Some Orb Weaver Spiders From Punjab, Pakistan

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Abstract.- Neoscona theisi (Araneidae) is described from Pakistan. Cyrtophora citricola and Leucauge decorate are redescribed from the same area of Punjab, Pakistan. The diagnostic parts of the palpus and genitalia are drawn.

Key Words: Orb weaver, spiders, Pakistan.

INTRODUCTION

Spider fauna of Pakistan is very rich but no serious attention has been given to explore it. Leucauge decorate (Tetragnathae) and Cyrtophora citricola (Araneidae) were described by Dyal in 1935, while studying the fauna of Lahore. However, Dyal (1935) did not report Neoscona theisi (Araneidae) from the area. It is now more common in the area than Cyrtophora citricola. Information about these species is available from neighbouring countries: India (Stoliczka, 1869; Pocock, 1900; Gravely, 1921, 1922; Tikader, 1962, 1970; Patel, 1975) and South and Southeast Asia (Barrion and Litsinger, 1995). In this paper these species have been redescribed and compared with the description of Dyal (1935).

MATERIALS AND METHODS

Specimens of the spiders were captured by hand picking from different lawns and gardens of Lahore city and rice fields located at the suburbs of Lahore. After collection, specimens were stored in mixture of 70% alcohol and glycerin for further study.

The color of the specimens described is in the alcohol. All measurements are in millimeters. In measurements the sample range is followed by the mean and standard deviation in parentheses.

Spermatheca was examined by removing the portion of body wall to which it was attached. This portion was cleared in KOH solution, dyed with chlorazol black E and then placed in glycerin on a temporary slide. Drawings were made using eyepiece square grid. All the specimens used in the study are housed in Department of Zoology, University of the Punjab, Lahore, Pakistan.

In the paper the following abbreviations are used: AME, anterior median eyes; PME, posterior median eyes; ALE, anterior lateral eyes; PLE, posterior lateral eyes; D, dorsal; V, ventral; AL, anterior lateral; PL, posterior lateral.

Neoscona theisi (Walckenaer) (Fig. 1)


Redescription

Male

General: Total length = 6.25–7.12(6.81±0.38) mm. Cephalothorax length = 3.12–3.75 (3.43±0.26) mm, width = 2.75–3.12 (2.93±0.16) mm. Abdomen length = 3.00–3.87 (3.46±0.37) mm, width = 2.00 – 2.25 (2.15±0.12) mm.

Cephalothorax: Yellowish brown, with median and sub-median longitudinal brown bands, cephalic area narrower than thoracic area. Eight eyes in two recurved rows, AE row more recurved than PE row. Eye diameter (mm): AME = 0.10–0.14
## Table I.- Length of legs and pedipalp segments (mm) of both male and females of *Neoscona theisi*.

<table>
<thead>
<tr>
<th></th>
<th>Leg I</th>
<th>Leg II</th>
<th>Leg III</th>
<th>Leg IV</th>
<th>Pedipalp</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Coxa</td>
<td>Femur</td>
<td>Patella</td>
<td>Tibia</td>
<td>Metatarsus</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td>0.87-1.12 (0.99±0.12)</td>
<td>3.75-4.50 (4.14±0.32)</td>
<td>0.84-1.37 (1.12±0.19)</td>
<td>3.62-4.37 (4.04±0.33)</td>
<td>3.75-4.12 (3.92±0.12)</td>
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<td>0.75-1.00 (0.85±0.09)</td>
<td>3.25-4.00 (3.69±0.28)</td>
<td>0.75-1.00 (0.87±0.08)</td>
<td>2.12-2.50 (2.32±0.14)</td>
<td>2.12-2.50 (2.34±0.16)</td>
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<td>2.37-2.75 (2.25±0.16)</td>
<td>0.62-0.87 (0.72±0.10)</td>
<td>1.25-1.50 (1.34±0.10)</td>
<td>1.25-1.87 (1.56±0.26)</td>
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<td>0.75-1.12 (0.89±0.10)</td>
<td>2.50-3.25 (2.92±0.30)</td>
<td>0.75-1.12 (0.89±0.10)</td>
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<tr>
<td><strong>Female</strong></td>
<td>0.87-1.00 (0.93±0.09)</td>
<td>2.50-3.25 (2.50±0.50)</td>
<td>0.87-1.25 (1.06±0.26)</td>
<td>2.00-2.50 (2.25±0.35)</td>
<td>2.75-3.12 (2.81±0.43)</td>
</tr>
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<td></td>
<td>0.75-1.00 (0.87±0.17)</td>
<td>2.25-2.50 (2.37±0.17)</td>
<td>0.87-1.25 (1.06±0.26)</td>
<td>2.62-2.75 (2.68±0.09)</td>
<td>2.50-2.75 (2.62±0.17)</td>
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<td>1.25-1.62 (1.43±0.26)</td>
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<td>1.25-1.62 (1.43±0.26)</td>
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</tbody>
</table>

