

## ANT-LIKE SPIDERS OF BANGLADESH-II : GENUS *MYRMARACHNE* MACLEAY (ARANEAE : SALTICIDAE )

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### ABSTRACT

A study on some ant-like spiders of the genus *Myrmarachne* MacLeay was carried out in different areas of Bangladesh. Two species were recorded during the study of which *M. nigriabdominalis* n. sp. is identified as new to science and another one *M. orientalis* Tikader is a new record for the area of present study. The paper contains illustrated description, distribution together with key to the species.

**Keywords:** Ant-like spiders, *Myrmarachne*, Araneae, Salticidae, Bangladesh.

### INTRODUCTION

Ant-like spiders genus *Myrmarachne* MacLeay are a common member in the garden, forests and wall of houses. In the crop-fields and gardens they are found to prey small insects. Members of this genus are distributed in Oriental and Sub-tropical regions of the world.

Genus *Myrmarachne* are typical and similar to the red-ants in appearance. Their movements are interesting and sometimes take the food from the ant-nests showing mimicry. They also consume small insect pests from their habitat.

The taxonomic studies of the genus *Myrmarachne* in the world is satisfactory. The genus was first irrected by MacLeay in 1838 with the type-species *M. melanocephala*. At present, the genus is composed of more than 220 species in the world fauna ( World Spider Catalog 2017, Biswas & Raychaudhuri 2017) and 131 species are recorded in the Asian countries ( Peng *et al.* 1993, Barrion & Litsinger, 1995, Keswani *et al.* 2012, Yamasaki 2010, Yamasaki & Ahmad 2013, Yamasaki & Edwards 2013 ) of which only 7 (seven) species are recorded in Bangladesh (

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Biswas 1995, Biswas 2009, Okuma *et al.* 1993, Begum & Biswas 1997, Biswas & Raychaudhuri 2017 ). The present paper contains only 2 (two) species of which *M.nigriabdominalis* n. sp. is described as new to science and another one *M. orientalis* Tikader is a new record for the country.

## MATERIALS AND METHODS

**Collection and Preservation:** Spiders were collected from different gardens of Khulna district, Bangladesh. Collections were made by vial- tapping and jarking of branches of trees on the inverted umbrella placed underneath the trees. Collected specimens were preserved temporarily in 70% alcohol for study and permanently in Audman's preservatives. Preservation techniques were followed as described by Lincoln and Sheals (1985) and Tikader (1987).

**Identification:** Identification were made with the help of different fauna volumes and literatures of home and abroad like-Tikader (1973, 1987), Narayan (1915), Chen and Zhang (1991), Barrion and Litsinger (1995), Wanless (1978), Yamasaki and Ahmad (2013) and Yamasaki and Edwards (2013). Identity of the species were later confirmed from the Zoological Survey of India, Kolkata.

**Illustrations and Photographs:** Illustrations and other necessary techniques were made with Camera lucida fitted under Stereo binocular microscope. All the measurements were taken in mm and photographs were taken by Camera fitted with binocular microscope (SV8, Zeiss ).

**Type deposition:** Types are at present in the Department of Zoology, Khulna Government Womens' College and will be deposited to the Museum of the Department of Zoology, University of Dhaka, Bangladesh.

## OBSERVATIONS AND RESULTS

### Taxonomy

Family : SALTICIDAE Blackwall,1841

Genus : *Myrmarachne* MacLeay,1838

Type : *M. melanocephala* MacLeay,1839

*Myrmarachne* MacLeay, 1838, *Ann. Mag. Nat. Hist.*, **20** : 10

Simon 1901 : 504, Narayan 1915 : 393, Tikader 1973 : 59,

Wanless 1978 : 18, Proszynski 1990 : 226, Peng *et al.* 1993 :

129, Platnick 1993 : 782, Barrion & Litsinger 1995 : 50,

Mikhailov 1997 : 215, Song *et al.* 1999 : 535, Biswas 2009 : 278, Yamasaki & Ahmad 2013 : 50, World Spider Catalog 2018, Version 18.0 : <http://wsc.nmbe.ch> (accessed on 7<sup>th</sup> May, 2018 ).

