

## A revision of the genus Mormidella Horvath (Hemiptera: Pentatomidae: Pentatominae: Carpocorini) with description of two new species from Indo-Pakistan subcontinent \*

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### Summary

Mormidella Horvath a carpocorine pentatomid genus is revised. Two new species i.e. afzali and heissi from northern areas of Indo-Pakistan subcontinent are described alongwith redescription of M. pauli Horvath the type and the only other species known in the genus from Indian occupied Kashmir with special reference to their metathoracic scent spouts and male and female genitalia. A key to the above species is given.

### Introduction

Horvath (1889) described Mormidella to accommodate his species pauli from Kashmir. The genus remained monotypic even after the faunistic works of Dallas (1851), Walker (1867), Atkinson (1888, 1889) and Distant (1902 and 1918). In the meantime Jakovlev (1905) described Philista to accommodate his species phalerata and Kirkaldy (1926) described corallifera under Mormidella which were considered junior synonyms of M. pauli by Stichel (1960-1962).

During a revision of the tribe Carpcorini Stal from Indo-Pakistan subcontinent the present authors encountered a series of species from Ayubia in NWFP, and Donga gali, Murree in Punjab, Pakistan and from Nepal in the collection of the present first author and in Mr. E. Heiss personal collection. These obviously belong to the genus Mormidella and significantly differ from pauli in characters listed in the present key and description.

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These specimens are presently described as afzali and heissi alongwith redescription of pauli with special reference to their metathoracic scent spouts and male and female genitalia. A key to the above species is also given.

For the inflation of aedeagi, the technique of the first author (1986) was followed. For the dissection of the female genitalia, descriptions, measurements and diagrams the conventional procedures specially those used by the present authors (1986) were generally followed. All the measurements are in millimetres and all the diagrams are to the given scales. The following abbreviations are used for the museums: BMNH: British Museum Natural History London; NHMUK: Natural History Museum, Department of Zoology, University of Karachi; Heiss Coll.: Collection of Mr. E. Heiss, Netherland; Lodos coll.: Collection of Prof. Dr. N. Lodos, University of Ege, Turkey; Ahmad's Coll.: Collection of Prof. Dr. Intiaz Ahmad, Department of Zoology, University of Karachi, Pakistan.

#### Mormidella Horvath 1889

Mormidella Horvath 1889, Rev. Ent., 9: 30; Distant 1902, Fauna of British India including Ceylon and Burma. Rhynchota., 1: 150; Kirkaldy 1909, Cimicidae Felix Dames, Berlin., 1: 45; Stichel 1960-62, Illustrierte Bestimmungstabellen der Wanzen II. Europa, 14-27: 751; Ahmad et al., 1974, Ent. Soc. Kar. Suppl., 1: 43; Ahmad 1979, Ent. Soc. Kar. Suppl., 4 (1): 50; Ahmad 1980, Proc. 1st. Pakistan Congr. Zool., A: 130.

Philista Jakovlev 1905, X. Rev. Russ. J. ent., 5: 116.

Type species: Mormidella pauli Horvath

Head: Almost as long as broad, distinctly shorter than scutellum; antennae with basal segment equal to 3rd; labium with 3rd segment shortest.

Thorax: Anterior margin of pronotum sinuate; scutellum usually longer than broad; metathoracic scent gland ostiole usually small, peritreme poorly developed.

Abdomen: Usually as long as broad; 7th abdominal sternum usually rounded or concave.

Male genitalia: Pygophore with lateral lobes prominent; paramere sickle-shaped; inflated aedeagus with a pair of ventral membranous conjunctival appendages, penial lobes prominent; vesica long, curved.

Female genitalia: First gonocoxae usually broad with acute apices; spermathecal bulb without finger-like processes, proximal spermathecal duct usually longer than distal spermathecal duct.

Comparative note: This genus is closely related to Palomena Mulsant and Rey in having lateral margins of pronotum crenulate, but it can easily be separated from the same by spermathecal bulb without finger like-processes.

