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Two new species of the Palaearctic subgenus *Parasciocoris* WAGNER of *Sciocoris* FALLÉN (Heteroptera: Pentatomidae) from Pakistan

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The Palaearctic stinkbug subgenus *Parasciocoris* WAGNER of *Sciocoris* FALLÉN is newly recorded, keyed and revised with two new species described from Pakistan, with special reference to meta-thoracic scent gland complex (including ostiole, peritreme and evaporatorium) and male and female genitalia and with a brief note on their relationships.

Keywords: *Parasciocoris*, new species, key, Pakistan.

INTRODUCTION

Specimens of the Palaearctic Sciocorine stinkbug subgenus *Parasciocoris* WAGNER, 1965, were collected for the first time from Punjab and North-Western Frontier Province respectively, in Pakistan. They do not belong to any already known species and are therefore described as new, with special reference to the metathoracic scent gland complex (including ostiole, peritreme and evaporatorium) and male and female genitalia, and their relationships are briefly reviewed. All presently known species of the subgenus are keyed.

METHODS

For the inflation of aedeagi the technique of AHMAD (1986) was followed. For the dissection of female spermatheca and for descriptions, illustrations and measurements, the conventional techniques used by the present authors (1988) were generally used.

Specimens are deposited in the following collections: Natural History Museum, University of Karachi (NHMUK); Natural History Museum, London (BMNH); Natural History Museum Basel, Switzerland (NHM).

DESCRIPTIONS

Subgenus *Parasciocoris* WAGNER

Parasciocoris WAGNER, 1965:142.

Type species: *Sciocoris* (*Parasciocoris*) *convexiusculus* PUTON.

Body generally pale; head broader than long; paraclypei anteriorly narrowed and fused beyond clypeus, sometimes only tips separated; eyes small, without stalk, directed laterad, edges of the head with a small groove in front of the eyes; pronotum with anterior margin slightly wider than head across the eyes; scutellum about

as long as broad, with distinct apical lobe, the latter subequal to basal lobe; meta-thoracic scent gland complex with peritreme broad, blade-like, with apex narrowed.

Male genitalia: Pygophore about as broad as long, ventro-posterior margin usually produced into a narrow lobe-like process; paramere very small, lobe-like or reduced; aedeagus with tri-lobed membranous conjunctival appendages, median lobes without sclerotized tips, lateral lobes with spined circular sclerotized plates at tips.

Female genitalia: First gonocoxae large, somewhat triangular or quadrangular; fused posterior margin of 8th paratergites straight or sinuate; spermatheca with pump region broad tube-like, bulb large, oval.

Comparative notes: This subgenus is most closely related to *Neosciocoris* WAGNER but it can easily be distinguished from it by having base of the paraclypei just above the eyes distinctly produced into a tooth-like process, in males membranous conjunctival appendage tril-lobed, having sclerotized tips with circular disc in two lateral lobes and by other characters as noted in the description.

