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Opopaea fosuma, n. sp. from Sumatra, Indonesia (Araneae, Oonopidae)

Matthias Burger, Wolfgang Nentwig

Zoological Institute, University of Bern,
Baltzerstrasse 6, CH-3012 Bern, Switzerland

and

Christian Kropf

Natural History Museum,
Bernstrasse 15, CH-3005 Bern,
Switzerland

Summary

A new species of oonopid, *Opopaea fosuma*, is described from both sexes collected in the Kerinci Seblat National Park in Central Sumatra. Possible relationships with other species of *Opopaea* and the structures of the female genitalia and the embolus are discussed.

Introduction

The oonopid genus *Opopaea* was described by Simon in 1891. The male palp of the type species, *O. deserticola*, is notable for a characteristically enlarged patella (Simon, 1891). The following description of an Indonesian species of the genus *Opopaea* is based on material collected in the Kerinci Seblat National Park in Central Sumatra and provided for description by Dr C. Deeleman. All measurements are in mm.

Opopaea fosuma Burger, n. sp. (Figs. 1–24)

Types: Male holotype, Kerinci Seblat National Park, 800 m a.s.l., Central Sumatra, Indonesia, 21–30 July 1988, leaf litter, Suh. Djojosedharmo leg., deposited in NMBE (Natural History Museum, Bern, Switzerland). Paratypes, leg. Suh. Djojosedharmo at type locality: 1♂ 2♀ (NMBE), 2♂ 2♀ (Coll. Deeleman, Ossendrecht, The Netherlands).

Etymology: The specific name is an abbreviation of “found in Sumatra”.

Diagnosis: Males of *Opopaea fosuma*, n. sp. are separated from those of most other *Opopaea* species by the structure of the palp. The cymbium and bulb are only partly fused in *O. fosuma*, n. sp. whereas they are completely fused in most other *Opopaea* species, and the embolus is long and slender in *O. fosuma*, n. sp. The species is similar to the Micronesian *O. foveolata* Roewer, 1963, where, according to the original description, the cymbium and bulb of the male palp are also only partly fused (Roewer, 1963: fig. 6g). Males of *O. fosuma*, n. sp. differ from those of *O. foveolata*, however, by their long and slender embolus, whereas it is rather short and blunt in *O. foveolata*.

