

FURTHER STUDIES ON SOME SPIDERS OF THE GENUS *ZELOTES* GISTEL  
(ARANEAE : GNAPHOSIDAE) FROM INDIA

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ABSTRACT

Five new species of spiders of the genus *Zelotes* Gistel from Maharashtra State, India, are described in the paper. A Key to the Indian species of *Zelotes* is also provided.

INTRODUCTION

Practically there was no work in the past on the spiders of the family Gnaphosidae from India, although gnaphosid spiders are abundant throughout the country. Very recently Tikader (1962, 1964, 1966, and 1973) and Tikader and Gajbe (1975, 1976) have published some papers on these interesting group of spiders from India.

While examining the spiders of the family Gnaphosidae from India, we came across many new species of gnaphosid spiders, some of which are described elsewhere.

We have described in this paper five new species of spiders of the genus *Zelotes* Gistel. So far eight species of *Zelotes* spiders are known from India, namely *Z. ashae* Tikader and Gajbe, *Z. poonaensis* Tikader and Gajbe, *Z. surekhae* Tikader and Gajbe from Poona ; *Z. nasikensis* Tikader and Gajbe from Nasik, Maharashtra ; *Z. mandlaensis* Tikader and Gajbe from Mandla ; *Z. jabalpurensis* Tika-

der and Gajbe from Jabalpur, M. P. ; *Z. nainitalensis* Tikader and Gajbe from Nainital and *Z. chandosiensis* Tikader and Gajbe from Moradabad, U. P. A key to the thirteen species (eight known and five new) is given. The type specimens will in due course be deposited in the collection of Zoological Survey of India, Calcutta.

Key to the Indian species of *Zelotes*

- |   |                      |
|---|----------------------|
| 1. Spiders of small size, upto 6 mm. . . . .  | 2                    |
| — Spiders of bigger size upto 9 mm. . . . .   | 9                    |
| 2. Posterior row of eyes straight. Tibiae III and IV with three pairs of ventral spines. . .            | 3                    |
| — Posterior row of eyes slightly procurved. Tibiae III and IV with two pairs of ventral spines. . . . . | <i>chandosiensis</i> |
| 3. Posterior median eyes irregular in shape, smaller than the posterior laterals . . . . .              | 4                    |
| — Posterior median eyes oval, larger than the posterior laterals . . . . .                              | <i>poonaensis.</i>   |

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- 4. Eyes of the posterior row equally spaced .. 5
- Eyes of the posterior row not equally spaced ..... 7
- 5. Abdomen dorsally provided with black patches or chevrons. Inner margin of chelicera with two teeth. 6
- Abdomen dorsally without black patches. Inner margin of chelicera without tooth .. *nainitalensis*
- 6. Abdomen dorsally provided with some black patches. Outer margin of chelicera with four teeth .. ..... *surekhae*
- Abdomen dorsally provided with seven deep brown transverse chevrons. Outer margin of chelicera with three teeth ..... *sajali*
- 7. Inner margin of chelicera with one tooth. Anterior row of eyes procurved ( as seen from in front ) ..... 8
- Inner margin of chelicera with four teeth. Anterior row of eyes recurved (as seen from in front ) ..... *naliniae*
- 8. Outer margin of chelicera with two teeth .... ... *nasikensis*
- Outer margin of chelicera with three teeth ..... *mandae*
- 9. Anterior row of eyes slightly procurved ( as seen from in front ) —..... 10
- Anterior row of eyes nearly straight ( as seen from in front ) .. ... 11
- 10. Posterior median eyes larger than the posterior laterals and equally spaced. Inner and outer margin of chelicera with two and four teeth respectively ..... *ashae*
- Posterior median eyes smaller than the posterior laterals and closer to posterior laterals than to each other. Inner and outer margin of chelicera with one and two teeth respectively ..... *sataraensis*
- 11. Posterior median eyes slightly larger than the posterior laterals .... ..... 12
- Posterior median eyes slightly smaller than the posterior laterals ..... *mandlaensis*

- 12. Eyes of posterior row equally spaced. Inner and outer margin of chelicera with two and six teeth respectively .. ... *jabalpurensis*
- Eyes of posterior row not equally spaced. Inner and outer margin of chelicera with two and four teeth respectively .... ..... *choubeyi*

1. *Zelotes sajati* sp. nov.  
(Fig. 1 A—E)

**General :** Cephalothorax and legs reddish-brown, abdomen brown. Total length 6.00 mm. Carapace 2.90 mm. long, 2.00 mm. wide ; abdomen 3.20 mm. long, 2.10 mm. wide.

