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TAXONOMIC RECORD OF JUMPING SPIDERS GENUS *BIANOR* (PECKHAM & PECKHAM, 1885) FROM COASTAL BANGLADESH (ARANEAE: PELLENINAE: SALTICIDAE)

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Abstract

Three species of jumping spider's genus *Bianor* (Peckham & Peckham, 1885) of the family Salticidae are recorded first time in Bangladesh. These are *Bianor hotingchiehi* Schenkel 1963, *B. narmadaensis* (Tikader 1975) and *B. pashanensis* (Tikader 1975). Comprehensive descriptions of the species, along with their respective generic diagnoses and distribution, are presented herein.

Keywords: Jumping spider, Salticidae, Araneae, Pelleninae, Bangladesh

Introduction

The family Salticidae of jumping spiders, renowned for their captivating appearance and predatory nature, constitute a significant presence in crop fields, gardens, and forests. With a cosmopolitan distribution, this family encompasses a global total of 6,115 species belonging to 636 genera (World Spider Catalog, 2024; Proszynski, 1990; Logunov & Marusik, 2000). Genus *Bianor* (Peckham & Peckham, 1885) is found in the gardens and forests of Bangladesh. These are usually available on the leaves of shrubs searching preys to and fro on the days. They serve as vital biological control agents for small insect pests in field crops and gardens.

The genus *Bianor* are small but robust, colorful and attractive spiders. The genus was established by Peckham and Peckham in 1885, designating the type-species *B. maculatus* (Keyserling, 1883). Currently, the genus comprises 28 species worldwide (World Spider Catalog, 2024; Fuhn & Gherasim, 1995) and only 7 (seven) species described in the Indian Sub-continent and 14 species described in Asian countries (Keswani *et al.,* 2012 ; Tikader, 1975 ; Tikader & Biswas, 1981 ; Logunov, 1991, 2001 ; Song *et al.,* 1997, 1999 ; Zabka, 1985, 1997 ; Thorell, 1890; Simon, 1901 ; Jastrazebski, 2007 ; Peng, 2020 ; Peng *et al.,* 1993 ; Yaginuma, 1986 ; Chen & Zhang, 1991 ; Zhao, 1993 ; Proszynski, 1990, 1992 ; Koh, 1986). But previous taxonomic record of this genus in Bangladesh is absent. This article provides an illustrative description of three species namely *B. hotingchiehi* Schenkel*, B. narmadaensis* (Tikader) and *B. pashanensis* (Tikader) recorded from the southwestern coastal Bangladesh those were absent up till now.

Materials and Method

Collection and preservation

The spiders were gathered from the Sundarbans mangroves located along the southwestern coast of Bangladesh. Collection involved gently tapping and shaking the branches of trees over an inverted umbrella positioned beneath the plants. Subsequently, the collected specimens were placed in a petridish containing ethyl alcohol, allowing their appendages to relax for a period of 2 to 3 hours, as outlined by Chowdhury & Nagari in 1981. Following the sorting process, the samples were carefully preserved in glass vials filled with 70% ethyl alcohol to facilitate identification. Ultimately, the specimens were conserved using 'Audman's Preservatives,' a solution composed of 90 parts 70% alcohol, 5 parts glycerin, and 5 parts glacial acetic acid. (Lincoln and Sheals, 1985; Tikader, 1987).

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Identification and deposition

The preserved specimens were subsequently subjected to identification procedures based on Barrion & Litsinger (1995), Schenkel (1963), Tikader (1975, 1987), Zabka (1985, 1997), Yin and Wang (1981), Yaginuma (1986), Okuma *et al*., (1993), Zhao (1993), Song *et al.* (1999), Proszynski (1992), Logunov (2000), Cho and Kim (2002), Jastrazebski (2007), Biswas (2009), Kaldari (2010) and Peng (2020).

Dissection and study

Spider body parts were carefully dissected using a Stereo Binocular Microscope, employing a petridish containing alcohol and sand grains. The male palp underwent a brief boiling process in 10% KOH for a duration of 3 to 5 minutes, while the epigynum was immersed in clove oil for 12 to 18 hours, following the technique established by Tikader in 1987. For microscopic examination, the male palp and female epigynum were individually positioned in separate microvials, both of which were then placed within a larger vial alongside the parent spider (Kaston, 1972; Biswas, 2021).

Illustration and photographs

The spider's body and its various components were visually depicted using a Stereo Binocular Microscope equipped with a Camera Lucida. Measurements of the legs were acquired in the subsequent order: femur, patella, tibia, metatarsus, tarsus, and total length, all in millimeters. Photographic documentation was conducted utilizing a microscope fitted with a camera (specifically the SV8 model by Zeiss) as well as a DSLR camera.