Key to the species of the genus Mormidella Horvath

1. Anteocular distance longer than remainder of head, anterior angles of pronotum toothed, ocelli not prominent, dark coloured patch at anterolateral margins of pronotum and Y-shaped coloured patch on scutellum present ..... 2
- Anteocular distance almost as long as the remainder of head, anterior angles of pronotum broadly produced anteriorly, ocelli prominent, dark coloured patch at anterolateral margins of pronotum and Y-shaped coloured patch on scutellum absent ..... M. heissi sp. n.
2. Head slightly longer than pronotum, posterior margins of 9th paratergites slightly passing beyond fused posterior margin of 8th paratergites, median dilation of female spermatheca without ring ..... M. pauli Horvath
- Head almost as long as pronotum, posterior margins of 9th paratergites never passing beyond fused posterior margins of 8th paratergites, median dilation of female spermatheca with a ring at posterior end ..... M. afzali sp. n.

Mormidella afzali sp. n.

(Figs. 1, 4, 7, 9, 11, 12, 15, 17, 20)

Colouration: Body dark brown with black punctures.

Head: Almost as long as pronotum; length of antennal segments, I 0.4-0.5, II 0.5-0.6, III 0.4-0.5, IV 0.6-0.7, V 0.0-0.9, antennal formula 1 = 3 2 4 5; labium passing beyond hind coxae, length of labial segments, I 1.0, II 1.1, III 0.4, IV 0.5, labial formula 3 4 1 2; length anteocular distance 0.85-0.95; remainder of head 0.70-0.75; width 1.6-1.7; interocular distance 1.1-1.2; interocellar distance 0.75-0.25.

Thorax: Width of pronotum distinctly more than 2x wider than its length, length of pronotum 1.4-1.6, width 3.4-3.6; length of scutellum 2.45-2.50, width 2.1-2.3; metathoracic scent gland ostiole (Fig. 4) small, ovate; peritreme poorly developed, evaporatoria well developed; membrane of hemelytra distinctly shorter than abdomen; length base scutellum-apex clavus 1.5-1.6; apex clavus-apex corium 1.1-1.3; apex corium-apex abdomen including membrane 1.2-1.5; apex scutellum-apex abdomen including membrane 1.4-1.8.

Abdomen: 7th abdominal sternum deeply concave; connexiva distinctly exposed at repose. Total body length male 6.70-7.25; female 7.25-7.60.

Male genitalia: Pygophore (Fig. 7) with lateral lobes prominent, rounded, medially notched; paramere (Fig. 9) with broad blade having acute apex; inflated aedeagus (Figs. 13 and 15) with elongate ventral membranous conjunctival appendages; penial lobes broad, balloon-shaped, vesica elongate, curved, distinctly passing beyond ventral membranous conjunctival appendage.

Female genitalia (Fig. 17): First gonocoxae broad; 2nd gonocoxae almost as long as broad; 9th paratergites elongate, posterior margins not reaching to fused posterior margins of 8th paratergites; spermatheca (Figure 20) with proximal spermathecal duct more than 2x longer than distal spermathecal duct; median dilation without ring, pump region slightly shorter than distal spermathecal duct; spermathecal bulb rounded.

Material examined: Holotype male Pakistan: Punjab, Murree, Donga gali, 13.7.1984 leg. Syed Kamaluddin, on grass' in NMHUK. Paratypes

7 males, 8 females Murree, Donga galli, 15.7.84 leg S. Kamaluddin, Abdul Saleem Siddiqui and R. H. Zaidi, on grass, in the above museum, in Lodos coll. and in Ahmad's coll.

The species is named in honour of Dr. M. Afzal, Curator Zoological Collection, Museum of Natural History, Pakistan Science Foundation, Islamabad who originally started working on this group before leaving for Islamabad.

Comparative note: This species is closely related to M. pauli in having anterior angles of pronotum toothed but it can easily be separated from the same by head longer than pronotum, in contrast to head almost as long as pronotum, in M. pauli.

Mormidella heissi sp. n.

