

A NEW RECORD OF THE GENUS *SCIPINIA* STÅL (HEMIPTERA: REDUVIIDAE: HARPACTORINAE) FROM PAKISTAN WITH DESCRIPTION OF NEW SPECIES ON THE BASIS OF UNIQUE MALE SPECIMENS AND THEIR GENITALIA AND INFLATED AEDEAGI

Hina Afzal and Imtiaz Ahmad

Room No. 15, Biological Research Centre, University of Karachi, 75270, Karachi, Pakistan.

*hinaafzal515@gmail.com

ABSTRACT

A new record of the genus *Scipinia* Stål of the subfamily Harpactorinae of Reduviidae is recorded for the first time from Pakistan with description of a new species *Scipinia neohorrida* with special reference to its unique male genitalia and inflated aedeagi.

Key Words: Reduviidae, Harpactorinae, *Scipinia*, new species, male genitalia, Pakistan.

INTRODUCTION

The genus *Scipinia* of the reduviid subfamily Harpactorinae was established by Stål (1861) for the type species *S. horrida* from Oriental region previously placed under the genus *Sinea* Amyot & Serville by Stål (1859). Distant (1904) redescribed the same species under the division Polidusaria of Harpactorinae (presently placed under the tribe Harpactorini) from Oriental and Australasian regions. Hsiao and Ren (1981) reviewed the *Scipinia* from China with description of a new species *viz subula* of this genus. Recently Huang *et al.* (2007) added another new species *viz rotunda* Huang *et al.*, from China. Prior to this study, nine species have since been described by various authors (Reuter, 1881; Distant, 1903 and 1904; Breddin, 1901; Horvath, 1919; Miller, 1941; Hsiao and Ren, 1981; Putshkov and Putshkov, 1985, 1996; Maldonado-Capriles, 1990; Huang *et al.*, 2007; Mukherjee and Hassan, 2016; Bhagyasree, 2018). The present genus was originally known from India, China, Sri Lanka, Myanmar, Bengal, Indonesia, Phillipines and Australia (Maldonado-Capriles, 1990; Mukherjee and Hassan, 2016). This paper presents a new record and a new species *S. neohorrida* from Faisalabad, Pakistan for the first time with description of male genitalia and inflated aedeagi.

MATERIAL AND METHODS

Three males were collected from Faisalabad, Punjab in October, 1977 and were easily determined by us as *Scipinia neohorrida* sp.n. The measurements were taken following Ahmad *et al.* (2002) and male genitalia were dissected and inflated following the technique of Ahmad (1986), Ahmad and Mc Pherson (1990 and 1998). The inflated genital components were placed in microvials with glycerine and pinned with the specimens. All measurements are given in millimeter and all illustrations are to the given scales.

Scipinia neohorrida sp.n. (Figs.1, 2)

Colouration:

Body dark ochraceous except labium, lateral margins of pronotum, clavus, legs, abdomen pale ochraceous; eyes, ocelli yellowish.

Head:

Cylindrical, armed with three pairs of long spines and with many small spines around them clothed with short setae, antennae with basal segment subequal to head, slightly shorter than pronotum, 2x of second, latter as long as anterior lobe of pronotum, third and fourth segments subequal in length, each about 1.5x of basal segment, length of segment, I 1.9(1.9-2.2), II 0.9(0.8-1.0), III 1.2(1.2-1.4), IV 1.3(1.2-1.3); antennal formula II < III < IV < I; labium with basal segment passing beyond posterior margin of the eyes sub equal to second, third shortest, length of segment I 1.1(1.0-1.1), II 1.0(0.9-1.0), III 0.4(0.4-0.5); labial formula III < II < I; length of anteocular region of head excluding

eyes; 0.7(0.5-0.7); length of postocular region of head including eyes, 1.0(1.0-1.2); width of head, 0.8(0.8-0.9); interocular distance, 0.5(0.4-0.5); interocellar distance, 0.3(0.3-0.4).

