

Description of Two New Species of The Genus *Oxyopes* (Araneae: Oxyopidae) From Punjab, Pakistan

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Abstract.- *Oxyopes septumatus*, new species and *Oxyopes shorkotensis*, new species from Punjab, Pakistan, are described in this paper. Direct hand picking and jerking methods were used for the collecting of spiders. The specimens were preserved in 95% ethyl alcohol. Illustrations of the body parts, including genitalia of both species are also given.

Key words: Araneae, Oxyopidae, *Oxyopes septumatus*, *Oxyopes shorkotensis* new species, Punjab, Pakistan.

INTRODUCTION

The genus *Oxyopes* Latreille, 1804 is represented by 297 species and subspecies worldwide (Platnick, 2013). Seventeen species of the *Oxyopes* have been recorded so far from Pakistan. There is scarcity of literature of *Oxyopes* from Pakistan. O.P.-Cambridge (1885) described *Oxyopes jubilans* from Karakorum, Pakistan. Dyal (1935) studied the *Oxyopes* from Lahore, Pakistan and recorded five species (*Oxyopes raviensis* Dyal, 1935, *Oxyopes wroughtoni* Pocock, 1901, *Oxyopes rufisternis* Pocock, 1901, *Oxyopes ryvesii* Pocock, 1901, *Oxyopes hindostanicus* Pocock, 1901) including one new species. Later on, Khatoon (1986) reported three species (*O. rufisternis*, *O. ryvesii*, *O. hindostanicus*) from Islamabad. Mushtaq and Qadar (1999) recorded nine species including three new species (*Oxyopes campii*, *Oxyopes oryzae*, *Oxyopes gossypae*) from Punjab. Butt and Beg (2001) described one new species (*Oxyopes azhari*) from Faisalabad, Punjab. Ursani and Soomro (2010) recorded five species (*O. campii*, *O. hindostanicus*, *O. ryvesii*, *O. oryzae*, *O. wroughtoni*) from Sind. Recently, Mukhtar (2013) described two species (*Oxyopes machuensis*, *Oxyopes shakilae*) from Punjab. In this paper, two new species of the *Oxyopes* are described from Punjab, Pakistan.

Many workers contributed to the knowledge of the genus from India and other Asian countries: India (Pocock, 1901; Sherriffs, 1951; Tikader, 1965;

Tikader, 1970; Sadana and Gupta, 1995; Biswas *et al.*, 1996; Gajbe, 1999, 2008; Saha and Raychaudhuri, 2003; Biswas and Roy, 2005; Biswas and Biswas, 2006; Sen *et al.*, 2011; Bodkhe and Vankhede, 2012), China (Zhao, 1993; Xie and Kim, 1996; Song *et al.*, 1999; Hu, 2001; Bao and Yin, 2002; Yin *et al.*, 2003; Zhang and Zhu, 2005; Tang and Li, 2012), Iran (Esyunin *et al.*, 2011), Russia (Marusik and Kovblyuk, 2011), Phillipines (Barrion and Litsinger, 1995), Korea (Kim and Cho, 2002; Namkung, 2002, 2003), Japan (Yaginuma, 1986; Ono and Ban, 2009), and Laos (Jäger and Praxaysombath, 2009).

MATERIALS AND METHODS

The specimens were collected by hand picking and jerking methods and preserved in 95% ethyl alcohol with little glycerin. The detail study was done with the help of stereo microscope (Labomed Model CSM2). For measurements (mm), ocular micrometer was used whereas drawings of various body parts were made by using ocular grid. Ranges of various body parts (except legs) with their means and standard deviations are also provided.

Permanent glass slides of the genitalia were prepared following Mukhtar and Mushtaq (2005). Epigynes were removed from the abdomen by lifting the mid epigastric furrow using number I insect needle. Male palpi were removed from the base using the same needle. Epigynes were cleared in Petri dishes using KOH pellets, washed with distilled water and dehydrated by placing in different grades of alcohol (five minutes in each).

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After placing in clove oil and xylene for five minutes each, the epigynes were mounted on Canada balsam. Male palpi were washed in xylene for five minutes and then mounted on Canada balsam using cavity glass slides.

Identification was done on the basis of morphometric characters and the help was taken from the literature mentioned in the introduction and other relevant literature. The spination on the legs is given in the following sequence: dorsal, ventral, prolateral, and retrolateral, e.g. spination of femur I = 3 (111) – 0 – 1 (010) – 5 (113). It indicates that femur 1 has three dorsal spine (one each on proximal, medial, and distal position), no ventral spine, one prolateral spine (medial position) and, five retrolateral spines (one each on proximal and medial position, and three on distal position).