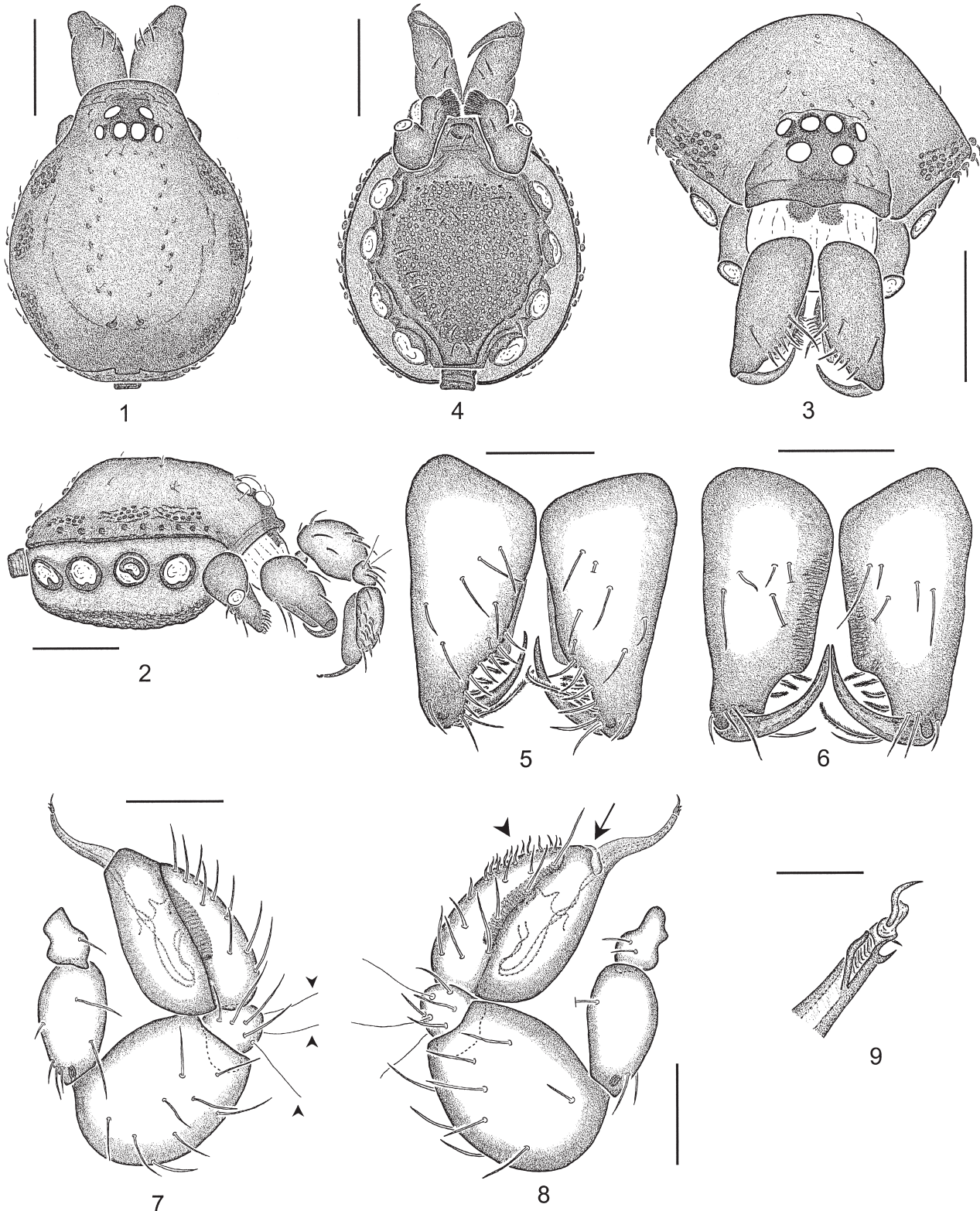
Male: Measurements (n=1): Prosoma length 0.59, width 0.48, height 0.23. Opisthosoma length 0.67, width 0.42, height 0.41. Appendages:

	Fe	Pa	Ti	Mt	Ta	Total
Leg I	0.37	0.23	0.26	0.20	0.15	1.21
Leg II	0.32	0.20	0.22	0.19	0.15	1.08
Leg III	0.29	0.15	0.16	0.17	0.15	0.92
Leg IV	0.41	0.22	0.30	0.26	0.20	1.39
Palp	0.12	0.16	0.06	—	0.16	0.50

Colour (alcohol-preserved material): Prosoma and chelicerae orange; legs and palps light orange. Opisthosoma: ventral scutum orange; dorsal scutum and sclerite that partially surrounds spinnerets light orange; spinnerets pale yellow; soft areas white. *Carapace*: Ovoid; narrowed in eye region (Fig. 1), slightly ascending behind PME, then almost horizontal and posterior 1/3 steeply descending (Fig. 2). Tiny hairs forming U-shaped band; three areas of tubercles near lateral borders; additional hair-bearing tubercles along lateral borders, some in posterior area (Fig. 1). *Eyes*: Six; almost circular, with roughly same diameter; AME lacking; eye group occupies slightly more than 1/2 width of head; posterior row slightly recurved (Fig. 1); PME almost contiguous; ALE separated from PME and from PLE by 1/2 and from each other by one diam. of ALE; PLE separated from PME by 1/2 diam. of PLE (Fig. 3). Exact position and size of eyes somewhat variable. *Clypeus* (Fig. 3): Two diam. of ALE high; slightly extended between chelicerae in middle. *Sternum and*