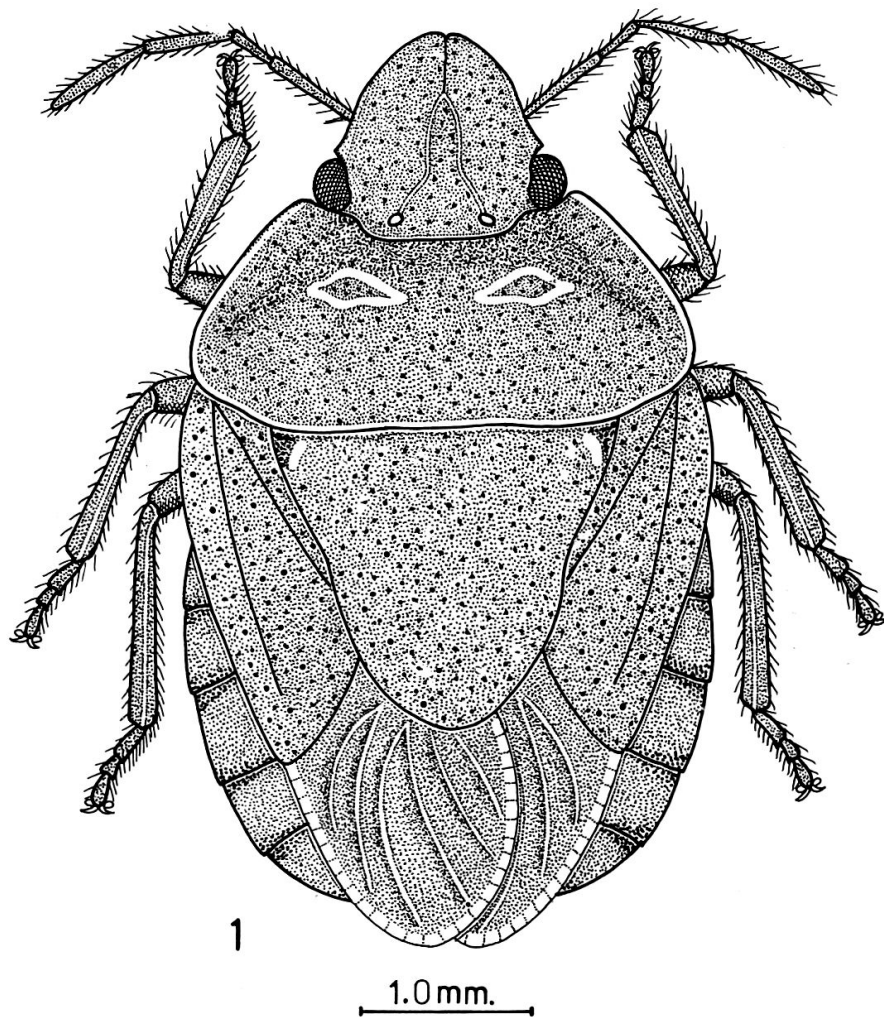


Fig. 1. Dorsal view of *Sciocoris (Parasciocoris) kamali* sp.n.

Sciocoris (Parasciocoris) kamali sp. n.

(Figs 1-6)

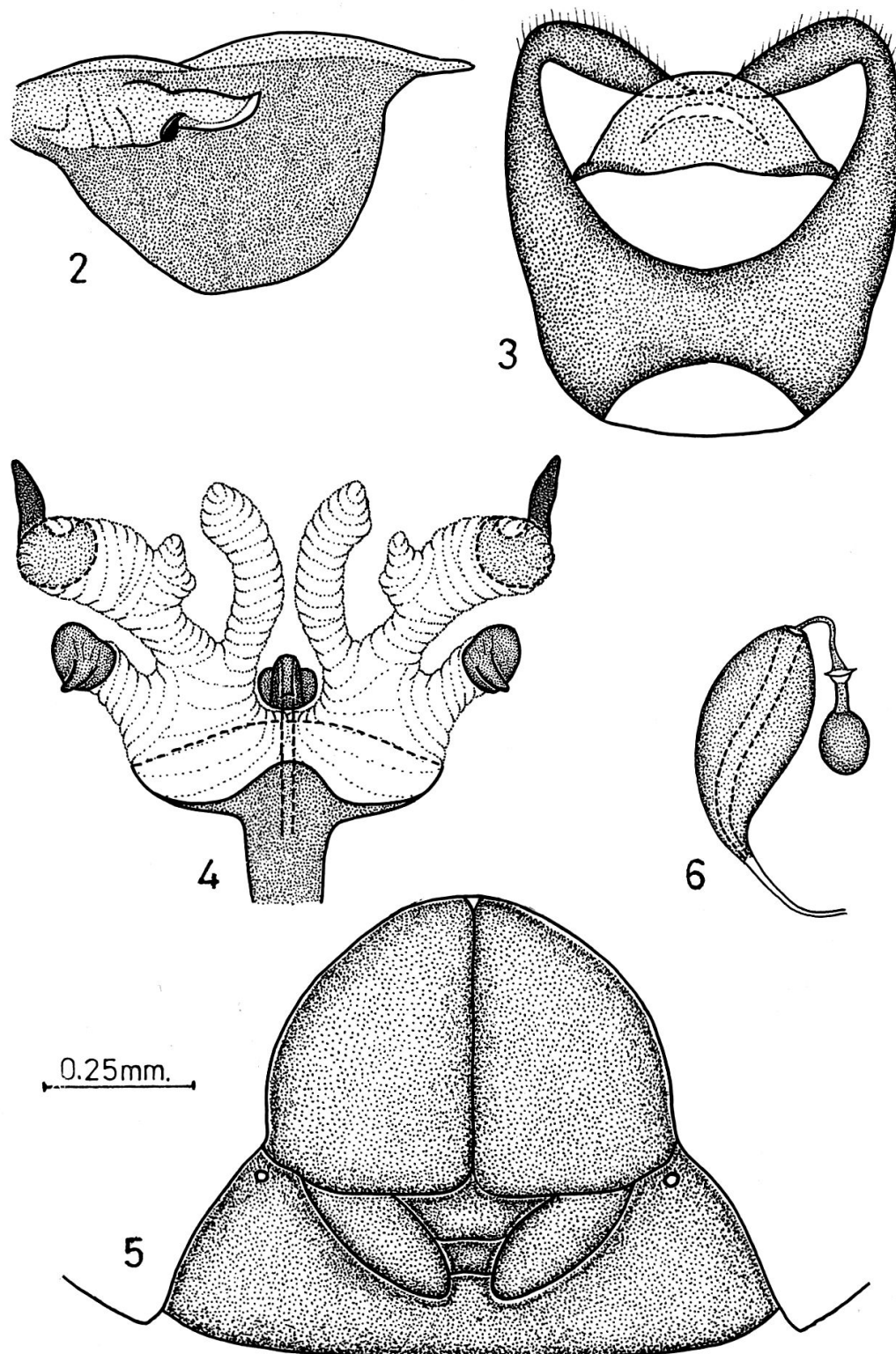
Colouration: Body ochraceous with brownish punctures all over; anterior margin and sub-lateral narrowed margin of pronotum, each basal angle of scutellum, a little portion of each connexival joints brownish and thickly punctured; eyes dark brown; ocelli pale; membrane of hemelytra hyaline. Details of pigmentation are given in Fig. 1.