All the specimens were collected by the author. The specimens and slides were deposited in the Museum, Department of Zoology and Fisheries, University of Agriculture, Faisalabad.

Oxyopes septumatus, new species

(Fig. 1)

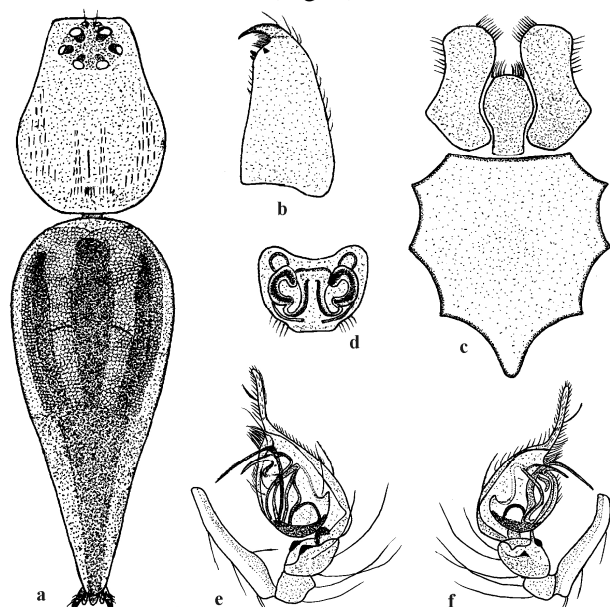


Fig. 1. *Oxyopes septumatus*, n.sp. . a, body dorsal view 9x; b, chelicera ventrolateral view 24x; c, labium, maxillae and sternum ventral view 24x; d, epigyne internal view 60x; e-f, left male palp dorsolateral and ventrolateral views 18x.

Type material

Holotype ♀, *Oryza sativa*, 17.10.1998, Gujranwala, 32°09'N, 74°12'E; allotype ♂, *Pothos scindepsis*, 19.6.1998, Bagh-e-Jinnah, Lahore, 31°33'N, 74°19'E; 2 ♀♀, same data as holotype; 1 ♀, 3 immature, *Quisqualis indica*, 24.8.1997, CRH Dhamma, Gojra, Toba Tek Singh, 31°09'N, 72°41'E; 1 ♂, 2 immature, *Iberis amara*, 20.6.1998, Bagh-e-Jinnah, Lahore, 31°33'N, 74°19'E; 1 ♀, 3 immature, *Hibiscus rosa-sinensis*, 22.10.1998, GC Bhakkar, 31°37'N, 71°03'E; 1 ♀, *Jasminum* spp., 29.10.1998, Govt. Secondary School, Pakpattan, 30.35'N, 73.40'E; 1 ♀, *Gossypium hirsutum*, 30.10.1998, Pattoki, Kasur, 31.01'N, 73.51'E; 1 ♀, *O. sativa*, 25.6.2000, Shorkot City, Jhang, 30°50'N, 72°04'E.

Description

Female (holotype): total body length 10.4 mm, carapace length 3.5mm, carapace width 2.6 mm, abdomen length 6.9 mm, abdomen width 3.0 mm. Number of female specimens measured 8. Range: total body length 8.3–10.4 mm (8.84 ± 0.88), carapace length 2.8–3.5 mm (3.14 ± 0.30), carapace width 1.7–2.7mm (2.28 ± 0.40), abdomen length 4.9–6.9 mm (5.70 ± 0.73), abdomen width 2.4–3.0 mm (2.64 ± 0.26)

Table I.- Length of leg segments (mm) of female (*Oxyopes septumatus* new species).

Leg	Femur	Patella+Tibia	Metatarsus	Tarsus	Total
1	3.3	4.7	3.8	1.6	13.4
2	2.9	3.6	3.4	0.7	10.6
3	2.8	3.2	2.6	0.8	9.4
4	3.1	3.6	4.1	0.9	11.7

Male (allotype): total length 7.0 mm, carapace length 3.0 mm, carapace width 2.3 mm, abdomen length 4.0 mm, abdomen width 1.3 mm. Number of male specimens measured 2. Range: total length 7.0–8.3 mm (7.65 ± 0.92), carapace length 3.0–3.0 mm (3.0 ± 0), carapace width 2.3–2.4 mm (2.35 ± 0.07), abdomen length 4.0–5.3 mm (4.65 ± 0.92), abdomen width 1.3–1.4 mm (1.35 ± 0.07).

