

Some New Species of Family Lycosidae from Agricultural Fields of Punjab, Pakistan

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Abstract. Three new species of family Lycosidae; *Lycosa terrestris*, *Lycosa nigricans* and *Lycosa maculata* are described in this paper.

Key words: Lycosidae, *Lycosa*, Pakistan.

INTRODUCTION

Genus *Lycosa* was erected by Latreille (1804). These are hunting spiders which chase their prey and are very common on ground, especially in damp areas. The fauna of this genus from Pakistan and neighboring countries were described by Pocock (1901), Gravely (1924), Dyal (1935), Tikader (1970), Tikader and Mukerji (1971), Tikader and Malhotra (1980), Biswas and Biswas (1992), Patel and Reddy (1993), Barrion and Litsinger, (1995) and Gajbe (2004). From Pakistan some unpublished data of Nazir (2001), Iqbal (2004) and Rasheed (2004) is also available. This paper enlists the spider fauna from Pakistan.

MATERIALS AND METHODS

The paper is based on the material collected from different areas of Punjab, Pakistan. Specimens of the spiders were captured by hand picking and pitfall trapping from lawns, gardens, rice fields, cotton fields, citrus and guava orchards and grape vineyard and were stored in mixture of alcohol and glycerin (4 : 1) for further study. The color of the specimens described is in the alcohol. All measurements are in millimeters. Drawings were made using grid system. All the specimens used in the study are housed in Department of Zoology, University of Agriculture, Faisalabad (UAF) and Department of Zoology, University of the Punjab, Lahore (PUL), Pakistan.

Abbreviations used in the paper are: AER, anterior eye row; AME, anterior median eyes; PME,

posterior median eyes; ALE, anterior lateral eyes; PLE, posterior lateral eyes; E II R, eyes of second row; E III R, eyes of third row; d, dorsal; v, ventral; al, anterior lateral; pl, posterior lateral.

Lycosa nigricans new species (Fig. 1)

Description

Female

Total length = 16.81. Cephalothorax longer than wide (length = 6.06 and width 4.50), reddish brown, ocular area black, cephalic region narrower than thoracic region. Eight eyes in three rows, AER slightly recurved (seeing from front). Eye measurement: AME = 0.18, ALE = 0.13, EIIR = 0.36, EIIIR = 0.30. Eye separation excluding eye diameter: AME- AME = 0.10, AME - ALE = 0.02, ALE - EIIR = 0.10, EIIR- EIIIR = 0.32. Eye row length including diameter: EIR = 0.70, EIIR = 1.00, EIIIR = 1.16. Ocular quadrangle narrowing in front than behind. Middle of cephalothorax provided with distinct black fovea, brown bands radiate from fovea towards lateral sides, a broad dark brown longitudinal band extend from base of posterior eye to the base of thoracic region at each side. Clypeus vertical. Sternum black, pointed posteriorly and truncate anteriorly, longer than wide. Labium dark brown to black with yellowish apex, wider than long. Maxilla dark brown to black with yellowish apex, longer than wide, broad distal end and narrow base, inner margins of maxillae with scopulae. Chelicerae reddish brown, vertical bearing two promarginal and three retromarginal teeth. Legs moderately long and slender, reddish brown, ventral side of coxa black. Spination (d, v, al, pl) on femur I = 6-0-0-2, II = 6-0-0-0, III and IV = 8-0-0-0; patella

I and II = no spine, III = 0-0-0-1, IV = 0-0-1-0; tibia I and II = 0-6-1-1, III and IV = 2-6-1-1, metatarsus I and II = 0-5-2-1, III and IV = 6-5-2-2. Tarsi three clawed, each superior claw with five teeth and inferior claw with no teeth. Leg formula 4123. Tarsi of pedipalp single clawed with three teeth. The lengths of legs and pedipalp segments are given in Table I.

