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A new species of rice land sac-spider genus *Cheiracanthium* CL Koch 1839 (Araneae: Cheiracanthiidae) from 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 species *Cheiracanthium shikerpurensis* **n. sp**. of riceland sac-spider genus *Cheiracanthium* CL Koch 1839 is presented. The specimens were collected from different rice-fields of district Jhenaidah, Bangladesh. Illustrated description of the species together with the generic diagnosis and distribution are also included.

Keywords: Taxonomy, sac-spider, *Cheiracanthium,* araneae, cheiracanthiidae, Bangladesh.

Introduction

Sac-spiders (Family Cheiracanthiidae Wagner 1887) are one of the important predatory members of the rice-field insect pests of Bangladesh. Members of this Family are distributed throughout the world with majority are in the tropical countries. The family at present composed of 379 valid species belonging to 15 genera in the world fauna (World Spider Catalog 2025). These are nocturnal and can make typical nests by folding leaves of rice plants in which they stay at night. In the day, they come out from the nests and move over the plant leaves for searching foods. Their foods composed of various types of small pest insects.

Cheiracanthium CL Koch is a large genus of the Family Cheiracanthiidae containing maximum number of species. Members of this genus are commonly known as *'long legged yellow sac-spiders*.' The genus was first described by Carl Ludwig Koch in 1839 with the type-species *Aranea punctorium* Villers, 1789 and till date, it contains 220 valid species worldwide (World spider Catalog 2025). Very little information's are available in the study on this genus in Bangladesh (Chowdhury & Pal 1984, Okuma *et al.* 1993, Biswas 2009, Biswas and Raychaudhuri 2003) although a great number of contributions are available in other countries of the world (Tikader 1975, 1976, Sadana and Bajaj 1980, Yaginuma 1986, Majumder and Tikader 1991, Chen and Zhang 1991, Paik 1985, 1990, Zhang and Zhang 2023, Barrion and Litsinger 1995, Dondale and Redner 1982, Sterghiu 1985, Lotz 2007a, b, 2015, El-Hennawy 2008, Kim and Lee 2012, Chen and Huang 2012, Zhang *et al.* 2018, Dippenaar-Schoeman *et al.* 2021 etc.). The present paper contains an illustrated description of the sac-spider species *C. shikerpurensis* **n. sp**. which is identified from Bangladesh.

Materials and methods

Collection and preservation: Specimens of this study were collected by hand in a large glass jar containing chloroform from the nests of rice plants. Collected specimens were then transferred to a petri-dish containing 70% ethyl alcohol for sorting. After sorting, the specimens were preserved temporarily in 70% alcohol (single specimen in single vial) for identification.

Identification and deposition: Preserved specimens were identified following different books and journals of home and abroad. These are– Tikader 1975, 1987, Paik 1990, Majumder and Tikader (1991), Chen and Zhang (1991), Barrion and Litsinger (1995), Dondale and Redner (1982), Mukhtar (2015), Zhang and Zhu (1993), Okuma *et al.* (1993), Dippenaar-Schoeman (2021), Zhang and Yin (1999), Lotz 2007a, b, 2011, 2014 and Urones (2024).

Identified specimens are preserved permanently in Audemans' preservatives (90 parts in 70% alcohol +

5 parts glycerine + 5 parts acetic acid) and put separate specimen in separate vial following Lincoln and Sheals (1985). These are now deposited in the Department of Zoology, Khulna Govt. Womens' College, Khulna, Bangladesh.

Dissection and study: Taxonomically important body-parts were dissected out by fine blade under a Stereo Zoom Binocular Microscope placed on a petri-dish filled with 70% alcohol and sand grains. Male pedipalps after dissection were boiled in 10% KOH for 3-5 minutes and female epigynum after dissection were placed in clove oil for 12 to 18 hours (Levi 1965, Tikader 1987) for future study. After study, both male and female genitalia are preserved in Audmans preservatives in a large glass vial along with the parent spiders**.**

Illustration and photograph: The whole body of spider and its different body-parts were illustrated under the Stereo Zoom Binocular Microscope fitted with Camera Lucida. Leg measurements were taken in millimeter (mm) under the same condition. Photographs were taken from the field (in natural condition) by DSLR Camera fitted with 90 mm macro zoom lens and in the laboratory by digital microscope.