Observation and results

Taxonomy

Family: Salticidae Blackwall, 1841
Subfamily: Pelleninae Petrunkevitch, 1928
Genus: *Bianor* Peckham & Peckham, 1885
Type-species: *B. maculatus* (Keyserling, 1883)

1885. *Bianor* Peckham & Peckham, *Proc. nat. Hist. Soc. Wisc*., **8**: 284.
1901. *Bianor* : Simon, *Hist. nat. Araign.,***2**: 641
1934. *Bianor* : Gertsch,*Amer. Mus. Novit.,***726**: 1-26.
1963. *Bianor*: Schenkel, *Mem. Mus. Natn. Hist. nat.* , *Paris*, (A. Zool.), **25**: 434.
1981. *Bianor* : in & Wang*, Acta Zootaxonomica Sinica,* **6** (3): 1.
1985. *Bianor* : Zabka, *Ann. Zool., Warszawa*, **39** (11): 201.
1986. *Bianor* : Yaginuma, *Spiders of Japan in colour*: 236.
1990. *Bianor* : Proszynski, *Catalologue of Salticidae, Araneae*: 71.
1991. *Bianor* : Logunov, *Zoologicheskii Zhurnal*, **70** (6): 51.
1991. *Bianor* : Chen & Zhang, *Fauna of Zhejiang*, Araneida: 288.
1992. *Bianor* : Proszynski,*Annales Zoologici*, **44** (9) : 165.
1993. *Bianor :* Peng *et al.,Salticids in China*, 22.
1993. *Bianor :* Okuma *et al., Illutr. Monogr. Rice-field Spiders of Bangladesh*: 75.
1993. *Bianor :* Zhao, *Spiders in the cotton field of China*: 390.
1994. *Bianor :* Wesolowska & Harten*, The Jumping Spiders of Yemen*: 14.
1995. *Bianor :* Barrion & Litsinger, *Riceland spiders of South and Southeast Asia*: 61.
1995. *Bianor :* Fuhn & Gherasim, *Fauna Rumaniei, Arachnida, Familia Salticidae*: 177.
1997. *Bianor* : Platnick, *Advancves in Spider Taxonomy*: 864.
1997. *Bianor* : Song *et al., Sichuan J. Zool.,***16**: 149.
1997. *Bianor*: Zabka, *Fauna Polski, Fauna Poloniae*, 19: 41.
1999. *Bianor* : Song *et al., The Spiders of China*: 506.
2000. *Bianor* : Logunov & Marusik, *Catalogue of the jumping spiders of Northern Asia*: 41.
2001. *Bianor* : Logunov, *Arthropoda Selecta,* **9** (4): 221.
2002. *Bianor* : Cho & kim, *Korean Arachnol.,* **18** (2): 90.
2009. *Bianor* : Biawas, *Encyclopedis of flora and fauna of Bangladesh*, **18** (1): 260.
2009. *Bianor* : Logunov, *Zookeys*, **16**: 267.

2015. *Bianor* : Platnick, *World Spider Catalog*, Version 15.0, :1225.
2020. *Bianor* : Peng, *Fauna Sinica,* Vol**. 53,** Araneae, Salticidae: 44.
2024. *Bianor* : *World Spider Catalog*, Version 24.0, Nat. Hist. Mus. Bern., Online at – http ://www.wsc.nmbe.ch (accessed on 7th February, 2024).

Diagnosis: Genus *Bianor* Peckham & Peckham are colorful, attractive and robust in characters, inhabiting in the plant foliage of garden and forests. They belong to the subfamily Pelleninae under the family Salticidae. The genus was first established by Peckham and Peckham in 1885 and at present it contains a total 28 valid species (World Spider Catalog, 2024) majority of which are occurring in the Oriental and Ethiopian regions.

These are small to medium (size ranges from 3.30 mm to 6.40 mm) with yellowish- brown to brown in color. Sexes are similar in general body form and appearance but male are more variegated with colorful dorsal markings and elongated scutum.

Carapace is elevated and displays a reticulate pattern, adorned with white scales. The eyes are arranged in three rows, with the front row being narrower; the middle row is situated closer to the anterior lateral eyes (ALE). In males, the clypeus is vertically oriented at the front. Chelicerae of male strong; promargin with either 2 median teeth or 1 robust tooth. Maxillae square or nearly elongate, endite with scopullae. Labium sub-triangular. Sternum oval with anterior margin concave.

Abdomen is elongated, surpassing its width, and its dorsal side is characterized by a uniform brown coloration adorned with distinctive markings in the form of paired white spots and lines; Males possess a robust, elongated dorsal scutum. The legs are sturdy, with the first leg being particularly strong and longer than the rest. The femora are noticeably swollen, and the tibia and metatarsi are covered with hairs. Legs II – IV subequal and alike in both sexes. Leg formula in male 1342 or 1432 in female. The female palp lacks spines and claws. In the male, the cymbium of the palp has a general shape, while the tegulum is flat. Female epigynum always with a blind pocket and sometimes with 2 pockets.

