

Two new species and six new records of linyphiid spiders from Vietnam (Araneae: Linyphiidae)

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Abstract. Two new species, *Oia probosciella*, new species and *Nasoonaria annam*, new species, are described from northern and southern Vietnam, respectively. *Enguterothrix simpulum* (Tanasevitch, 2014) and *Nematogmus digitatus* Fei & Zhu, 1994, are recorded from Vietnam for the first time. Considering the above novelties, the linyphiid spider fauna of Vietnam presently comprises 27 species.

Key words. taxonomy, distribution, dwarf-spiders, Oriental Region

INTRODUCTION

Linyphiidae is the second most diverse spider family in the world following Salticidae, being presently known to contain more than 4,700 species (World Spider Catalog, 2022). The family is distributed all over the world, with the largest representation in the Northern Hemisphere. Most linyphiids live in litter, rotten wood, moss, etc.

The Southeast Asian linyphiid fauna is still very incompletely and unevenly known, but even at present it appears to be quite rich and highly peculiar, comprising 175 species from 81 genera (World Spider Catalog, 2022). The continental fauna of Southeast Asian linyphiid spiders is perhaps the best studied: 50 species are currently known from Thailand, 28 from West Malaysia, 22 from Laos, only six species from Myanmar, while no linyphiids are known yet from Cambodia (Tanasevitch, 2014a, b, 2018a). The linyphiid fauna of Vietnam presently encompasses 23 species from 18 genera, among which 12 are known only from that country (Heimer, 1984; Tu & Li, 2004, 2006; Tanasevitch, 2017, 2018b, c, 2019a, 2021). Of course, there is little doubt that the faunas of Vietnam and other Southeast Asian countries are much richer than presently known, with the number of species to significantly increase in the course of further research.

An examination of linyphiid spiders recently collected from Vietnam by Alexei Abramov (St. Petersburg, Russia) has yielded new material that augments the known fauna from there. The small but interesting collection appears to contain

eight species, two of which are new to science, while another two are reported from the country for the first time.

MATERIAL AND METHODS

This paper is based on the spider material collected by Alexei Abramov (St. Petersburg, Russia) from Vietnam and kept at the Zoological Museum of the Moscow State University, Moscow, Russia (ZMMU). Specimens preserved in 75% ethanol were studied using an MBS-9 stereo microscope. A Levenhuk C-800 digital camera was applied for taking pictures. Leg chaetotaxy is presented in a formula, e.g., 2.2.1.1, which refers to the number of dorsal spines on tibiae I–IV. The sequence of leg segment measurements is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are given in mm. The terminology of copulatory organs mainly follows that of Merrett (1963) with later modifications referred to just below. The classification of subfamilies in the Linyphiidae is adopted here in the classical sense, as given in the World Spider Catalog (2022).

Abbreviations used in the text and figures:

a.s.l.—above sea-level

C—convector (sensu Tanasevitch, 1998) = “lamella” in the sense of Merrett (1963), lamella in the sense of Song & Li (2010)

DSA—distal suprategular apophysis in the sense of Hormiga (2000)

E—embolus

MM—median membrane in the sense of van Helsdingen (1965)

MT—median tooth of DSA

P—paracymbium

EP—epigynal plate (= dorsal, median or ventral plate, auctorum)

