

A NEW SPECIES OF EYED *SCHIZOMUS*
(SCHIZOMIDA : SCHIZOMIDAE) FROM JAVA

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Synopsis

COKENDOLPHER, James C. and Robert W. SITES (Department of Entomology, Texas Tech University, Lubbock, Texas 79409, U.S.A.): A new species of eyed *Schizomus* (Schizomida : Schizomidae) from Java. *Acta arachnol.*, 36: 79-85 (1988).

A new species, *Schizomus oculatus*, is described from West Java, Indonesia. This species is the first schizomid recorded from Java and the fifth member of the order reported with eyes. Two other species of schizomids, *Trithyreus claviger* and an unidentified *Schizomus* sp., are also newly recorded from Java.

Schizomids differ markedly from their close relatives, the Uropygi and Amblypygi, in having at most one pair of eyes. Most schizomids lack eyes, but sometimes the eye positions are marked by pale areas or eyespots. Only four of the more than 100 described species of *Schizomus* have eyes complete with lenses. These lenses are only slightly raised above the propeltidial surface, and it is unknown if they function in light perception. Observations on living specimens as well as histological studies are not available.

It is the purpose of the present contribution to describe and name the fifth species of schizomid known to possess eyes. The methods and terminology essentially follow those of REDDELL and COKENDOLPHER (1985) and COKENDOLPHER *et al.* (1987). The female genital sternites were examined in lactophenol.

***Schizomus oculatus* n. sp.**

[Japanese name : Meaki-yaito-mushi]

Material. Holotype ♀, paratype ♀; Republic of Indonesia : West Java, Cibodas (=Tjibodas), 1400 m, August 1921 (collector unknown), in collection of the American Museum of Natural History.

Description. Male (unknown).

Female (based on holotype; when paratype differs then listed afterwards in parentheses): length from distal edge of propeltidium to base of flagellum 3.82 mm (4.11 mm); orangish-brown to amber.

Prosoma: Propeltidium 1.31 mm (1.36 mm) long, 0.66 mm (0.68 mm) wide; with three, unpaired, apical setae and three pairs of dorsal setae. Apical margin of propeltidium drawn to a sharp, strongly down-turned point. Ocelli distinct, slightly longer than wide, lenses clearly elevated above propeltidial surface. Mesopeltidial plates separated by slightly more than width of one plate. Metapeltidium undivided. Cephalic sternum with two, long, anteriorly directed setae arising from front of sternum, and 11 (12) shorter setae; thoracic sternum with six setae.