**Cephalothorax :** Longer than wide, narrow in front, slightly convex, clothed with pubescence, posterior middle provided with a conspicuous fovea and with a deep brown narrow line encircling almost the entire border. Eyes closely grouped, silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes very slightly procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and nearly equally spaced. Sternum oval, pointed behind, clothed with fine hair. Labium and maxillae as in fig. 1D. Chelicerae moderately strong, vertical, inner margin provided with two teeth and outer margin with three teeth. Legs relatively longer and strong, clothed with hair and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto apices of metatarsi III and IV. Legs formula 4123.

**Abdomen :** Longer than wide, elliptical, clothed with fine hair and posterior half of abdomen provided with seven deep brown transverse chevrons as in fig. 1A. Anterior

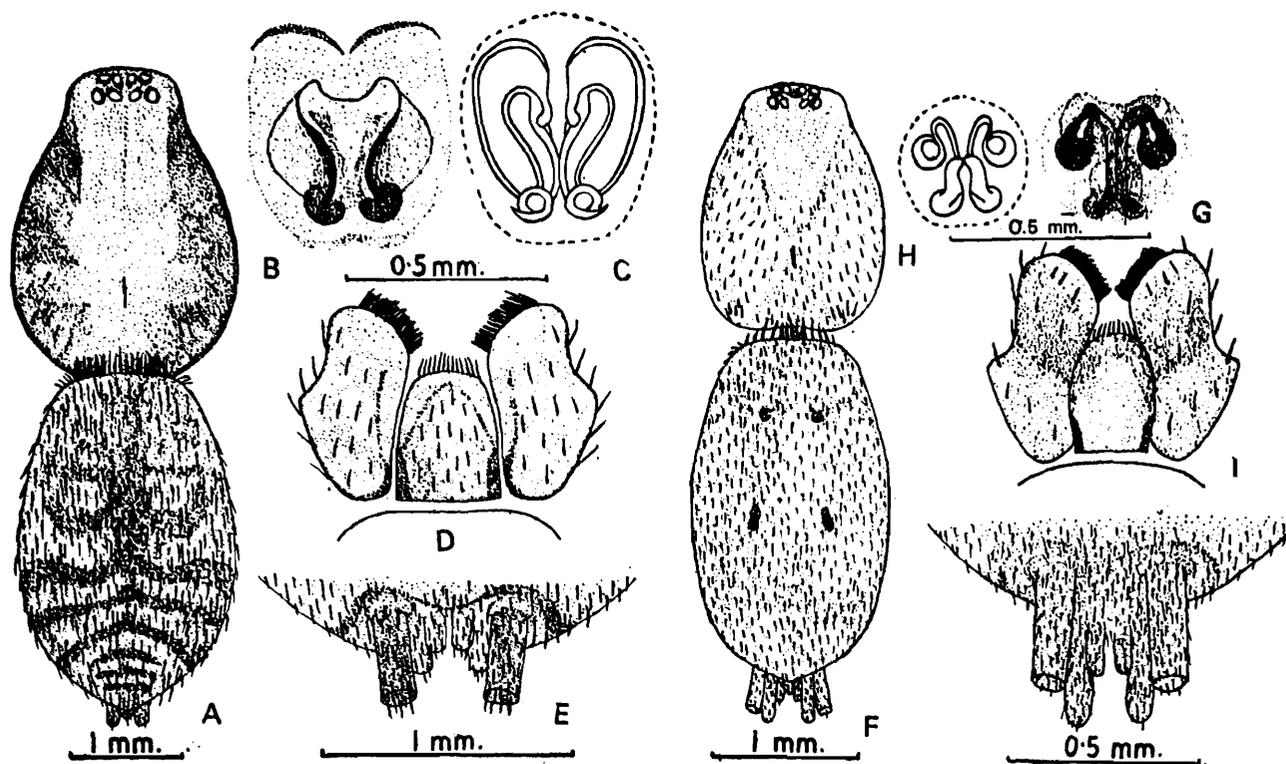


Fig. 1. (A-E) *Zelotes sajali* sp. nov., A—Dorsal view of female, legs omitted, B—Epigyne, C—Internal genitalia, D—Labium and maxillae, E—Spinnerets; (F-J) *Zelotes naliniae* sp. nov., F—Dorsal view of female, legs omitted, G—Epigyne, H—Internal genitalia, I—Labium and maxillae, J—Spinnerets.

margin of abdomen provided with very thick spines like hair directed forward. Ventral side much lighter than the dorsal. Epigyne and internal genitalia as in figs. 1 B,C. Spinnerets very prominent, anterior spinnerets widely separated, larger than others as in fig. 1E.

**Holotype** : Female in spirit, Mukund Nagar, Poona, Maharashtra, India, 11.3.1976. Coll. Sajal Tikader.

This species resembles *Zelotes surekhae* Tikader and Gajbe but differs from it as follows : (i) Cephalothorax provided with a deep brown narrow line encircling almost the entire border but in *Z. surekhae* cephalothorax not provided with a deep brown line. (ii) Outer margin of chelicera with three