Head: Length slightly shorter than width; paraclypei anteriorly narrowed; round and fused beyond clypeus; lateral lobe just above the eyes acutely produced; anteocular distance slightly longer than the length of remainder of head; antennae with 2nd segment equal to 3rd, and about 0.5x of the 4th and 5th separately; labium passing beyond midcoxae but not quite reaching hind coxae, 1st labial segment equal to 2nd. For other quantitative data see Tab. 1.

Tab. 1. Measurements in mm and ratios.

	<i>S. kamali</i>	<i>S. peshawarensis</i>
length of antennal joints:		
1	0.3	0.25 (0.25-0.3)
2	0.25	0.5 (0.4-0.5)
3	0.25	0.3 (0.3-0.35)
4	0.5	0.45 (0.45-0.6)
5	0.55	0.55 (0.55-0.65)
antennal formula	2 = 3 < 1 < 4 < 5	1 < 3 < 4 < 2 < 5
length of labial segments:		
1	0.6	0.25
2	0.6	0.55 (0.55-0.75)
3	0.3	0.35 (0.35-0.4)
4	0.25	0.5
labial formula	4 < 3 < 1 = 2	1 < 3 < 4 < 2
length anteocular region	0.7	0.8 (0.8-0.85)
length remainder of head	0.55	0.5 (0.5-0.55)
head width	1.55	1.7 (1.7-1.8)
interocular distance	1.05	1.4 (1.2-1.4)
interocellar distance	0.8	0.70
pronotum: length	1.1	1.15 (1.0-1.25)
width	2.5	2.5 (2.5-2.9)
scutellum: length	1.6	1.65 (1.65-2.0)
width	1.7	1.65 (1.65-1.9)

Thorax: Pronotum distinctly more than 2x broader than long, anterior margin wider than width of head across the eyes, anterior angles sub-round, lateral margins convex, humeral angles broadly round, length of pronotum shorter than length of head; scutellum with distinct apical lobe, latter about equal to the length of basal lobe, apex narrowly round, length of scutellum about 1.5x the length of pronotum; mesosternum sulcate; metathoracic scent gland complex including ostiole, peritreme and evaporatorium (Fig. 2) with ostiole oval, peritreme well developed, blade-



Figs 2-6. *Sciocoris* (*Parasciocoris*) *kamali*. – 2: evaporatorium (ventral view), 3: pygophore (dorsal view), 4: aedeagus (dorsal view), 5: female terminalia (ventral view), 6: spermatheca (dorsal view).

like with apex narrowed and sub-acute, directing anteriorly, anterior margin sinuate, evaporating area well marked; distance base scutellum to apex clavus 1.0 (1.0-1.1); apex clavus to apex corium 1.0 (0.8-1.0); apex corium to apex abdomen including membrane 1.05 (1.05-1.0); apex scutellum to apex abdomen including membrane 1.2 (1.2-1.3). For other quantitative data see Tab. 1.