**Diagnosis:** It's body long, ant-like, small to medium in size. Cephalothorax broad with little constriction. Eyes brown, dissimilar, anterior row recurved, middle and posterior row of eyes small, straight. Chelicerae long, strong, with 4–7 teeth on inner and 5–8 teeth on outer margin; in male, it is larger. Maxillae and labium elongate, scopulate anteriorly. Sternum elongate, variable in shape. Legs long and slender ; leg formula 4132.

Abdomen variable, elongate. Epigyne comparatively simple and with distinct opening; spermatheca simple or looped, in some coiled.

**Distribution:** Oriental and Sub-tropical regions of the world.

### Key to the species

1. Cephalic region nearly rounded and thoracic region oval; abdomen elongate, anteromedially constricted ; chelicerae long, with 4 teeth on outer margin; epigyne as in Fig. 2e ..... *nigriabdominalis* n. sp.
- Cephalic region nearly tetragonal and thoracic region elongate; abdomen not constricted; chelicerae not long, with 4 teeth on outer margin; epigyne as in Fig. 1e ..... *orientalis*.

### 1. *Myrmarachne orientalis* Tikader

( Figs. 1, a-f ; Plate – I )

*Myrmarachne orientalis* Tikader, 1973. *Proc. Indian Acad. Sci.*, **78**(2): 60.

Brignoli 1983, *A Cat. der Araneae* : 644, Platnick 1989, *Adv.*

*in spider Taxonomy* : 599, Proszynski 1990, *Cat. of Salticidae* :

234, Biswas & Biswas 1992, *Fauna of West Bengal* -3 : 394,

Majumder 2005, *Mem. Zool. Surv. India*, **20**(3): 48, Biswas

2009, *Encyclopedia of flora & fauna of Bangladesh*, Arachnida,

**18**(1): 281, *World spider cat*, 2018, Version 18.0, Nat. Hist. Mus. Bern., (accessed on 7<sup>th</sup> May, 2018 ).

**Material examined:** 2 female, 1 male, Bagerhat, 12.VI.1991 , Coll. V. Biswas; 1 female, BARI, Dhaka, 15.IX.1992, Coll. V. Biswas; 2 female, ADI, Faridpur, 8.VII.1993, Coll. V. Biswas; 1 female, Jhenidah, 12.III.1993, Coll. V. Biswas.

**General:**

**Female-** Cephalothorax brown black; legs yellow brown; abdomen anteriorly pale brown and posteriorly black . Body length 8.50 mm. Carapace 4.20 mm long, 2.00 mm wide; abdomen 4.30 mm long, 1.35 mm wide.

