



A NEW SPECIES OF JUMPING SPIDER GENUS *Harmochirus* SIMON (ARANEAE : HARMOCHIRINAE : SALTICIDAE) FROM BANGLADESH

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ABSTRACT

A new species of jumping spider genus *Harmochirus* Simon namely - *H. narayani* n. sp. is described and illustrated. Generic diagnosis together with the distribution and key to the species are also provided.

Keywords: New species, Jumping spider, *Harmochirus*, Araneae, Harmochirinae, Salticidae, Bangladesh.

INTRODUCTION

Jumping spiders (Family: Salticidae) are the common, attractive, and important predatory components of the crop-fields, gardens and forests. These are cosmopolitan in distribution and currently contain a total of 6,117 species belonging to 636 genera in the world fauna (World Spider Catalog 2023, Proszynski 1990, Logunov and Marusik 2000). Genus *Harmochirus* Simon is an important member commonly found in the gardens and forests of Bangladesh. Members of the genus *Harmochirus* are small, robust and deep brown or red-brown in colour. These are distributed throughout the world with majority are tropical and sub-tropical (Proszynski 1990, 92, Zabka 1985, Yaginuma 1986, Fuhn and Gherasim 1995, Barrion and Litsinger 1995, Chen and Zhang 1991, Peng *et al.* 1993, Song *et al.* 1999, Peng 2020). Species of this genus are usually found on the leaves and branches of shrubs and are distinguished by metallic coloration. They cannot spin any web and freely move plant to plants for searching preys. During winter (in the breeding season), they make special type of nests by folding the plant leaves in which the female's lay eggs and stay there up to the maturity of the spiderlings.

Genus *Harmochirus* was first established by Simon in 1885 with the type-species *Ballus brachiatus* Thorell, 1877. The genus at present contains a total 12 (twelve) species in the world fauna (World Spider Catalog 2023) of which only 3

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(three) species are known to the fauna of Bangladesh (Okuma *et al.* 1993, Biswas 2009, 2016, 2019, Biswas and Raychaudhuri 2019). World contributions on this genus are satisfactory, viz., in India (Tikader 1977, Proszynski 1992, Keswani *et al.* 2012, Caleb and Mathai 2015, Dhali *et al.* 2017), Japan (Ikeda 1993, Yaginuma 1986, Ono and Ogata 2018), The Philippines (Barrion and Litsinger 1995), Korea (Cho and Kim 2002, Kim and Lee 2014), China (Chen and Zhang 1991, Peng *et al.* 1993, Song *et al.* 1999, Xiao and Wang 2005, Yin *et al.* 2016, Peng 2020), Romania (Fuhn and Gherasim 1995), USSR (Logunov 2001), Malayasia (Proszynski and Deelman-Reinhold 2010) and Viet-Nam (Zabka 1985).

Due to the predatory role of *Harmochirus* in the biological control of insect pests, the present work was undertaken to point out the taxonomic position of this genus in Bangladesh. The present paper contains taxonomic description of a new species *H. narayanin* together with another newly recorded species *H. tikaderi* Biswas and Raychaudhuri from the study area. This also includes the generic diagnosis, distribution and key to the species.

MATERIALS AND METHODS

Collection and Preservation: The specimens of this study were collected from the Botanical garden of Govt. P. C. College, Bagerhat, by beating and jerking the branches of shrubs. Collected specimens were then paralyzed by chloroform in a large glass jar and then transferred to separate glass vials filled with 70 % alcohol for identification.

Identification and Deposition: The preserved specimens were then identified up to genus on the basis of different morphometric characters following Kaston (1972) and Tikader (1987). After a detailed taxonomic study, the specimens were identified up to species level based on various relevant literatures of home and abroad. After identification, the specimens were preserved permanently in Audmans' Preservatives (90 parts 70% alcohol + 5 parts glycerine + 5 parts glacial acetic acid) following Lincoln and Sheals (1985).

The preserved specimens were deposited in the laboratory of the Department of Zoology, Khulna Government Women's College, temporarily and will be deposited to the Museum of the Department of Zoology, University of Dhaka, Bangladesh, permanently in due course of time.

Illustrations and Measurements: Illustrations and measurements of different body-parts of spiders were made by Camera lucida fitted under the Stereo Binocular Microscope. All the measurements were taken in millimeters (mm).

