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Two New Species of the Genus *Cheiracanthium* C. L. Koch (Araneae: Eutichuridae) from Punjab, Pakistan

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Abstract.- A survey was made from twenty four localities of 19 districts of Punjab, Pakistan. A total of 143 spiders, including 50 males, 33 females and 60 immature, from 14 different plant species were captured.. Direct hand picking and jerking methods were used for the collecting of spiders. The specimens were preserved in a mixture of 95% ethyl alcohol with little glycerine. Two species, *Cheiracanthium warsai* n.sp. and *Cheiracanthium saccharanalis* n.sp., from Punjab, Pakistan, are described in this paper. Illustrations of various body parts, including genitalia of both species are also provided.

Key words: Araneae, Eutichuridae, *Cheiracanthium warsai*, *Cheiracanthium saccharanalis*.

INTRODUCTION

Cheiracanthium C. L. Koch 1839 was transferred from the family Clubionidae to family Miturgidae Simon by Ramírez *et al*. (1997) and recently to family Eutichuridae Lehtinen by Ramírez (2014). It is considered a senior synonym of *Chiracanthops* Mello-Leitão by Bonaldo and Brescovit (1992). This is a large genus represented by 184 species distributed all over the world (Platnick, 2014). The genus has been studied by several arachnologists in Asia: India (Patel and Patel, 1973; Tikader, 1975; Sadana and Bajaj, 1980; Tikader and Biswas, 1981; Majumder and Tikader, 1991; Patel and Reddy, 1991; Biswas and Roy, 2005; Biswas and Biswas, 2007), Bangladesh (Okuma *et al*., 1993; Biswas and Raychaudhuri, 2003), China (Zhang and Zhu, 1993; Zhang *et al*., 1994; Xie *et al*., 1996; Zhang and Yin, 1999; Song *et al*., 1999, 2001; Schmidt and Barensteiner, 2000; Hu, 2001; Wang and Zhang, 2013), Taiwan (Chen and Huang, 2004; Chen *et al*., 2006), Korea (Namkung, 2002, 2003), Japan (Yaginuma, 1986; Chikuni, 1989; Ono, 2009), South and South East Asia (Barrion and Litsinger, 1995), Deeleman-Reinhold, 2001; Jäger and Dankittipakul, 2010; Dankittipakul and Beccaloni. 2012).

There is no published work on this genus from Pakistan except checklist of Ursani and Soomro (2010), who listed six species including *C. denieli* Tikader, 1975, *C. himalayensis* Gravely, 1931 and four unpublished new species described by Mukhtar (2004) from Sindh. In the present study two new species of this genus are described from Punjab, Pakistan.

Diagnosis of the genus

Cephalothorax ovoid in shape, longer than wide, convex anteriorly; with no median fovae or thoracic groove, if present very inconspicuous. Eyes sub equal in size, arranged in two transverse rows. AER slightly recurved, PER slightly longer than AER, LE both anterior and posterior close to each other. MOQ relatively narrow anteriorly. Chelicerae longer than wide, moderately strong and stout armed with two to three teeth on each margin. Maxillae longer than wide, with median constriction on outer lateral margin. Labium usually longer than wide or sometimes as long as wide. Legs long and slender, moderately stout, spinose, slightly hairy on metatarsi and tarsi. Trochanter IV with distinct ventral notch. Anterior legs longer than posterior legs. Tibia of the male palp with retrolateral apophysis, sometimes with dorsal and ventral apophysis; cymbium with strong basal spur; tegulum with strong apophysis; embolus long arising, on retrolateral side of the tegulum. Abdomen elongated, oval, pointed posteriorly. Epigyne with flat or concave plate; spermathecae small, nearly rounded, well separated, close to epigastric furrow.

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MATERIALS AND METHODS

The spiders were collected by direct hand picking and jerking the plants on a cloth sheet. The sampling was done during 1997, 1998 and 2000. The specimens were put into container having 70 % alcohol and carried to the laboratory. Each animal was preserved in a separate glass vial in 95 % alcohol. A small amount of glycerine was also added to keep the body parts soft for study. A survey was carried from twenty four localities of 19 districts of Punjab that resulted in the capture of a total of 143 animals, including 50 males, 33 females and 60 immature from 14 different plant species. Identification was done on the basis of morphometric characters. More emphasis was given on the male and female genetalia. The literature referred in introduction and other available literature was used to compare and describe the new species. The morphological characters were recorded by using stereo microscope without camera (Labomed Model CSM2). Measurements (mm) were taken by using ocular micrometer whereas drawings of various body parts were made with the help of 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 (2012). The spination on the legs is given in the following sequence: dorsal, ventral, prolateral, and retrolateral, e.g. spination of femur III = 0 – 0 – 1 (001) – 1 (001) indicates that femur III has no dorsal or ventral spine but it has one prolateral (no proximal or medial spine but one spine on distal position) and one retrolateral spine (no proximal or medial spine but one spine on distal position). The collector name is not mentioned with each specimen in the material examined as all the animals were collected by the author himself. The specimens and slides were housed in the Museum, Department of Zoology and Fisheries, University of Agriculture, Faisalabad, Punjab, Pakistan for record and reference.