pleurae (Fig. 4): Sternum longer than wide; covered with short hairs and numerous tiny depressions; separates coxae IV by more than their diameter; pleurae sclerotised, fused with carapace and sternum. *Labium*: Trapezoid, longer than wide; fused with sternum; round

depression in middle (Fig. 4). *Chelicerae*: Basal segment 0.25 mm long, 0.12 mm wide; teeth and denticles lacking; anterior inner margin with distal hairs (Fig. 5); posterior inner margin with thin membrane and sclerotised ridges (Fig. 6); plumose setae on distal inner



Figs. 1-9: *Opopaea fosuma*, n. sp., male. **1** Prosoma, dorsal view, only some hairs shown; **2** Ditto, lateral view; **3** Ditto, anterior view, chelicerae artificially displaced; **4** Prosoma, ventral view, only some hairs shown; **5** Chelicerae, anterior view, ultrastructure of plumose hairs not shown; **6** Ditto, posterior view; **7** Right palp, prolateral view, ultrastructure of plumose hairs not shown (arrowheads=trichobothria); **8** Ditto, retrolateral view (arrow=furrow; arrowhead=tiny hairs on cymbium); **9** Tip of left embolus, prolateral view. Scale lines=0.2 mm (1-4), 0.1 mm (5-8), 0.02 mm (9).

