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Apodiphus balochiensis -- Addition of a Species in Genus *Apodiphus* Spinola (Hemiptera: Pentatomidae: Pentatominae: Halyini) From Quetta (Baluchistan, Pakistan)

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Abstract: Genus *Apodiphus* described to accommodate *Halys amygdali* by Spimola. Genus *Apodiphus* also described by Stitchel (1960) and Puchkov (1965). Addition and transfer of species carried out by different workers time to time. Present new species was collected from Quetta and preserved as per standard procedure. External morphology, terminalia and male, female genitalia was studied. Measurements and drawing work has been carried out as per standard procedure. At present a new species *Apodiphus balochiensis* n. sp. described with from Quetta, Pakistan on the basis of male and female genitalia. This new species is compared *A. integriceps* Horvath. The results are described with illustration.

Keywords *Apodiphus Balochiensis*. New Species, Halyini, Baluchistan, Pakistan

1. INTRODUCTION

Genus *Apodiphus* described by Spinola (1837) to accommodate *Halys amygdali* Germar from Palaearctic region. Different researchers catalogued, described genus *Apodiphus* with addition and transfer of species from different regions such as Distant (1902) keyed genus *Apodiphus* (Spinola1837) in his catalogue from Palaearctic region with description of *A. amygdali* (Germer). *A. pilipes* also described from Kashmir and Gilgit with illustrations of metathoracic scent gland auricle, labium and dorsal view. Kirkaldy (1909) in his catalogue listed genus *Apodiphus* from Indo-Pakistan sub-continent and included three species *Apodiphus amygdali*, *A. integriceps* and *A. pilipes*. Genus *Apodiphus* also described by Stitchel (1960) and Puchkov (1965). Ghauri (1975) transferred *Apodiphus pilipes* to genus *Paranevisanus*. Hoberlandt (1984) added a new species in literature from East Afghanistan in the genus *Apodiphus* and named as *A. montanus* in addition *A. integreceps* also redescribed. Abbasi (1986) described *Apodiphus integriceps* in Ph.D. thesis. Ahmad (1979) catalogued genus *Apodiphus* from Pakistan in revision of Super families Coreoidea and Pentatomoidae. Ahmad and Ahmad (1993) redescribed genus *Apodiphus* including four new species from Pakistan. *A. bilobatus* from Fort Sandeman, Balochistan on *Prunus americana* (Apricot). *A. gilgitensis*, *A. jaglotensis* and *A. wahensis* from Gilgit, Jaglot (Northern areas) and Wah Cantt respectively. Description of all four new species was supported with diagrams and compared with closest species. Species identification key of all nine species was established. Linnavouri (1989) included *Apodiphus integriceps* in checklist of 316 species of Heteroptera from Yemen and South Yemen. Ahmad and Memon (2001) added a new species from Quetta in the genus *Apodiphus* Spinola on the specific characteristics such as metallic color and spermethecal bulb with four processes. It was based on only one female specimen. This new species was named as *A. metallicus* because only species of Apodiphus having metallic color and spermathecal bulb with four processes and one bifid. Rider (2006) in his catalogue listed genus *Apodiphus* Spinola included four species. Linnevuori (2008) listed ninety two (92) species of different families of Heteroptera including *Apodiphus amygdali*. Presently a new species is added in the exiting literature of genus *Apodiphus* from Quetta, Pakistan on the basis to specific characteristics such as metathoracic scent gland and genitalia of male and female. This new species is compared with closely related species *A. integriceps* Horvath. The illustrations of dorsal side and genitalia of male and female are provided.

2. MATERIAL AND METHOD

Specimens were collected from Quetta for taxonomical work. Specimens were pinned and preserved as per standard procedure. The abdomen of male were dipped in hot water for one to two minutes than pygophore (male genitalia) was pressed posterior side to separate from body by using fine pointed forceps. 10% Potassium hydroxide (KOH) was used to boil the pygophore for 25-30 minutes following the technique of Ahmad (1986), Ahmad and McPherson (1998). Pygophore was washed with tap water and the paramere and aedeagus were separated from pygophore. Aedeagus separately again bioled in 10% Potassium hydroxide (KOH) for soften the theca and further inflated under the dissecting microscope. Female genitalia was dissected by using pinned specimen

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dipping into hot water for two to three minutes, the complete abdomen was separated from body by using fine forceps. The abdomen was boiled in 10% KOH for 15 minutes for removing the covering muscles over spermatheca then tergal portion was dissected, then spermatheca was separated and observed under the dissecting microscope by using technique of Memon and Manan (2004). All body parts were measured in millimeters by using an ocular micromillimeter following the technique of Memon *et al.* (2006). The diagrams were made by the help ocular graph under the dissecting microscope than tracing of diagrams were made on tracing paper later on inked with rotering pointer by following technique of Shaikh *et al.* (2011).