Biological note: The genus *Bianor* Peckham & Peckham are rare and uncommon in the fauna of Bangladesh. These spiders are usually found on the leaves or twigs of shrubs in the fields for searching preys. Their diet primarily consists of small insect pests, such as small grasshoppers, green leafhoppers (GLH), brown plant hoppers (BPH), white-backed plant hoppers (WBPH), aphids, moths, flies, and similar organisms. They usually scattered wandering to and fro in their habitat and when come in touch to the preys, immediately catch it by jumping and extending the spiny legs and claws forward.

Members of the genus *Bianor* cannot spin webs but make typical nests in the breeding season, within which the female lay eggs and stay there up to maturity of the spiderlings. The female usually spends winter season within the nest and after emergence of spiderlings as adult, they come out and leave the nest. In the day, during direct sunlight, the spiderlings feed the body fluid of their mother and don't leave the body without the permission of mother (Foelix,2011). In majority of the cases, mother dies by the young due to continuous feeding of her body fluids.

Genus *Bianor* usually lives in the deep garden near crop-fields and forests. The spiderlings escape cuticle 3-4 times (molting) in the nests and thus became adult after completion of successive molts.

Distribution: BANGLADESH: Joydebpur (Gazipur), Khulna, Bagerhat; INDIA; CHINA; MYANMAR; VIETNAM.

Key to the species of genus *Bianor* Peckham & Peckham

1 Abdomen anteriorly wide, decorated; cheliceral inner margin with 3 teeth ; labium medially without any depression; epigyne complex ……. ……. …… ……... 2

Abdomen medially wide, not decorated; cheliceral inner margin with only 1 tooth; labium medially with a depression; epigyne with spine, curved growth
……. ……. ……. …… …….. *narmadaensis*

2. Abdomen with few paired, white spots; sternum posteriorly bluntly pointed; chelicerae without any tooth, anterior margin wide; epigyne with 2 curved, teeth-like projection oneach side …….. …….. ……. ……. ……..……. …….. *hotingchiehi*

_ Abdomen with numerous decorations; sternum posteriorly not pointed, depressed; cheliceral inner margin with 3 teeth, anteriorly not wide; epigyne complex
…….. ……. ……. ……... …… ……. *Pashanensis*

1. Bianor hotingchiehi Schenkel, 1963
(Figs. 1a-I; plate -Ia)

1963. *Bianor hotingchiehi* Schenkel, *Mem. Mus. Natn. Hist. nat, Paris,* (A. Zool.), **25**: 434.
1976. *Bianor hotingchiehi***:** Proszynski, *Studiu***.** *Systematyczno-zoogeograficzne nad rodzina Salticidae* (Aranei): 127.
1979. *Bianor hotingchiehi*: Yin & Wang, J. Hunan Teacher's College, (nat. sci. ed.), 1979 (1): 27-63.
1980. *Bianor hotingchiehi*: Bohoonowicz, *Ann. Zool. Warszawa,* **35** (18): 253.
1980. *Bianor hotingchiehi*: Song, *Farm Spiders of China*: 209.
1984. *Bianor hotingchiehi* : Hu, *The Chineser spiders collected from field and forests*: 354.
1985. *Bianor hotingchiehi* : Zabka, *Ann. Zool. Warszawa*, 39 (11) : 201.
1990. *Bianor hotingchiehi*: Proszynski, *Catalogue of Salticidae, Araneae* 72.
1991. *Bianor hotingchiehi*: Chen & Zhang, *Fauna of Zhejiang, Araneida*: 288.
1993. *Bianor hotingchiehi*: Okuma etal., *Illustr. Mongr. Rice-field spiders of Bangladesh*: 75.
1993. *Bianor hotingchiehi* : Peng *et al., Salticids in China*: 26.
1993. *Bianor hotingchiehi*: Zhao, *Spiders in the cotton fields of China*: 391.
1995. *Bianor hotingchiehi*: Barrion & Litsinger,*Riceland spiders of South & S.East Asia* : 62
1997. *Bianor hotingchichi*: Platnick, *Advances in Spider Taxonomy*: 865.
1999. *Bianor hotingchiehi*: Song *et al., The Spiders in China*: 506.
2009. *Bianor hotingchiehi*: Biswas, *Encyclopedia of flora & fauna of Bangladesh*: 260.
2019. *Bianor hotingchiehi*: Biswas, *Bangladesh J. Zool.,* 47 (2): 203.
2024. *Bianor narmadaensis*: *World Spider Catalog*, Version 24.0, Online at http://wwwwsc.nmbe.ch (accessed on 7th February, 2024).

Material examined: 1 female, Karamjal, the Sundarbans, Khulna, 12.V. 2019 , Coll. V. Biswas ; 1 female, Dumuria, Khulna, 18. VII. 2020, Coll. V. Biswas; 1 male, Paikgachha & Karamjal, the Sundarbans, Khulna, 19. VI. 2021 & 25. IX. 2021, Coll. V. Biswas.

