



Taxonomic account of a new genus of jumping spider from Jhenaidah, Bangladesh

Vivekanand Biswas

Department of Zoology, Khulna Government Womens' College, Khulna – 9000, Bangladesh

Corresponding e-mail: vivekarach@gmail.com

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Abstract

Taxonomic account of a new genus of jumping spider *Harmochiroides* n. gen. is proposed with its newly identified type-species *H. shikerpurensis* n. sp. from Jhenaidah, Bangladesh. Generic diagnosis and distribution together with illustrated description of the species is provided herewith.

Keywords: Araneae, Harmochirinae, *Harmochiroides*, Taxonomy, Genus, Species, Salticidae

Introduction

Jumping spider of family Salticidae is the largest, cosmopolitan and widely distributed throughout the world. At present, the family contains a total of 6,804 valid species belonging to 689 genera distributed throughout the world (World Spider Catalog 2025). In Bangladesh, records of these spiders are scarce and composed of only 72 species under 21 genera (Chowdhury and Nagari 1981, Chowdhury and Pal 1984, Okuma *et al.* 1993, Biswas 2009, 2019, 2024a, b, Biswas and Raychaudhuri 2021). But a good number of species are recorded and described in other Asian countries like – India (Tikader 1977a, b, Caleb and Mathai 2015), China (Song *et al.* 1999, Xiao and Wang 2005, Peng 2020), The Philippines (Barrion and Litsinger 1995), Viet-Nam (Zabka 1985, Proszynski 1992), Singapore (Koh 1989), Japan (Yaginuma 1986, Ikeda 1993, Ono and Ogata 2018), Korea (Paik 1986, 87, Kim and Lee 2014) etc.

However, the present study is the addition of a new genus *Harmochiroides* n. gen. with its type-species *H. shikerpurensis* n. sp. to the fauna of the family Salticidae of Bangladesh. It contains detail illustrated description of the new species together with diagnosis of the new genus and its distribution. Remarks are also given comparing to the present species with the world fauna of nearly related species.

Materials and methods

Collection and preservation: Specimens were collected from the garden of village South Shikerpur, district Jhenaidah, by jarking the branches of shrubs on an inverted umbrella placed underneath the plants. Collected specimens were paralyzed with chloroform filled in a large glass jar. Then carried to the laboratory and transferred this to a petri-dish filled with 70% ethyl alcohol for sorting. After sorting, each specimen was preserved in separate vial with 70% alcohol.

Identification and study: The specimens thus preserved were identified following the books and journals of home and abroad, these are Berland and Millot (1941), Tikader (1977, 87), Davies and Zabka (1989), Barrion and Litsinger (1995), Peng (2020), Song *et al.* (1999), Koh (1989), Zabka (1985, 97), Proszynski (1992), Chen and Zhang (1991), Yaginuma (1986), Fuhn and Gherasim (1995), Biswas (2009, 24) and Kim (2014).

After identification, the necessary body-parts of the specimens were dissected out under the Stereozoom Binocular Microscope on a petri-dish with 70% alcohol. Male palps after dissection, were boiled in 10% KOH for 3-5 minutes (Levi 1965, Tikader 1987). Thus, the palpal organs are expanded and studied under the same

condition. After study, the palps are preserved along with the parent spider in Audemans' Preservatives.

Illustrations: The adult spider and its necessary body-parts were illustrated by Camera Lucida fitted with a Stereozoom Binocular Microscope. Leg measurements were done in the following sequences: femur, patella, tibia, metatarsus, tarsus and total length and was taken in millimeters (mm).

Type-deposition : After illustration, the specimens were placed to the collection of the Department of Zoology, Khulna Government Womens' College, Khulna and will deposited to the Museum of the Department of Zoology, University of Dhaka, in due course of time.

Results and discussion

Systematics

Class: Arachnida Lamarck 1801

Order: Araneae Clerck 1757

Family: Salticidae Blackwall 1841

Subfamily: Harmochirinae Proszynski 2013

Genus : *Harmochiroides* n. gen.