Cheiracanthium warsai, new species

(Fig. 1)

Type material

Holotype ♀, *Dalbergia sisso*, 22.12.1997, Forest Plantation Abbasia, Liaqatpur, Rahim Yar Khan, 28°6´N, 70°42´E; 5 Immature, same data as holotype.

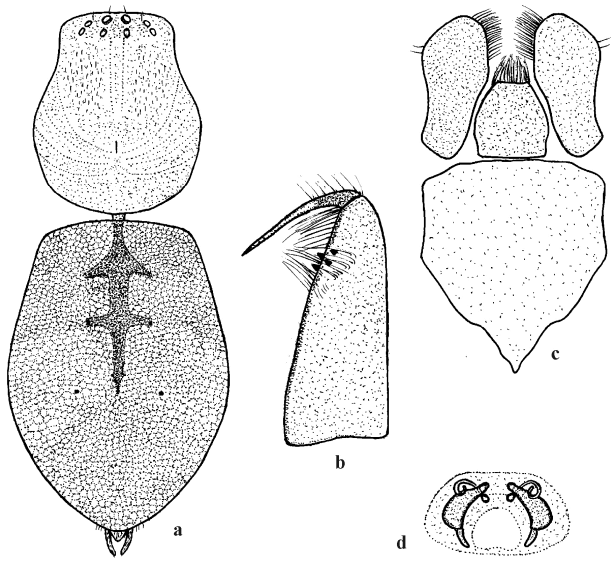

Fig. 1. *Cheiracanthium warsai* n.sp., a, body dorsal view, 9x; b, chelicera ventrolateral view, 24x; c, labium, maxillae and sternum ventral view, 24x; d, epigyne internal view, 60x.

Description

Female (holotype): total body length 7.1 mm, carapace length 2.7 mm, carapace width 2.1 mm, abdomen length 4.4 mm, Abdomen width 2.8 mm.

Table I.- Length of leg segments (mm) of female (*Cheiracanthium warsai* n.sp.).

Leg	Femur	Patella+Tibia	Metatarsus	Tarsus	Total
1	2.7	3.7	2.7	1.6	10.7
2	2.0	2.5	1.6	0.8	6.9
3	1.6	1.7	1.2	0.8	5.3
4	2.5	2.6	1.7	0.9	7.7

Cephalothorax orange brown, distinctly longer than wide, clothed with fine hairs; cephalic region moderately high, narrow than thoracic region, with two faint median longitudinal lines extending from base of posterior median eyes to less than mid length of cephalothorax, with short inconspicuous fovae and lateral striae. Ocular area brown with few yellow erect setae; eyes in two rows, equally spaced in both rows, pearly white except darker anterior median eyes; both medians

with black rings, larger than laterals. Anterior eye row slightly recurved. Posterior eye row scarcely longer than anterior eye row, slightly procurved; both laterals close to each other. Median ocular quad wider than long, narrow anteriorly. Chelicerae long and strong, orange brown with yellow erect setae scattered dorsally, broad basally, gradually narrow anteriorly; both margins with two similar teeth and dense long dark brown hairs, retromarginal teeth slightly higher than respective promarginal teeth; fangs long, strong and curved, concolour with chelicerae, having dark brown scopulae at base and few erect hairs over fangs. Labium and maxillae concolour with chelicerae, having dense black scopulae. Labium vase shaped, distinctly longer than wide, more than half of maxillae, narrow and slightly depressed anteriorly, widest median region, slightly narrow and truncate posteriorly. Maxillae with few setae, distinctly longer than wide, outer lateral margin medially constricted, broad apically, narrow basally. Sternum yellowish, distinctly longer than wide, heart shaped, slightly narrow anteriorly, widest medially, tapering between coxae IV posteriorly. Legs yellowish except dark brown tarsi. Spination on legs: femora I =without spines, II = 0 – 0 – 1 (100) –0, III = 0 – 0 – 1 (001) – 1 (001), IV = 0 – 0 – 0 – 1 (001); patellae I – IV without spines; tibiae I – II = 0 – 0 – 1 (001) – 0, III – IV = 0 – 0 – 1 (001) – 1 (001); metatarsi I = 0 – 4 (202) – 0 – 0, II = 0 – 4 (202) – 1 (001) – 1 (001), III = 0 – 3 (012) – 2 (011) – 2 (011), IV = 0 – 3 (102) – 2 (011) – 1 (001). Tarsi two clawed with thin brown scopulae and black claw tuft. Leg formula 1423.