Thorax:

Pronotum broader than long having anterior lobe with deep median longitudinal sulcus armed with two pairs of long spines and with many small spines around them having two posterior long spines apically bifurcated, collar process acute directing anteriorly, posterior lobe 1.5x longer than anterior lobe, posterior and postero-lateral margins with a few minute tubercles, posterior margin convex with a few minute tubercles, humeral angles somewhat rectangular and acute somewhat upwardly directed, length of pronotum 2.1(2.2-2.4), width 2.7(2.6-2.7); scutellum broader than long, apically rounded, tuberculously not produced, length of scutellum 0.7(0.7-0.8), width 0.9(0.7-0.9); forefemur moderately incrassated and nodulose armed with one long and five small spines, for tibia as long as fore femur having inner surface with minute tubercles, mid and hind femora slightly nodulose, membrane of hemelytra passing beyond last abdominal segment; distance apex scutellum-apex abdomen, 4.6(4.4-5.0); apex abdomen-apex membrane, 0.2(0.2-0.4); base scutellum-apex clavus, 1.0(1.0-1.6); apex clavus-apex corium, 2.8(2.6-2.9); apex corium-apex membrane, 2.1(1.9-2.1).

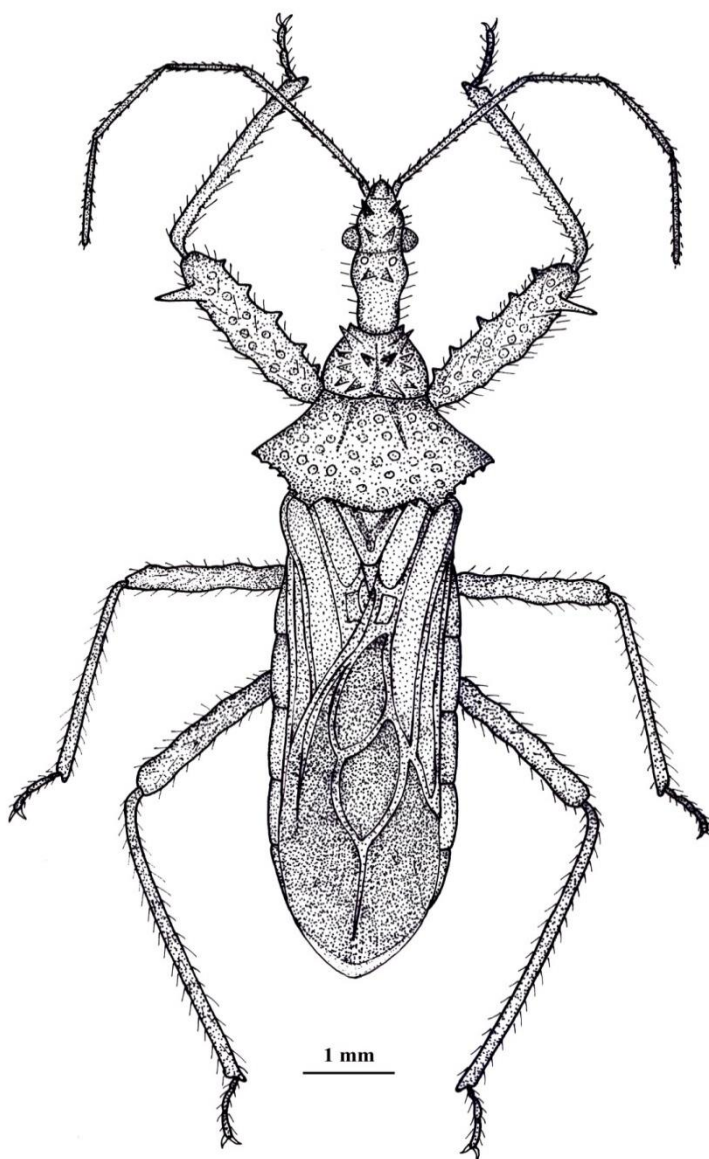


Fig.1. *Scipinia neohorrida* sp.n., entire specimen, dorsal view.