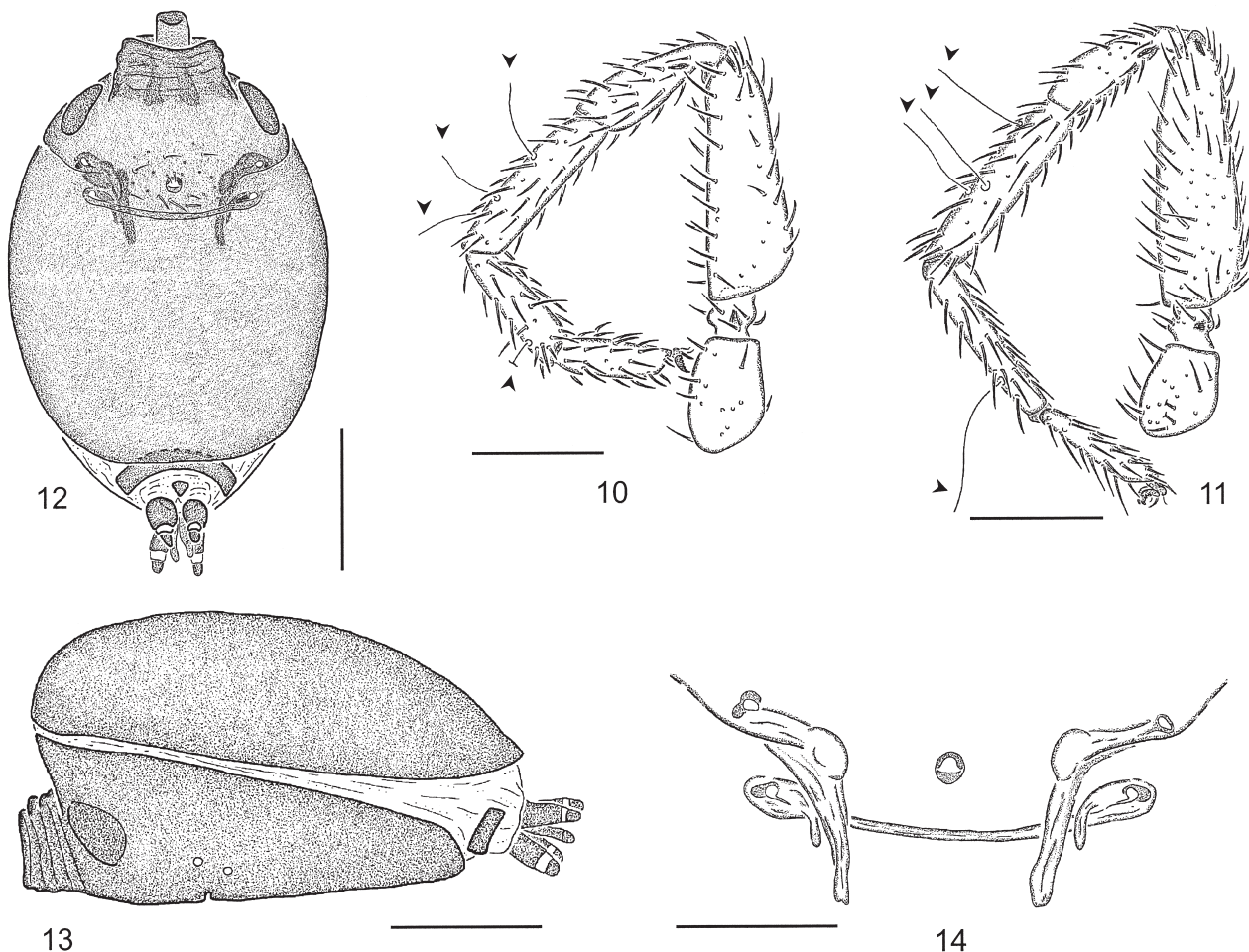
margin, most distal one longest; fangs long (0.10 mm measured from base to tip). *Palp*: Femur short; patella enlarged, ovoid; tibia tiny, nodiform, with three trichobothria dorsally (Fig. 7, arrowheads); cymbium long, slender, with numerous tiny hairs at distal end (Fig. 8, arrowhead), only partly fused with bulb. *Palpal bulb*: Long, oval, continuing into slender embolus (Fig. 8) with complex tip (Fig. 9); striking furrow at distal end of bulb (Fig. 8, arrow). *Legs*: IV–I–II–III; without spines; femur club-shaped; patella large; tibia with three trichobothria dorsally, metatarsus with one trichobothrium near distal end (Figs. 10, 11, arrowheads); two serrated tarsal claws. *Opisthosoma*: Ovoid; large scutum covering dorsal surface; slightly smaller scutum covering ventral surface, anteriorly surrounding pedicel (Fig. 12, only hairs in genital region figured, other hairs as in female, see Fig. 19); scuta close together anteriorly but separate further posteriorly (Fig. 13); two pairs of oval openings, anterior pair leading to small book lungs, posterior pair leading into tracheae and connected by internal transverse sclerite; two pairs of sclerites shining through ventral scutum (Figs. 12, 14), directed backwards and originating at two pairs of oval openings; sclerite partially surrounding spinnerets and anal tubercle on ventral side with single row of bristles (Fig. 12, hairs on sclerite not shown but compare

Fig. 19); anterior pair of spinnerets with largest diameter, median pair thinnest; colulus with two bristles.