Male genitalia: Pygophore (Fig. 3) somewhat quadrangular, slightly longer than broad, dorso-posterior margin medially deeply concave, lateral lobes sub-round, ventro-posterior margin medially concave, V-shaped; proctiger cap-like; aedeagus (Fig. 4) with pair of tri-lobed dorsal membranous conjunctival appendages, inner lobe elongate, membranous, median lobe with sclerotized thorn-like apex, latter inwardly produced into small lobes, outer lobes small, bearing sclerotized disc with spine at tips, penial lobes semicircular, reaching about 0.75 of the length of vesica, the latter curved.

Female genitalia (Fig. 5): First gonocoxae large, plate-like, longer than broad, somewhat triangular, close to each other, posterior margin sinuate; 9th paratergites flipper-like with roundly narrowed apex, much shorter than fused posterior margin of 8th paratergites, the latter straight; 2nd gonocoxae with posterior margin slightly sinuate; proctiger with posterior margin slightly concave; spermatheca (Fig. 6) with bulb oval, pump region tube-like, proximal flange prominent, proximal spermathecal duct somewhat longer, about 1.5x length of distal spermathecal duct.

Material examined: Holotype ♂, Pakistan, Punjab: Changamanga, on *Suaeda monoica* FORSSK; 9.12.1976; leg. S. KAMALUDDIN; deposited in NHMUK. Paratypes 1 ♂, 2 ♀♀, 9.12.1976, 26.7.1983; leg. S. KAMALUDDIN, A.A. KHAN; in NHMUK, NHM and in AHMAD'S Coll.

Comparative note: This species is most closely related to *S. peshawarensis* sp.n. in having lateral lobes just above the eyes remarkably produced laterad and aedeagus with tri-lobed dorsal conjunctival appendage, but it can easily be distinguished from it by having apical lobe of scutellum much broader, metathoracic scent gland complex with apex of peritreme anteriorly directed and by other characters as noted in the description and key.

Etymology: This species was named in honour of Dr. Syed KAMALUDDIN, Lecturer, Federal Govt. Urdu Science College, who collected many specimens and made valuable contributions to the heteropterous fauna of the Indo-Pakistan subcontinent.

Sciocoris (Parasciocoris) peshawarensis sp. n.

(Figs 7-12)

Colouration: Body ochraceous with brownish punctures all over; anterior margin and sub-lateral narrow margins of pronotum, outer lateral margins of connexiva pale and weakly punctured; eyes dark brown; ocelli pale; membrane of hemelytra hyaline. Details of pigmentation are given in Fig. 7.

Head: Distinctly broader than long; paraclypei anteriorly narrowed, sub-acute at tip and fused beyond clypeus; lateral lobes just above the eyes sub-acutely produced; anteocular distance slightly longer than 1.5x remainder of head; antennae with 2nd segment about 1.5x length of 3rd and subequal to 4th and shorter than 5th; labium reaching hind coxae, first labial segment about 0.5x length of 4th. For other quantitative data see Tab. 1.

Thorax: Pronotum slightly more than 2x broader than long, anterior margin wider than width of head across eyes, anterior angles round, lateral margins con-

vex, humeral angles sub-acute, length of pronotum shorter than length of head; scutellum with distinct apical lobe, the latter subequal to length of basal lobe, apex broadly round, length of scutellum about 1.5x length of pronotum; mesosternum sulcate; metathoracic scent gland complex including ostiole, peritreme and evaporatorium (Fig. 8) with ostiole oval, peritreme well developed, with apex narrowed, directing anteriorly, anterior margin sinuate, evaporating area well marked; distance base scutellum to apex clavus 1.0 (0.8-1.1); apex clavus to apex corium 0.6 (0.6-1.15); apex corium to apex abdomen including membrane 1.15 (1.0-1.2); apex scutellum to apex abdomen including membrane 1.2 (1.1-1.35). For other quantitative data see Tab. 1.