Results and discussion

Systematics

Family: Cheiracanthidae Wagnaer 1887
Subfamily: Cheiracanthinae, Lohmander 1944
Genus: *Cheiracanthium* CL Koch 1839
Type-species: *Aranea punctorium* Villers 1789
1839. *Cheiracanthium* CL Koch, *Die Arachniden,* **6**: 9.

Agassiz 1848: 233; Causard 1892: 1035; Chyzer & Kulzynski 1897: 181; Lessert 1910: 413; Gravely 1932: 263; Chickering 1937: 2; Locket & Millidge 1964: 259; Dondale 1967: 1176; Chrysanthus 1967: 403; Tikader 1974: 43; Sterghiu 1985: 96; Yaginuma 1986: 177; Paik 1990: 1; Majumder & Tikader 1991: 53; Okuma *et al.* 1993: 57; Barrion & Litsinger 1995: 152; Platnick 1997: 702; Mikhailov 1997: 158; Deeleman-Reinhold 2001: 225; Biswas & Raychaudhuri 2003: 115; Lotz 2007: 4; Chen & Huang 2012: 6; Mukhtar 2015: 467; Zhang *et al.* 2018: 33; Li & Zhang 2019: 87; Dippenaar-Schoeman *et al.* 2021: 5; Urones 2024: 61; World Spider Catalog 2025.

Diagnosis: Spiders of the genus *Cheiracanthium* CL Koch are commonly known as 'long-legged *yellow sac-spiders*.' These are swift, nocturnal hunters mostly inhabiting on plant foliage in the crop-fields and gardens. They are usually pale in colour of yellow, brown etc. Body length ranges from 5 to 10 mm. Eyes nearly uniform in size, arranged in 2 transverse rows. Chelicerae strong with 2 to few sharp marginal teeth. Maxillae longer, sometimes broad and flat, variable in shape and size. Legs long and slender. Tibia of male palps wit retrolateral apophysis, sometimes with dorsal and ventral apophysis. Cymbium with strong spursat base, tegulum with strong apophysis, embolus long, arising from the side of tegulum.

Abdomen elongate, oval and posteriorly narrowed. Epigynum flat or concave plate, this on lateral margin with copulatory openings.

Biological note: Spiders of this genus are swift nocturnal hunters. They are usually found on plant foliage of crop-fields and gardens. They spin silken nests by folding plant leaves especially during breeding season. Both male and female stay within the nests during breeding. Sometimes they make delivery chamber with silk and grass leaves. Occasionally, they envenom humans, particularly gardeners.

Distribution: Asia, Australia, Europe, South Africa.

Description of the species new to science

1. *Cheiracanthium shikerpurensis* n. sp. (Fig. 1a-h; 2a-c)

Material examined: 1 female (Holotype), Shikerpur, District Jhenaidah, 12.III.2025, Coll. V. Biswas; 1male, (Allotype), otherwise data same as for the holotype, 18.III.2025, Coll. V. Biswas; 2 females (Paratype), data collected same as for the holotype, 22.III. 2025., Coll. V. Biswas.

General description (Holotype): Cephalothorax yellowish-white; legs white with black markings; abdomen ash-colored. Total body length (female, holotype) 7.20

mm. Carapace 3.00 mm long, 2.30 mm wide; abdomen 4.20 mm long and 2.85 mm wide. Total length (male, allotype) 7.00 mm. Carapace 2.80 mm long, 2.00 mm wide; abdomen 4.20 mm long and 1.90 mm wide.

Cephalothorax: Broad, longer than wide, anteriorly a little constricted; cephalic region weakly raised; fovea present; cervical furrows faintly distinct. Eyes black, anterior row recurved, posterior row nearly straight; ocular quad wider than long, narrowed anteriorly (Fig. 1a). Chelicerae black, longer than wide, both inner and outer margins with 2 teeth (Fig. 1c). maxillae yellowish-brown, long, anteriorly scopulate (Fig. 1d). Labium yellowish-brown, short, vase-shaped, scopulate anteriorly (Fig. 1d). Sternum long, posteriorly narrowing and pointed, with small hairs (Fig. 1e). Legs long and strong; tibia and metatarsi of I and II with strong, black spines; leg formula 4123 and measurements (mm) are shown in Table 1.