(Figures 2, 5, 8, 10, 13, 14, 17 and 18)

Colouration: Body light brown with black punctures.

Head: Slightly longer than pronotum; length of antennal segments I 0.5, II 0.65, III 0.5, IV 0.75, V 1.0; antennal formula 1 = 3 2 4 5; labium passing beyond hind coxae, labial segments I 0.9, II 2.0, III 0.5, IV 0.6, labial formula 3 4 1 2; length anteocular distance 0.95; length remainder of head 0.90, width 1.65-1.75; interocular distance 1.15-1.20; interocellar distance 0.75.

Thorax: Width of pronotum distinctly more than 2 1/2X wider than its length; length of pronotum 1.5-1.65, width 4.1-4.4; length of scutellum 2.55-2.60, width 2.4-2.6; metathoracic scent gland ostiole (Fig. 5) very small, peritreme poorly developed, evaporatoria well developed; membrane of hemelytra distinctly shorter than abdomen; length base scutellum-apex clavus 1.8-2.0; apex clavus-apex corium 1.4-1.55; apex corium apex abdomen including membrane 1.1-1.25; apex scutellum-apex abdomen including membrane 1.9-2.1.

Abdomen: 7th abdominal segment rounded, connexiva distinctly exposed at repose. Total body length male 7.85; female 7.90-8.10.

Male genitalia: Pygophore (Fig. 8) with lateral lobes prominent, paramere (Fig. 10) with broad blade having rounded apex; inflated aedeagus (Figs. 12, 14, 16) with a pair of nod-like thecal appendages, elongate ventral membranous conjunctival appendages, penial lobes bell-shaped, vesica long, curved, distinctly passing beyond ventral membranous conjunctival appendages.

Female genitalia: (Fig. 18). First gonocoxae broad; 2nd gonocoxae quadrangular; 9th paratergites elongate, posterior margins not reaching to posterior margin of fused 8th paratergites; spermatheca (Figs. 21) with proximal spermathecal duct slightly longer than distal spermathecal duct, pump region slightly shorter than distal spermathecal duct, median dilation without ring, spermathecal bulb rounded.

Material examined: Holotype male Nepal: Mahidoea pab 5000 m, b. Mahrigaon Geibiet von jumla, west Nepal leg. E. Heiss. Granz, in Heiss coll., Paratypes 2 females with the same data as holotype in the above

collection and in Ahmad's coll.

It is named in honour of Mr. E. Heiss a renowned entomologist of Netherland who provided the specimens to us for examination.

Comparative note: This species is closely related to M. afzali sp. n. in having similar colour and general body shape but it can easily be separated from the same by anterior angles of pronotum broadly produced anteriorly.

Mormidella pauli Horvath  
(Figs. 3, 6, 19, 21)

Mormidella pauli Horvath 1889, Rev. Ent., 9: 30; Distant 1902, Fauna of British India including Ceylon and Burma. Rhynchota., 1: 150; Kirkaldy 1909, Cimicidae Felix Dames, Berlin., 1: 45; Stichel 1960-62, Illustrierte Bestimmungstabellen der Wanzen II Europa, 14-27: 651; Hoberlandt 1960, Museo Civico di Storia Naturale-Trieste, 22 (2): 57; Ahmad et al., 1974, Ent. Soc. Kar. Suppl., 1: 43; Ahmad 1979, Ent. Soc. Kar. Suppl., 4 (1): 50; Ahmad 1980, Proc. 1st. Pakistan Congr. Zool., A: 137.

M. corallifera Kirkaldy 1926, Konowia, 5: 59-61.

Philista phalerata Jakovlev 1905, X. Rev. Russ. J. ent., 5: 116.

Colouration: Body dark brown, with dark punctures.

Head: Slightly longer than pronotum; antennae mutilated; labium passing beyond 2nd coxae but not reaching to hind coxae, length of labial segments I 1.0, II 1.1, III 0.4, IV 0.5, labial formula 3 4 1 2; length anteocular distance 0.9, length remainder of head 0.75, width 1.65; interocular distance 1.15; interocellar distance 0.8.