teeth but in *Z. s rekhae* outer margin of chelicera with four teeth. (iii) Epigyne and internal genitalia also structurally different.

## 2. *Zelotes naliniae* sp. nov. (Fig. 1 F—J)

**General** : Cephalothorax and legs light brownish-green, abdomen light brown. Total length 4.00 mm. Carapace 1.60 mm. long, 1.20 mm. wide; abdomen 2.30 mm. long, 1.40 mm. wide.

**Cephalothorax** : Longer than wide, oval, slightly narrow in front, slightly convex, clothed with fine hair, posterior end of cephalothorax provided with some spine like hair. Posterior middle of cephalothorax provided with conspicuous short fovea. Eyes

closely grouped, silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly recurved (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and closer to adjacent laterals than to each other. Sternum heart-shaped, pointed behind, clothed with black hairs. Labium and maxillae as in fig. 1, I. Chelicerae moderately strong, vertical, both inner and outer margin provided with four small teeth. Legs relatively long and strong, clothed with hair and spines. Tibiae III and IV

with two and three pairs of ventral spines respectively. Scopulae reach upto the tarsi of all the legs. Legs formula 4123.

*Abdomen* : Longer than wide, elliptical, clothed with fine hair and provided with two pairs of sagilla as in fig. 1F. Ventral side slightly higher than the dorsal. Epigyne and internal genitalia as in figs. 1G, H. Spinnerets very prominent, posterior spinnerets smaller in size than the anterior but longer than others as in fig. 1G.

*Holotype* : Female in spirit, Katraj near Poona, Maharashtra, India, 2.10.1975. Coll. U. A. Gajbe.