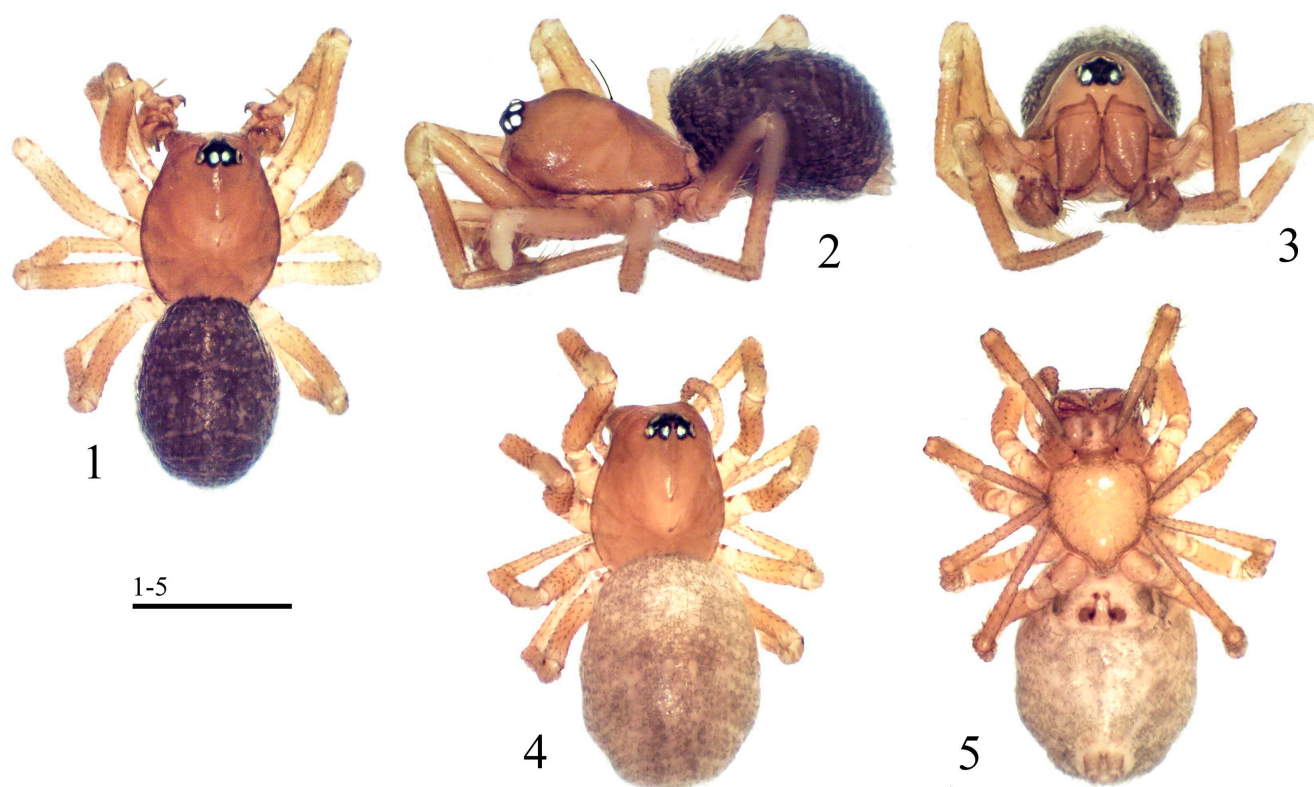
R—radix

RA—radical apophysis

TmI—position of trichobothrium on metatarsus I

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Figs. 1–5. Habitus of *Oia probosciella*, new species, male holotype (1–3) and female paratype (4, 5). 1–3, male body, dorsal, lateral and frontal views, respectively; 4, 5, female body, dorsal and ventral views, respectively. Scale bar = 0.5 mm.

TAXONOMY

Order Araneae Clerck, 1757

Family Linyphiidae Blackwall, 1859

Subfamily Erigoninae Emerton, 1882

Oia Wunderlich, 1973

Type species. *Oia sororia* Wunderlich, 1973, by original designation.

Diagnosis. A new, clarified and extended diagnosis of the genus has recently been proposed by Tanasevitch (2019b).

Species included. The genus presently contains five species, including the new species described below: *Oia breviproscissa* Song & Li, 2010, *O. imadatei* (Oi, 1964), *O. kathmandu* Tanasevitch, 2019, *O. sororia* Wunderlich, 1973, and *O. probosciella*, new species.