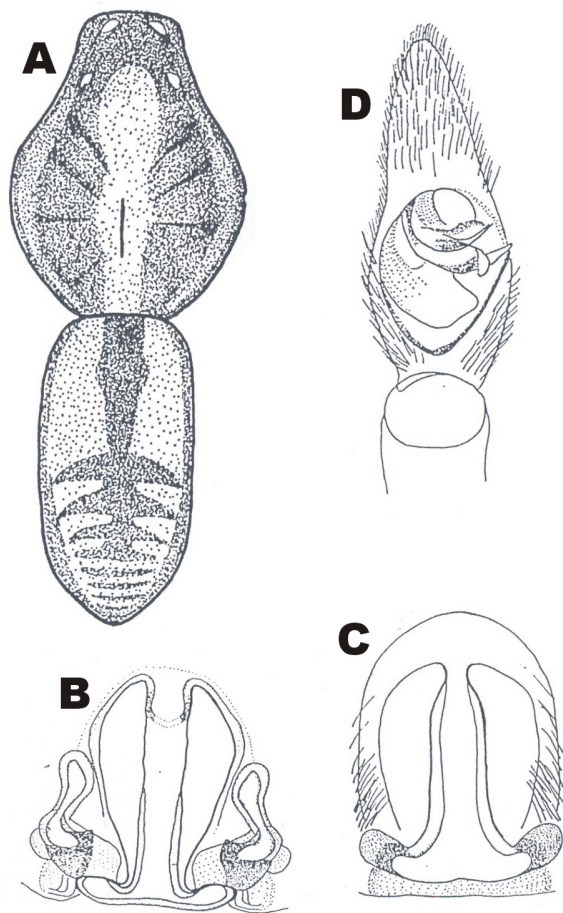


Fig. 1. *Lycosa nigricans*, new species; A, dorsal view of female; B, epigynum, dorsal view and C, ventral view; D, palp, ventral view.

Abdomen longer than wide (length = 6.75 and width = 4.50), pale brown, ovate and anterior mid- dorsally with a grayish brown longitudinal marking followed by posterior mid- dorsal transverse rows. Venter black in colour.

Table I.- Lengths of leg and pedipalp segments of male and female samples of *Lycosa nigricans*.

	Leg I	Leg II	Leg III	Leg IV	Pedipalp
Female					
Coxa	2.00	1.75	1.75	1.88	-
Femur	4.00	3.50	3.63	4.88	1.88
Patella	2.00	1.38	1.56	1.88	0.75
Tibia	2.75	2.63	2.06	3.50	1.75
Metatarsus	2.63	2.44	2.50	4.50	-
Tarsus	2.13	2.00	1.75	2.13	1.38
Male					
Coxa	2.38	2.25	1.88	1.88	-
Femur	5.50	4.75	3.56	4.88	1.88
Patella	2.00	2.00	1.75	1.88	0.75
Tibia	3.75	3.50	3.13	3.50	1.75
Metatarsus	3.75	4.13	3.88	4.50	-
Tarsus	2.13	2.13	2.50	2.13	1.38

Male

Similar to female. Total length = 11.75. Cephalothorax length = 6.75 and width = 4.75. Eye measurement: AME = 0.15, ALE = 0.10, EIIR = 0.28, EIIIR = 0.23. Eye separation excluding diameter: AME- AME = 0.05, AME - ALE = 0.04, ALE - EIIR = 0.11, EIIR-EIIR = 0.28. Eye row length including diameter: EIR = 0.80, EIIR = 0.95, EIIIR = 1.23. The lengths of legs and pedipalp segments are given in Table I.

Abdomen similar to female, length = 5.38 and width = 3.00.

Etymology

The specific name refers to the black Venter of specimen.

Material examined

Pakistan: Punjab: holotype: female, Faisalabad, University of Agriculture, guava grove, August 1992, pitfall trap, Paratype five females from type locality during June - July, 1992-93, deposited in UAF. Allotype one male from vineyard during May 1992, four males during June 1992 and July 1993, all from type locality; two females, Lahore, Punjab University, botanical Garden, July 2005; two males and one female, Sialkot, ricefield, June 2005; three females and two males, Changa Manga plantation, October 2005, all deposited in PUL.

Discussion

The female of *Lycosa nigricans* closely resembles *L. shillogensis* Tikader and Malhotra(1980) with respect to its general morphology but can be separated by structures of external and internal genitalia. The male palp of the two species can not be compared due to unavailability of male specimens of *L. shillogensis*

Lycosa terrestris, new species (Fig. 2)