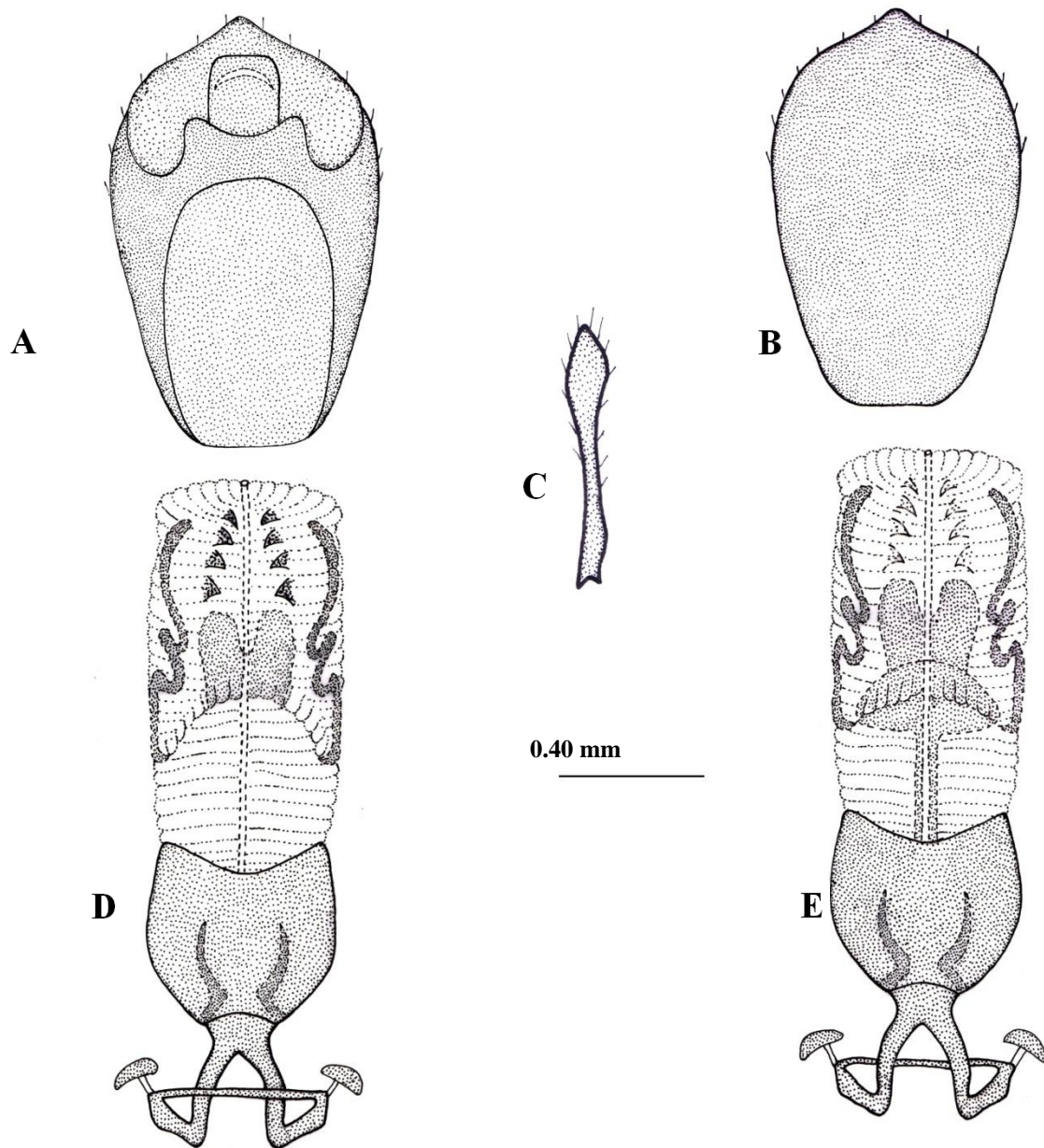


Fig.2. *Scipinia neohorrada* sp.n; A, Pygophore , dorsal view; B, Pygophore, ventral view; C, Paramere, inner view; D, Inflated aedeagus, dorsal view; E, Inflated aedeagus, ventral view.

Abdomen:

Posterior margin of seventh abdominal sternum in male deeply concave; connexiva slightly exposed at repose. Total length in male, 9.4 (8.9-9.4).

Male genitalia:

Pygophore (Figs. 2A, B) with ventral rim convex medially projected above with rounded apex , dorsal rim laterally deeply concave, medially projected above and concave; paramere (Fig. 2C) small having spoon shaped blade apically subrounded, stem elongate having outer margin plane inner margin somewhat sinuate; inflated aedeagus (Figs. 2D, E) with a pair of concealed median somewhat rectangular semisclerotization apically rounded, a pair of concealed lateral elongately folded semisclerotization, pair of four large sclerotized frontal spines directing inwardly.

Material examined:

Holotype, ♂, Pakistan: Punjab: Faisalabad; on unidentified grass; leg. Moiz; 26-10-1977, lodged at NHMUK.

Other material:

2 ♂, Pakistan: Punjab: Faisalabad; on unidentified grass; leg. Moiz; 26-10-1977, lodged at NHMUK.