3. RESULTS AND DISCUSSION

Apodiphus balochiensis n. sp. (Figs. 1 – 9)

Colouration

Head, pronotum and scutellum rust reddish punctuate with black tinge except eyes, ocelli and antennae, callosities; hemelytra with hard portion ochraceous punctuate with brown tinge, membranous region light brown with lines indicate light and dark stripes, outer margin of brown eyes ochraceous, ocelli pink, 1st antennal segment ochraceous with black tinge, last 4 dark brown, connexiva sides dark brown and reddish at middle.

Head: (Fig. 1)

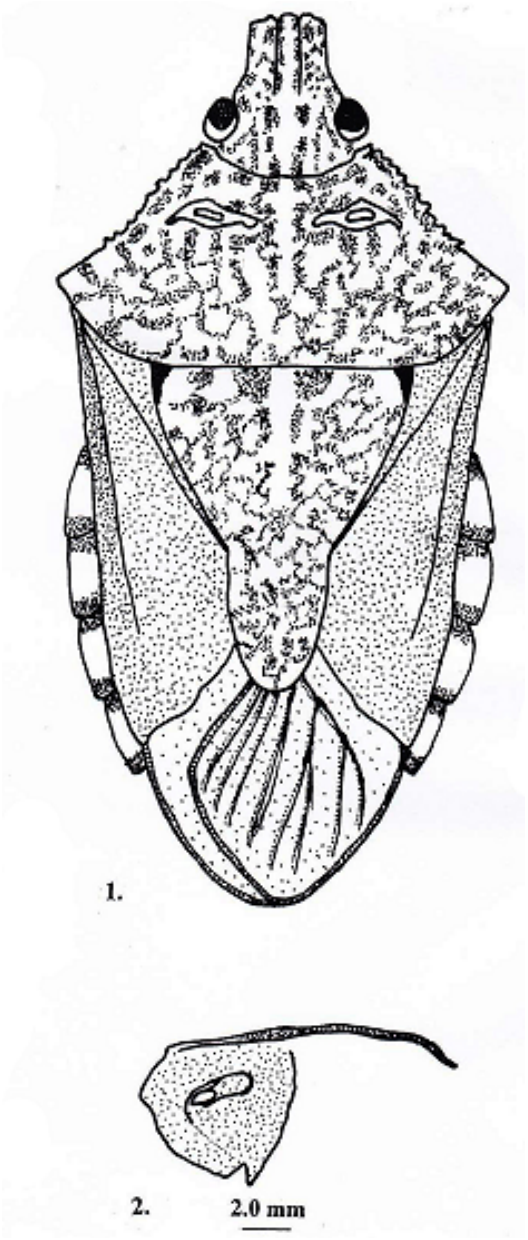
Head almost rectangular in shape, distinctly longer than width, paraclypei and clypeus almost equal, apex broad and sinuate, head with lateral margin smooth, first antennal segment not attaining at apex of head, anteocular region extended than remaining portion of head, length of anteocular region 3.1 mm, remaining of head 2.2 mm, head width including eyes 3.0 mm, interocellur distance 1.9 mm, interocular distance 3.4 mm, five segmented antennae with length, segment I 1.7 mm, segment II, 3.6 mm, segment III, 4.1 mm, segment IV 4.3 mm, V 4.7 mm, antenna formulation I<II<III<IV>V, labium attaining the posterior margin of 3rd abdominal sternum, four segmented labial length, segment I 4.0 mm, segment II 5.1 mm, segment III 5.1 mm, segment IV 2.8 mm, labial formula IV<I<II<III, first labial segment longer than bucculae

Thorax:

Pronotum width more than 2X than length, thorax longer than head in length, lateral margins dentate anteriorly, sinuated posteriorly with sub-acute humeral angles, pronotum length 6.5 mm, pronotum width 15.3 mm, metathoracic scent gland ostiole with small ovate operture with small lobe like apically rounded peritreme,. **(Fig. 2)** long scutellum, wide at base and narrow at apex, U shaped apical lobe, scutellum length 11.5 mm, width at base 9.0 mm, length of apex scutellum to apex abdomen including membranes 8.0 mm, hemelytra crossed distinctly the abdomen.