Type-species : *H. shikerpurensis* n. sp.

Diagnosis: Spiders of the genus *Harmochiroides* n. gen. are small to nearly medium in size. Body brown to blackish-brown and robust. Cephalothorax broad, elongately oval with nearly straight on anterior margin. Eyes dissimilar, arranged in 3 rows, with anteromedians are largest ; each eye with black basal band. Chelicerae brown, strong, with few teeth on inner margin, fang strong, pointed marginally. Sternum is nearly hear-shaped. Maxillae and labium are brown, scopulate anteriorly. Leg -I largest with broad, expanded tibia, leg -III is usually smallest. Palpal organs are varies species to species. Female is unknown.

Abdomen broad, oval, brown, narrowing anteriorly with a small constriction. Spinnerets small and dissimilar in size. Dorsum of abdomen covered with small spines and hairs.

Biological note: Spiders of this genus are small to medium, very strong and active. They usually live on the leaves of plants at the gardens. They cannot build any

web but can make typical nests in winter in which they hibernate and maintain the offspring within this. These are good predators of small insects and can jump during preying. Like other Salticids, they are one of the important biological control agents of insect pests in the garden crops.

Remarks: Jumping spider genus *Harmochiroides* n. gen. does not show any close similarity to its congeners of neighbour countries and also with its world relatives. However, a little similarity is found of its general appearance with the genus *Harmochirus* Simon but stands distinct as a new genus in the following characters:

1. Cephalothorax broad and elongate.
2. Arrangement of eyes on the cephalothorax much different.
3. Specialized structure of leg -I and abdomen.
4. Male palpal characters are different with that of all *Harmochirus* species.

Etymology: The genus is named with the similarity to genus *Harmochirus* in general appearance.

Distribution: Village South Shikerpur, district Jhenaidah, Bangladesh.

Description of new species

Harmochiroides shikerpurensis n. sp.

(Figs. 1a – 1g)

Material examined: 1 male (holotype), 18. VII. 2021, village South Shikerpur, district Jhenaidah, Coll. V. Biswas ; 1 male (Paratype), from same area, 07. V. 2022, Coll. V. Biswas.

General: Body small, dark brown, clothed with small hairs and spines. Cephalothorax dark brown and abdomen light brown, both covered with small spines and hairs. Legs brown, strong, 1st leg largest. With brown, sharp spines. Total body length is 5.00 mm. Carapace 2.00 mm long, 1.82 mm wide; abdomen 3.00 mm long and 1.98 mm wide.

Cephalothorax: Broad, elongately oval with anterior and lateral margins nearly straight. Eyes dissimilar, arranged in 3 rows, each encircled with black basal band ; anterior row of eyes a little recurved with the anteromedians largest ; median eyes small and but the median and posterior row straight ; ocular quad posteriorly wide (Fig. 1a). Chelicerae brown, strong, little elongate each of inner and outer margins with 2 teeth (Fig. 1b). Maxillae brown, elongate, anteriorly light and scopulate (Fig. 1c). Labium

brown, small, vase-shaped, anteriorly light and scopulate (Fig. 1c). Sternum light brown, nearly heart-shaped, with anterior margin little concave, posteriorly pointed (Fig. 1d). Legs brown, strong, dissimilar, clothed with few strong spines; leg-I largest with tibial segment broad, expanded and with few strong spines, tarsi with 2 claws (Fig. 1e); leg - III smallest, covered with small spines; leg formula 1423 and the measurements (in mm) of leg segments are shown in Table 1.

Table 1. Measurements (mm) of leg segments of *H. shikerpurensis* n. sp.

Leg	Femur	Patella and Tibia	Metatarsus	Tarsus	Total
I	1.50/1.50	1.84/1.84	1.20/1.20	1.00/1.00	5.54/5.54
II	1.00/1.00	1.10/1.10	0.80/0.80	0.52/0.52	3.42/3.42
III	0.80/0.80	0.72/0.72	0.50/0.50	0.38/0.38	2.40/2.40
IV	1.20/1.20	1.12/1.12	0.72/0.72	0.50/0.50	3.54/3.54

Male palp typical, with apophysis pointed and tegulum curved and terminal end pointed anteriorly, each clothed with sharp spines (Figs. 1f and 1g).