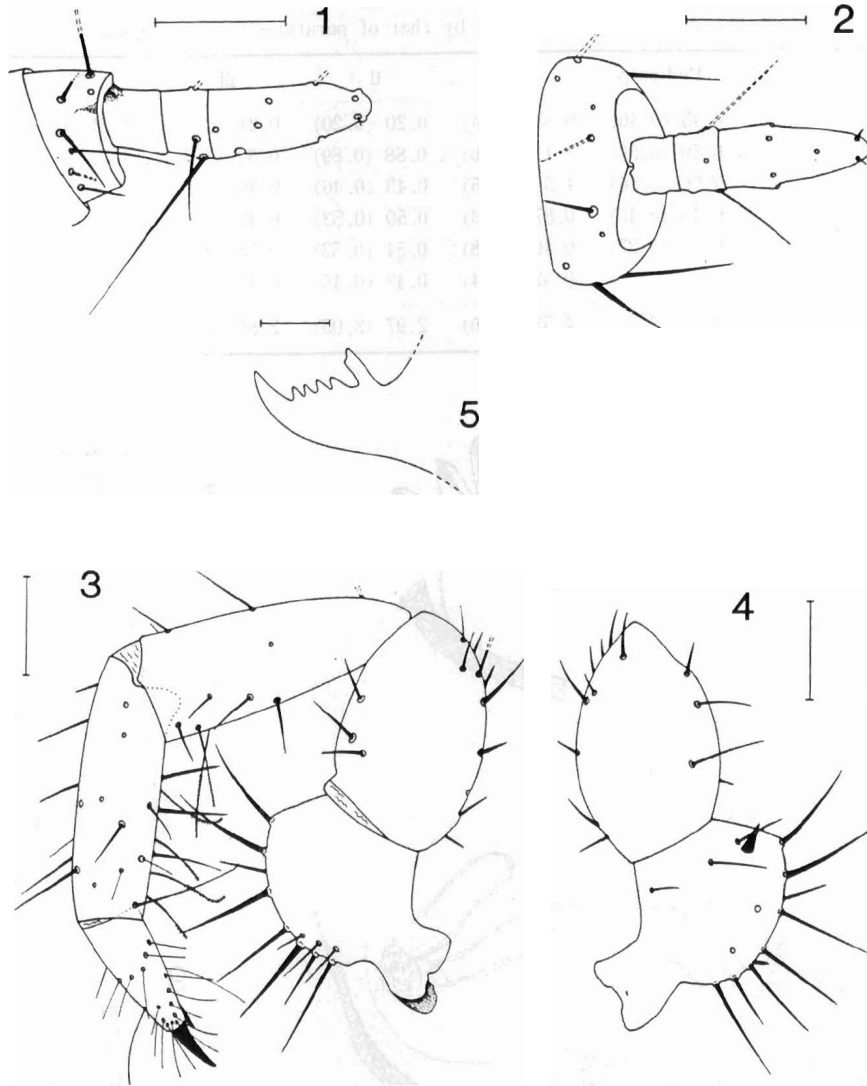
Opisthosoma: Not attenuated; sternum V about 2.5 times wider than long. Tergum I with two pairs (two pairs plus one unpaired) of minute setae anteriorly and one pair of dorsal setae on posterior margin; unpigmented except for thin, amber, transverse strip at posterior margin which includes setal pits. Tergum II with three pairs of minute, anterior setae bounded posterolaterally by a pair of round depressions; one pair of dorsal setae near posterior margin; area posterior to depressions amber, otherwise unpigmented. Terga III-VII each with single pair of dorsal setae; tergum VIII with one pair of dorsal and one pair of posterolateral setae; tergum IX with row of posterior setae, two pairs of dorsolateral and one pair of lateral setae. Segments X-XII telescopic; X with one pair of lateral, two pairs of ventrolateral, one pair of ventral setae, and a single, central seta; XI with one pair of lateral, one pair of ventrolateral, one pair of ventral setae, and a single, central seta; XII with one pair of dorsal, two pairs of dorsolateral, one pair of lateral, one pair of ventrolateral, and two pairs of ventral setae, without dorsal process. Flagellum three-segmented, 0.31 mm (0.30 mm) long; morphology as in Figs. 1, 2.

Pedipalps: Short and stout (Figs. 3, 4); trochanter with spur on mesal surface; basitarsus-tarsal claw about 2/5, and spurs about 1/6 as long as its dorsal length. Segment lengths listed in Table 1.

Chelicerae: Few, small, stridulatory spicules on ventroproximal margin; fixed finger with four teeth between two, large, outer teeth (Fig. 5). Serrula with 15, plus guard, teeth; three type I; five type II; four type III; eight type IV, five of which are dorsal and long; eight type V setae; and one type VI seta.

Legs: Femur IV 2.5 (2.3) times longer than wide. Leg I, including coxa.