**Fig. 1.** *Neoscona theisi*; A, male dorsal view; B, lateral view of pedipalp; C, female dorsal view; D, ventral view; E, lateral; F, dorsal and G, ventral views of epigynum.

(0.12±0.01), ALE = 0.08 – 0.12 (0.09±0.01), PME = 0.10-0.13 (0.11±0.01), PLE = 0.06- 0.10 (0.08±0.01). Eyes separation (mm): AME-AME = 0.08–0.15 (0.12±0.02), AME- ALE = 0.12–0.18 (0.14±0.02), PME–PME = 0.02-0.07 (0.05±0.02), PME- PLE = 0.16–0.26 (0.21±0.03), AME- PME = 0.06 – 0.10 (0.08±0.02), ALE and PLE touching to each other. Ocular quadrangle wider in front than behind. Sternum heart shaped, brownish yellow with a white median band. Maxillae brown with broad distal end, and narrow base, inner margins of maxillae with dense scopulae. Labium wider than long (length = 0.18–0.25(0.22±0.03) mm and width = 0.37 – 0.50 (0.44±0.07) mm). Chelicerae vertical with four promarginal and three retromarginal teeth. Legs yellowish brown, spinous and slender, coxa I bears a ventroapical tooth; venter of femur I with one spine, 11= 12 spines, III =4 spines and IV = 6 spines, all in a row. Tibia II with 12-14 prolateral spines. Leg formula 1423 (Table I). Pedipalp slightly shorter than femur III, patella of pedipalp with two long spines, tibia subtriangular towards the lateral side of paracymbium, conductor small, rounded apically.

### Abdomen
Abdomen ovate with white median dagger like markings and brown band submedially. Venter of abdomen yellowish brown with brownish bands on spinnerets.

**Female**
**General:** Total length = 5.75–9.00 (7.43±1.32) mm; cephalothorax length = 2.37–3.12 (2.62±0.33) mm, width = 1.87– 2.75 (2.40±0.37) mm. Abdomen length = 3.12–5.50 (4.59±1.02) mm, width = 2.37–4.37 (3.74±0.93) mm.
Cephalothorax: Similar to male. Eye diameter (mm): AME = 0.10–0.12 (0.11±0.008), ALE = 0.05–0.10 (0.08±0.02), PME = 0.11–0.12 (0.11±0.004), PLE = 0.05–0.10 (0.07±0.01). Eyes separation (mm): AME–AME = 0.05–0.12 (0.08±0.03), AME–ALE = 0.19–0.35 (0.25±0.06), PME–PME = 0.04–0.06 (0.04±0.01), PME–PLE = 0.21–0.40 (0.29±0.08), AME–PME = 0.05–0.12 (0.08±0.03). ALE and PLE touching to each other. Ocular quadrant, sternum, labium and chelicerae similar to male. Spination on femur and tibia different from male: femur I = 0 – 1, II = 0–14 in two rows, III=0–7, IV = 0–2; Spination on tibia II = 3–6. Leg formula similar to male (Table I).

Abdomen
Similar to male. Epigynum long, slender, subparallel to body in lateral view.

Material examined
Pakistan: Lahore, rice field, five females and four males, August–September, 2004; University of the Punjab, six: females and three males, September–October, 2004; Jallo Park, five females, October, 2004.

Leucauge decorate (Blackwall) (Fig. 2)

Redescription
Female
General: Total length = 5.62–8.87 (7.42±1.16) mm. Cephalothorax 1.75–2.75 (1.91±1.32) mm long and 1.37–2.12 (1.53±0.8) mm wide. Abdomen 4.12–6.62 (5.42±0.92) mm long and 0.17–3.12 (2.18±1.15) mm wide. Cephalothorax yellowish, legs brown yellowish, abdomen silvery white with black patches.

Fig. 2. Leucauge decorate ; A, female dorsal view; epigynum, dorsal (B) and ventral (C) views.