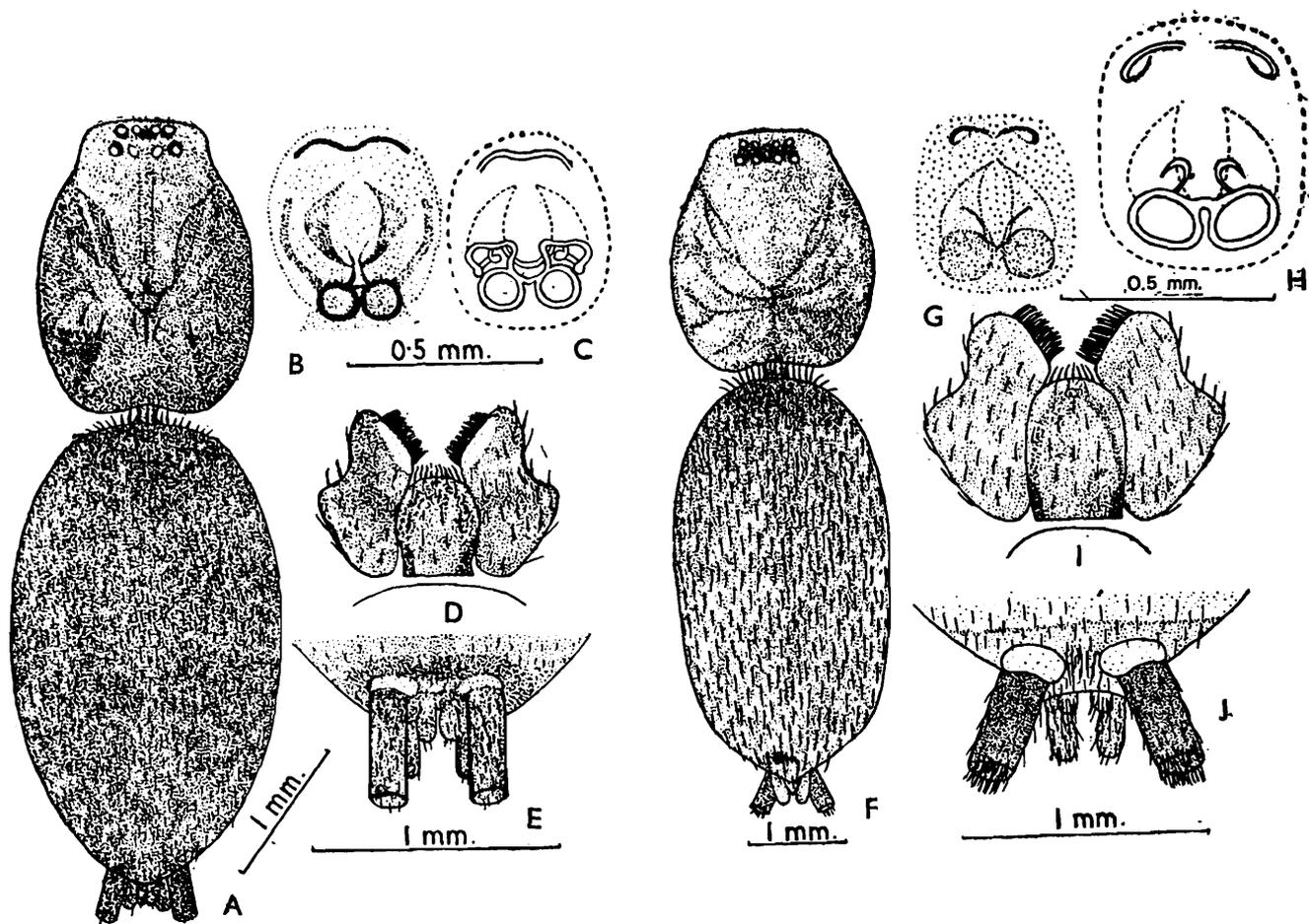


Fig. 2. (A-E) *Zelotes mandae* sp. nov., A—Dorsal view of female, legs omitted, B—Epigyne, C—Internal genitalia, D—Labium and maxillae, E—Spinnerets, (F—J) *Zelotes sataraensis* sp. nov., F—Dorsal view of female, legs omitted, G—Epigyne, H—Internal genitalia, I—Labium and maxillae, J—Spinnerets.

This species resembles *Zelotes mandae* sp. nov. but differs from it as follows : (i) Anterior row of eyes slightly recurved but in *Z. mandae* anterior row of eyes slightly procurved. (ii) Both inner and outer margin of chelicera provided with four small teeth but in *Z. mandae* inner and outer margin of chelicera provided with one and three teeth respectively. (iii) Epigyne and internal genitalia also structurally different.

### 3. *Zelotes mandae* sp. nov. (Fig. 2 A—E)

**General :** Cephalothorax deep brown, legs brownish green, abdomen black. Total length 5.20 mm. Carapace 3.20 mm. long, 1.40 mm. wide ; abdomen 1.90 mm. long, 1.80 mm. wide.