Abdomen: Brown, broad, oval, narrowing anteriorly with a small lateral constriction, clothed with numerous small spines. Spinnerets small, unequal.

Female: (Allotype) Unknown and will be described separately after collection.

Type-specimen: **Holotype:** male in spirit, **Paratype:** one male in spirit.

Type-locality: Village South Shikerpur, district Jhenaidah, Bangladesh (Southwest part).

Etymology: The species is named according to the name of the type-locality.

Remarks: The species *H. shikerpurensis* n. sp. does not show any similarity to its Indian congeners.

However, it shows some special characters (those are shown in the following) for which it stands distinct as species new to science. The characters are –

1. Structure of cephalothorax and abdomen much different with others.

2. Presence of two teeth on inner and outer margins.
3. Leg - I and Sternum structurally much different with *Harmochirus* species.
4. Structure of male palp much different with others.

Therefore, the species is described as new to science.

Conclusion

The taxonomic history of salticids of Bangladesh is very short (Chowdhury and Pal 1984, Okuma *et al.* 1993, Biswas 1996, '2009, 2016, '19, '21, Biswas and Raychaudhuri 2019) and it is clearly observed that none of the salticids of Bangladesh or its neighbouring congeners show any close similarity with the present species *H. shikerpurensis* n. sp. But the biology and behaviour is nearly similar with *Harmochirus* species viz. – predatory, jumping habits etc. The species of both these genus make typical nests during breeding season specially in winter and lay eggs there and the female stay there up to the maturity of newly born spiderlings.

Species of the genus *Harmochiroides* n. gen. are good predators of insect pests in the gardens. It catches prey insects by jumping from plant to plant foliages. They are one of the important biological control agents of garden