RESULTS AND DISCUSSION

Systematics

Family : SALTICIDAE Blackwall 1841

Subfamily : Harmochirinae Simon 1885

Genus : *Harmochirus* Simon 1885

Type-species : *Ballus brachiatus* Thorell 1877

1885. *Harmochirus*: Simon, *Ann. Soc. Ent. France* **6** (5) : 345-396.
1895. *Harmochirus*: Thorell, *Descr. Cat. Spiders Burma* : 239.
1915. *Harmochirus*: Narayan, *Rec. Indian Mus.*, Calcutta : 393-406.
1954. *Harmochirus*: Roewer, *Katalog der Araneae* : 1020.
1977. *Harmochirus*: Tikader, *J. Bombay nat. Hist. Soc.* **73** (2) : 410.
1986. *Harmochirus*: Yaginuma, *Spiders of Japan in colour* : 236.
1990. *Harmochirus*: Proszynski, *Catalogue of Salticidae, Araneae* : 153.
1991. *Harmochirus*: Chen & Zhang, *Fauna of Zhejiang, Araneida* : 304.
1992. *Harmochirus*: Logunov & Wesolowska, *Ann. Zool. Fenn.* **29** : 116-119.
1993. *Harmochirus*: Peng *et al.*, *Salticids in China*, : 1-270.
1993. *Harmochirus*: Okuma *et al.*, *Illustr. Monogr. Rice-field spiders Bangladesh*:77.
2000. *Harmochirus*: Logunov, *Arthropoda Selecta*, **9** (4) : 249.
2002. *Harmochirus*: Cho & Kim, *Korean Arachnol.* **18** (2) : 96.
2006. *Harmochirus*: Platnick, *World Spider Catalog*, Version 6.0, : 3122.
2009. *Harmochirus*: Biswas, *Encycl. flora and fauna Bangladesh, Arachnida*, **18** (1) : 263.
2012. *Harmochirus*: Proszynski, *Catalog of Salticidae, Araneae*, Version 9.0 : 312.
2014. *Harmochirus*: Kim & Lee, *Invertebrate fauna of Korea*, **21** (3) : 76.
2020. *Harmochirus*: Peng, *Fauna Sinica, Invertebrata, Araneae, Salticidae*, **53** : 156.
2023. *Harmochirus*: *World Spider Catalog*, Version 23.0, Nat. Hist. Mus., Bern.,
Online at – [http : //www.wsc.nmbe.ch](http://www.wsc.nmbe.ch). (accessed on 27th April, 2023)

Diagnosis: Body small and robust with dark brown in colour, clothed with hairs and spines. **Cephalothorax** on the level of posterolateral eyes (PLE) broad. Eyes usually brown or pearly-white in some. Anteromedian eyes (AME) 3 times larger than the anterolaterals ((ALE), each ringed with black band. Posterolateral eyes (PLE) situated nearer to or on the lateral margin of carapace. Chelicerae brown, strong, with few teeth (1-3) on the margins. Maxillae and labium brown, elongate, pot-like both scopulate anteriorly. Legs usually short and robust; 1st legs enlarged, tibial segment solemned; metatarsi and tarsi with brown, strong spines.

Abdomen broad, rounded or nearly rounded or oval, clothed with hairs and spines. Spinnerets usually short; in some, lateral spinnerets are elongate. Epigyne varies species to species.

Biological note: Spiders of the genus *Harmochirus* are commonly found among the plant leaves of garden and forests. They cannot spin any web but can jump from one place to another for preying. In the early morning, during sunny days, they usually wander to and from the plant leaves for searching preys. Their preys composed of different small insects, arachnids etc. available in the habitat.

During breeding season especially in winter, these spiders make a typical nest and females live there with the eggs and stay till the emergence of the young spiderlings.

Distribution: ASIA; AFRICA; EUROPE.

Key to the species of *Harmochirus* to Bangladesh

1. Cephalothorax rectangular and nearly equal to abdomen; abdomen not decorated; legs long, tibiae-I enlarged and with long sharp spines.....
..... *brachiatus*
- Cephalothorax not rectangular and not equal to abdomen; abdomen decorated; legs not long, tibiae-I not so enlarged and without such spines..... 2
2. Anterior row of eyes straight; maxillae and labium with black bands; sternum elongate, posteriorly pointed; posterolateral eyes not marginal and directed laterally; tibiae -I with long, pointed spines but tarsi without spine ; abdominal dorsum not decorated
..... *tikaderi*
- Anterior row of eyes not straight, recurved ; maxillae and labium without black band; sternum heart-shaped ; posterolateral eyes marginal and directed posteriorly ; tibiae -I covered with sharp hairs and tarsi with 2 prominent, strong spines ; abdominal dorsum decorated with white bands..... *narayani n. sp.*

1. Harmochirus narayani n. sp.

(Figs. 1a – 1g)

Material examined: 1 female (holotype), Botanical garden, Govt. P. C. College, Bagerhat, 04 .IV. 1995, Coll. V. Biswas; 1 female, rampal, Bagerhat, 07. VII. 1996, Coll. V. Biswas.

General: Body small, black, clothed with small hairs. Cephalothorax and abdomen black, clothed with black spines; legs brown, with brown, sharp spines. Total body length 5.00 mm. Carapace 2.00 mm long, 1.80 mm wide ; abdomen 3.00 mm long and 2.00 mm wide.