Abdomen sub ovate, distinctly longer than wide, slightly narrow and convex anteriorly, widest medially, gradually tapering posteriorly. Dorsum chalk brown with narrow median longitudinal dark brown band, having two paired lateral arms, extending from anterior margin to mid length of abdomen; two pairs of dark brown sigella, one at margin of second lateral projection of band and one near mid of abdomen. Anal tubercle conical. Ventral side chalk brown without any band. Spinnerts convergent, anteriors and posteriors almost of equal size; anterior orange brown, robust, not visible dorsally; posteriors yellowish brown, apical portion not slender, prominent dorsally. Epigynal plate flat, slightly narrow and truncate anteriorly, broader and rounded posteriorly; copulatory openings conspicuous; spermathecal sacs large, elongated, divisible into two parts – swollen anterior portion and narrow posterior portion; copulatory tube short and coiled.

Male

Unknown.

Etymology

Dedicated to my mother Warsa Khanam.

Diagnosis

Cheiracanthium warsai n.sp. has apparent slight resemblance with *Cheiracanthium murinum* (Thorell) but differs from this due to following characters. Fovae present. Retromargin of chelicerae with two teeth. Tibiae I and II without ventral spines. Abdomen with median longitudinal band and two pairs of sigella, abdomen shape also differs. Shape of epigynal plate and coiling pattern of copulatory tubes also differ in the two species.

Cheiracanthium saccharanalis, **new species**

(Fig. 2)

Type material

Holotype ♀, *Saccharum officinarum*, 30.10. 1998, Pattoki, Kasur, 31°10´N, 73°50´E; allotype ♂, *Ervatamia coronaria*, 11.10. 1998, FP Chichawatni, Sahiwal, 30°32´N, 72°42´E; 1 ♀, 5 ♂♂, 10 immature, same data as holotype; 5 immature, same data as allotype, 30°32´N, 72°42´E; 11 ♀♀, 1 ♂, 5 immature, *Dalbergia sisso*, 20.7.1997, Jamke Cheema, Daska, Sialkot, 32°23´N 74°24´E; 1 ♀, 6 immature, *Gardenia florida*, 31.10.1997, canal rest house Neewan, Faisalabad, 31°25´N, 73°07´E´; 1 ♀, 6 immature, *Tamarix aphylla*, 17.12.1997, forest plantation Pirowala, Khanewal, 30°21´N, 72°02´E; 1 ♂, 5 immature, *Azadirachta indica*, 20.12.1997, Baghdadul Jadeed Campus, Islamia University Bahawalpur, 29°23´N, 71°39´E; 1 ♀, 1 ♂, 3 immature, *Bambusa hamiltoni*, 16.6. 1998, race course park Lahore, 31°33´N,74°19´E; 10 ♀♀, 1 ♂, 6 immature, *Mangifera indica*, 28.7. 1998, Chak 145/9L, Harappa, Sahiwal, 30°37´N, 72°52´E; 1 ♂, 8 immature, *Eriobotrya japonica*, 2.10. 1998, Kallar Kahar, Chakwal, 32°47´N, 72°43´E; 3 ♂♂, 7 immature, *Psidium guajava*, 4.10. 1998, Kufri Soan