Abdomen: Cylindrical, longer than wide; anterior margin wavy, posteriorly narrowing and nearly pointed; dorsum with small hairs and pubescence all over. Epigynum tongue-like, broad basally (Fig. 1f).

Male (Allotype): A little smaller than female. Body broad, elongate, yellowish-white in colour. Cephalothorax broad, wider medially; fovea distinct posteromedially, cervical furrows deeply distinct (Fig. 1b). Whole body covered with ash-white hairs. Chelicerae, maxillae, labium and sternum are same as female. Legs long and slender with distinct hairs and spines. Leg formula 4123 and the measurements (mm) are shown in Table 2. Male palp broad, with distinct cymbium, tegulum and embolous (Fig. 1g-h).

Abdomen: Long, broad, dumbel-shaped, with few dorsal transverse markings. Dorsum of abdomen covered with numerous white hairs and spines. Spinnerets distinctly long specially the lateral ones.

Holotype: 1 Female in spirit.

Allotype: 1 Male in spirit.

Paratypes: 2 Females in spirit.

Type locality: South Shikerpur, District Jhenaidah, Bangladesh.

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

Distribution: Bangladesh (District Jhenaidah).

Remarks: The present new species *C. shikerpurensis* **n. sp.** does not show any distinct similarity to its congeners of neighboring countries. However, it shows a little similarity with *C. mysorensis* Tikader in general appearance. But it stands distinct in having the following important characters–

1. Structure and decoration of cephalothorax and abdomen of the present species are much different with the others.
2. Both the cheliceralmagins contain 2 teeth.
3. Sternum and legs are much different in structure and decoration.
4. Structure of female epigynum and male palps are typical and specialized.
5. Abdominal spinnerets are also long and different with the other congeners.

Considering the above important characters, it may conclude that the present species *C. shikerpurensis* **n. sp.** is distinct and specialized. Therefore, the species is described as new to science.

Type deposition: The types are at present in the collection of the Department of Zoology, Khulna Government

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

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	2.30/2.30	0. 90/0.90	2.50/2.50	2.70/2.70	1.00/1.00	9.40/9.40
II	2.00/2.00	0.80/0.80	2.20/2.20	2.50/2.50	1.00/1.00	8.50/8.50
III	1.80/1.80	0.70/0.70	2.00/2.00	2.10/2.10	0.80/0.80	7.40/7.40
IV	2.70/2.70	0.90/0.90	2.70/2.70	3.40/3.40	1.10/1.10	10.80/10.80