Thorax: Width of pronotum more than 2 1/2x wider than pronotum, length of pronotum 1.5, width 3.8; length of scutellum 2.6, width 2.4; metathoracic scent gland ostiole (Fig. 6) small, ovate, peritreme moderately elongate, curved; not passing beyond half of the distance of evaporatoria; membrane of hemelytra slightly passing beyond abdomen; length base scutellum-apex clavus 1.8; apex clavus-apex corium 1.4; apex corium-apex abdomen including membrane 1.5; apex scutellum-apex abdomen including membrane 2.3.

Abdomen: 7th abdominal sternum deeply concave; connexiva slightly exposed at repose. Total body length female 8.2.

Female genitalia (Fig. 19): First gonocoxae broader than long; 2nd gonocoxae cup-like; 9th paratergites conical, posterior margins slightly passing beyond posterior margins of 8th paratergites; spermatheca (Fig. 22) with proximal spermathecal duct more than 3x longer than distal spermathecal duct, pump region slightly shorter than distal spermathecal duct, median dilation posteriorly with a distinct ring, spermathecal bulb bell-shaped.

Material examined: 1 female Aliamont 1905, leg Korb, in BMNH.

Comparative note: This species is closely related to M. afzali in having anterior angles of pronotum toothed, but it can easily be separated from the same by head as long as pronotum as compared to head slightly longer than pronotum in afzali and by other characters

## Özet

### Mormidella Horv. (Hem.:Pentatomidae:Carpocorini) cinsinin revizyonuyla Indo-Pakistan'dan iki yeni türün deskripsiyonu

Bu çalışmada Mormidella Horv. cinsinin revizyonu yapılmakta ve bu cinsle bağlı M. afzali n. sp. ve M. heissi n. sp.'nin orijinal deskripsiyonları verilmektedir. Bu iki tür Indo-Pakistan Bölgesi'nin kuzeyinde saptanmıştır. Çalışmada ayrıca aynı cinsle bağlı M. pauli Horv.'nin redeskripsiyonu da verilmiştir. Makalede, ele alınan türlere ait bir teşhis anahtarı da yer almaktadır.

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#### Illustration of Figures

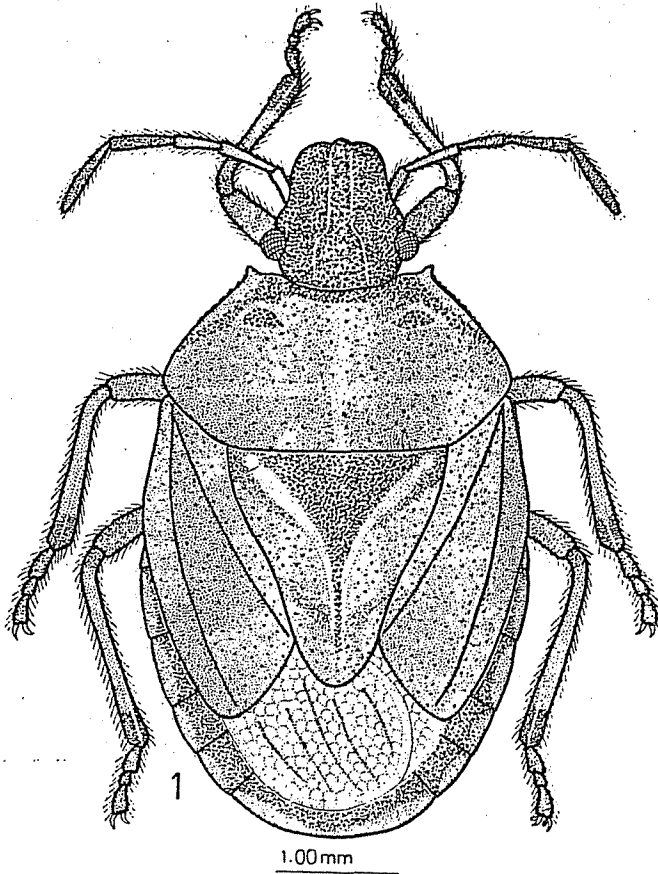
Figures Mormidella afzali: 1. entire specimen (dorsal view), 4. Scent gland (ventral view), 7. Pygophore (dorsal view), 9. Paramere (inner view), 11. Aedeagus (dorsal view), 13. Aedeagus (ventral view), 15. Aedeagus (lateral view), 17. Female terminalia (ventral view), 20. Spermatheca (ventral view).

