

New Species of *Zelotus* Spider (Araneae: Gnaphosidae) from Pakistan

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Abstract.- The paper contains description and taxonomic drawings of four new species of the genus *Zelotus*, collected from the orchards of Faisalabad, Pakistan.

Key words: Spiders, orchards, Gnaphosidae.

INTRODUCTION

The family Gnaphosidae is a large family and very common in the world. The members of this family are two clawed hunters, found under the stones, bark or in moss. This family was first recorded by Dyal (1935) from Lahore, Pakistan. However, specimens of genus *Zelotus* were not present in his collection. There is no record of genus *Zelotus* from Pakistan, although some information from the nearby areas of India (Tikader, 1982; Tikader and Gajbe, 1976, 1979) and China (Schenkel, 1963; Platnik and Song, 1986) are available.

Collections made from the orchards of Faisalabad, Pakistan contain four new species of *Zelotus*. Illustrations and description of these species are presented in the paper. The internal genitalial characters of female specimens are also included. The color and pattern described for each animal are in alcohol. All measurements are in millimeters. The following abbreviations have been used in the text: BL, body length; CL, carapace length; CW, carapace width, AL, abdomen length; AW, abdomen width; AME, anterior median eyes; ALE, anterior lateral eyes; PME, posterior median eyes; PLE, posterior lateral eyes. All measurements are in millimeters. In measurements the sample range is followed by the mean and standard deviation in parenthesis.

Zelotus illustris, new species (Fig. 1)

Female

Number of specimens measured 10. BL, 4.85-5.79 (5.32±0.26); CL, 1.89-2.39 (2.21±0.17); CW, 1.47-1.84 (1.59±0.13); AL, 2.34-3.47 (2.97±0.32); AW, 1.41-1.97 (1.76±0.19).

Caparace covered with hairs. A foveae in the middle of the thoracic region and black streaks radiate from the foveae to the side of the cephalothorax. Anterior row of eyes slightly procurved, AME close to and slightly smaller than adjacent ALE. Posterior row of eyes nearly straight, longer than anterior row; PME oval in shape, smaller than PLE and close to the latter than to each other (Fig. 1A). Ocular quad small in front and wide behind. Chelicerae dark brown in colour, inner margin with one tooth and outer margin with three teeth. Maxillae longer than wide, with a strong depression on lateral side and scopulae at the anterior end. Labium also longer than wide with slight depression near the base and touching with maxillae. Sternum heart shaped, concolour with the carapace, covered with black hairs, lateral margins notched. Legs without markings, covered with hairs and spines. Ventrally the proximal end of coxae with a V-shaped depression. Tibia III and IV with three pairs of ventral spines. Scopulae reach up to the base of metatarsi I and II upto tarsi III and IV.

Abdomen dorsally unmarked, covered with black hairs and spines (Fig. 1A). On ventral side two dark lines start from the epigynal fold and run upto the three fourth of the abdomen. Epigynum at

the anterior end with procurved sclerotized strip, notched in center. Epigynal plate rectangular in shape. Spermatheca round and epigynal duct lying transversely (Figs. 1C,D).