Distribution. Russian Far East, eastern China, Korea, Japan, Taiwan, West Bengal (India), and Nepal (World Spider Catalog, 2022).

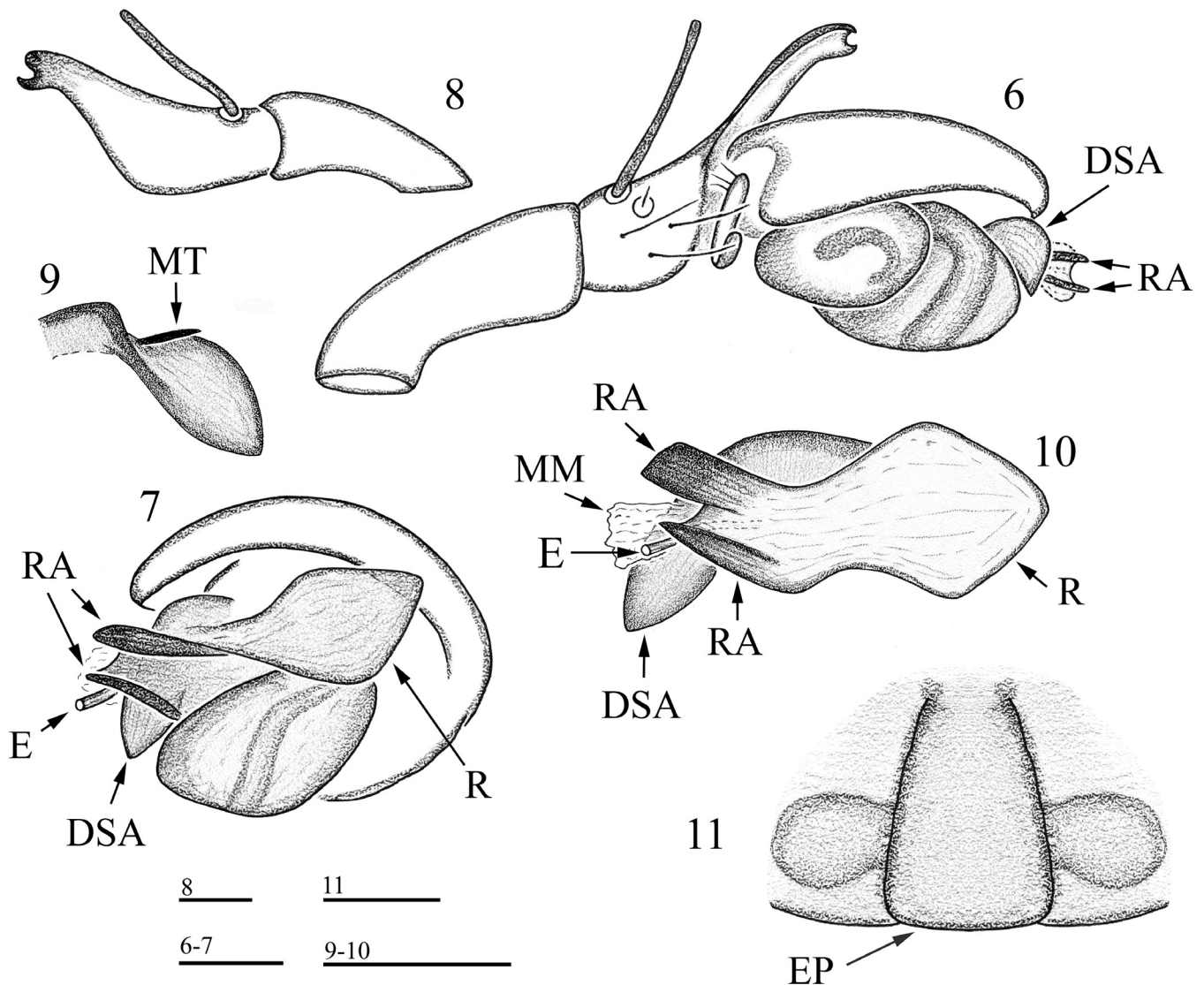
Range. The genus shows a typical southern East Asian Palaearctic distribution pattern (sensu Vtorov & Drozdov, 1978), with only the southern part of its range entering the Oriental Region.