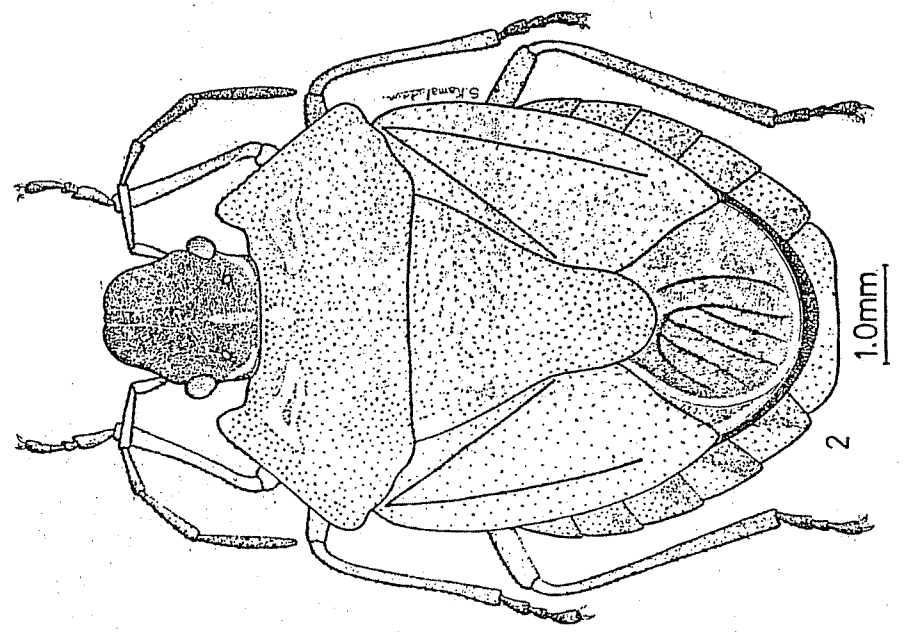
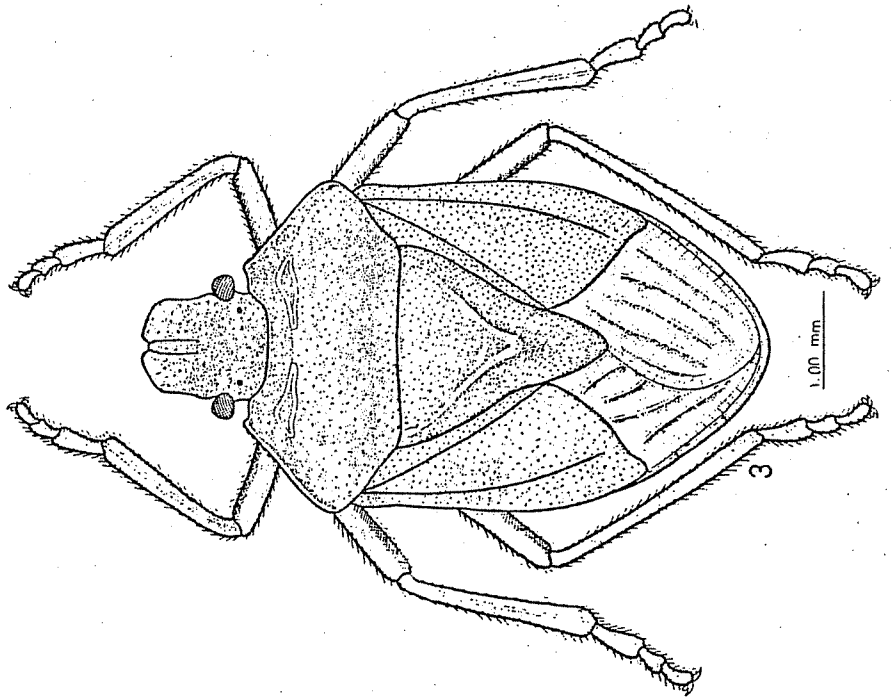
Figures M. heissi: 2. entire specimen (dorsal view), 5. Scent gland (ventral view), 8. Pygophore (dorsal view), 10. Paramere (inner view), 12. Aedeagus (dorsal view), 14. Aedeagus (ventral view), 16. Aedeagus (lateral view), 18. Female terminalia (ventral view), 21. Spermatheca (ventral view).