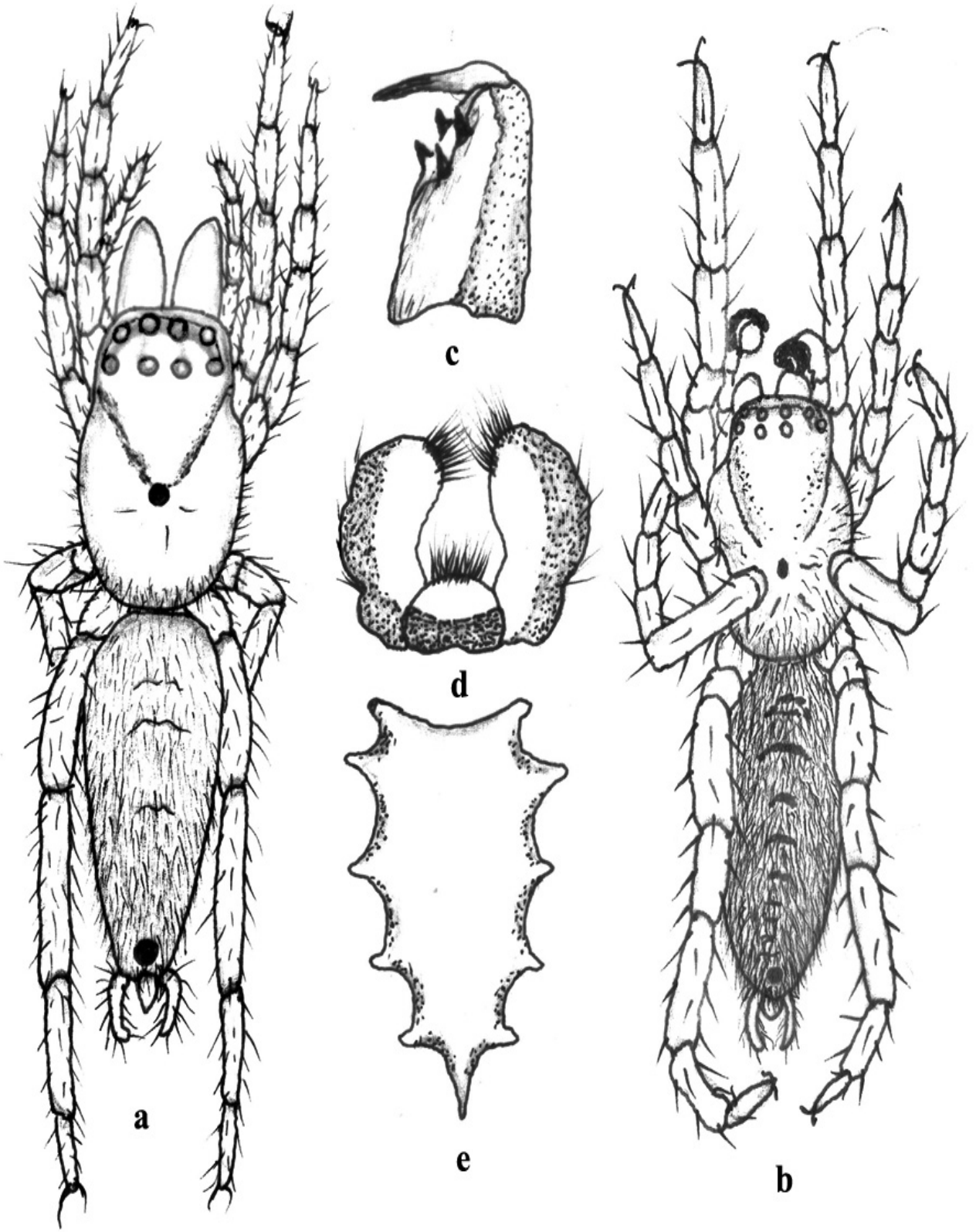


Figure 1. *Cheiracanthium shikerpurensis* n. sp. a. Whole body female (dorsal view); b. Male (dorsal view); c. Chelicerae; d. Maxillae & Labium; e. Sternum.

Table 2. Measurements (mm) of leg segments of male *C. shikerpurensis* n. sp

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	2. 00/2.00	1.20/1.20	2.40/2.40	2.50/2.50	1.00/1.00	9.10/9.10
II	1.90/1.90	1.00/1.00	2.20/2.20	2.40/2.40	1.00/1.00	8.50/8.50
III	1.50/1.50	0.90/0.90	2.00/2.00	2.10/2.10	0.80/0.80	7.30/7.30
IV	2.60/2.60	0.80/0.80	2.60/2.60	3.30/3.30	1.00/1.00	10.30/10.30