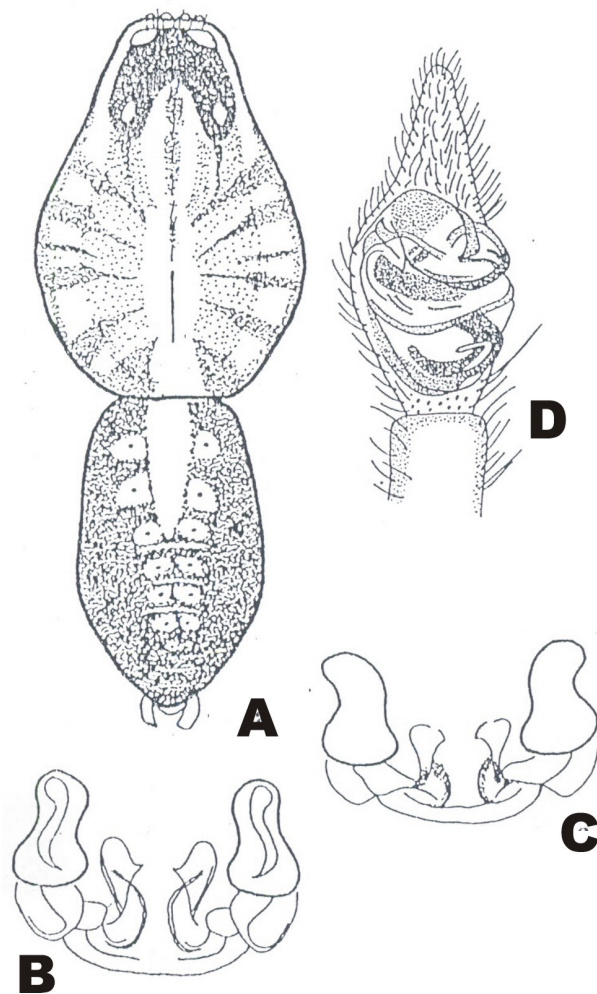


Fig. 2. *Lycosa terrestris*, new species; A, dorsal view of female; B, epigynum, dorsal view and C, ventral view; D, palp, ventral view.

Description

Female

Total length = 7.38. Cephalothorax longer than wide (length = 3.38, width = 3.13), pale yellow, ocular area black, cephalic region narrower than thoracic region. Eight eyes in three rows, AE row slightly recurved (seeing from front). Eye measurement: AME = 0.12, ALE = 0.08, EIIR = 0.30, EIIIR = 0.22. Eye separation excluding diameter: AME- AME = 0.05, AME- ALE = 0.34, ALE- EIIR = 0.09, EIIR - EIIIR = 0.28. Eye row width including diameter: AER = 0.57, II R= 0.78, III R= 0.90. Ocular quadrangle narrowing in front than behind. Middle of cephalothorax provided with sharp black fovea and brown band radiate from fovea towards lateral sides, broad light brown longitudinal bands extend from base of posterior eyes to the base of thoracic region. Clypeus vertical. Sternum pale, pointed posteriorly and truncate anteriorly, longer than wide. Labium light brown, wider than long. Maxilla concolour with cephalothorax, longer than wide, with broad distal end, and narrow base, inner margins of maxillae with scopulae. Chelicerae pale, vertical bearing two pro-marginal and three retro-marginal teeth. Legs long, pale and moderately thin. Spination (d, v, al, pl) on femur I = 6-0-0-1, II = 6-0-0-0, III and IV = 7-0-0-0; patella I = 1-0-0-1, II = no spine, III and IV = 2-0-1-0; tibia I, II, III and IV = 2-6-1-1, metatarsus I and II = 6-5-2-1, III and IV = 6-6-2-1. Tarsi three clawed, each superior claw with six teeth and inferior claw without tooth. Leg formula 4123. Tarsi of pedipalp single clawed with three teeth. The lengths of leg and pedipalp segment are shown in Table II.

Abdomen longer than wide; length = 4.63 and width = 2.75, pale brown, ovate, pointed posteriorly, dorsally covered with pale patches and black hairs. Venter grayish pale except reddish brown epigynum. Epigynal plate wider than long.

Male

Total length = 5.75. Cephalothorax similar to female. Cephalothorax length = 3.13, width = 2.50. Eye diameter: AME = 0.12, ALE = 0.10, EIIR = 0.26, EIIIR = 0.20. Eye separation excluding diameter: AME-AME = 0.06, AME- ALE = 0.04, ALE- EIIR = 0.10, EIIR - EIIIR = 0.22. Eye row

width including diameter: AER = 0.50, EIIR = 0.60, EIIIR = 0.80.

The length of leg and pedipalp segments are shown in Table II.

Abdomen similar to female, length = 2.00-2.88 and width=1.25-2.25.

Table II.- Length of leg and pedipalp segments of both female and male of *Lycosa terrestris*.

	Leg I	Leg II	Leg III	Leg IV	Pedipalp
Female					
Coxa	1.06	1.13	1.13	1.28	-
Femur	2.63	2.75	2.75	3.50	1.38
Patella	1.00	1.00	0.94	1.25	0.50
Tibia	2.38	2.38	2.25	3.13	0.75
Metatarsus	2.00	2.13	2.38	4.00	-
Tarsus	1.44	1.50	1.38	2.00	1.50
Male					
Coxa	1.25	1.00	1.00	1.25	-
Femur	2.75	2.50	2.38	3.13	1.13
Patella	1.13	1.13	0.81	1.13	0.50
Tibia	2.38	2.25	1.88	2.75	0.75
Metatarsus	2.60	2.25	2.25	3.63	-
Tarsus	1.75	1.44	1.25	1.81	1.06

Etymology

The specific name refers to the abundance of specimen on the ground.