Abdomen: Connexiva distinctly exposed at repose, in female posterior margin of 7th abdominal sternite medially broadly concave, lateral angles sub-round.

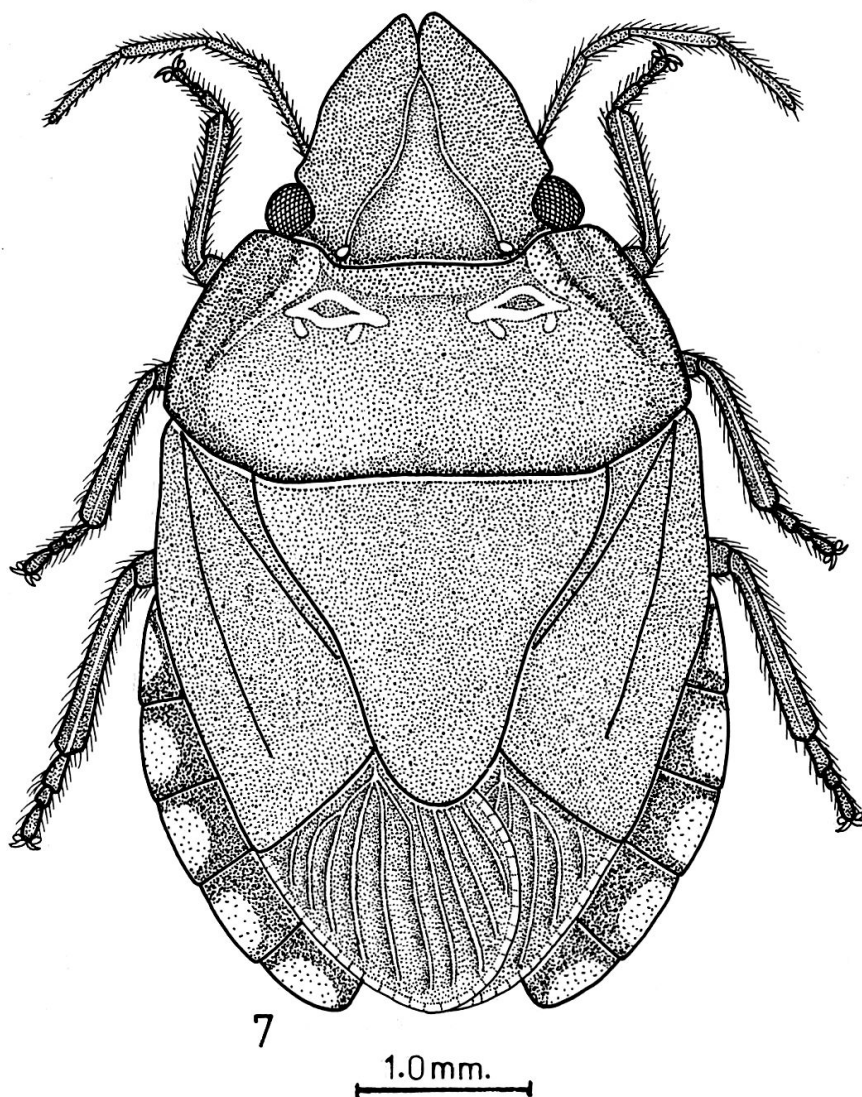
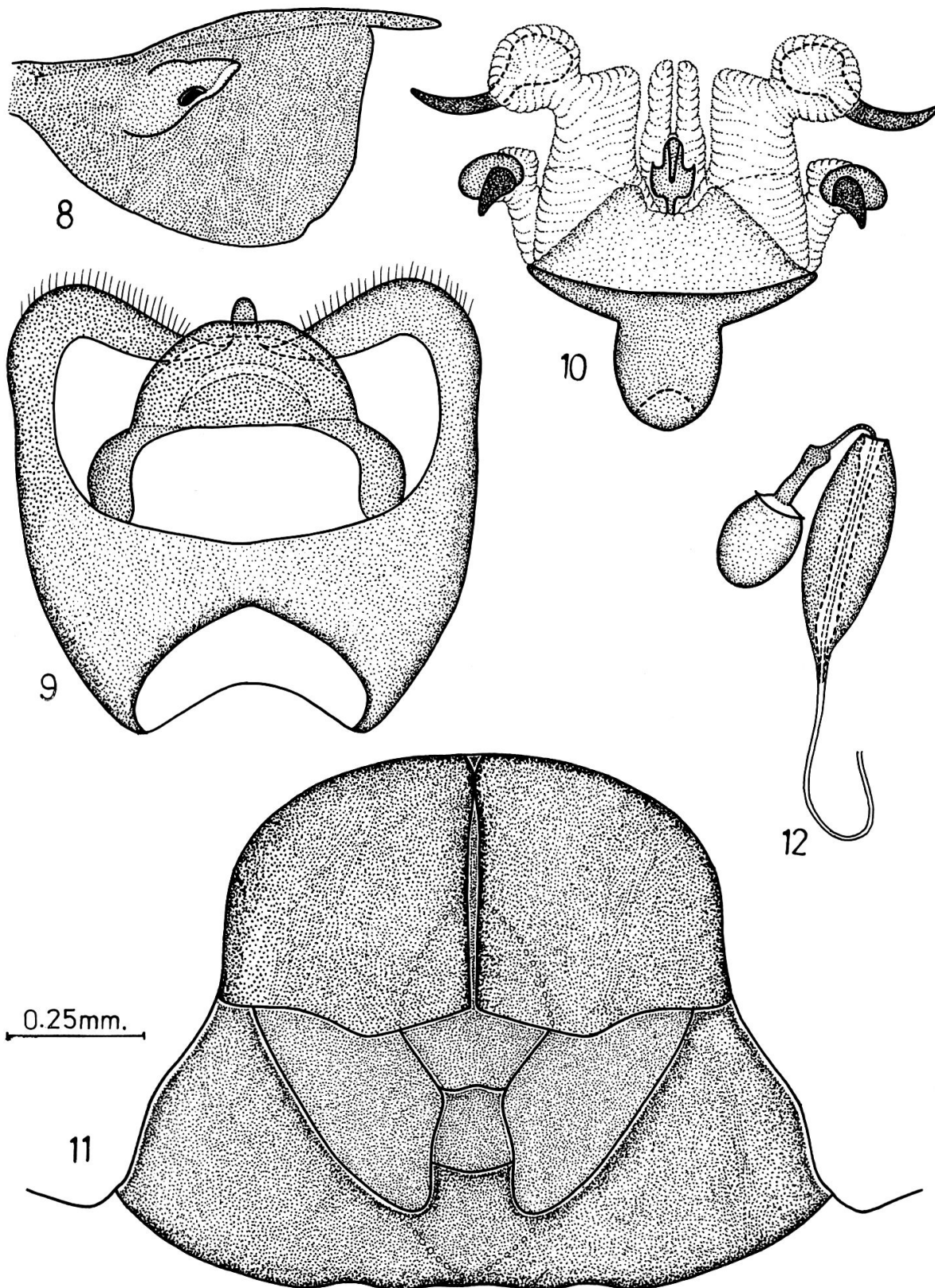