**Male-** Body length 8.00 mm. Carapace 4.00 mm long, 2.00 mm wide and abdomen 4.00 mm long and 1.20 mm wide.

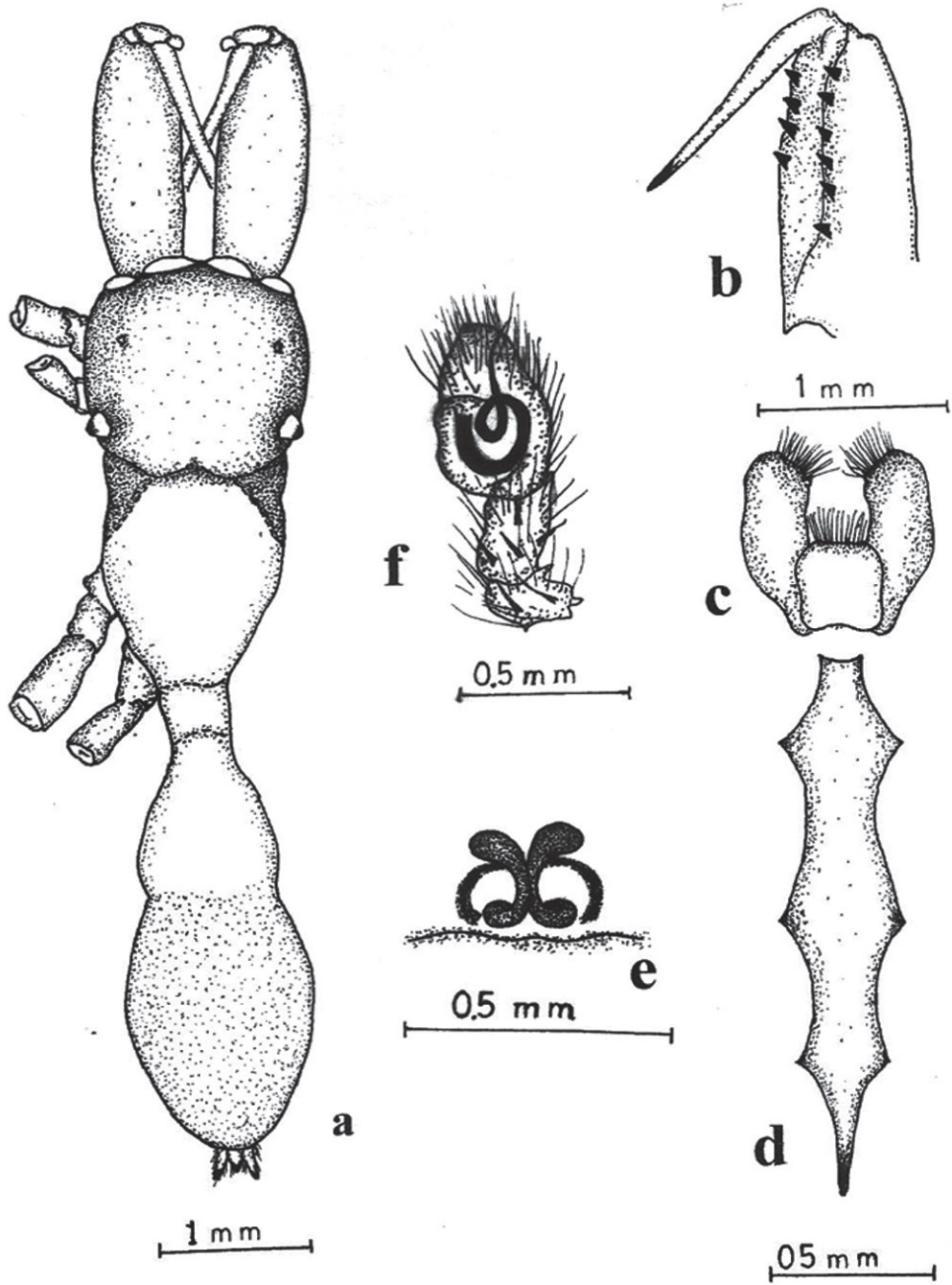
**Cephalothorax:** Elongate, broad, longer than wide, medially constricted forming 2 lobes; cephalic region nearly round, slightly raised. Eyes prominent, black; anterior row of eyes recurved; anteromedians close and twice larger than the anterolaterals; posterior row of eyes straight, placed marginally. Chelicerae red-brown, very long, longer in male, nearly as long as cephalothorax, fang large, each of inner and outer margins with a series of linearly arranged similar teeth (Fig. 1b). Maxillae and labium brown, longer than wide and anteriorly scopulate (Fig. 1c). Sternum very long, posteriorly narrowed and pointed (Fig. 1d). Legs thin, long and slender, clothed with hairs; leg formula 4132 and the measurements (in mm) as shown in Table 1.

**Abdomen:** Long, anteriorly narrowing, anteromedially constricted forming 2 lobes, anterior one medially raised; pedicel prominent and long; epigyne as in Fig. 1e.

**Distribution:** BANGLADESH : Bagerhat, Dhaka, Faridpur, Jhenidah; INDIA (Proszynski, 1990; Tikader, 1973).

**Table 1.** Measurements (in mm) of leg segments of *M. orientalis* Tikader

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	0.90/0.95	0.85/0.80	0.50/0.50	0.30/0.30	2.55/2.55
II	0.80/0.80	0.50/0.55	0.30/0.30	0.20/0.20	1.80/1.85
III	0.80/0.80	0.60/0.60	0.40/0.40	0.20/0.20	2.00/2.00
IV	1.20/1.20	1.60/1.60	0.90/0.90	0.40/0.40	4.10/4.10



**Fig. 1(a-f).** *Myrmarachne orientalis* Tikader, a. Whole body (dorsal view); b. Chelicerae; c. Maxillae and Labium; d. Sternum; e. Epigynum; f. Male palp

**2. *Myrmarachne nigriabdominalis* n. sp.**

( Figs. 2 a-f : Plate-I )

**Material examined:** 1 female, R.K. Mission, Dhaka, 12.VII. 1992, Coll. V. Biswas; 1 female Ramna park, Dhaka, 18.V. 1993, Coll. V. Biswas.

