and the right glossa, though small, is quite evident and separated from the prementum by an oblique suture. At base of the anterior surface of the prementum, where the wall of the prementum is reflected into that of the hypopharynx, there is a small median cup-shaped depression, the salivary cup or the salivarium.

The hypopharynx (Fig. 4C) is a thick, median tongue-like lobe that fills most of the roof of the preoral cavity and fitted between the mouth parts. Its anterior wall is the posterior surface of the clypeus and labrum, the lateral walls are the inner faces of the mandibles and maxillae; the posterior wall is the anterior surface of the labium and is covered by the paraglossal lobes. The posterior basal extremity of the hypopharynx projects as a small median process into the salivary cup on base of the labium. To this median process, the common salivary duct is joined. The oral surface of the hypopharynx is densely covered with numerous short hairs which seem to have a gustatory function. These setae are arranged mainly in longitudinal irregular rows. There are few small sense organs on the sides of the hypopharynx and at the posterior end near the salivary cup, similar to those of the labrum. The hypopharynx is differentiated into a distal sclerotised area and a proximal more

membranous one. The lateral walls of the sclerotised area are marked on each side by a slender sinuous chitinous bar, the distal end of which extends to the salivarium. This was called the lateral bar of the hypopharynx (w). The more membranous area is also supplied, on each side, by a relatively shorter chitinous rod, the pair of which constitute the suspensorial of the hypopharynx (hs). The ventral ends of which articulate with the anterior extremities of the lateral basal rods of the hypopharynx (w). Dorsally each suspensorial bar forks into two arms of which one (x) goes posteriorly to the base of the adductor apodeme of the mandible and the other (y) goes anteriorly, laterally and dorsally into the angle of the mouth where it form a support for the insertion of the retractor muscle of the mouth angle.

SUMMARY

The head sclerotised capsule of *P. conica* is elongated with oblique face. The posterior surface has a wide opening, the occipital foramen. The frons is triangular sclerite, separated from the clypeus by a distinct epistoaml suture, and is limited from the gena on each side by an impressed line. On the posterior surface of the head, the occipito-postgenal area is included between the faint-marked occipital suture. The tentorium is X-shaped with chitinous brace between the lower angles of the cranial walls. The antennae are filiform. The compound eyes are fairly prominent ellipsoidal structures and there are three ocelli. The clypeus and the labrum form together a broad free flap hanging before the mandibles. The mandibles are powerful and heavily sclerotised, short and hollow jaws with a triangular thickened base and strong broad cutting margins. The maxillae consist of the cardo, stipes with well-developed palpifer, two terminal lobes, lacinia and galea, and five segmented palpus. The labium is a movably sclerite articulated to the head capsule. It is composed of a postmentum and a prementum, the latter carries the glossae, paraglossae and the labial palpi. The hypopharynx is a thick, median tongue-like lobe that fills most of the roof of the preoral cavity and fits between the mouth parts.

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