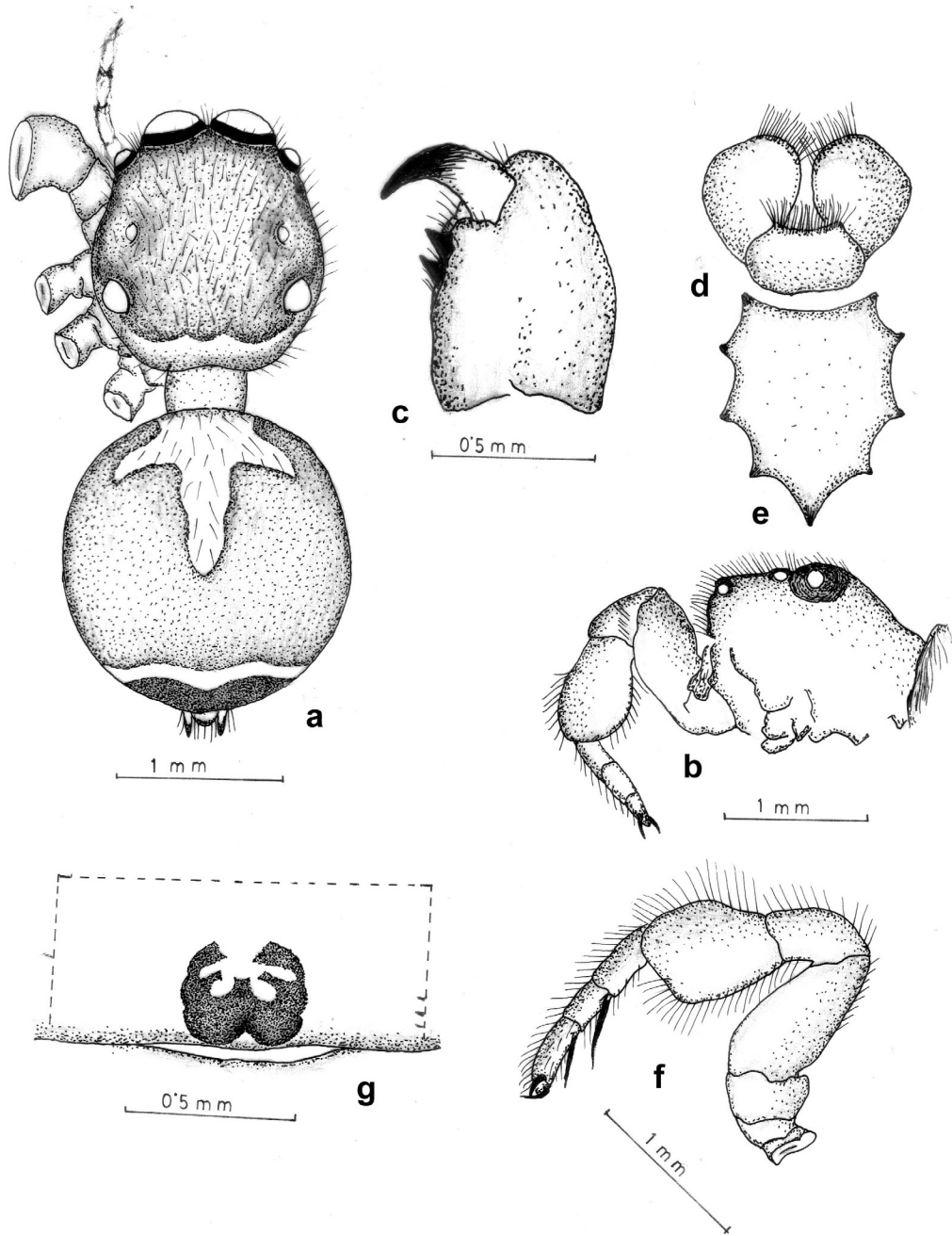


Fig. 1. *Harmochirus narayani* n. sp. a. Whole body (dorsal view); b. Cephalothorax (Lateral view); c. Chelicerae; d. Maxillae & Labium; e. Sternum ; f. First leg; g. Epigynum.

Cephalothorax: Roughly rectangular, posteriorly wide, anteriorly narrowing; cephalic region flat. Eyes pearly-white, dissimilar, ringed with black band; anteromedians closely placed, twice larger than the anterolaterals; anterior row strongly recurved; 2nd row of eyes small, placed inwardly; posterior row of eyes large, straight, placed rather posteriorly and marginally; ocular trapezium rhomboid. Chelicerae brown, small but strong, inner margin with 2 teeth (Fig. 1c). Maxillae brown, balloon-like, scopulate and anteriorly (Fig. 1d). Labium brown, pot-like, scopulate anteriorly (Fig. 1d). Sternum heart-shaped, pointed posteriorly (Fig. 1e). Legs short, strong; 1st leg enlarged, tibia solemnated, tarsi with 2 strong spines (Fig. 1f); leg formula 1432 and the measurements (in mm) are shown in Table 1.