**Cephalothorax :** Longer than wide, oval, slightly narrow in front, convex, clothed with some spine like hair, posterior middle of cephalothorax provided with an conspicuous short fovea and radiating streaks diverge from fovea to lateral sides of cephalothorax. Eyes closely grouped, pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front) ; medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight (fig. 2A), medians irregular in shape, slightly smaller than laterals and closer to adjacent laterals than to each other. Sternum oval, pointed behind, clothed with black hairs. Labium and maxillae as in fig 2D. Chelicerae moderately strong, vertical, inner margin provided with one small tooth and outer margin with three moderate teeth. Legs relatively long and strong, clothed with hairs and spines, tibia III and IV with three pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto tarsi III and IV. Legs formula 4123.

**Abdomen :** Longer than wide, elliptical clothed with hair. Ventral side slightly lighter than the dorsal. Epigyne and internal genitalia as in figs. 2B and C. Spinnerets very prominent, anterior spinnerets cylindrical, longer and darker in colour than others as in fig. 2E.

**Holotype :** Female, **paratypes :** five females in spirit, Range Hill, Poona, Maharashtra, India, 30.5.1975. Coll. U. A. Gajbe.

This species resembles *Zelotes ashae* Tikader and Gajbe but differs from it as follows : (i) Posterior median eyes slightly smaller than the posterior laterals but in *Z. ashae* posterior median eyes slightly larger than the posterior laterals. (ii) Inner and outer margin of chelicera provided with one and three teeth respectively but in *Z. ashae* inner and outer margin of chelicera provided with two and four teeth respectively. (iii) Epigyne and internal genitalia also structurally different.

### 4. *Zelotes sataraisensis* sp. nov. (Fig. 2F-J)

**General :** Cephalothorax and legs deep brown, abdomen grey. Total length 7.00 mm. Carapace 2.40 mm. long, 2.10 mm. wide, abdomen 4.50 mm. long, 2.20 mm. wide.

**Cephalothorax :** Longer than wide, oval, slightly narrow in front, convex, clothed with pubescence, posterior middle provided with a conspicuous short fovea and radiating streaks diverge from short fovea to lateral sides of cephalothorax. Eyes closely grouped (Fig. 2F), silvery white except the anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes very slightly procurved (as seen from in front), medians smaller than the laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and closer to late-

erals than to each other. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae as in fig. 2 I. Chelicerae moderately strong, vertical, inner margin with one minute tooth and outer margin with two larger teeth. Legs relatively long and strong, clothed with hair and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto apices of metatarsi III and IV. Legs formula 4123.

anterior spinnerets widely separated, longer than others as in fig. 2 J.

*Holotype*: Female, in spirit, Protapgarh near Mahabaleswar, Dist. Satara, Maharashtra, India, 26.3.1976. Coll. B. K. Tikader.

This species resembles *Zelotes mandae* sp. nov. but differs from it as follows: (i) Inner and outer margin of chelicera provided with