Abdomen:

Connexiva well exposed at repose



Male genitalia:

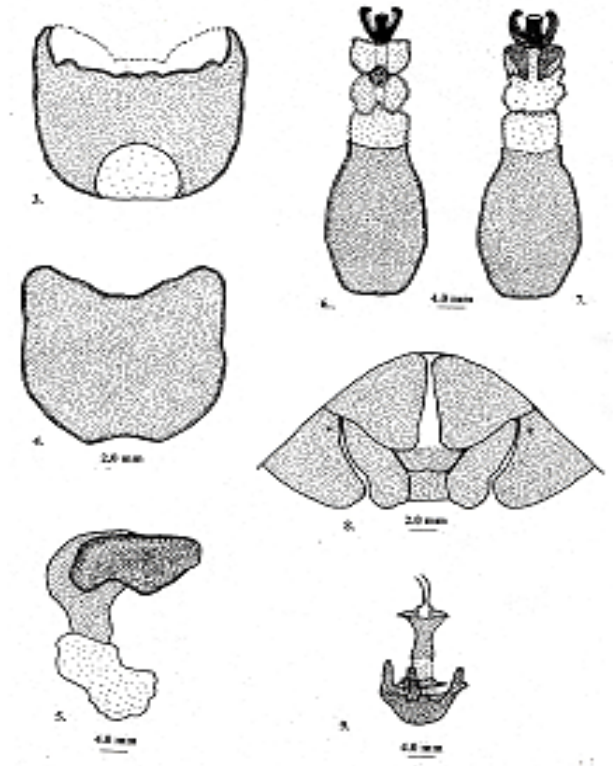
Pygophore with dorso-posterior margin having deep cavity, two small bilobed projections at middle, laterally with broad, rounded projection, postero-lateral lobe pointed moving inward **(Fig. 3),** Ventro-posteriorly with superficial cavity, sinuated ventro-lateral margin, rounded lateral lobes **(Fig. 4)**, paramere with short stem, blade broad with sinuated inner margin and apex broad somewhat rounded **(Fig. 5),** three pair of membranous appendages inflated from aedeagus, dorsally sclerotised apex of membrane shown **(Fig. 6)**, at ventral side pair of L shaped sclerotised structure, a pair of penial lobes cup shaped, the apex roundly moved inner side, vesica tube like, penial lobes longer than vesica. **(Fig. 7).**

Female genitalia:

1st gonocoxae triangular in shape, inner margin and posterior margin sinuate, inner angle roundly lobed; posterior margin of 2nd gonocoxae little convex, notched at middle; fully visible triangulin; posterior margin of 8th paratergite distinctly lobed at inner angles, sinuated inner margin; outer margin of 9th paratergite little concave, inner margin roundly produced **(Fig. 8)** almost equal sized three finger like processes of spermathecal bulb. One process little branched **(Fig. 9).**

Material Examined:

Holotype, 1 ♂: 1 Allotype ♀: Quetta, Balochistan, Pakistan, leg by A. Manan, 24-06-2008 host plant unknown. Material deposited at Department of Zoology, sindh University . 2 ♂ and 1 ♀ paratype with same data deposited at Department of Zoology, Sindh University Jamshoro.



Comparative note:

Apodiphus balochiensis n. sp. is compared with its closest species *A. integriceps* on the basis of diagnostic characters. Some diagnostics characters that resemble with *A. integriceps* such as paraclypei and clypeus equal in length, length of head shorter than width of head, antennal segments length formula, length formula of labium, structures of pygophore, 2nd gonocoxae with posterior margin medially notched. While this new species can be separated due to very much important characters such as length of pronotum longer than the length of head, paramere having small stem, blade of paramere with apex broad, rounded at some extend, inner margin sinuate, aedeagus with vesica shorter than penial lobes, penial lobes longer than dorsal membranous conjunctival appendages, female terminalia unicolour, 1st gonocoxae at posterior margin little concave, roundly produced inner lobes, three processes of spermathecal bulb equal in size, out of that one little branched. But *A. integreceps* having length of pronotum shorter than the length of head, paramere having large stem, blade of paramere with apex little produced, inner margin concave, aedeagus with vesica longer than penial lobes, penial lobes shorter than dorsal membranous conjunctival appendages, female terminalia having dark spots, 1st gonocoxae at posterior margin convex, three processes of spermathecal bulb with unequal size.

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