**General:** Cephalothorax with cephalic region black; thoracic region red brown; abdomen black; legs yellow. Total length 4.20 mm. Carapace 2.10 mm long, 1.00 mm wide; abdomen 2.10 mm long and 1.49 mm wide.

**Cephalothorax:** Elongate, broad, anteriorly wide, constricted medially forming 2 distinct lobes; cephalic region squarish, broad, flat ; thoracic region elongate. Eyes brown, each basally with black band ; anterior row of eyes recurved; anteromedians close, thrice larger than the anterolaterals; posterior row of eyes straight ; ocular quad squarish. Chelicerae brown, long, each of inner and outer margins with 3 and 5 teeth respectively (Fig. 2b). Maxillae brownish, broad, anteriorly wide and scopulate (Fig. 2c). Labium brownish, pot-like, wide at base and scopulate anteriorly (Fig. 2c). Sternum Brown, cylindrical, long and pointed posteriorly (Fig. 2d). Legs long and slender, with longitudinal band, spiny ; leg formula 4132 and the measurements (in mm) as shown in Table -2.

**Abdomen:** Broad, black, oval, posteromedially wide, clothed with hairs; anterodorsally with a white, transverse, band pedicel cylindrical, segmented; epigyne as in Fig. 2e and internal genitalia as in Fig. 2f.

**Holotype:** Female in spirit.

**Paratype:** 1 female, Ramna Park, Dhaka, 18.V.1993, Coll. V. Biswas. Otherwise data same as for the holotype.

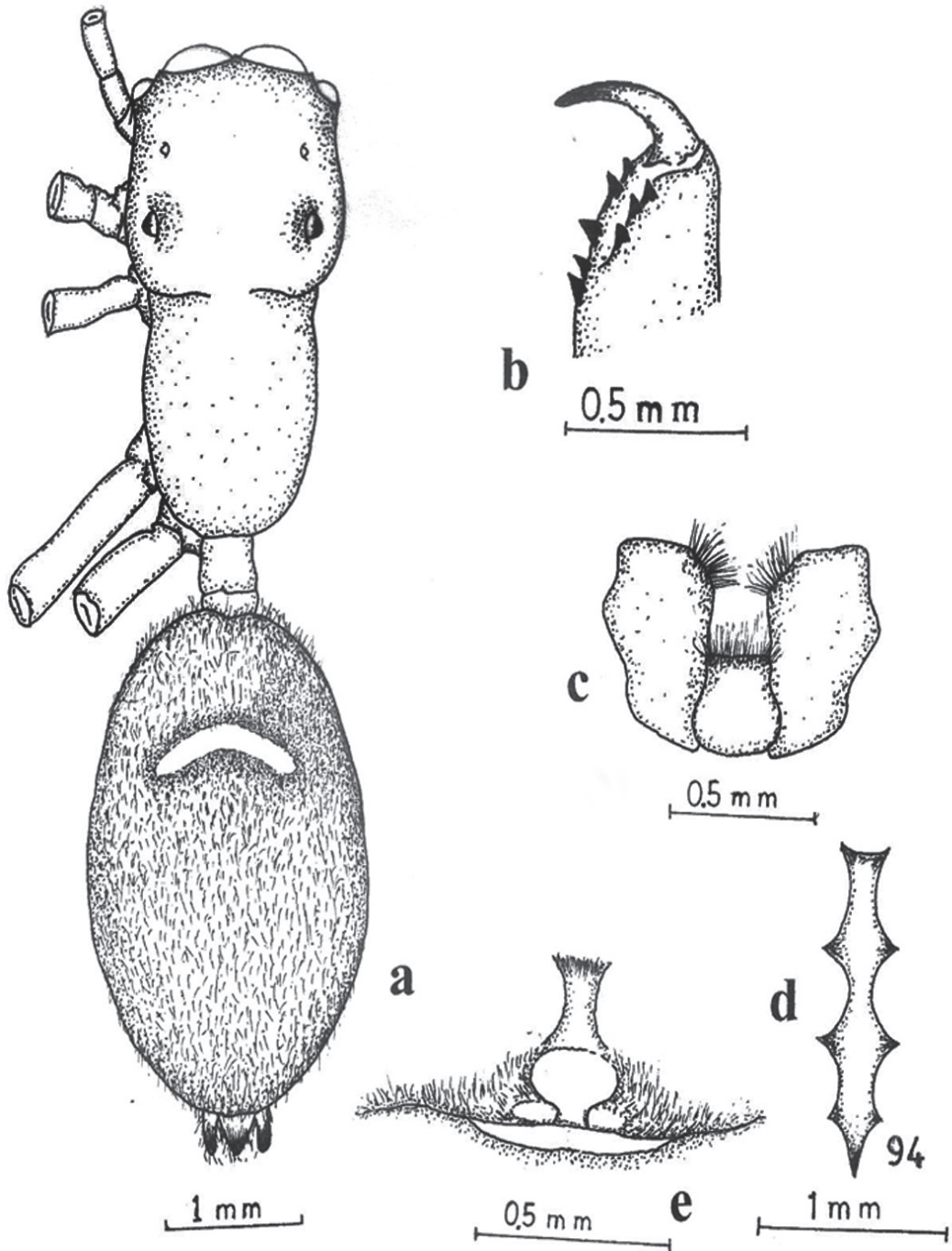
**Etymology:** The species is named for the black colour of abdomen.