Material examined

Pakistan: Punjab: holotype: female, Faisalabad, University of Agriculture, citrus grove, June 1992, pitfall trap, deposited in UAF; Allotype: male, Lahore, Badian, ricefield, pitfall, May 2005, deposited in PUL; Paratypes: thirty females, Faisalabad, University of Agriculture, summer 1992 and 93; five females, Shahkot, guava grove, summer 1998; forty nine females and two hundreds and nine males, Kasur, rice fields, July to October, 2004; five males and eight females, Sialkot, rice fields, July 2005, deposited in PUL.

Discussion

This species resembles with *Pardosa sumatrana* (Thorell) in general morphological characters but can be separated on the bases of the difference in the distances of eyes, spination on legs,

internal and external structure of female genitalia and in structure of male palp.

Lycosa maculata, new species (Fig. 3)

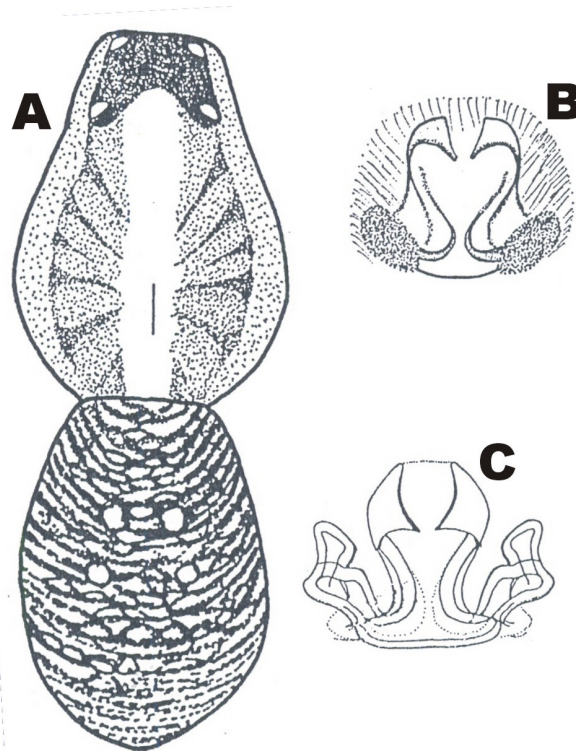


Fig. 3. *Lycosa maculata*, new species; A, dorsal view of female; B, epigynum, dorsal view and C, ventral view.

Description

Female

Total length = 7.38. Cephalothorax length = 3.63, width = 2.75. Eye measurements: AME = 0.15, ALE = 0.11, E II R = 0.22, E III R = 0.20. Eye separation excluding diameter: AME- AME = 0.02, AME- ALE = 0.03, ALE- EIIR = 0.05, EIIR - EIIIR = 0.15. Eye row width including diameter: AER = 0.60, II R=0.70, III R=0.90. Sternum length = 1.75 and width = 1.38. Labium and maxillae concolour with cephalothorax. Chelicerae reddish brown. Legs pale, metatarsi and tarsi dark brown, tarsi three clawed superior claw with seven teeth. Abdomen length = 3.25, width = 2.25, grayish dorsally while

pale brown ventrally. Other morphological characters similar to *Lycosa terrestris*. The length of leg and pedipalp segment of *Lycosa maculata* are shown in Table III.

Table III.- Length of leg and pedipalp segments of female *Lycosa maculata*.

	Leg I	Leg II	Leg III	Leg IV	Pedipalp
Female					
Coxa	13.8	1.38	1.25	1.50	-
Femur	2.50	2.38	2.25	3.00	1.13
Patella	0.94	1.06	1.38	1.13	0.38
Tibia	2.00	1.75	1.50	2.38	0.75
Metatarsus	1.50	1.50	1.75	2.50	-
Tarsus	1.19	1.13	1.00	1.44	1.00

Male

Unknown.

Etymology

The specific name refers the spotted abdomen without clear pattern.

Material examined

Pakistan: Punjab: holotype: female, Sialkot, ricefield, September 2005, deposited in PUL; paratype: four females, Faisalabad, University of Agriculture, August - September, 1993, deposited in UAF.

Discussion

This species resembles *L. tista* Tikader in colour and morphology but they also differ in following characters: The pale band on carapace of *L. maculata* while absent in *L. tista*; coxae of legs of *L. maculata* without brown patches as described for *L. tista*; pale longitudinal markings described for *L. tista* at the anterior mid dorsal area of abdomen are

absent in *L. maculata*; structure of genitalia also differ from each other.

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