Figures H. pauli: 3. entire specimen (dorsal view), 6. Scent gland (ventral view), 19. Female terminalia (ventral view), 22. Spermatheca (ventral view).

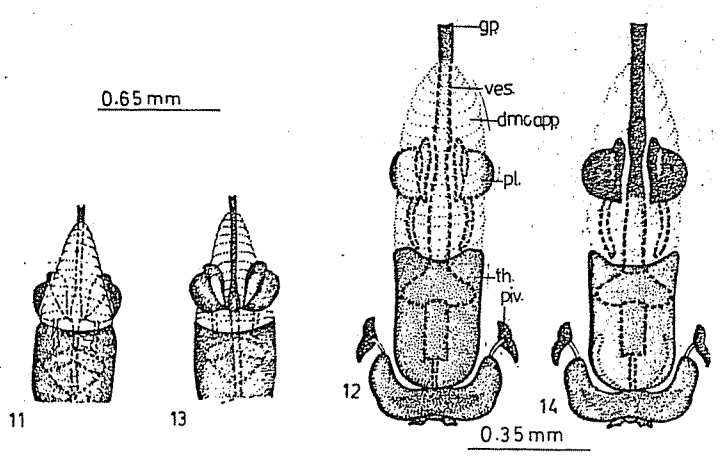
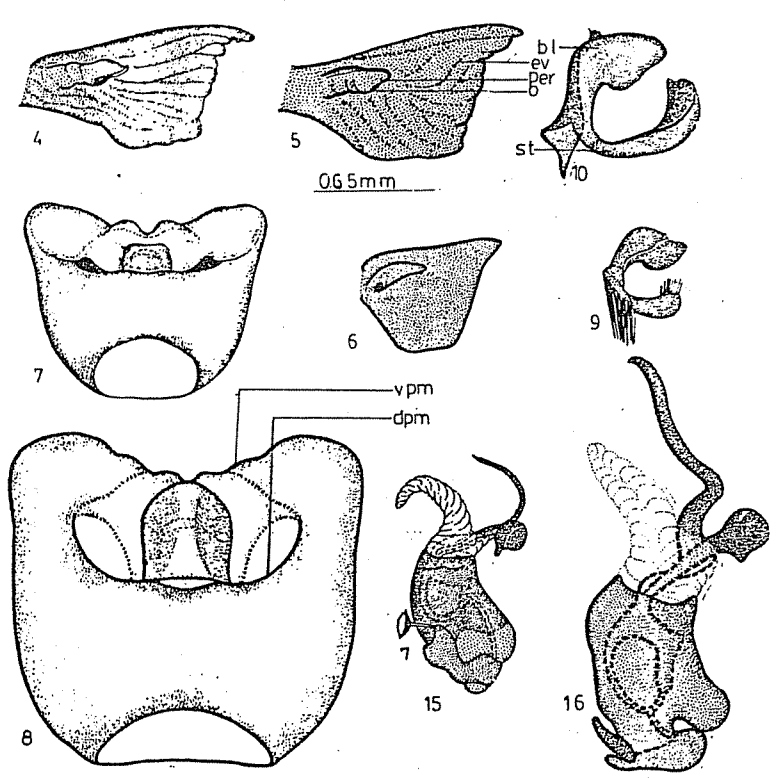
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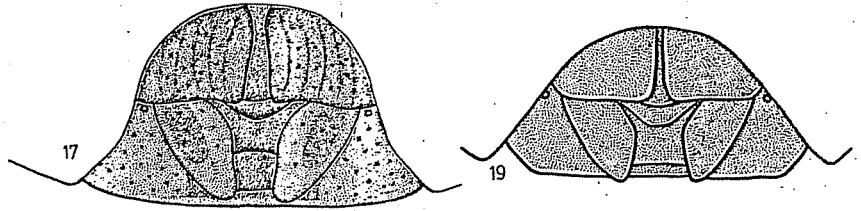
bl.: blade; dis. spd.: distal spermathecal duct; dmc. app.: dorsal membranous conjunctival appendage; dpm.: dorsoposterior margin; ev.: evaporatoria; gp.: gonopore; o.: ostiole; per.: peritreme; piv.: pivot; pl.: penial lobe; prx. spd.: proximal spermathecal duct; sp. b.: spermathecal bulb; sp. p.: spermathecal pump; st.: stem; th.: theca; ves.: vesica; vpm.: ventroposterior margin; 1st. gox.: first gonocoxae; 8th pt.: 8th paratergites; 8th sp.: 8th spiracle; 9th pt.: ninth paratergites.