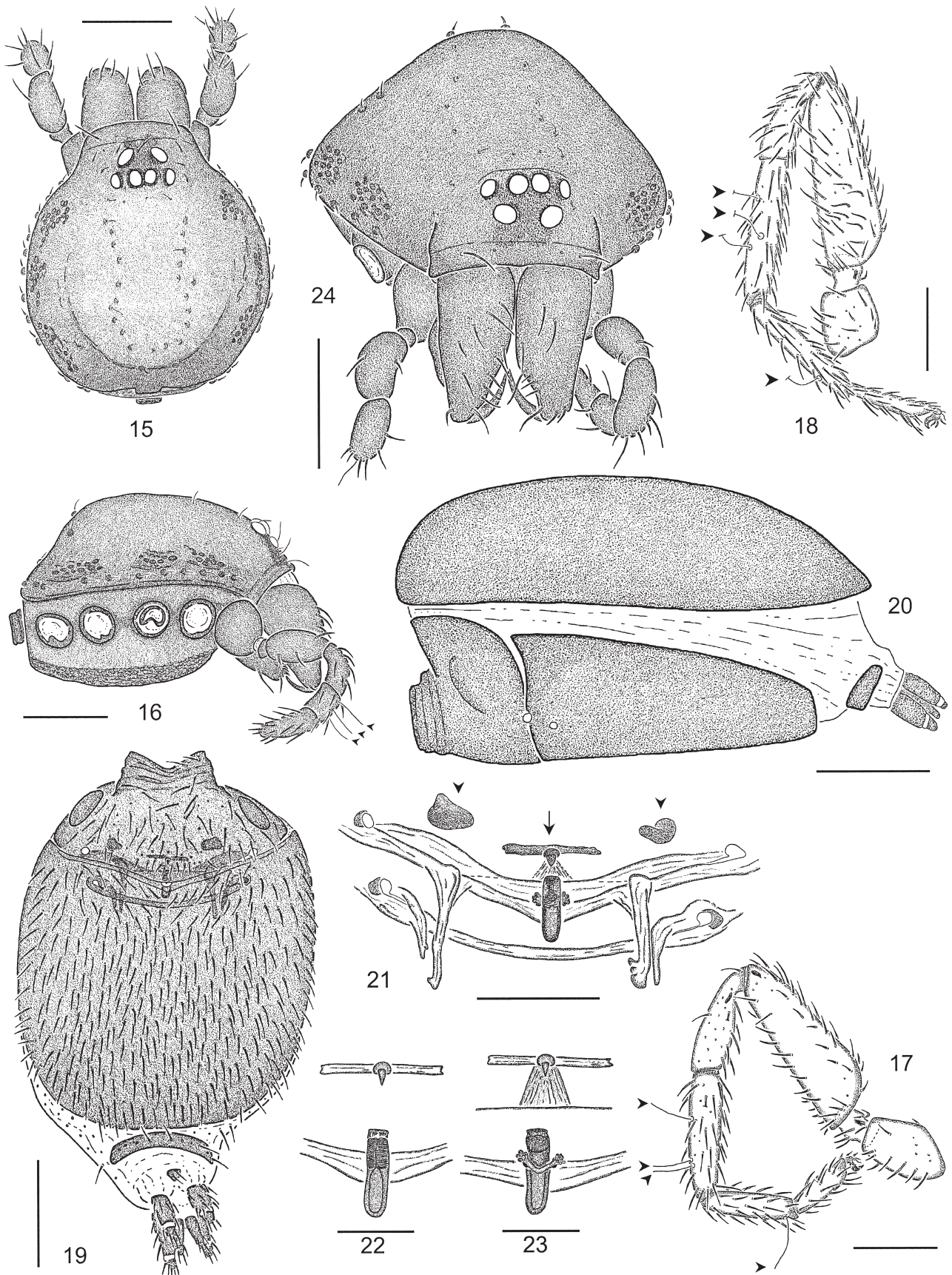
Female: Generally larger than male. Only differences from male described. *Measurements* ($n=1$): Prosoma length 0.64, width 0.53, height 0.28. Opisthosoma length 0.87, width 0.54, height 0.51. Appendages:

	Fe	Pa	Ti	Mt	Ta	Total
Leg I	0.42	0.28	0.29	0.22	0.16	1.37
Leg II	0.38	0.24	0.27	0.22	0.16	1.27
Leg III	0.35	0.17	0.20	0.21	0.16	1.09
Leg IV	0.48	0.24	0.35	0.30	0.19	1.56
Palp	0.13	0.11	0.07	—	0.13	0.44