Fig. 7. Dorsal view of *Sciocoris* (*Parasciocoris*) *peshawarensis* sp.n.



Figs 8-12. *Sciocoris* (*Parasciocoris*) *peshawarensis*. – 8: evaporatorium (ventral view), 9: pygophore (dorsal view), 10: aedeagus (dorsal view), 11: female terminalia (ventral view), 12: spermatheca (dorsal view).

Male genitalia: Pygophore (Fig. 9) somewhat quadrangular, as long as broad, dorso-posterior margin medially deeply concave, lateral lobes broadly round, ventro-posterior margin medially produced posteriad into narrowed lobe-like process; proctiger broad with posterior half semicircular; aedeagus (Fig. 10) with large narrowed thecal appendages, ventral membranous conjunctival appendage broad, apically bilobed, dorsal membranous conjunctival appendage with pair of bi-lobed dorsal appendages, inner lobe small, elongate, outer lobe large with sclerotized disc at base and a thorn-like spine at tip, pair of dorso-lateral membranous conjunctival appendages with sclerotized disc bearing small thorn-like spines at tips; penial plate small, fused, much shorter than inwardly curved vesica.

Female genitalia (Fig. 11): First gonocoxae large, triangular, slightly wide apart, posterior margin distinctly sinuate; 9th paratergites large, plate-like, with apices broadly narrowed and round, much shorter than fused posterior margin of 8th paratergites, the latter sinuate; 2nd gonocoxae with posterior margin sinuate; proctiger broad with posterior margin convex; spermatheca (Fig. 12) with bulb oval, pump region narrowed, tube-like, medially constricted, distal flange much prominent than proximal flange, proximal spermathecal duct large, about 4x length of distal spermathecal duct.