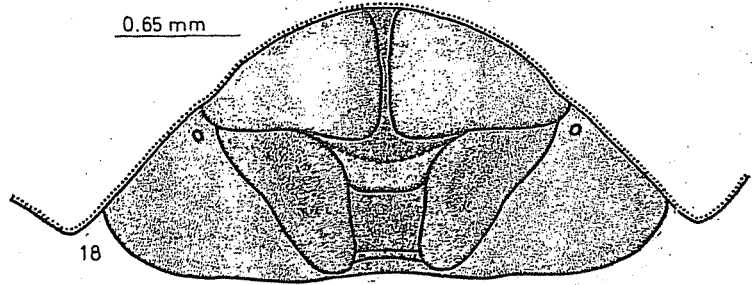




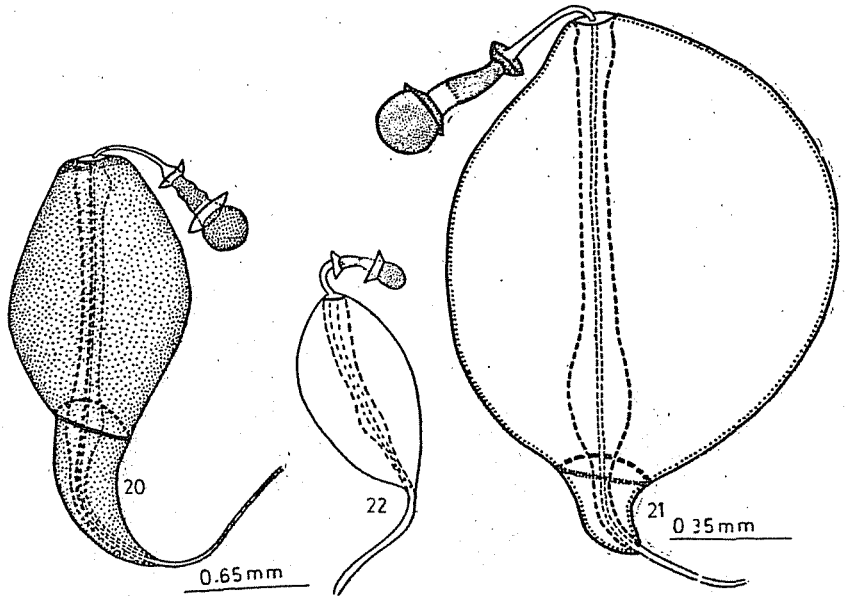




0.65 mm



0.35 mm



0.65 mm

0.35 mm