Oia probosciella, new species (Figs. 1–5, 6–11)

Type material. Holotype, male: northern VIETNAM, Vinh Phuc Province, Vinh Yen District, Tam Dao, 900 m a.s.l., 27 April 2000, coll. A.V. Abramov (ZMMU); 2 females, paratypes, collected together with the holotype (ZMMU).

Etymology. The species epithet is a Latin noun referring to the proboscis-like shape of the outgrowth on the palpal tibia in the male.

Diagnosis. The new species can be assigned to *Oia*, as being very similar to other congeners, according to the same chaetotaxy (2.2.1.1) and trichobothriotaxy (I–III), by the same modification of the carapace in both sexes, by some genitalia characters, i.e., the modified palpal tibia carrying a long and thick seta, the same simple structure of the embolic division in the male, as well as by the conformation of the epigyne, which has the epigynal plate. The new species is diagnosed by the proboscis-like shape of the palpal tibia, by the peculiar structure of the embolic division in the male, as well as by the trapeziform epigynal plate in the female. *Oia probosciella*, new species, particularly closely resembles the Eastern Chinese *O. breviproscissa* Song & Li, 2010, and the Himalayan *O. kathmandu* Tanasevitch, 2019. The male of *O. probosciella* is easily distinguished from any congener by the proboscis-like shape of the palpal tibia, and by the absence of a lateral apophysis on the palpal tibia. Besides that, the new species has no apical spear-shaped process on the distal suprategular apophysis as observed in *O.*



Figs. 6–11. Details of male palp structure of *Oia probosciella*, new species, male holotype (6–10) and epigyne of female paratype (11). 6, 7, right palpal tibia, retrolateral and prolateral viewers, respectively; 8, patella and palpal tibia, prolateral view; 9, distal suprategular apophysis, antero-retrolateral view; 10, distal suprategular apophysis and embolic division, ventro-prolateral view; 11, epigyne, ventral view. Scale bars = 0.05 mm.