Comparative note:

S. neohorrida sp.n. is closely allied to the species *S. horrida* (Stål) in having labium with basal segment passing beyond posterior margin of eyes, anterior pronotal lobe with two posterior spine apically bifurcated, humeral angles somewhat rectangular and acute but it can be distinguished having postocular region 1.5x of anteocular region, antennae with basal segment subequal to head, pronotum with posterior pair of long spine on anterior lobe without basal and middle spines, middle of posterior margin convex and tuberculate, postero-lateral margins tuberculate, posterior angles subacute, pygophoral process short, paramere small sized in contrast to postocular region 2x of anteocular region, antennae with basal segment slightly longer than head, pronotum with posterior pair of long spine on anterior lobe with basal and middle spines, middle of posterior margin concave and weakly waved, postero-lateral margins plane, posterior angles triangular, pygophoral process long, paramere absent in *horrida*.

DISCUSSION

The genus *Scipinia* Stål is closely allied to *Irantha* Stål in having common characteristics such as head above armed with three or four long spines on each side and with smaller scattered spines and spinules between or around them, mesosternum tuberculate on each side, anterior lobe of pronotum with four long and a number of smaller spines, anterior femora moderately incrassated, nodulose with a long spine above near apex and with a double series of spines beneath, mid and hind leg unarmed or armed, nodose, abdomen in female dilated laterally, especially at fifth and sixth segments, pygophoral process triangularly produced, paramere small sometimes absent but it can easily be distinguished having head shorter than pronotum, first and second labial segments subequal in length, anterior femora and tibiae nearly equally long (also listed by Distant, 1904; Huang *et al.*, 2007 and Bhagyasree, 2018) in comparison to head subequal or sometimes longer than pronotum, first labial segment longer than second, anterior tibiae shorter than anterior femora (Distant, 1904; Chen *et al.*, 2005 and Bhagyasree 2018) in *Irantha*. Bhagyasree (2018) probably erroneously listed that labial segment II and III are subequal in *Scipinia* but in the present study it is found that labial segment I and II are subequal, third shortest.

S. neohorrida is most closely allied to *S. horrida* by sharing common characters such as head above with three pairs of long spines, tips of posterior pair of long spine on anterior pronotal lobe dichotomizing, mid and hind femora subnodulose near apices (Distant, 1904; Huang *et al.*, 2007; Mukherjee and Hassan 2016) but it can be distinguished having collar process acute, pygophoral process short with produced portion tapering, paramere always present in contrast to collar process spinous, pygophoral process long with produced portion blunt, paramere absent in *horrida* (Huang *et al.*, 2007).

The reduviid bugs are economically important as predators of insect pests and they can be utilized in integrated pest management system (Schaefer, 1988; Schaefer and Ahmad, 1987; Ambrose, 1999). Das *et al.* (2010) investigated the rate of intraspecific competition on predation by young and solitary old nymphal instars and adults of *S. horrida* on cotton bollworm *Helicoverpa armigera* (Hubner). Their study revealed that intraspecific competition rate is greater in older nymphs. The adults and various life stages of presently described new species from Pakistan can be used for biocontrol programmes and pest management.

REFERENCES

- Ahmad, I. (1986). A fool proof technique for inflation of male genitalia in Hemiptera (insecta). *Pakistan J. Ent. Kar.*, 1:111-112.
- Ahmad, I. and J. E. McPherson (1990). Male genitalia of the type species of *Corimelaena* White, *Galgupha* Amyot and Serville and *Cydnoides* Malloch (Hemiptera: Cydnidae: Corimelaenidae) and their bearing on classification. *Ann. Entomol. Soc. Am.*, 83: 162-170.
- Ahmad, I. and J. E. McPherson (1998). Additional information on male and female genitalia of *Parabrochymena* Larivier and *Brochymena* Amyot and Serville (Hemiptera: Pentatomidae). *Ann. Entomol. Soc. Am.*, 91(6): 800-807.
- Ahmad, I., H. Afzal, S. A. Rizvi, S. Kamaluddin and M. A. Azmi (2002). A new Triopicorine stink bug species of the genus *Tropicoris* Hahn (Heteroptera: Pentatomidae: Pentatominae) from Nepal and its cladistic relationship. *Proceedings of the Pakistan Congress of Zoology*, 22:31-36. 807.