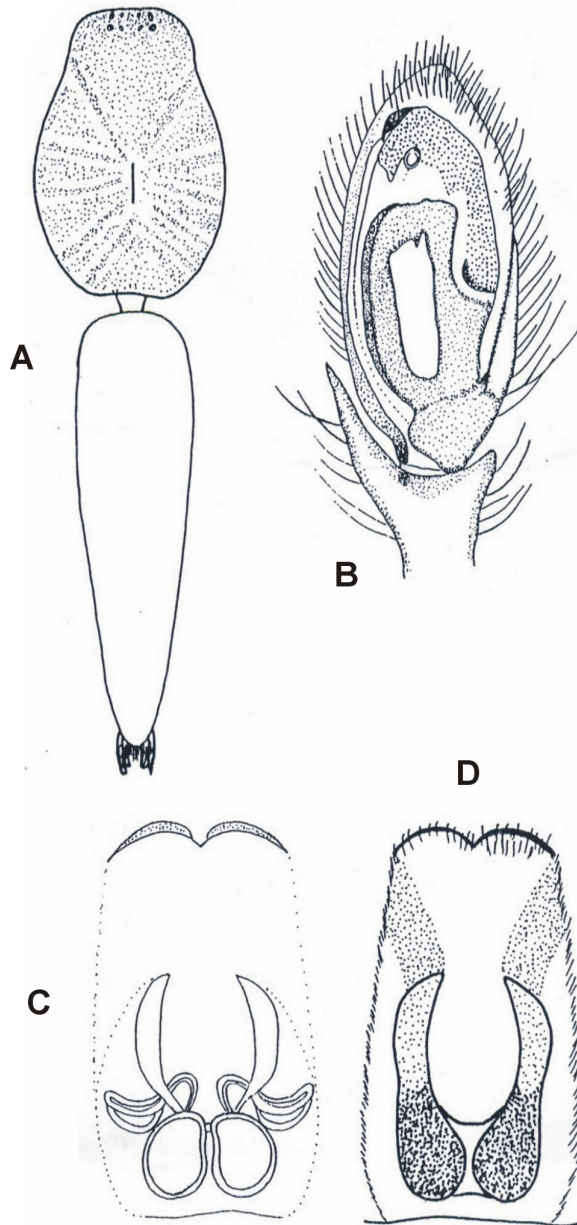


Fig. 1. A, *Zelotus illustris* new species; B, Palp, ventral view; C, Epigynum, dorsal view; D, Epigynum, ventral view.

Male

Cephalothorax, abdomen and legs dark brown in colour. Number of specimens measured, 12. BL, 4.95-5.57 (4.98 ± 0.35); CL, 1.87-2.19 (2.08 ± 0.16); CW, 1.49-1.89 (1.73 ± 0.14); AL, 2.78-3.68 (3.42 ± 0.24); AW, 1.51-1.92 (1.79 ± 0.23). Retro-lateral tibial apophysis broad at the base and tip directed anteriorly. Embolus broad at base and tapers at tip; tip hook-shaped (Fig. 1B).

Types

Holotype female from vineyard, Faisalabad, Pakistan (May 22, 1992; A. Butt), three paratype females (May 2, 1992) and three allotype male (March 18 and July 16, 1992) from type locality, deposited in Department of Zoology, University of Agriculture, Faisalabad, Pakistan.

Other specimens examined

Pakistan: Faisalabad; Vineyard; April, 1992, 1 male; May, 1992, 1 male; July, 1992, 1 male and 4 females; October, 1992, 1 male; January, 1993, 1 male; Citrus orchards; June, 1992, 1 male; August, 1992; 2 females; August, 1993, 1 male and 1 female; Guava grove; May, 1992, 1 male; March, 1993, 1 male.

Comments

Zelotus illustris resembles *Zelotus mandae* Tikader and Gajbe (1976) but can be distinguished from the later by the following characters: (i) In *Z. illustris* epigynal ducts are long and arranged in two loops lies transversely, whereas in *Z. mandae* the ducts are short and form a single loop. (ii) In *Z. illustris* the anterior ridge is relatively farther from genitalia than in *Z. mandae*.

Zelotus faisalabadensis, new species (Fig. 2)

Female

Cephalothorax and legs reddish brown and abdomen yellowish green in colour. Number of specimens measured, 6. BL, 6.44-7.94 (7.03 ± 0.56); CL, 2.19-3.28 (2.65 ± 0.40); CW, 1.65-2.59 (1.95 ± 0.37); AL, 3.52-5.23 (4.35 ± 0.61), AW, 2.11-2.54 (2.26 ± 0.17).