General: The body exhibits a brown color and ranges from small to medium in size, a robust build. The overall length of the male spans from 3.2 mm to 6.0 mm, while the female ranges from 3.8 mm to 6.4 mm. Specifically, the cephalothorax of the male measures 2.1 mm in length and 1.98 mm in width, while the female's cephalothorax measures 2.0 mm in length and 1.97 mm in width. In terms of the abdomen, the male's dimensions are 1.97 mm in length and 1.86 mm in width, whereas the female's abdomen measures 2.4 mm in length and 1.96 mm in width.

Cephalothorax: Female individuals are oval-shaped and slightly smaller than males. The anterior three-fourths of the body features a deep black patch, with a wide central portion adorned with fine hairs. The eyes are pearly-white and asymmetrical. The front row of eyes is slightly curved, with the anteromedians being larger than the anterolaterals. The second row of eyes is very small and positioned closer to the front row, while the posterior row is straight and widely spaced. The ocular trapezium is rhomboid and broader. The chelicerae are brown, robust, and stout, broader towards the front, bearing a single tooth on the outer margin (Fig. 1c). Maxillae are brown, longer than wide, and covered with small hairs (scopulate) (Fig. 1d). The labium is brown at its base, vase-shaped, and also scopulate (Fig. 1d). The sternum is light brown and shaped like a heart (Fig. 1d). The legs are long and sturdy, with the first leg being brown and more robust than the others (Fig. 1f). The leg arrangement follows the sequence 1423, and the measurements are presented in Table 1.

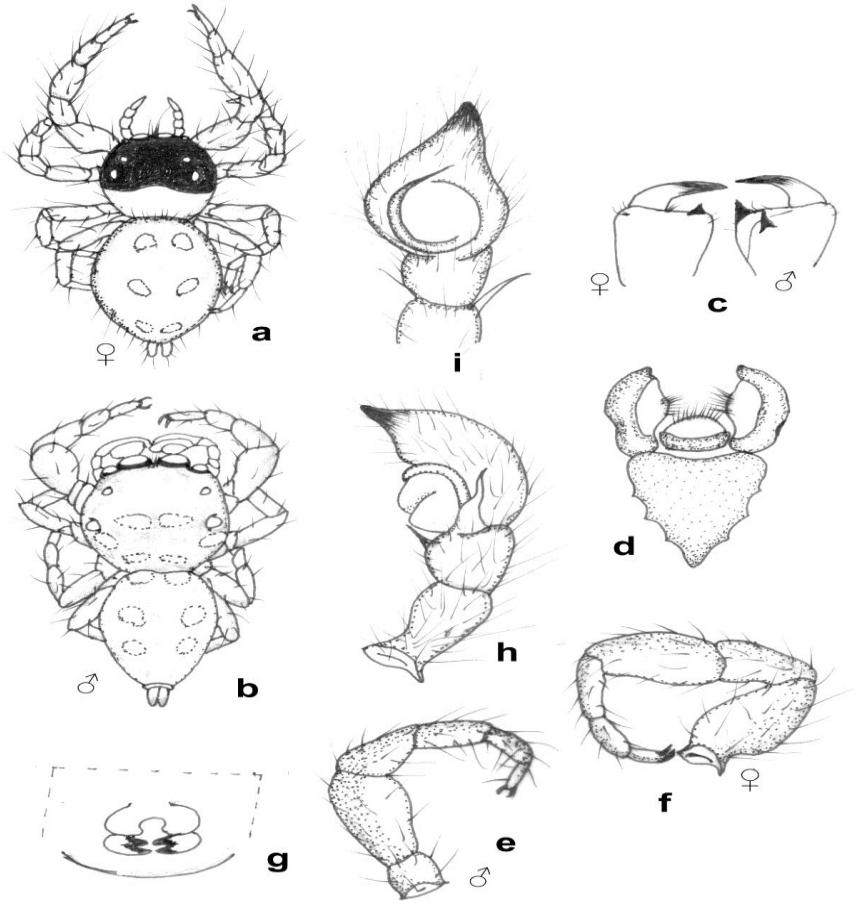
Table 1. Measurements of leg segments (mm) of female B. *hotingchiehi* Schenkel

Leg	Femur & Patella	Tibia	Metatarsus	Tarsus	Total
I	2.70 / 2.70	1.40 / 1.40	0.80 / 0.80	0.50 / 0.50	5.40 / 5.40
II	1.14 / 1.14	0.90 / 0.90	0.70 / 0.70	0.40 / 0.40	3.14 / 3.14
III	1.12 / 1.12	0.80 / 0.80	0.70 / 0.70	0.50 / 0.50	3.12 / 3.12
IV	1.12 / 1.12	0.90 / 0.90	0.80 / 0.80	0.60 / 0.60	3.42 / 3.42

Male: The carapace is broad and dark brown, sometimes even longer than the abdomen. It is covered with small black hairs and embellished with white spots. The eyes are pearly-white and dissimilar; the front row of eyes is slightly curved, with the anteromedian eyes being larger than the anterolateral ones, each featuring a black basal band (Fig. 1b). The chelicerae are brown, wider towards the front, and have one tooth on both inner and outer margins (Fig. 1c). The maxillae, labium, and sternum share similarities with the female (Fig. 1d). The legs are brown and robust, with the first pair of legs being notably larger and stronger than the others (Fig. 1e). The leg arrangement follows the sequence 1432, and the measurements (in millimeters) of the leg segments are shown in Table 2.