Cephalothorax slightly elevated and narrow anteriorly, orange brown, four longitudinal patches of gray leaf like hairs on central and lateral areas, distinctly longer than wide, fovea long and reddish brown. Ocular area dark brown, a pair of yellow erect setae present at base of anterior median eyes. Eight eyes in a compact group of four transverse rows, with interior black patches except anterior median eyes. Anterior median eyes very small, closer to each other, other six eyes form hexagon and are equidistant; eye formula: anterior lateral eyes > posterior median eyes > posterior lateral eyes > anterior median eyes. Anterior eye row recurved, posterior eye row procurved. Clypeus with few yellow erect setae on anterior margin. Two black streaks extend from base of anterior median eyes to near tip of chelicerae. Chelicerae yellowish brown, broad basally, gradually narrow anteriorly; promargin with two teeth, lower small, upper large; retromargin with one tooth higher than promarginal teeth; fangs dark brown, short, strongly curved, with scopulae at base. Labium orange yellow with long hairs on apical margin, distinctly longer than wide, more than half of maxillae, rounded anteriorly, widest medially, narrow and truncate posteriorly. Maxillae orange yellow with dense black scopulae, distinctly longer than wide, medially deeply constricted outer lateral margin with few yellow setae, somewhat narrow basally, broad apically. Sternum yellowish brown, longer than wide, heart shaped, narrow anterior margin slightly depressed, widest medially, strongly tapering between coxae IV. Female pedipalp yellow with fine hairs and long spines, single clawed. Male palp dark brown; cymbium longer than wide, apically long, with two long spines – one on each apical and basal segment; embolus long and coiled, conductor spine like; tegulum with a pointed ridge in basal region; retrolateral tibial apophysis short, broad basally, pointed apically; ventral tibial apophysis rounded apically; femur with two short apicodorsal spines, two long dorsal spines; patella with two long dorsal spines, apical longer; tibia with three spines, dorsal and retrolateral long, prolateral short. Legs long, pale yellow, femora with paired dark brown ventral lines. Spination on legs: femur I = 3 (111) – 0 – 1 (010) – 5 (113), II = 3 (111) – 0 – 2 (011) – 4 (013), III = 4 (112) – 0 – 2 (110) – 2 (110), IV = 3 (111) –

0 – 2 (110) – 0 2 (110); patella I – IV = one short basodorsal, one long apicodorsal; tibia I = 1 (010) – 6 (222) – 0 – 0, II = 1 (010) – 0 – 2(110) – 0, III = 1 (010) – 4 (220) – 2 (110) – 2 (110), IV = 1 (010) – 4 (220) – 3 (111) – 3 (111); metatarsus I = 0 – 4 (220) – 3 (111) – 3 (111), II = IV = 0 – 6 (222) – 3 (111) – 3 (111), III = 0 – 4 (220) – 2 (101) – 2 (101). Tarsi three clawed. Leg formula: 1423.

Abdomen distinctly longer than wide, widest and rounded anteriorly, gradually tapering posteriorly. Dorsum dark brown with four chalk white bands, two medians running from anterior end to almost mid length, median narrow longitudinal dark brown band and lateral dark brown areas merge into single less darker area centrally and extend up to posterior margin. Anal tubercle yellowish brown, conical. Ventral side with median longitudinal dark brown band running from epigastric furrow to base of spinnerets, lateral area chalk brown. Spinnerets dark brown, anterior pair converging, median short, posterior with median segment long, wider apart. Epigyne with globular, anterolateral, diverging spermathecal sacs; median longitudinal 'T' shaped septum broad basally, narrow medially; spermathecal ducts coiled; epigynal orifices thin, ovoid, at posterior margin; epigynal plate nearly cup shaped with broad and depressed anterior margin, and narrow truncate posterior margin.

Etymology

Named due to the presence of median septum in epigyne.

Diagnosis

Oxyopes septumatus n.sp. is somewhat similar to *Oxyopes tiengianensis* Barrion and Litsinger, 1995 but can be differentiated from it and other congeners on the basis of following characters: Retromarginal tooth slightly smaller than upper promarginal tooth. Labium not depressed anteriorly, lateral margins rounded in anterior half, narrow posteriorly. Maxillae with deep constriction on outer lateral margin, inner margin also concave. Spination on legs differs. Epigyne with median septum without constriction. Male of *O. tiengianensis* has not been described so far.