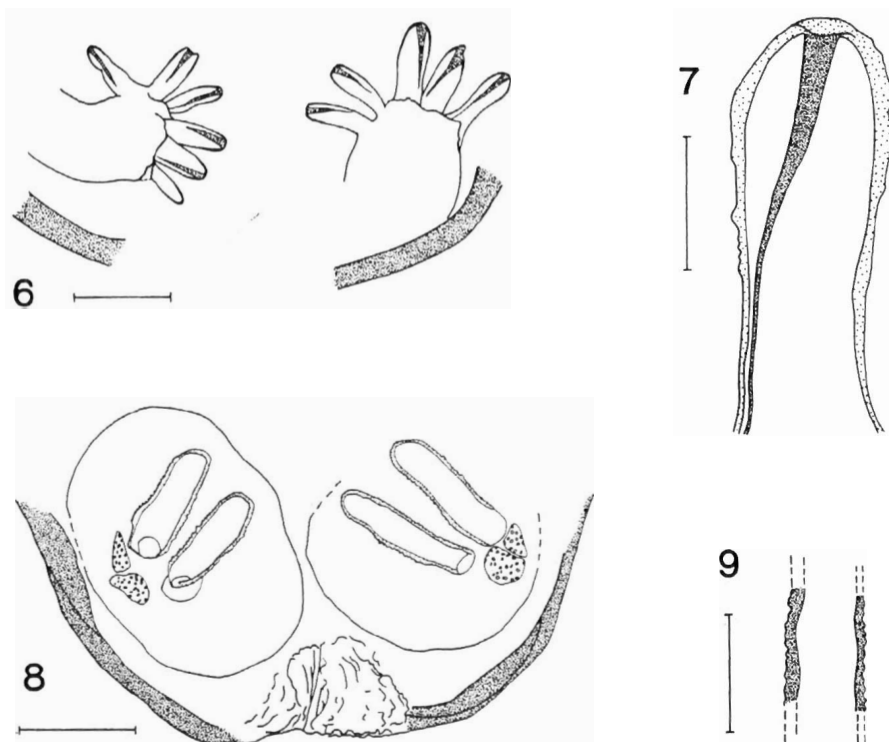
Eyed *Schizomus* from Java



Figs. 1-5. *Schizomus oculatus* n. sp., female. 1. Lateral view of opisthosomal segment XII and flagellum. 2. Dorsal view of opisthosomal segment XII and flagellum. 3. Lateral view of pedipalp. 4. Mesal view of pedipalpal trochanter and femur. 5. Lateral view of cheliceral fixed finger. Scale lines = 0.25 mm for Figs. 1-4, 0.15 mm for Fig. 5.

Table 1. Female *Schizomus oculatus* n. sp. appendage lengths in millimeters: holotype measurement followed by that of paratype in parentheses.

	Pedipalp	I	II	III	IV
Trochanter	0.45 (0.46)	0.33 (0.34)	0.20 (0.20)	0.21 (0.14)	0.31 (0.30)
Femur	0.50 (0.50)	1.11 (1.26)	0.88 (0.89)	0.82 (0.84)	1.31 (1.36)
Patella	0.56 (0.56)	1.30 (1.25)	0.43 (0.46)	0.40 (0.43)	0.50 (0.58)
Tibia	0.46 (0.47)	0.87 (0.93)	0.50 (0.53)	0.42 (0.50)	0.86 (0.89)
Basitarsus	0.26 (0.27)	0.40 (0.38)	0.54 (0.52)	0.58 (0.52)	0.76 (0.80)
Tarsus		0.52 (0.54)	0.42 (0.45)	0.42 (0.49)	0.50 (0.52)
Total	2.23 (2.26)	4.53 (4.70)	2.97 (3.05)	2.85 (2.92)	4.24 (4.45)



Figs. 6, 7. *Schizomus oculatus* n. sp., female. 6. Ventral view of spermathecae.

7. Ventral view of spermathecal lobe.

Figs. 8, 9. *Trithyreus claviger* HANSEN, in HANSEN and SÖRENSEN, female. 8.

Ventral view of spermathecae. 9. Ventral view of middle section of one spermathecal lobe. Scale lines=0.05 mm for Figs. 6, 8; 0.01 mm for Figs. 7, 9.

5.03 mm (5.26 mm) long; basitarsus-tarsus segment proportions 27 : 4 : 5 : 4 : 5 : 6 : 11 (26 : 4 : 5 : 5 : 5 : 6 : 12). Segment lengths listed in Table 1.

Internal genitalia: Spermathecae with 6-5 (5-5) anterior to anteromesad directed lobes per side (Fig. 6); each lobe with an internal, longitudinal structure which decreases in diameter along its length (Fig. 7). Details of gonopod not visible.

Diagnosis. Medium-sized schizomids with distinct ocelli; three pairs of dorsal, propeltidial setae; pedipalpal trochanter rounded and not extended anteroventrally, with mesal spur; female flagellum three-segmented; spermathecae with five or six lobes per side which lack anteriorly directed ductules.

Comparisons. The presence of ocelli separates *S. oculatus* from all congeners except: *S. bagnallii* (JACKSON), *S. biocellatus* (SISSOM), *S. cambridgei* (THORELL), and *S. tikaderi* COKENDOLPHER, SISSOM et BASTAWADE. The Burmese *S. cambridgei* can be distinguished from the other eyed species by having the pedipalpal trochanter sharply angled and anteroventrally extended (see HANSEN and SÖRENSEN, 1905: Pl. 7, Figs. 3a, 3b). *Schizomus bagnallii* (known only by animals introduced to England, origin unknown) possesses four pairs of dorsal propeltidial setae, whereas *S. biocellatus*, *S. oculatus*, and *S. tikaderi* possess only three pairs. These latter three species are easily separated by the number and arrangement of the spermathecal lobes. The Indian *S. tikaderi* has 3-5 spermathecal lobes per side which are covered with numerous ductules (COKENDOLPHER *et al.*, 1987: Figs. 10-12) and the Sumatran *S. biocellatus* has numerous lobes which are branched into many more smaller lobes (SISSOM, 1980: Fig. 3; COKENDOLPHER *et al.*, 1987: Figs. 13, 14). *Schizomus oculatus* has five or six spermathecal lobes per side which are not covered with ductules (Figs. 6, 7).