Table 2. Measurements of leg segments (mm) of male *B. hotingchiehi* Schenkel

Leg	Femur & Patella	Tibia	Metatarsus	Tarsus	Total
I	1.97/ 1.97	1.69 / 1.69	1.31 / 1.31	1.92 / 1.92	6.89 / 6.89
II	1.07 / 1.07	0.72 / 0.72	0.77 / 0.77	1.23 / 1.23	3.79 / 3.79
III	1.18 / 1.18	0.66 / 0.66	0.82 / 0.82	1.41 / 1.41	4.07 / 4.07
IV	1.25 / 1.25	0.79 / 0.79	0.72 / 0.72	1.33 / 1.33	4.09 / 4.09



Figs.- 1 (a-i): *Bianor hotingchiehi* Schenkel
a. Female (dorsal); b. Male (dorsal); c. Male & Female Chelicerae;
d. Maxilliae, Labium & Sternum (male); e. Male leg-I; f. Female leg-I;
g. Female epigynum; h. Male palp (lateral); i. Male palp (ventral)

Male smaller than the female but more stronger and can jump a wide distance during preying. Male palp with cymbium and tegulum little curved (Fig. h, i).

Abdomen: Female: Broadly oval, posteromedially wide, with small hairs and pubescence; in some dorsum with white spots in male but in majority it is absent; ventrally pale brown; epigyne with teeth - like projections inwardly.

Male: Oval, little smaller than cephalothorax; medially wide and posteriorly pointed; dorsum covered with small hairs, pubescence and some white spots; spinnerets compact.

Distribution: BANGLADESH : Bagerhat, Khulna, Gazipur; CHINA; VIETNAM (Okuma *et al*., 1993; Proszynski,1990; Peng, *et al*., 1993; Song *et al.,* 1999; Peng, 2020).

2. Bianor narmadaensis (Tikader, 1975)
(Figs. 2 a-f ; Plate Ib)

1975. *Zygoballus narmadaensis* Tikader, *Proc. Indian Acad. Sci.,***81** (4): 151.
1990. *Zygoballus narmadaensis*: Proszynski, *Catalogue of Salticidae, Araneae*: 366.
1992. *Zygoballus narmadaensis* : Biswas & Biswas, *Fauna of West Bengal, Araneae*, **3**: 401.
2000. *Madunda narmadaensis*: Proszynski, *Catalogue ofSalticidae (Araneae),* version 20.0, (accessed on 5th May, 2022).
2005. *Zygoballus narmadaensis* : Majumder, *Mem. Zool. Surv. India,***20** (3): 49.
2009. *Zygoballus narmadaensis* : Biswas, *Encycl. of flora & fauna of Bangladesh*, **18** (1), 307.
2010. *Bianor narmadaensis* : Kaldari, *Peckhamia,***82** (1): 2.
2017. *Bianor narmadaensis* :Dhali *et al*., *World Scientific News*, **63** : 31.
2024. *Bianor narmadaensis*: *World Spider Catalog*, Version 24.0, Online at – http: //www. Wsc.nmbe.ch (accessed on 7th February, 2024).

Material examined: 2 female, Bagerhat, 12. V. 1991 & 19.VII.1992, Coll. V. Biswas;
2 female Dumuria, Khulna, 1.VIII.1992, Coll. V. Biswas; 1 female, Jashore, 26. XII.1993, Coll. V. Biswas; 2 female, Batiaghata, Khulna, 9.V. 1994, Coll. V. Biswas.

General: Body dark brown with cephalothorax darker; legs yellow brown with 1st leg deep brown. The entire body measures 3.50 mm in length. The carapace has a length of 1.50 mm and a width of 1.20 mm, while the abdomen is 2.00 mm long and 1.50 mm wide.

Cephalothorax: Oval, with a broader central portion that narrows slightly in the antero-posterior direction. The cephalic region is elevated and flat, covered in a layer of fine hairs. The eyes are pearly-white and exhibit dissimilarity. The front row of eyes is strongly recurved, where the anteromedians are notably larger, approximately four times, compared to the anterolaterals. The second row of eyes is smaller and situated closer to the anterior row. The posterior row of eyes runs straight and is positioned near the margins. The configuration of the eyes forms a wider rhomboid shape known as the ocular trapezium. Chelicerae are robust, wider than their length, and feature one and two teeth on the inner and outer margins, respectively (Fig. 2b).