Material examined: Holotype ♂, Pakistan: NWFP, Peshawar; grass; 25.3.1975; leg. M. RAHIM; in NHMUK. Paratypes 2 ♂♂, 2 ♀♀, Pakistan: NWFP, Peshawar; grass; 25.3.1975, 4.4.1984; M. RAHIM, R.H. ZAIDI; in NHMUK, NHM, BMNH and in AHMAD'S Coll.

Comparative notes: This species is most closely related to *S. kamali* sp.n. in having eyes small, without stalk, and scutellum about as long as broad, but it can easily be separated from it by having lateral margins of paraclypei sinuate, apical lobe of scutellum narrowed, first gonocoxae not completely fused, the latter somewhat quadrangular and by other characters as noted in the description and key.

KEY TO THE SPECIES OF THE SUBGENUS *PARASCIOCORIS* WAGNER

1. Lateral margins of the pronotum straight or almost straight, anterior margin hardly protruding outward beyond eyes 2
- Lateral margins of the pronotum rounded, anterior margin distinctly protruding outward beyond eyes 3
2. Lateral lobes of paraclypei just above the eyes obsolete, lateral margin straight *angusticollis* PUTON
- Lateral lobes of paraclypei just above the eyes tooth-like, lateral margin convex *capitatus* JAKOVLEV
3. Dorsum of the body straw-yellow to whitish yellow, lateral lobes of the paraclypei just above the eyes very large and prominent *pallens* KLUG
- Dorsum of the body olive gray with prominent black patches, lateral lobes of the paraclypei just above the eyes small 4
4. Lateral lobes of the paraclypei just above the eyes pointed 5
- Lateral lobes of the paraclypei just above the eyes rounded 6
5. Head short and distinctly broader than long, lateral margins of pronotum distinctly convex, humeral angles sub-acute *denticeps* WAGNER
- Head large and slightly broader than long, lateral margins of pronotum slightly convex, humeral angles rounded *kamali* sp. n.
6. Head long, width of head about 1.6x the length of head 7
- Head broad, width of head about 1.9x the length of head 8

- 7. Tips of paraclypei broad, latter overlapping, lobes just above the eyes obsolete *canariensis* LBG.
- Tips of paraclypei narrowed and not overlapping, lobes just above the eyes prominent *peshawarensis* sp. n.
- 8. Lateral lobes of paraclypei just above the eyes acutely produced, eyes large *sahlbergi* WAGNER
- Lateral lobes of paraclypei just above the eyes roundly produced, eyes comparatively small 9
- 9. Head almost pointed frontly, paraclypeal lobes just above the eyes small *schmidtii* WAGNER
- Head almost rounded frontly, paraclypeal lobes just above the eyes large *convexiusculus* PUTON

RELATIONSHIPS

Aposciocoris karachiensis SIDDIQUI *et al.* (1991) appears to stand out in the cladogram given by SIDDIQUI *et al.* (1991), having an outgroup relationship with the rest of the Sciocorine taxa. The subgenus *Neosciocoris* WAGNER, not represented in the areas of Pakistan and Azad Kashmir, appears to be the outgroup of *Parasciocoris* and *Sciocoris* sensu stricto. The latter appears to represent the sister group. The former is represented by the species *S. kamali* and *S. peshawarensis* from Changa-manga in Punjab and Peshawar in NWFP.

In the above species the paraclypeal lobe just above the eyes is distinctly produced into a tooth-like structure which probably represents a derived state similar to their trilobed dorsal membranous conjunctival appendage, having sclerotized tips with circular disc in two lateral lobes. Probably these traits represent the synapomorphies of the subgenus. In *S. kamali* the paraclypei appear to meet completely above the clypeus which is regarded here as being derived and therefore autapomorphous for the taxon, similar to its paraclypeal lobe just above the eyes, which is distinctly produced into acute apices. On the other hand *S. peshawarensis* with a ventro-posterior margin of pygophore, medially produced into a uni-lobed process, and the sinuate posterior margin of the fused 8th paratergites, appears diverged, representing these traits as its autapomorphies.

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