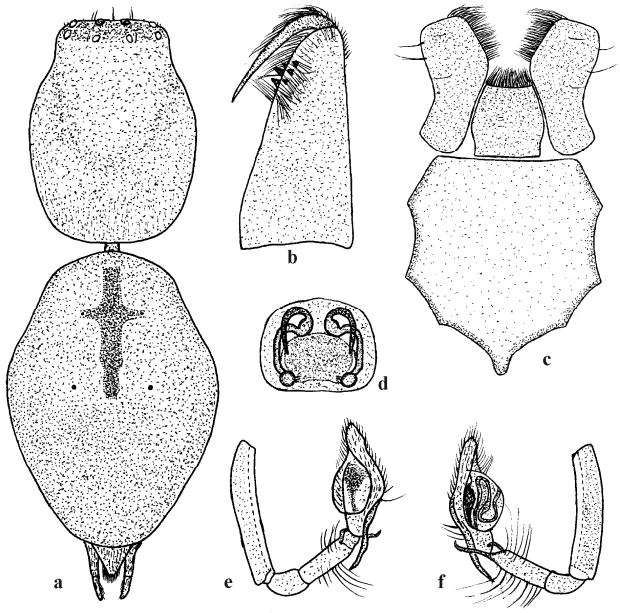

Fig. 2. *Cheracanthium saccharanalis* n.sp; a, body dorsal view, 9x; b, chelicera ventrolateral view, 24x; c, labium, maxillae and sternum ventral view, 24x; d, epigyne internal view, 60x; e and f, left male palp dorsolateral and ventrolateral views, 18x.

Valley, Khushab, 32°37´N 72°12´E; 2 ♂♂, *Sesbania seban*, 8.10. 1998, Fazilpur, Rajanpur, 29°17´N, 70°26´E,; 2 ♀♀, *Punica granatum*, 9.10. 1998, Fort Munro, Dera Ghazi Khan, 29°54´N, 69°59´E; 1 ♂, *Thuja orientalis*, 8.10. 1998, forest colony, Dera Ghazi Khan, 30°03´N, 70°38´E; 2 ♂♂, *Melia azaderch*, 10.10. 1998, Wildlife Park and Breeding Centre, forest plantation Pirowala, Khanewal, 30°21´N, 72°02´E; 7 ♂♂, *Eucalyptus* spp., 15.10. 1998, Government College Jehlum, 32°57´N, 73°44´E; 3 ♂♂, *Pennisetum typhoides*, 15.10. 1998, Jehlum, 32°57´N, 73°44´E; 1 ♂, *Jasminum* spp., 15.10. 1998, Government Zimidara Science College Gujrat, 32°34´N, 74°04´E; 2 ♂♂, *Broussonetia papyrifera*, 16.10. 1998, Government MarryCollege Sialkot, 32°30´N, 74°32´E; 1 ♀, 1 ♂, *Pongamia glabra*, 17.10. 1998, Government College Gujranwala, 32°09´N, 74°12´E; 1 ♀, *D. sisso*, 22.10. 1998, Government College Bhakkar, 31°37´N, 71°03´E; 6 ♂♂, *Acacia nilotica*, 23.10. 1998, forestplantation Kundian, Mianwali, 32°27´N, 71°29´E; 1 ♂, *Murraya paniculata*, 4.10. 1998, University of Sargodha, 32°04´N, 72°41´E; 1 ♀, 2 ♂♂, *Gossypium hirsutum*, 1 ♀, *B. hamiltoni*, 30.10. 1998, Pattuki, Kasur, 31°01´N, 73°50´E; 1 ♀, 5 ♂♂, *G. florida*, 31.10. 1998, Government High School Changa Manga, Kasur, 31°05´N, 73°59´E; 2 ♂♂, *Eucalyptus* spp., 25.6.2000, Shorkot City, Jhang, 30°50´N, 72°04´E; 1 ♂, *Vitis vinifera*, 2.7.2000, Grapes Orchard, University of Agriculture Faisalabad, 31°25´N, 73°07´E´.

Description

Female (holotype): total body length 10.5 mm, carapace length 4.2 mm, carapace width 3.0 mm, abdomen length 6.3 mm, abdomen width 3.7 mm. Number of female specimens measured 15 Range: total body length mm 6.3– 0.5 mm (8.06±1.53), carapace length mm 2.7–4.2 mm (3.41±0.40), carapace width mm 2.2–3.0 mm (2.67±0.26), abdomen length mm 3.5–6.3 mm (4.52±0.87), abdomen width mm 2.3–3.7.mm (2.82±0.46).

Table II.- Length of leg segments (mm) of female (*Cheiracanthium saccharanalis* n. sp.).

Leg	Femur	Patella+Tibia	Metatarsus	Tarsus	Total
1	3.6	5.3	4.1	1.8	14.8
2	3.0	3.8	2.9	1.3	11.0
3	2.2	2.9	2.4	1.2	8.7
4	3.6	4.2	3.9	1.3	13.0

Male (allotype): total body length 6.7 mm, carapace length 2.6 mm, carapace width 2.2 mm, abdomen length 4.1 mm, abdomen width 2.1 mm. Number of female specimens measured 15 Range: total body length mm 6.2–8.1 mm (7.18±0.67), carapace length mm 2.6–3.6 mm (3.03±0.40), carapace width mm 2.0–2.7 mm (2.35±0.27) , abdomen length mm 3.5–5.0 mm (4.15±0.50), abdomen width mm1.9–2.5 mm (2.18±0.22).