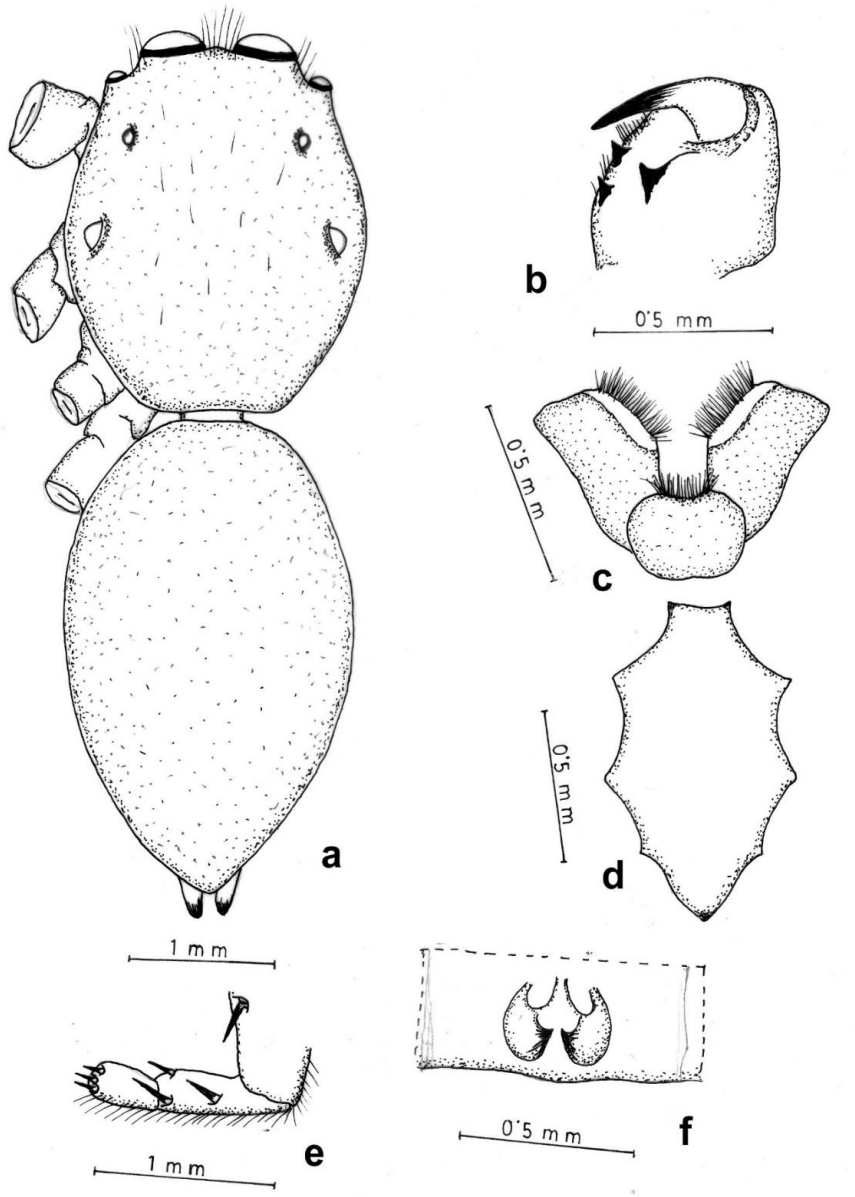


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Figure 2. (a-f): *Bianor narmadaensis* (Tikader)
a. Female (dorsal); b. Chelicerae; c. Maxilliae & Labium ;
d. Sternum; e. Tarsus of leg-I; f. Female epigynum

Maxillae are brown, elongated, and covered with small hairs (scopulate) (Fig. 2c). Labium is brown, resembling the shape of an apple, and is also scopulate (Fig. 2c). Sternum is brown and takes on a vase-like shape (Fig. 2d). Legs are short, strong, and stout, bearing both hairs and spines (Fig. 2e). The first leg is particularly large and robust, characterized by a broad femur. The tibiae and metatarsi of the legs possess three and two pairs of ventral spines, respectively. The leg arrangement follows the pattern 1432, and specific measurements (in millimeters) are shown in Table 3.

Table 3. Measurements of leg segments (mm) of B. *narmadaensis* (Tikader).