Cephalothorax: longer than wide, scarcely clothed with hairs, clypeal margin brownish, cephalic region elevated and narrower than thoracic region; fovea with trifid arm posteriorly. Eight eyes in two recurved rows, AE row strongly recurved than PE row, eyes margins with black ring. Eye diameter (mm): AME = PME = 0.07–0.12 (0.11±0.01), ALE = 0.06–0.11 (0.09±0.01), PLE = 0.05–0.09 (0.08±0.01). Eyes separation (mm): AME–AME = 0.05–0.08 (0.06±0.01), AME–ALE = PME–
Table II.- Length of legs and pedipalp segments (mm) of female of *Leucauge decorata*.

<table>
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<th>Leg I</th>
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<th>Leg IV</th>
<th>Pedipalp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coxa</td>
<td>0.75 -1.00 (0.83±0.10)</td>
<td>0.5-1.12 (3.87±0.22)</td>
<td>0.37 -0.68 (2.79±0.12)</td>
<td>0.37-0.75 (0.59±0.13)</td>
<td>-</td>
</tr>
<tr>
<td>Femur</td>
<td>3.75-5.5 (4.95±0.70)</td>
<td>2.75-4.75 (4.05±0.83)</td>
<td>1.50-2.75 (2.15±0.45)</td>
<td>2.62-4.37 (3.77±0.84)</td>
<td>0.75-1.25 (1.02±0.22)</td>
</tr>
<tr>
<td>Patella</td>
<td>0.75-1.12 (0.92±0.16)</td>
<td>0.50-1.12 (0.77±0.22)</td>
<td>0.37 -0.62 (0.52±0.10)</td>
<td>0.50-0.75 (0.62±0.08)</td>
<td>0.31-0.62 (0.43±0.12)</td>
</tr>
<tr>
<td>Tibia</td>
<td>3.50-5.62 (4.87±0.82)</td>
<td>2.37-4.25 (3.32±0.67)</td>
<td>0.75-1.50 (1.29±0.31)</td>
<td>2.00-3.37 (2.79±0.54)</td>
<td>0.37-0.75 (0.52±0.16)</td>
</tr>
<tr>
<td>Metatarsus</td>
<td>4.12-6.12 (5.37±0.81)</td>
<td>2.25-4.75 (3.22±1.75)</td>
<td>1.25-2.25 (1.72±0.41)</td>
<td>2.37-3.75 (3.12±0.60)</td>
<td>-</td>
</tr>
<tr>
<td>Tarsus</td>
<td>1.12-1.50 (1.34±0.13)</td>
<td>1.00-1.25 (1.09±0.10)</td>
<td>0.62-0.75 (0.64±0.05)</td>
<td>0.75-1.37 (0.94±0.25)</td>
<td>0.87-1.37 (1.12±0.19)</td>
</tr>
</tbody>
</table>

PIE = 0.11–0.20 (0.14±0.3), PME–PME=0.06–0.11 (0.08±0.01), AME–PME = 0.03–0.05 (0.04±0.01), ALE and PLE touching to each other. Sternum heart shaped, brown, covered with hairs, pointed behind, deeply indented margin, bears apical transverse row of 18 erect brown hair. Maxillae brown with broad distal end, narrow base and indented opposite base of labium, inner margin of maxillae with dense scopulae. labium brownish yellow, wider than long (length = 0.18–0.25 (0.20±0.03) mm and width = 0.31-0.50 (0.38±0.13) mm. Chelicerae yellow at base and brownish at distal end, promargin and retromargin with three and four teeth, respectively, Legs with some stout spines on femur, patella, tibia and metatarsus; distal end of legs with black ring. Dorsobasal of femur I with two rows of 13 trichobothria and seven prolateral spines, II with 10 spines, III with 6 spines and prolateral surface of the proximal half of femur IV with 33 trichobothria. Tibial spination (D, V, AL, PL): I = 3–0–3–3, II = 2–0–3–2, III = 1–0–0–0, IV = 2–0–2–2. Tarsi three clawed; leg formula 1243 (Table II).

**Abdomen**

Elongated, anterior end provided with two prominent humps and caudal end with one upward directed hump, dorsum of abdomen decorated with silvery white and black patches and lines. Ventral side with silvery white longitudinal bands extended from epigastric furrow to spinnerets.

**Male**

Unknown.

**Material examined**

Pakistan: Lahore, rice-field, six females, August–September, 2004; University of the Punjab, eight females, September–October, 2004; Jallo Park, five females, October, 2004.