Carapace (Figs. 15, 24): Almost circular. *Palp*: Femur slightly thickened; tibia with three trichobothria dorsally (Fig. 16, arrowheads); claws absent. *Legs* (Figs. 17, 18): Longer than in male. *Opisthosoma*: Ventral scutum separated by epigastric furrow into anterior plate surrounding pedicel, and posterior plate covering venter to near sclerite that partially surrounds spinnerets (Fig. 19); lateral distance between two scuta often wider than in male (Fig. 20). *Vulva*: Spermatheca longish (Figs. 21–23); anterior pair of oval openings connected by internal transverse sclerite; two roundish structures (Fig. 21, arrowheads) and short transverse sclerite



Figs. 10–14: *Opopaea fosuma*, n. sp., male. **10** Leg I, pro-lateral view (arrowheads=trichobothria); **11** Leg IV, pro-lateral view (arrowheads=trichobothria); **12** Opisthosoma, ventral view, hairs shown only in genital region; **13** Ditto, lateral view, hairs omitted; **14** Genital region, dorsal view. Scale lines=0.2 mm (10–13), 0.1 mm (14).



Figs. 15–24: *Opopaea fosuma*, n. sp., female. **15** Prosoma, dorsal view, only some hairs shown; **16** Ditto, lateral view (arrowheads=trichobothria); **17** Leg I, prolateral view (arrowheads=trichobothria); **18** Leg IV, prolateral view (arrowheads=trichobothria); **19** Opisthosoma, ventral view, spinnerets artificially displaced; **20** Ditto, lateral view, hairs omitted; **21** Vulva, dorsal view (arrow=sclerite bearing nail-like structure; arrowheads=roundish structures); **22** Part of vulva, dorsal view; **23** Ditto, more ventral view; **24** Prosoma, anterior view, only some hairs shown. Scale lines=0.2 mm (15–20, 24), 0.1 mm (21), 0.05 mm (22, 23).

bearing nail-like structure (Fig. 21, arrow) shining through ventral scutum.

Ecology: Inhabiting the leaf litter of tropical rain forest.

Discussion

Brignoli (1978) discussed the curious internal genitalia in certain Haplogynae with a single median spermatheca and complex accessory structures, and mentioned that the Dysderoidea show “unconventional” vulvae.

Some structures of the female genitalia observed in *O. fosuma*, n. sp. may be characteristic for the genus *Opopaea*. The function of the short transverse sclerite bearing a nail-like structure (see Fig. 21, arrow) is unknown. Perhaps it serves as a muscle attachment and the spider is able to release sperm by pressing the “nail” into its spermatheca (this possible mechanism is under investigation at present). A similar sclerite was also observed by us in the Hawaiian *O. lena* Suman, 1965 and in *O. cf. cornuta* Yin & Wang, 1984. Other species were not investigated.

Wiehle (1960, 1967) described the variety of emboli of male palps. He divided the emboli into three functional groups: the “Einstoss-Emboli”, the “Einführungs-Emboli” and the “Anschluss-Emboli”. According to his description, the “Einstoss-Emboli” are mostly short and chitinised. The “Einführungs-Emboli” are long and slender and may even look like a thread. The introduction ducts of the corresponding vulvae are clearly visible; their course is either simple or there are several turns and their course is rather complex. In contrast, the “Anschluss-Emboli” are tiny and pointed. Sometimes they are hardly visible and therefore easily confused with the conductor. The introduction ducts of the

corresponding vulvae are often also tiny and lead directly into the receptacula. Sometimes there are additional glandular regions (Wiehle, 1960).

In some *Opopaea* species (e.g. *O. cornuta*), the emboli are tiny and hardly visible. According to the description of Wiehle, such emboli could be considered as “Anschluss-Emboli”. On the other hand, the embolus of *O. fosuma*, n. sp. is relatively long and slender (see Figs. 7, 8) and looks more like an “Einstoss-Embolus” after Wiehle. Considering the structure of the vulva (see Figs. 19, 21), it seems that the introduction duct leads directly into the spermatheca, which is typical for an “Anschluss-Embolus” after Wiehle. Thus the embolus of *O. fosuma*, n. sp. cannot be attributed with certainty to one of the functional types described by Wiehle (1960, 1967).

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