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.50 /1.50	2.50 / 2.50	0.80 / 0.80	0.50 / 0.50	5.50 / 5.50
II	1.20 / 1.20	1.50 / 1.50	0.70 / 0.70	0.50 / 0.50	4.00 / 4.00
III	1.80 / 1.80	1.70 / 1.70	0.70 / 0.70	0.40 / 0.40	4.90 / 4.90
IV	1.90 / 1.90	1.90 / 1.90	0.80 / 0.80	0.50 / 0.50	5.30 / 5.30

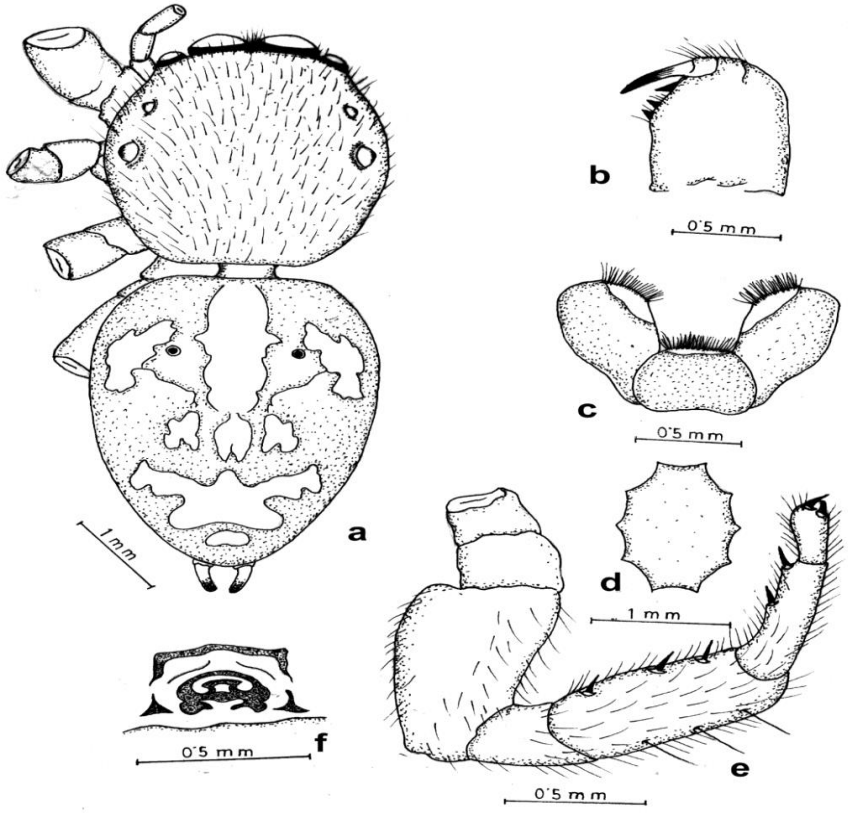
Abdomen: Broad, oval, narrowing posteriorly, longer than wide, covered with fine grey hairs and pubescence; ventrally pale in color and covered with hairs; measurement epigyne as in fig. 3f.

Distribution : BANGLADESH : Bagerhat, Jashore and Khulna ; INDIA (Tikader, 1975 ; Proszynski, 1990, 2000; Majumder, 2005).

3. Bianor pashanensis (Tikader, 1975)

(Figs. 3 a-f ; Plate Ic)

1975. *Zygoballus pashanensis* Tikader, *Proc. Indian Acad. Sci.,* 81 (4) : 151.
1983. *Zygoballus pashanensis* : Brignoli, *A Catalogue of Araneae* : 658.
1990. *Zygoballus pashanensis* : Proszynski, *Catalogue of Salticidae , Araneae* : 366.
2000. *Mudunda pashanensis* : Proszynski, *Salticidae of the world,* part-II, Araneae : Version May, 2000.
2009. *Zygoballus pashanensis* : Biswas, *Encycl. of flora & fauna of Bangladesh*, 18 (1) : 308.
2010. *Bianor pashanensis* : Kaldari, *Peckhamia*, 82 (1) : 1.
2024. *Bianor narmadaensi s*: *World Spider Catalog*, Version 24.0, Online at – http: //www. Wsc.nmbe.ch (accessed on 7th February, 2024).



Figs.- 3 (a-f) : *Bianor pashanensis* (Tikader)
a. Female (dorsal); b. Chelicerae; c. Maxilliae & Labium
d. Sternum ; e. Female leg-I; f. Epigynum

Material examined: 2 female, Jhenaidah, 19. III. 1992, Coll. V. Biswas ; 1 female A.D.I, Faridpur, 17.IV. 1994, Coll. V. Biswas ; 2 female, Bagerhat, 9.IV. 1993; Coll. V. Biswas; 2 female, Daulatpur, Khulna, 27. XII. 1994, Coll. V. Biswas.

General: Body medium, robust and brown in colour. The cephalothorax and abdomen exhibit a deep brown coloration. The legs are yellow-brown, with the first leg appearing reddish-brown. The total body length measures 5.20 mm. Specifically, the carapace spans a length of 2.20 mm and a width of 2.00 mm, while the abdomen measures 3.00 mm in length and 2.50 mm in width.