**Remarks**

The specimens studied in present paper differ from the description of Dyal (1935) in some characters. According to Dyal (1935) description, in *Leucauge decorata* lateral eyes are nearer to the medians, abdomen more than three time as long as broad, colour of abdomen green and venter of abdomen bears a pair of crescent shaped white patches. In examined specimens median eyes close to each other than laterals; abdomen not always three time as long as broad, colour of abdomen black and venter of abdomen without crescent shaped patches.

*Cyrtophora citricola* (Forskal) (Fig. 3)

**Fig. 3.** *Cyrtophora citricola*, A, female dorsal view; Dorsal B, and ventral C, views of epigynum.
Table III.- Length of legs and pedipalp segments (mm) of female of *Cyrtophora citricola*.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Coxa</td>
<td>0.62–0.87</td>
<td>0.75–0.87</td>
<td>0.62–0.87</td>
<td>0.75–0.87</td>
<td>-</td>
</tr>
<tr>
<td>Femur</td>
<td>2.25–2.50</td>
<td>2.12–2.75</td>
<td>1.00–1.75</td>
<td>1.75–2.12</td>
<td>0.62–0.87</td>
</tr>
<tr>
<td>Patella</td>
<td>0.62–0.87</td>
<td>0.62–0.87</td>
<td>0.50–0.62</td>
<td>0.75–0.87</td>
<td>0.50–0.75</td>
</tr>
<tr>
<td>Tibia</td>
<td>2.00–2.37</td>
<td>1.62–2.12</td>
<td>0.87–1.12</td>
<td>1.37–1.75</td>
<td>0.50–0.62</td>
</tr>
<tr>
<td>Metatarsus</td>
<td>1.62–2.00</td>
<td>1.25–1.75</td>
<td>0.87–1.00</td>
<td>1.50–1.75</td>
<td>-</td>
</tr>
<tr>
<td>Tarsus</td>
<td>0.87–1.00</td>
<td>0.62–0.87</td>
<td>0.50–0.75</td>
<td>0.75–0.87</td>
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Redescription  
**Female**  
*General*: Total length = 5.25–8.50 (6.39±1.35) mm. Cephalothorax 2.12–2.50 (2.39±0.16) mm long and 2.00–2.50 (2.27±0.20) mm wide. Abdomen 3.00–6.00 (3.87±1.25) mm long and 2.25–3.87 (2.79±0.69) mm wide.  
*Cephalothorax*: Brownish with yellowish patches, slightly longer than wide, narrowing anteriorly, very broad posteriorly, clothed with grey pubescence, thoracic region slightly high. Eight eyes in two rows, both rows of eyes strongly recurved. Eye diameter (mm): AME= 0.09-0.12 (0.10±0.01), ALE = 0.05–0.10 (0.07±0.01), PME = 0.06–0.09 (0.07±0.01), PLE = 0.05-0.09 (0.07±0.01). Eyes separation (mm): AME–AME = 0.12–0.16 (0.14±0.01), AME–ALE = 0.08–0.13 (0.08±0.04), PME–PME = 0.08–0.12 (0.10±0.01), PME – PLE = 0.13–0.22 (0.18±0.02), AME–PME = 0.04–0.05 (0.04±0.01), ALE–PLE = 0.03–0.04 (0.03±0.01). Median ocular quadrangle forming a trapezium situated on elevation, wider in front than behind. Labium wider than long (length = 0.18-0.25 (0.22±0.03) mm and width = 0.37-0.50 (0.44±0.01) mm), light yellow and provided with distinct scopulae. Chelicerae strong, promargin and retromargin with four and three teeth, respectively. Legs short, strong, stout, clothed with pubescence (Table III).  
*Abdomen*  
Anteriorly high and strongly overlap cephalothorax, thickly clothed with pubesence and hair. Dorsum of abdomen provided with one pair of shoulder humps at middle and one pair of lateral humps at middle and one pair of bifid caudal humps, five pairs of distinct segilla arranged mid longitudinally. Epigynum with broad and small scape with prominent rim.  
**Male**  
Unknown  
*Material examined*  
*Remarks*  
The specimens studied differ from the description of Dyal (1935) in following characters. According to Dyal (1935), in *Cyrtophora citricola* thoracic region light blue in colour; ocular quad little longer than wide; sternum pointed apically, with a yellow median band. In examined specimens thoracic region is brown; ocular quad wider than long; sternum pointed distally and without any median band.

REFERENCES  


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