Table 1. Measurements (mm) of different leg segments of *Harmochirus narayani* n. sp.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.50/1.50	1.80/1.80	1.20/1.20	1.00/1.00	5.50/5.50
II	0.80/0.80	0.70/0.70	0.50/0.50	0.40/0.40	2.40/2.40
III	1.00/1.00	1.00/1.00	0.70/0.70	0.50/0.50	3.20/3.20
IV	1.20/1.20	1.10/1.10	0.70/0.70	0.50/0.50	3.50/3.50

Abdomen: Nearly rounded, clothed with black spines; dorsum decorated with white patches; ventrally brown, hairy; epigyne as in Fig. 1g.

Type-species: Holotype: 1 (one) female in spirit.

Paratypes: 2 (two) females in spirit.

Allotype: Unknown

Type-locality: BANGLADESH, district Bagerhat, Southern part of the country near Sunderbans.

Etymology: The species is named after the Indian Arachnologist Dr. K. Narayan who is the pioneer in the study of jumping spiders of this Sub-continent.

Remarks: Known *Harmochirus* species (Yaginuma 1986, Davies and Zabka 1989, Koh 1989, Barrion and Litsinger 1995, Fuhn and Gherasim 1995, Chen and Zhang 1991, Ikeda 1993, Logunov and Wesolowska 1992, Cho and Kim 2002, Okuma *et al.* 1993, Peng 2020) does not show any amount of similarity with the present species.

Therefore, the species is described as new to science.

Type-deposition: All the types are now in the collection of the Department of Zoology, Khulna Government Womens' College and will be deposited to the Museum of the Department of Zoology, University of Dhaka, Bangladesh, in due course of time.

2. *Harmochirus tikaderi* Biswas and Raychaudhuri 2019. *Harmochirus tikaderi* Biswas and Raychaudhuri, *Serket*, 17(1): 21.

Material examined: 1 male, Rampal, district Bagerhat, 10. VI. 1999. Coll. V. Biswas; 1 male, Dumuria, district Khulna, 18. V. 2007. Coll. V. B.iswas; 1 male, district Kushtia, 05. III. 1994, Coll. V. Biswas.

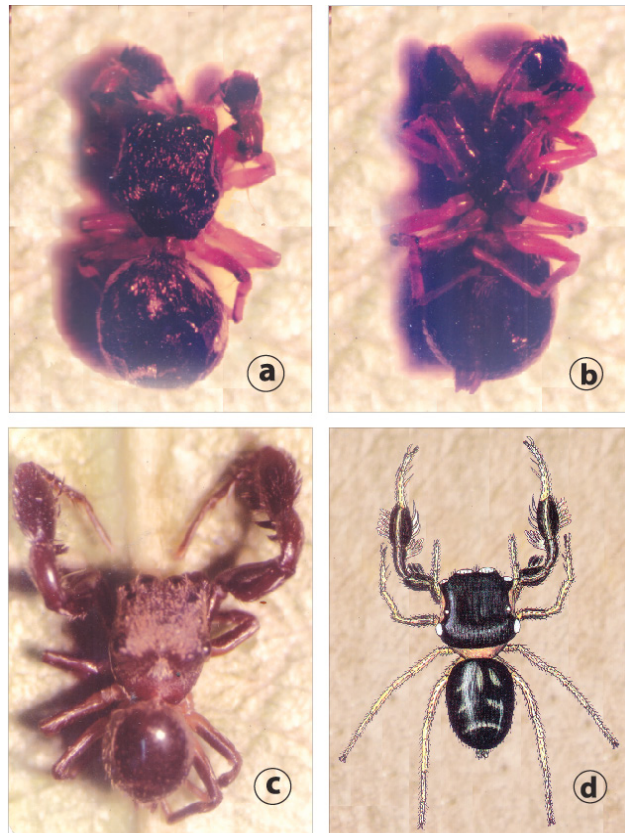


Fig. 2. Photograph of three *Harmochirus* species of Bangladesh

a. *Harmochirus narayani* n. sp. (dorsal view); b. *Harmochirus narayani* n. sp. (ventral view); c. *Harmochirus tikaderi* Biswas & Raychaudhuri (dorsal view); d. *Harmochirus brachiatus* (Thorell) (dorsal view).

Remarks: The present collection of the species *H. tikaderi* Biswas and Raychaudhuri does not show any structural dissimilarities and appearance in colour, body sizes etc. with the earlier described ones. So, it does not describe further and the species *H. tikaderi* shows only as a new record from the area of present study.

Distribution: BANGLADESH: Bagerhat, Khulna and Kushtia.

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