Cephalothorax: Roundish in shape, with a broader middle portion. It is longer than wide, and presents a raised and flat profile. The surface is adorned with fine hairs and pubescence. Eyes are pearly - white, dissimilar; anterior row recurved and closely placed; anteromedians thrice larger than anterolaterals; 2nd row of eyes bread- like, smaller, straight, equidistantly placed; posterior row straight, rather widely placed; ocular trapezium rhomboidal, narrowing anteriorly. Chelicerae red brown, thick and long, parallel sided, outer margin with three teeth (Fig. 3b). Maxillae are brown and have a scopulate texture at the front (Fig. 3c). Labium is brown and resembles the shape of an apple, also with scopulate features at the anterior portion (Fig. 3c). Sternum is brown and takes on a vase-like shape (Fig. 3d). Legs are robust and covered with both hairs and spines (Fig. 3e). The first leg (leg-I) stands out with its pronounced strength, featuring a broad dorsal femur. Tibiae and metatarsi of the legs each possess three and two pairs of spines, respectively. The leg arrangement follows the sequence 1432, and specific measurements (in millimeters) for the leg segments are shown in Table 4.

Table 4. Measurements of leg segments (mm) of *B. pashanensis* (Tikader)

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.50 /1.50	2.70 / 2.70	1.80 / 1.80	0.50 / 0.50	6.50 / 6.50
II	1.20 / 1.20	1.50 / 1.50	0.90 / 0.90	0.40 / 0.40	4.00 / 4.00
III	1.30 / 1.30	1.60 / 1.60	1.00 / 1.00	0.40 / 0.40	4.30 / 4.30
IV	1.40 / 1.40	1.90 / 1.90	1.00 / 1.00	0.50 / 0.50	4.80 / 4.80

Abdomen: Oval in shape, broader towards the front and tapering towards the posterior end. It is longer than wide. Dorsum is adorned with hairs, spines, and a thick covering of pubescence. Ventral side are pale brown and is densely covered in hair. The epigyne takes on a vulvate shape (fig. 3f).

Distribution: BANGLADESH : Jhenaidah, Faridpur, Bagerhat, Khulna; INDIA (Tikader, 1975; Proszynski, 1990. 2000; Majumder, 2005).

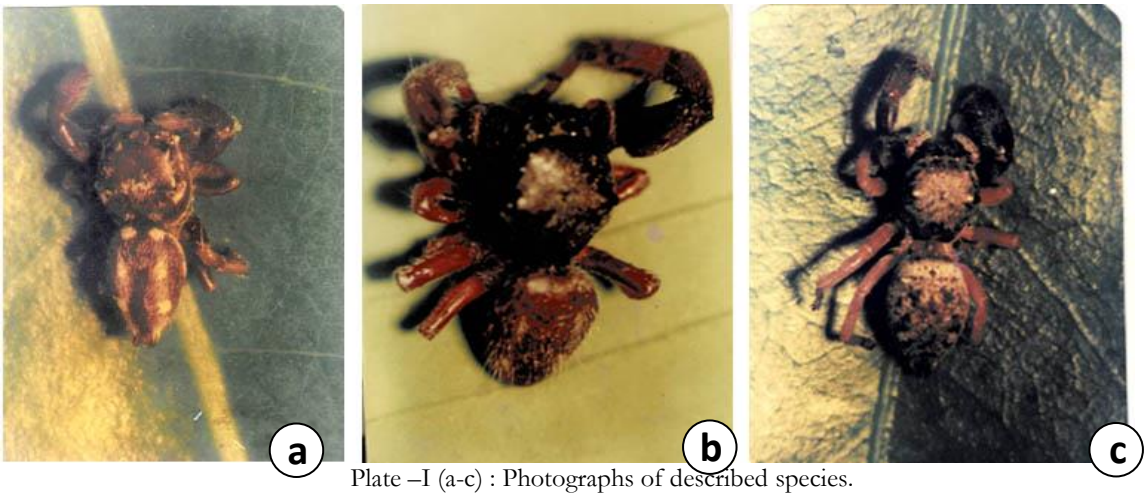


Plate –I (a-c) : Photographs of described species.
a. *Bianor hotingchiehi* Schenkel (male); b. *Bianor narmadaensis* (Tikader) (female);
c. *Bianor pashanensis* (Tikader) (female)

Conclusion

Jumping spider genus *Bianor* is one of the attractive and important predatory arachnids in all natural habitats. From the historical records of the taxonomic study of these spiders of Bangladesh (Chowdhury & Pal, 1984; Biswas, 2009 & 2019) it is found that *Bianor hotingchiehi* Schenkel, 1963, *B. narmadaensis* (Tikader, 1975) and *B. pashanensis* (Tikader, 1975) are new record for the area.

Comparing with the earlier descriptions (Schenkel,1963 & Tikader, 1975) of the present newly recorded species, it is found that there are some remarkable differences of variable characters viz., body shape and size, color, decoration etc. found for these three species.

Behaviorally, the species mentioned above function as natural predators targeting various small pest insects such as green leafhoppers, Brown plant hoppers, White backed plant hoppers, Aphids, and different types of flies. They actively consume these pest insects from leaves and other plant parts. Consequently, they play a crucial role as bio-control agents, effectively managing diverse insect populations in agricultural fields, gardens, and forest ecosystems.

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Conflict of Interest

None of the authors present any conflicts of interest.

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