Although the above named species share with *S. oculatus* the presence of eyes, it appears from differences in the spermathecae and setation that they are not each other's closest kin. Because the spermathecae of most Old World species of Schizomida have not been illustrated, it is difficult to assess the degree of diversity that can be expected. The differences observed in the spermathecae of the eyed schizomids certainly exceed the ranges observed in New World *Schizomus* species groups.

Notes. The recorded schizomid fauna of Indonesia is surprisingly depauperate. It is possible that further extensive soil and litter sampling will reveal a much richer fauna. To date, schizomids have been reported in Indonesia from West

Sumatra (SISSOM, 1980) and Auki and Soepiori Islands of Irian Barat (HAMMEN, 1983; 1986). The specimens from Irian Barat are not named or described, but HAMMEN (1986: Fig. 5A) illustrates the spermathecae of the species from Auki Island. **The Sumatra species is *S. biocellatus*.**

During our studies we discovered an additional collection from West Java. The collection contains one female *Trithyreus claviger* HANSEN, in HANSEN and SÖRENSEN, and one female and two juveniles of *Schizomus* sp. The data for this collection are: Bogor (=Buitenzorg), leg. 24 February-12 March 1904, K. Kraepelin (in collection of Zoologisches Institut und Zoologisches Museum, Universität Hamburg). Until now, *T. claviger* was known only from Singapore (HANSEN and SÖRENSEN, 1905). Because the spermathecae of this species have never been described, we herein include illustrations (Figs. 8, 9).

The third species known from West Java, *Schizomus* sp., was not identified or described because the single female is in poor condition. Because this species lacks eyes, it is clearly not conspecific with *S. oculatus*. Furthermore, without knowing the details of setation and spermathecae of other female schizomids from southeastern Asia, a correct identification is not possible.

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摘 要

COKENDOLPHER, James C. and Robert W. SITES (Department of Entomology, Texas Tech University, Lubbock, Texas 79409, U. S. A.): ジャワ島産の目のあるヤイトムシの一新種 (ヤイトムシ目: ヤイトムシ科)。

インドネシアのジャワ島西部産のヤイトムシ属の一新種, *Schizomus oculatus* メアキヤイトムシを記載した。本種はジャワ島から記録される最初のヤイトムシ類であり, また, 有限のものとしてはヤイトムシ目中5番目の種である。他に2種のヤイトムシ目, *Trithyreus claviger* と種名未決定の *Schizomus* 属の1種が, やはりジャワ島から初めて記録された。

References

- COKENDOLPHER, J. C., W. D. SISSOM & D. B. BASTAWADE, 1988. A new *Schizomus* from the Indian state of Maharashtra, with additional comments on eyed schizomids (Arachnida: Schizomidae). *Insecta Mundi*, 2(2): 90-96.
- HAMMEN, L. van der, 1983. Contribution to the knowledge of the soil-fauna of New Guinea. *Zool. Verhandl.*, (206): 1-36, pls. 1-19.
- , 1986. Comparative studies in Chelicera IV. Apatellata, Arachnida, Scorpionida, Xiphosura. *Zool. Verhandl.*, (226): 1-52.
- HANSEN, H. J. & W. SÖRENSEN, 1905. The Tartarides, a tribe of the order Pedipalpi. *Ark. Zool.*, 2(8): 1-78, pls. 1-7.
- REDELLE, J. R. & J. C. COKENDOLPHER, 1985. Redescription of *Trithyreus grassi* (Arachnida: Schizomida: Schizomidae). *Oriental Ins.*, 18(1984): 43-52.
- SISSOM, W. D., 1980. The eyed schizomids, with a description of a new species from Sumatra (Schizomida: Schizomidae). *J. Arachnol.*, 8(2): 187-192.