**Distribution:** Bangladesh: Dhaka (type-locality).

**Remarks:** Appearance and some characters of *M. nigriabdominalis* n. sp. are much different from other Indian congeners. Also, epigyne and internal genitalia of the

**Table 2.** Measurements (in mm) of leg segments of *M. nigriabdominalis* n. sp

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	0.90/0.90	1.10/1.10	0.70/0.70	0.20/0.20	2.90/2.90
II	1.00/1.00	0.90/0.90	0.40/0.40	0.20/0.20	2.50/2.50
III	1.00/1.00	1.10/1.10	0.50/0.50	0.20/0.20	2.80/2.80
IV	1.50/1.50	1.50/1.50	1.10/1.10	0.40/0.40	4.40/4.40



**Fig. 2(a-e).** *Myrmarachne nigriabdominalis* n.sp. a. Whole body (dorsal view); b. Chelicerae; c. Maxillae and Labium; d. Sternum; e. Epigynum.



**Plate 1 (a-c).** *Myrmarachne orientalis* Tikader (dorsal view); b. Chelicerae of *M. orientalis* Tikader; c. *Myrmarachne nigriabdominalis* n. sp. (dorsal view).



present species are structurally much different from all the Asian species ( Narayan 1915, Tikader 1973, Proszynski 1992, Peng, *et al.* 1993, Bradoo 1980, Mittal & Bradoo 1977, Zabka 1985 ). Presence of short chelicerae brings the species close to *M. binghami* Biswas & Raychaudhur 2017 but arrangement of teeth is different. Interestingly, all the Indian species posses weakly to strongly constricted abdomen and black patches on the eyes. All these characters are absent in the present newly described species and additionally a curved white band present on the dorsum of abdomen.

The species, is therefore, described as new to science.

### CONCLUSION

Earlier record of the taxonomic study of salticid spiders of Bangladesh ( Chowdhury & Nagari 1980, Biswas 1995, 2009, Okuma. *et al.* 1993, Biswas & Begum 1996, Biswas & Raychaudhuri 1994, 2017) reveals that of the present two described species, one *M. orientalis* Tikader is a new record of the area of present study and another *M. nigriabdominalis* is identified as new species. There are some distinct variable differences between these two species.

Behaviourally, both the species are natural predators in the crop-fields and gardens of Bangladesh. They consume small insects from economic plants. They like to live in the nests of red- ants showing mimicry and thus theft some foods and nutrients from there.

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