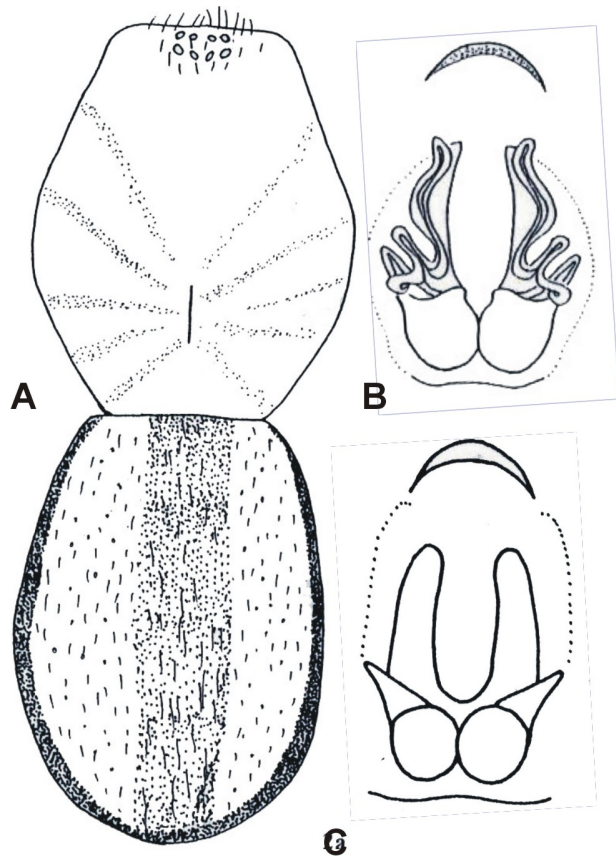


Fig. 2. A, *Zelotus faisalabadensis* new species; B, Epigynum, dorsal view; C, Epigynum, ventral view.

Cephalothorax with broad anterior and posterior ends, covered with hairs. Fovae nearly in the middle of the thoracic region and black streaks radiate from it. Anterior row of eyes slightly procurved, AME close to and slightly smaller than adjacent ALE. Posterior row of eyes nearly straight, longer than anterior row; PME oval in shape, smaller and closer to PLE than to each other (Fig. 2A). Ocular quad wider in front than behind. Chelicerae dark brown in color, inner margin with one tooth and outer margin with three teeth. Maxillae very long, with a strong depression on lateral side and scopulae at the anterior end. Labium also long, anterior end wider than posterior one. Sternum heart-shaped, concolour with the carapace,

covered with black hairs, margins wavy. Legs without markings, covered with hairs and spines. Tibiae III and IV with three pairs of spines on ventral side.

A broad band of black hairs and spines on mid-dorsal surface of the abdomen. Sides of abdomen dark brown, ventral side yellowish green in color and covered with hairs. Epigynal plate oval with crescent – shape sclerotized ridge at the anterior end. Spermatheca roughly rectangular, epigynal duct loosely coiled (Fig. 2B, C).

Male

Unknown.

Types

Holotype female from vineyard, Faisalabad (July 16, 1992; A. Butt) and one paratype female (May 22, 1992) from type locality, deposited in Department of Zoology, University of Agriculture, Faisalabad, Pakistan.

Others specimens examined

Pakistan: Faisalabad; Vineyard: August, 1992, 1 female; October, 1992, 2 females; March, 1993, 1 female.

Remarks

Zelotus faisalabadensis resembles *Zelotus satarensis* Tikader and Gajbe (1976) but the former can be distinguished from the latter on the bases of the following characters: (i) In *Z. faisalabadensis* outer margin of chelicera has three teeth while in *Z. satarensis* there are only two teeth. (ii) In *Zelotus faisalabadensis* abdomen is wide and round posteriorly and has a mid-dorsal broad black band. While in *Zelotus satarensis* abdomen is elliptical, pointed posteriorly and has no dorsal band. (iii) In *Zelotus faisalabadensis* spermatheca is squarish and epigynal ducts are long, whereas in *Zelotus satarensis* spermatheca is round and epigynal ducts are small.

Zelotus pakistaniensis, new species (Fig. 3)

Female

Cephalothorax and legs brown and abdomen

yellowish green in colour. Number of specimens measured, 5. BL, 4.49-5.82 (5.19 ± 0.50); CL, 1.70-1.98 (1.82 ± 0.10); CW, 1.35-1.47 (1.40 ± 0.05); AL, 2.72-3.84 (3.32 ± 0.42), AW, 1.44-2.11 (1.85 ± 0.23).