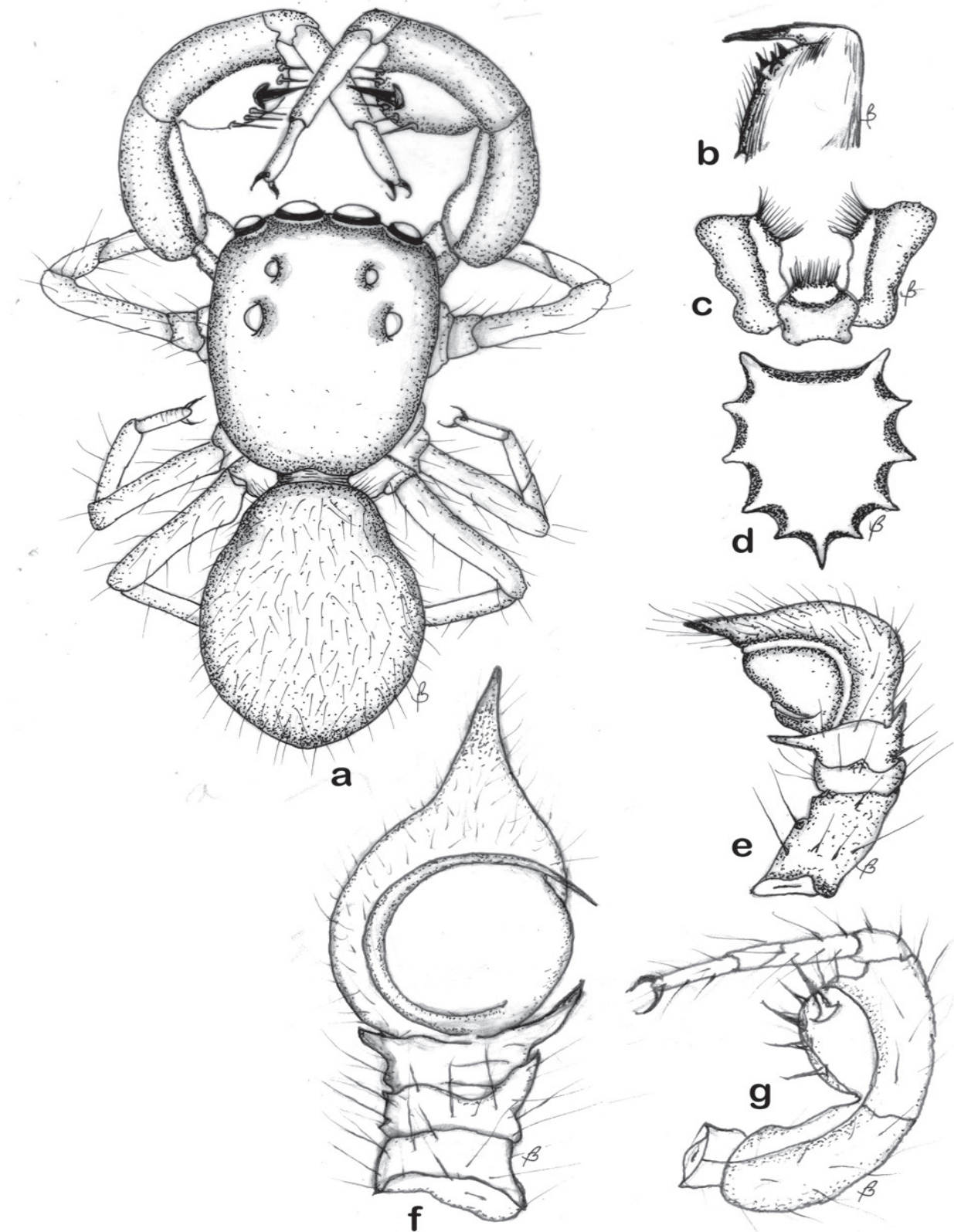


Figure 1. *Harmochiroides shikerpurensis* n. sp. a. Whole body (dorsal view); b. Chelicerae; c. Maxillae & Labium; d. Sternum; e. Male palp (Lateral view); f. Male palp (Ventral view); g. First leg.

insect pests. Therefore, a detail revisional study of these spiders is needed to identify the species composition and ecological role as a predator of crop-pests of Bangladesh.