Oxyopes shorkotensis, new species
(Fig. 2)

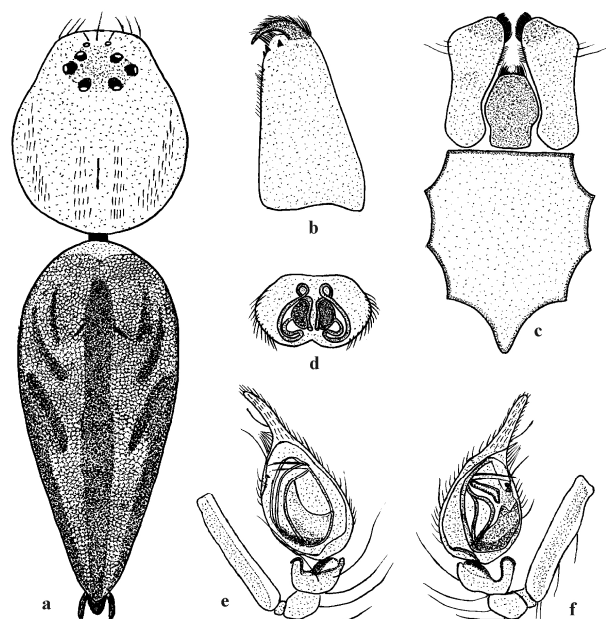


Fig. 2. *Oxyopes shorkotensis*, n.sp. . a, body dorsal view 9x; b, chelicera ventrolateral view 24x; c, labium, maxillae and sternum ventral view 24x; d, epigyne internal view 60x; e and f, left male palp dorsolateral and ventrolateral views 18x.

Type material

Holotype ♀, *Oryza sativa*, 28.9.1998, Shorkot City, Jhang, 30°50'N, 72°04'E; allotype, 1 ♂, same data as holotype; 6 ♀♀, 2 ♂♂, same data as holotype; 1 ♂, *Phoenix dactylifera*, 17.7.1996, Shorkot City, Jhang, 30°50'N, 72°04'E; 1 ♀, 2 immature, *Dalbergia sisso*, 22.7. 1996, FP Shorkot, Jhang, 30°45'N, 72°12'E; 1 ♀, 3 immature, *Sorghum bicolor*, 25.7.1996, Shorkot City, Jhang, 30°50'N, 72°04'E; 1 ♀, 2 immature, *Morus alba*, 30.8.1997, CRH Mud Baloochan, Sheikhpura, 31°43'N, 73°59'E; 2 ♀♀, 3 immature, *Saccharum munja*, 26.9.1998, FP, Layyah, 30°57'N, 70°57'E; 1 ♂, *Gardenia florida*, 3.10.1998, GC Joharabad, Khushab, 72°21'N, 32°17'E; 1 ♀, 5 immature, *S. bicolor*, 10.10.1998, FP Pirowala, Khanewal, 30°21'N, 72°02'E.

Description

Female (holotype): total length 10.0 mm, carapace length 3.4 mm, carapace width 2.6 mm, abdomen length 6.6 mm, abdomen width 2.8 mm. Number of female specimens measured 10. Range: total length 6.1–10.0 mm (7.53±1.71), carapace length 2.3–3.4 mm (3.95±0.39), carapace width 1.6–2.6 mm (2.12±0.32), abdomen length 3.3–6.6 mm (4.67±1.26), abdomen width 1.4–2.8 mm (2.05±0.60).

Table II.- Length of leg segments (mm) of female (*Oxyopes shorkotensis* new species).

Leg	Femur	Patella+Tibia	Metatarsus	Tarsus	Total
1	3.6	4.2	3.8	1.8	13.4
2	3.6	4.0	3.4	1.6	12.6
3	3.1	3.6	2.7	1.2	10.6
4	3.6	4.1	3.6	1.6	12.9

Male (allotype): total length 4.9 mm, carapace length 2.2 mm, carapace width 1.8 mm, abdomen length 2.7 mm, abdomen width 1.3mm. Number of male specimens measured 3. Range: total length 4.9–6.3 mm (5.53±0.71), carapace length 2.2– 2.7 mm (2.5±0.26), carapace width 1.8–2.2 mm (2.03±0.21), abdomen length 2.7–3.6 mm (3.03±0.49), abdomen width 1.3–1.6 mm (1.4±0.17).