- Ambrose, D.P. (1999). Assassin Bugs. Science Publishers, Inc., Enfield, New Hampshire, U.S.A. 337 pp.
- Bhagyasree, S.N. (2018). Generic notes on the Assassin bugs of the Subfamily Harpactorinae (Hemiptera: Reduviidae) of Karnataka. *Journal of Entomology and Zoology Studies*, 6(1):1366-1374.
- Bhagyasree, S.N. (2018). New records of the subfamily Harpactorinae (Reduviidae: Heteroptera: Hemiptera) from Karnataka. *Journal of Entomology and Zoology Studies*, 6(1): 1293-1299.
- Bredden, G. (1901). Die Hemipteren von Celebes. Ein Beitrag zur der Insel. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*, 24: 1–213.
- Chen, W., P. Zhao and W. Cai (2005). The discovery of the genus *Irantha* Stål, 1861 (Heteroptera: Reduviidae: Harpactorinae) from China with description of a new species. *Annales zoologici (Warszawa)*, 55(1): 107-109.
- Das S.S.M., A. G. Kumar and D. P. Ambrose (2010). Impact of intraspecific competition in the predation of the cotton bollworm, *Helicoverpa armigera* (Hubner) by *Scipinia horrida* (Stål) (Hemiptera: Reduviidae). *Entomon.*, 35(3): 203-208.
- Distant, W.L (1903). Rhynchotal notes. XVII. *Ann. Mag. Nat. Hist.*, 7(11): 352-367.
- Distant, W.L. (1904). *The fauna of British India including Ceylon and Burma*. Rhynchota. Vol. II, Taylor and Francis, London, pp. 1-503.
- Huang, X., P. Zhao., S. Zhou and W. Cai (2007). A taxonomic review of the genus *Scipinia* Stål (Hemiptera: Reduviidae: Harpactorinae) from China. *Zootaxa*, 1507: 57-67.
- Horváth, G. (1919) Hemipteren von den Aru- und Kei-Inseln. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*, 36: 305–314.
- Hsiao T.Y. and S.Z. Ren (1981). Reduviidae. In: Hsiao *et al.*, *A Handbook for the Determination of the Chinese Hemiptera-Heteroptera (II)*. Science Press, Beijing. pp. 390-538. (In Chinese with English synopsis).
- Maldonado-Capriles, J. (1990). Systematic catalogue of the Reduviidae of the world (Insecta: Heteroptera). *Caribbean J. Sci.*, (special ed.). 694 pp.
- Miller, N.C.E. (1941). New genera and species of Malaysian Reduviidae. Part 2. *Journal of Federated Malay States Museum*, 18., 601–773; Suppl., 774–804.
- Mukherjee, P. and M. E. Hassan (2016). Three new records of Assassin Bugs from Andaman and Nicobar Islands, India. *Munis Entomology & Zoology*, 11 (2): 573-575.
- Putchkov, V.G. and P.V. Putchkov (1985). A catalogue of the Assassin-bugs Genera of the World (Heteroptera: Reduviidae). *Vestnik Zool.*, 1985, 112 pp.
- Putshkov, V.G. and P. V. Putshkov (1996). Family Reduviidae Latreille, 1807, assassin-bugs. In: Aukema, B. & Rieger, C. Eds.), *Catalogue of the Heteroptera of the Palaearctic Region, Volume 2 Cimicomorpha I*. The Netherlands Entomological Society, Amsterdam, pp. 148–265.
- Reuter, O.M. (1881). Ad cognitionem Reduviidarum mundi antiqui. *Acta Societatis Scientiarum Fennicae*, 12: 269–339.
- Stål, C. (1859). Hemiptera. Species novas descripsit. In: Konglika Svenska Fregattens Eugenies resa omkring Jorden under befäl af C.A. Virgin åren 1851–1853 3. *Zoologi, Insecter*: 219–298.
- Stål, C. (1861). Miscellanea hemipterologica. *Stettiner Entomologische Zeitung*, 22: 129–153.
- Schaefer, C.W. (1988). Reduviidae (Hemiptera: Heteroptera) as agents of biological control; In: *Bicovas*, K.S. Ananthasubramanian, P. Venkatesan and S. Sivaraman (eds.). Loyola College, Madras. 1: 27-33.
- Schaefer, C.W. and I. Ahmad (1987). Parasites and predators of Pyrrhocoreidae (Hemiptera) and possible control of cotton stainers *Phonoctonus* spp., (Hemiptera: Reduviidae). *Entomophaga*, 32: 269-275.

(Accepted for publication July 2019)