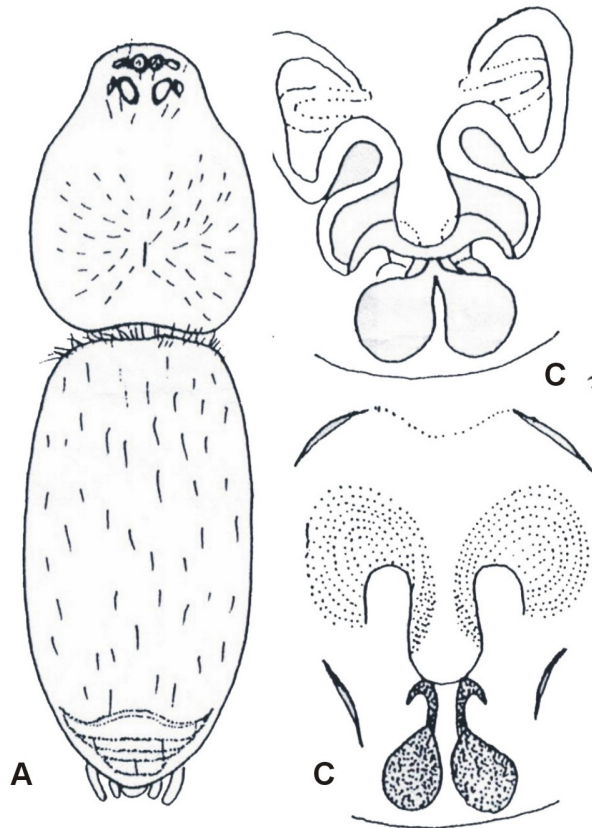


Fig. 3. A, *Zelotus pakistaniensis* new species; B, Epigynum, dorsal view; C, epigynum, ventral view.

Carapace narrow in front, covered with bristles like brown hairs. Anterior row of eyes nearly straight and the posterior row of eyes procurved. AME black in color and all others pearly white. PME largest, oval and touching PLE. Eyes of anterior row closely placed and almost touching each other, AME larger than ALE. The bases of all eyes encircled by black ring (Fig. 3A). Chelicerae reddish brown in color, inner margin with one tooth and outer margin with three teeth. Maxillae longer than wide with a depression at lateral side and

scopulae at the anterior end. Labium also longer than wide with slight depression near the base and touching the maxillae. Sternum heart-shaped, concolour with the carapace, covered with brown hairs at the margins. Legs concolour with cephalothorax, covered with hairs and spines.

Abdomen unmarks, covered with brown hairs. At the posterior end few black fine transverse lines present (Fig. 3A). On ventral side two reddish brown lines start from the epigynal fold and run up to the two third of abdomen. Epigynal plate longer than wide, distally provided with a medially invaginated procurved sclerotized ridge. Spermatheca round, epigynal duct long and loosely coiled (Fig. 3B, C).

Male

Unknown.

Types

Holotype female from vineyard, Faisalabad, Pakistan (July 16, 1992; A. Butt) and two paratype females (May 22, 1992, 1 female and August 25, 1993, 1 female) from type locality, deposited in Department of Zoology, University of Agriculture, Faisalabad, Pakistan.

Others specimens examined

Pakistan: Faisalabad; citrus grove; May, 1993, 1 female; June, 1993, 1 female.

Remarks

Zelotus pakistaniensis resembles *Zelotus poonaensis* Tikader and Gajbe (1976) but can be distinguished from it by the following characters: (i) In *Zelotus pakistaniensis* AME are larger than ALE but in *Zelotus poonaensis* AME smaller than ALE. (ii) No streaks radiate from fovae in *Zelotus pakistaniensis* as described for *Zelotus poonaensis*. (iii) In *Zelotus pakistaniensis* black lines are present at the posterior end of the abdomen. No such lines are present in *Zelotus poonaensis*. (iv) Interna and external genitalia of the two species are structurally different. In *Zelotus pakistaniensis* the spermatheca are oval and closely placed. Epigynal ducts are long and tortuous. In *Zelotus poonaensis* spermatheca are round and not so closely placed. Epigynal ducts are long but not so coiled.