Cephalothorax slightly elevated and narrow anteriorly, yellowish brown, four longitudinal patches of gray leaf like hairs on central and lateral areas, distinctly longer than wide, fovea long and reddish brown. Ocular area dark brown, single yellow erect seta present in front of anterior median eyes. Eight eyes in a compact group of four transverse rows with interior black patches except anterior median eyes. Anterior median eyes very small, closer to each other, other six eyes form hexagon and are almost equidistant; eye formula: anterior lateral eyes > posterior median eyes > posterior lateral eyes > anterior median eyes. Anterior eye row recurved, posterior eye row procurved. Clypeus with few yellow erect setae on anterior margin, small black area on anterolateral sides, two black streaks extend from base of anterior median eyes up to 2/3 length of chelicerae.

Chelicerae yellowish brown, broad basally, gradually narrow anteriorly; promargin with two teeth, lower small, upper large; retromargin with one tooth, higher and larger than promarginal teeth; fangs dark brown, short, strongly curved with scopulae at base and on upper side, tapering towards tip. Labium dark brown with long hairs on apical margin, distinctly longer than wide, more than half of maxillae, narrow and rounded anteriorly, widest medially, truncate posteriorly. Maxillae yellowish brown with dense black scopulae, distinctly longer than wide, medially constricted outer lateral margin with few yellow setae, somewhat narrow basally, broad apically. Sternum yellowish brown, longer than wide, heart shaped, narrow anterior margin straight, widest medially, strongly tapering between coxae IV. Female pedipalp pale yellow except yellowish brown tarsus, with fine hairs and long spines, tarsus single clawed. Male palp dark brown; cymbium longer than wide, apically long, with three spines – one on apical and two on basal segment; embolus long, and coiled; conductor spine like; tegulum with hook like median apophysis, basal area dark; retrolateral tibial apophysis short, curved downward forming 'C' shaped cavity; ventral tibial apophysis long, curved, pointed apically; femur with two short apicodorsal spines, two long dorsal spines; patella with two long dorsal spines, apical longer; tibia with three spines, dorsal and retrolateral long, prolateral short. Legs long, femora and tibiae pale yellow, femora with longitudinal dark brown ventral line, metatarsi and tarsi yellowish brown, metatarsi with basal transverse dark brown band. Spination on legs: femur I = 2 (101) – 0 – 2 (011) – 3 (111), II = 3 (111) – 0 – 3 (111) – 3 (111), III = 3 (111) – 0 – 2 (101) – 3 (111), IV = 3 (111) – 0 – 2 (011) – 1 (001); patella I – IV one short basal, one long apicodorsal; tibia I = 1 (010) – 4 (220) – 3 (111) – 2 (101), II = 1 (010) – 4 (220) – 1 (010) – 2 (101), III = 1 (010) – 4 (220) – 1 (010) – 1 (010), IV = 2 (110) – 4 (220) – 1 (010) – 3 (111); metatarsus I = 2 (011) – 4 (220) – 3 (111) – 3 (111), II = 0 – 3 (210) – 3 (111) – 3 (111), III = 0 – 3 (210) – 3 (111) – 3 (111), IV = 0 – 6 (222) – 3 (111) – 3 (111). Tarsi three clawed. Leg formula: 1423.

Abdomen distinctly longer than wide, anterior margin rounded, widest near anterior end,

gradually tapering posteriorly. Dorsum with chalk white area between narrow median longitudinal dark brown band and lateral dark brown areas, Anal tubercle dark brown, conical. Ventral side with broad median longitudinal dark brown band running from epigastric furrow to base of spinnerets, lateral area chalk white. Spinnerets dark brown, anterior pair covering, median short; posterior with median segment long, wider apart. Epigyne with median bean shaped spermathecal sacs; spermathecal ducts forming figure of 8 anteriorly, then coil inward; epigynal orifices thin ovoid, at posterior margin; epigynal plate slightly depressed anteriorly, rounded laterally and medially constricted posteriorly.

Etymology

Named after the type locality, Shorkot City, Jhang.

Diagnosis

Oxyopes shorkotensis new species is close to *Oxyopes azhari* Butt & Beg, 2001 but can be distinguished from it on the basis of following characters. Cephalothorax wider and rounded in this species but it is more elongated in *O. azhari*. Chelicerae with two promarginal teeth in *O. shorkotensis* n.sp. Spinnerets long and prominent dorsally. Male palp with embolus tip not circular but spine like; retrolateral tibial apophysis short, curved downward forming 'C' shaped cavity. Epigyne and internal genitalia also differ.

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