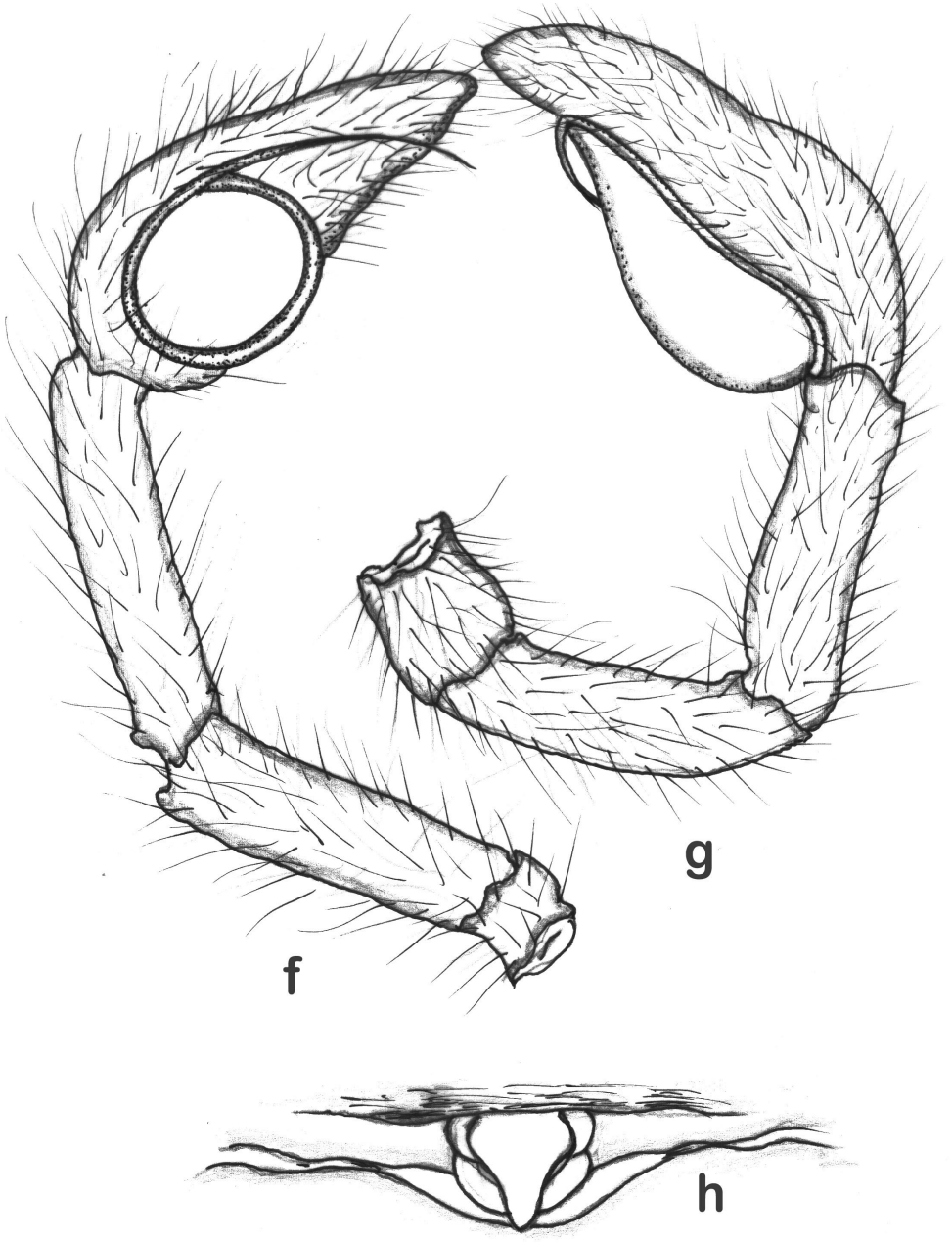


Figure 2. *Cheiracanthium shikerpurensis* n. sp. f. Male palp (ventral view); g. Male palp (lateral view); h. Female epigynum (ventral view).



Figure 3. *Cheiracanthium shikerpurensis* n. sp. i. Female on leaf; j. Male on leaf.

Womens' College, Khulna and will be deposited to the Museum of the Department of Zoology, University of Dhaka, Bangladesh, in due course of time.

Conclusion

The taxonomic history in the study of sac-spiders (Cheiracanthiidae) of Bangladesh, it is found that the present new species *C. shikerpurensis* n. sp. is the 2nd record after the study carried out by Biswas and Raychaudhuri (2003). In this study, it is observed that there are some distinct differences exist in the body of present species to the previous ones.

Other than taxonomic characters, the present species shows some similarities with the other species previously recorded in Bangladesh. For example – all these are nocturnal hunters and come out from the nests at night and searching for the preys. None of them can make any web in the rice-fields and their preying takes place by jumping or such other techniques. So, it is clear that all these species are important members of biological control agents in the crop-fields and gardens.

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