Zelotus pulchellus, new species
(Fig. 4)

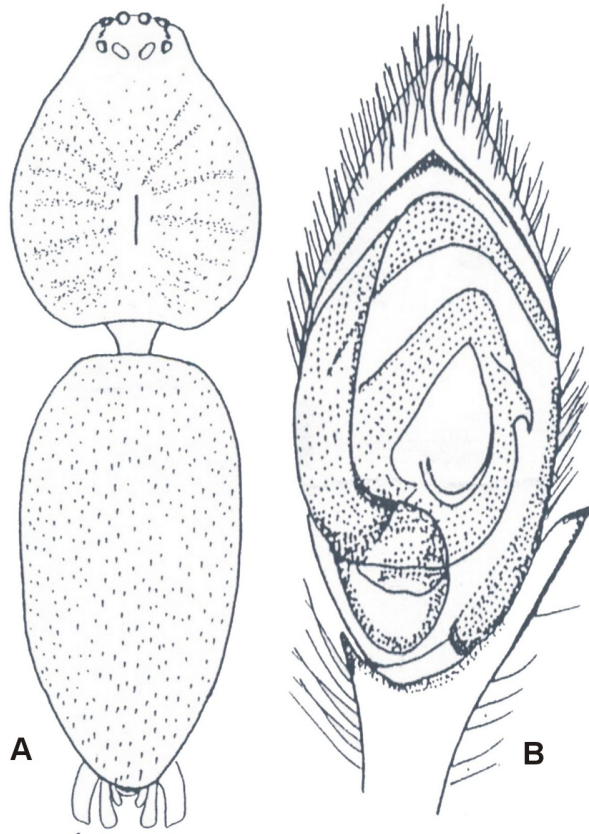


Fig. 4. A, *Zelotus pulchellus* new species;
B, Palp, ventral view.

Male

Cephalothorax, abdomen and legs brown in colour. Number of specimens measured = 8. BL, 4.26-5.19 (4.95±0.31); CL, 1.57-2.05 (1.99±0.12); CW, 1.36-1.78 (1.67±0.17); AL, 2.61-3.24 (2.73±0.13); AW, 1.31-1.62 (1.54±0.09).

Carapace unmarked and covered with short brown spines. Brown steaks radiate from the foveae. Anterior row of eyes slightly procurved, AME close to and slightly smaller than adjacent ALE. Posterior row of eyes nearly straight, longer than anterior row; PME oval in shape and larger than PLE (Fig. 4A). Medians closer to laterals than to each other; ocular quad wider in front and smaller behind. Chelicerae dark brown in color, inner margin with

one tooth and outer margin with three teeth. Maxillae longer than wide, with a depression at lateral side and scopulae at the anterior end. Labium also longer than wide with slightly depression near the base and touching the maxillae. Sternum heart-shaped, concolour with the carapace, covered with black hairs. Legs covered with hairs and short spines.

Retro-lateral tibial apophysis tapering towards tip; embolus long with two bends and tip directed anteriorly and nearly reaching the anterior end of cymbium. Median apophysis short and hook shaped (Fig. 4B).

Female

Unknown.

Types

Holotype male from vineyard, Faisalabad, Pakistan (July 16, 1992; A. Butt) and one paratype male (October 16, 1992) from type locality, deposited in Department of Zoology, University of Agriculture, Faisalabad, Pakistan.

Other specimens examined

Pakistan: Faisalabad; Guava grove; May, 1992; 3 males; August, 1992, 1 male; July, 1993, 1 male; September, 1993, 1 male.

Remarks

Zelotus pulchellus differs from its congeners described from the Oriental region in the following respects: (i) In *Zelotus pulchellus* body is covered by small spines, presence of such spines has not been described for other species. (ii) *Zelotus pulchellus* differ from other species by having a very long embolus and tapering retro-lateral tibial apophysis.

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