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References

- Barrion AT and Litsinger JA. 1995. Riceland spiders of south and southeast Asia. CAB International, Wallingford, UK, XIX. P. 700.
- Berland L and Millot J. 1941. Les Araignees de L'Afrique Occidentale Francise I. Les Salticidae. Memoires du Museum National d'Histoire Naturelle. 297-421.
- Biswas V. 2009. Encyclopedia of flora and fauna of Bangladesh, Arthropoda, Arachnida, Asiatic Society of Bangladesh, Dhaka. 18: 438.
- Biswas V. 2016. A new species of genus *Harmochirus* Simon, 1885 from Bangladesh (Araneae: Salticidae). Indian Journal of Arachnology. 5: 124-129.
- Biswas V. 2019. Checklist of the spiders of Bangladesh (Araneae: Arachnida). Bangladesh Journal of Zoology. 47: 185-277.
- Biswas V. 2021. A new species of jumping spider genus *Harmochirus* Simon (Araneae :Harmochirine:Salticidae) from Bangladesh. Bangladesh Journal of Entomology. 31: 35- 45.
- Biswas V. 2024. The spiders of Bangladesh. Spinneret Publications, Khulna, Bangladesh.
- Biswas V and Raychaudhuri D. 2019. A new species of jumping spider genus *Harmochirus* Simon, 1885 from Bangladesh (Araneae :Salticidae). Serket. 17: 21-26.
- Caleb JTD and Mathai MT. 2015. Description of a new species of *Harmochirus* Simon (Araneae :Salticidae) from South India. Munis Entomology and Zoology. 10: 117-121.
- Chen ZF and Zhang ZH. 1991. Fauna of Zhejiang, Araneida. Zhejiang Science & Technology Publishing House. P. 356.
- Chowdhury SH and Nagari S. 1981. Rice-field spiders from Chittagong. Proceedings of the 9th National Conference of the Zoological Society of Bangladesh. Pp. 53-72.
- Chowdhury SH and Pal SK. 1984. Further report on the rice-field spiders from Bangladesh. Chittagong University Studies. II: 25-39.
- Davies VT and Zabka M. 1993. Illustrated key to the genera of jumping spiders (Araneae : Salticidae) in Australia. Memoirs of the Queensland Museum. 27: 189-266.
- Fuhn IE and Gherasim VF. 1995. Fauna Rumaniei, Arachnida, Family Salticidae. Editura Academiei Romane. 5: 301.
- Ikeda H. 1993. Redescription of Japanese spiders *Harmochiruskochiensis* and *Marpissaibarakiensis* (Araneae :Salticidae). Acta Arachnologica. 42: 135-144.
- Kim ST and Lee SY. 2014. Invertebrate fauna of Korea, National Institute of Biological Resources, Ministry of Environment, Seoul, Korea. 21: 18.
- Koh JKH. 1989. A Guide to common Singapore spiders. Singapore Science Centre. P. 160.
- Levi HW. 1965. Techniques for the study of spider genitalia. Psyche. 72: 152-158.
- Okuma C, Kamal NQ, Hirashima Y, Alam MZ and Ogata T. 1993. Illustrated monograph of rice-field spiders of Bangladesh. IPSA-JICA, Salna, Gazipur. P. 93.
- Ono H and Ogata K. 2018. Spiders of Japan : their natural history and diversity. Tokai University Press, Kanagawa. P. 713.
- Paik KY. 1986. Studies on the Korean Salticids (Araneae)-II. A new record species *Euophrys trivittata* from Korea with a description of the male. Korean Arachnology. 2: 19 -22.
- Paik KY. 1987. Studies on the Korean Salticid (Araneae) – III. Some new record species from Korea or South Korea and supplementary describe for two species. Korean Arachnology. 3: 3-21.
- Peng XJ. 2020. Fauna Sinica, Invertebrata, Arachnida, Araneae, Salticidae. Science Press, Beijing. 53: 612.
- Proszynski J. 1992. Salticidae (Araneae) of India in the collection of the Hungarian National Natural History Museum in Budapest. Annales Zoologici, Warszawa. 44: 165 -277.
- Song DX, Zhu MS and Chen J. 1999. The Spiders of China. Hebei Science and Technology Publishing House, Shijiazhuang. P. 640.

- Tikader BK 1976. Description of a jumping spider *Harmochirus brachiatus* (Thorell) with a new record from India. Journal of the Bombay Natural History Society. 73: 410-411.
- Tikader BK. 1977. Description of two new species of jumping spiders of the genus *Rhene* (Family :Salticidae) from India. Proceedings Indian Academy of Science. 85: 274 -277.
- Tikader BK. 1987. Handbook of Indian Spiders. Zoological Survey of India, Kolkata. P. 251.
- World Spider Catalog. 2025. World Spider Catalog, Version 25.0, Natural History Museum, Bern., Online at – <http://www.wsc.nmbe.ch>. (accessed on 14th February, 2025).
- Xiao XO and Wang SP. 2005. Description of the genus *Harmochirus* from China (Araneae : Salticidae). Acta Zootaxonomica Sinica. 30: 527-528.
- Yaginuma T. 1986. Spiders of Japan in colour. Hoikusha Publishing Company Limited, Osaka. P. 305.
- Zabka M. 1985. Systematic and zoogeographic study on the family Salticidae (Araneae) from Viet-Nam. Annales Zoologici. 39: 197- 485.
- Zabka M. 1997. Fauna Polski : Fauna Poloniae, Salticidae, Pajakiskaczace (Arachnida : Araneae). Polska Akademia Nauk, Muzeum I Instytut Zoologii, Warszawa. 19 : 1-183.