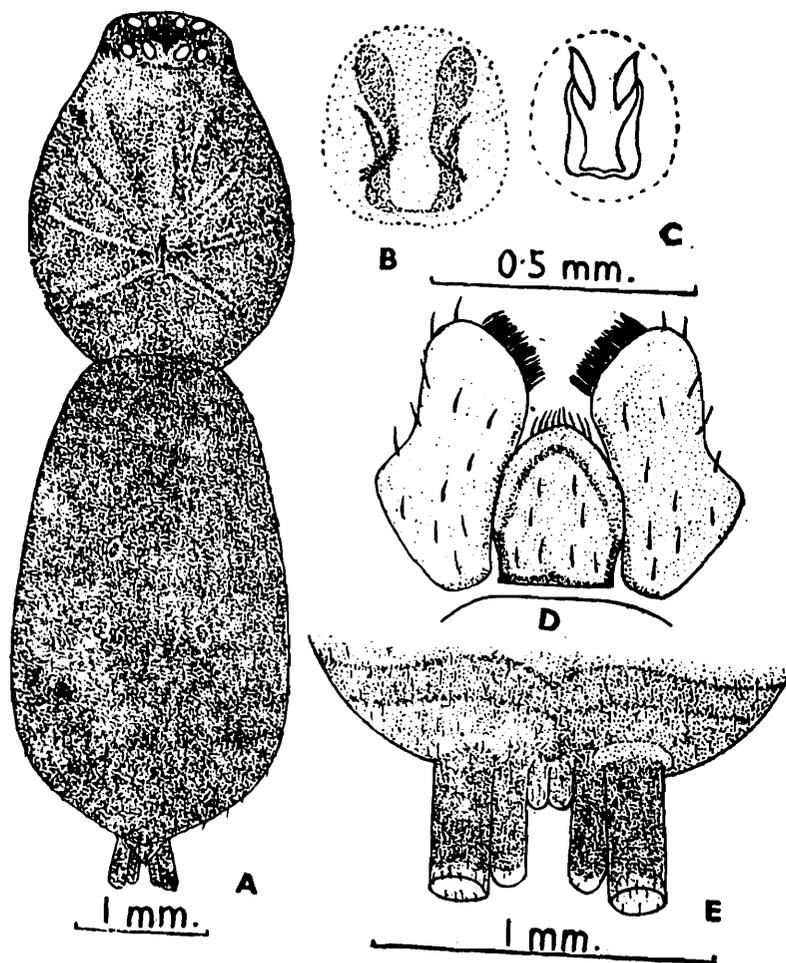


Fig. 3. (A-E) *Zelotes choubevi* sp. nov. A—Dorsal view of female, legs omitted, B—Epigyne, C—Internal genitalia, D—Labium and maxillae, E—Spinnerets.

*Abdomen*: Longer than wide, nearly elliptical, narrowing posteriorly, clothed with fine hair. Ventral side lighter than the dorsal. Epigyne and internal genitalia as in figs. 2G & H. Spinnerets very prominent,

one and two teeth respectively but in *Z. mandae* inner and outer margin of chelicera provided with one and three teeth respectively. (ii) Epigyne and internal genitalia also structurally different.

5. *Zelotes choubeyi* sp. nov.  
(Fig. 3 A—E)

**General :** Cephalothorax and legs reddish brown, abdomen deep brown to black. Total length 6.50 mm. Carapace 2.60 mm. long, 2.00 mm. wide ; abdomen 4.00 mm. long, 2.10 mm. wide.

**Cephalothorax :** Longer than wide, oval, narrow in front, convex, clothed with pubescence, posterior middle of cephalothorax provided with an inconspicuous fovea and radiating streaks diverge from fovea to lateral sides of cephalothorax. Eyes situated closely grouped, silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes nearly straight (as seen from in front) ; medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly larger than the laterals and closer to adjacent laterals than to each other. Sternum heart-shaped, pointed behind, clothed with fine hair. Labium and maxillae as in fig. 3D. Chelicerae moderately strong, vertical, inner and outer margin provided with two and four teeth respectively. Tibiae III with two pairs of ventral spines. Legs formula 4123.

**Abdomen :** Longer than wide, nearly elliptical, broader just behind the middle, clothed with fine hair and three pairs of sagilla as in fig. 3 A. Ventral side same in colour as dorsal. Epigyne and internal genitalia as in fig. 3 B & C. Spinnerets prominent, anterior spinnerets larger than others as in fig. 3 E.

**Holotype :** Female, in spirit, Vetul Hill, Poona, Maharashtra, India, 17.9.1964. Coll.

*S. N. Choubey.*

This species resembles *Zelotes naliniae* sp.

nov. but differs from it as follows : (i) Posterior median eyes slightly larger than the posterior laterals but in *Z. naliniae* posterior medians slightly smaller than the laterals. (ii) Inner and outer margin of chelicera provided with two and four teeth respectively but in *Z. naliniae* both inner and outer margin of chelicera provided with four teeth. (iii) Epigyne and internal genitalia also structurally different.

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