Cephalothorax orange yellow, distinctly longer than wide, clothed with fine hairs, cephalic region slightly high, narrow and nearly straight anteriorly, fovae absent. Ocular area dark brown, with few erect short yellow setae; eyes in two rows, pearly white except darker anterior median eyes with black rings, anterior median eyes slightly larger than others. Anterior eye row slightly recurved, medians slightly closer to each other than laterals. Posterior eye row longer than anterior eye row, slightly procurved, eyes equally spaced; both

laterals close to each other. Median ocular quad wider than long, narrow anteriorly. Clypeus height small, nearly half of anterior median eyes diameter. Chelicerae long and strong, reddish dark brown with yellow erect setae scattered dorsally, broad basally, gradually narrow anteriorly; promargin with three teeth, upper very small, median largest; retromargin with three teeth, first two of equal size, third smaller, with dense long dark brown hairs; fangs long and strongly curved, concolour with chelicerae, with dark brown scopulae at base and over fangs. Labium and maxillae concolour with chelicerae, having dense black scopulae. Labium distinctly longer than wide, more than half of maxillae, narrow and slightly depressed anteriorly, widest near median region, slightly narrow and truncate posteriorly. Maxillae with few setae, distinctly longer than wide, narrow basally. Sternum orange yellow with lateral margins darker, distinctly longer than wide, heart shaped, slightly narrow anteriorly. Male palp yellow except yellowish brown cymbium and dark brown tinges on tegulum; tegular apophysis broad basally and pointed apically; cymbium longer than wide with yellowish brown hairs, apical part short, with long and strong basal spur whose pointed end curved inward; embolus long, coiled; tibia with numerous long yellow hairs; retrolateral tibial apophysis long, directed outward, basal portion broad, apex pointed and slightly curved inward; ventral tibial apophysis short, apex rounded ´C´ shaped; patella and femur without long hairs or spines. Legs yellow except orange dark brown metatarsi and tarsi having thin yellow scopulae. Spination on legs: femora I = 0 – 0 – 1 (001) – 0, II = 0 – 0 – 2 (011) – 0, III = 0 – 0 – 2 (011) –2 (011), IV = 0 – 0 – 1 (001) – 2 (011); patellae I – IV without spines; tibiae I = 0 – 5 (221) – 0 – 0, II without spines, III = 0 – 0 – 1 (010), IV = 0 – 0 – 1 (010) – 1 (010); metatarsi I – II = 0 – 4 (202) – 1 (001) – 1 (001), III – IV = 0 – 6 (222) – 3 (111) – 3 (111). Tarsi two clawed with black claw tuft. Leg formula 1423.

Abdomen distinctly longer than wide, narrow and convex anteriorly, wider near mid length, gradually tapering posteriorly. Dorsum brown with narrow median longitudinal dark brown band having a pair of lateral arms, extending from anterior margin to near mid of abdomen; two pairs of lateral reddish dark brown sigella, one at margins of lateral arms of band and one near mid length of abdomen. Anal tubercle large, conical with long brown hairs. Ventral side slightly lighter in colour than dorsum, without any band. Anterior spinnerts orange brown, robust, short, convergent and slightly visible dorsally; posterior spinnerts longer, slightly converging, segment II very long, apical segment slender, prominent dorsally. Epigynal plate semicircular; copulatory openings on lateral sides; spermathecal sacs small, rounded; copulatory tube long with anterior swollen portion, fertilization tube short directed inward.

Etymology

Named after the plant (*Saccharum officinarum*) from which holotype was collected.

Diagnosis

Cheiracanthium saccharanalis new species is close to *Cheiracanthium apia* Platnick but it differs from latter on the basis of following characters. Cephalic region nearly straight anteriorly, median ocular quad wider than long. Chelicerae with three teeth on both margins. Labium not as narrow anteriorly in *C. saccharanalis* new species as it is in *C. apia* Platnick. Maxillae not concave anteriorly, outer lateral constriction more deep. Abdomen with narrow median longitudinal dark brown band and two pairs of sigella, not constricted in posterior half. Epigyne differs in structural details. ventral tibial apophysis and retrolateral tibial apophysis shapes in male palp vary.

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