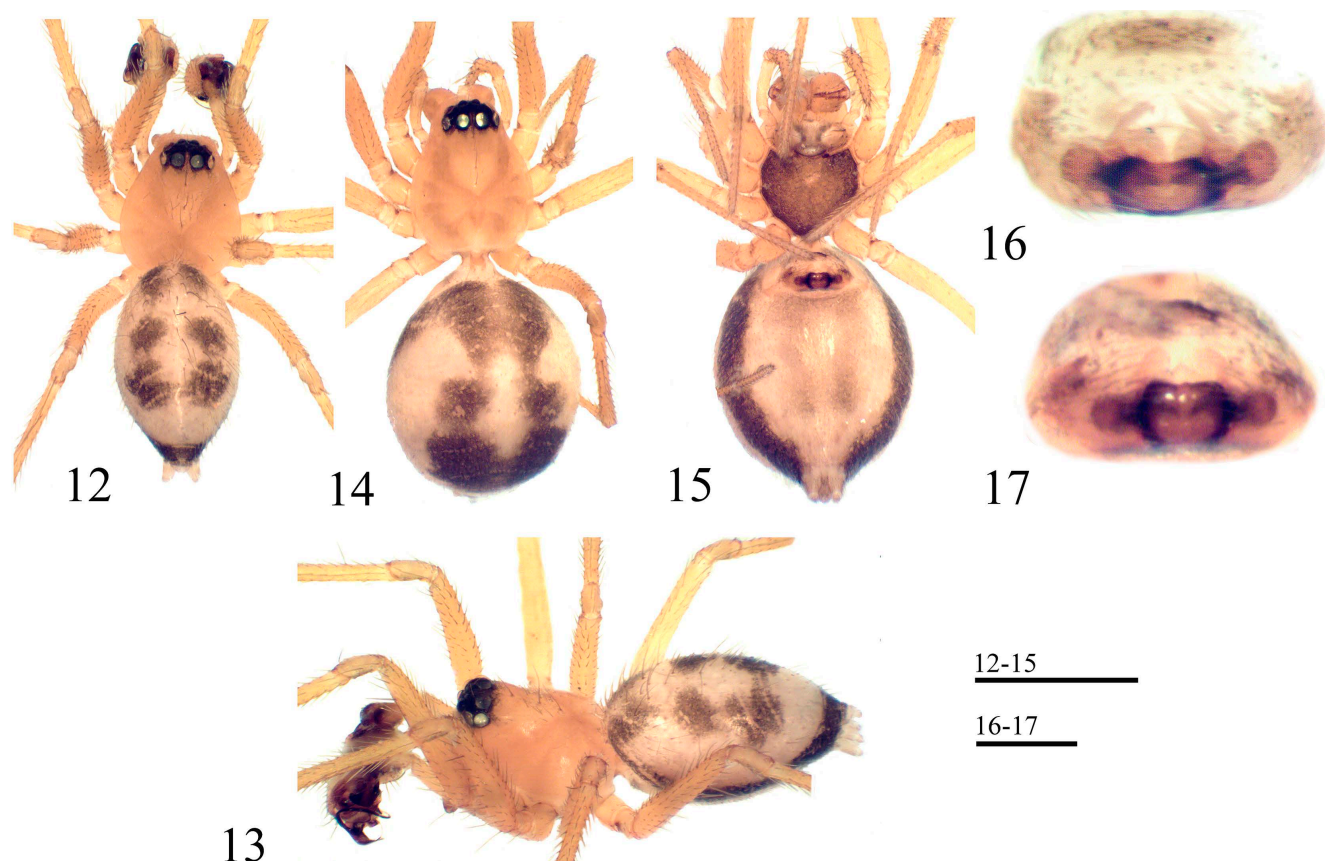
kathmandu and, unlike *O. breviproscissa*, it has two well-defined radical apophyses in the embolic division. The female of *O. probosciella*, new species, differs from *O. kathmandu* and *O. breviproscissa* by the trapeziform epigynal plate.

Description. Male holotype. Total length 1.15. Carapace 0.55 long, 0.45 wide, prominent behind a very compact ocular area, as in Figs. 1–3; pale brown to brown, with a narrow grey margin. Sulci absent. Chelicerae 0.25 long, a mastidion absent. Legs pale brown. Leg I 1.49 long ($0.45 + 0.18 + 0.35 + 0.26 + 0.25$), IV 1.44 long ($0.45 + 0.15 + 0.33 + 0.28 + 0.23$). Chaetotaxy 2.2.1.1, spines 0.5–1 times as long as diameter of corresponding leg segment. Metatarsi I–III each with a trichobothrium. TmI 0.31. Palp very small (Figs. 6–10): Patella elongated, broadened distally. Tibia with a long, slightly curved outgrowth on prolateral side, ending with two small denticles, and a thick seta dorsally. Paracymbium very small, hook-shaped. Distal suprategular apophysis weakly sclerotised, conical distally. Embolic

division: radix large and broad, distally with two sclerotised folds resembling slender radical apophyses; embolus short, a slender tube. Abdomen 0.63 long, 0.48 wide, dark grey (Figs. 1, 2).

Female paratype. Total length 1.28. Carapace less prominent behind ocular area than in male (Fig. 4); pale brown, 0.55 long, 0.48 wide. Chelicerae 0.28 long, a mastidion absent. Legs pale brown. Leg I 1.39 long ($0.38 + 0.18 + 0.33 + 0.25 + 0.025$), IV 1.34 long ($0.43 + 0.15 + 0.30 + 0.23 + 0.23$). Chaetotaxy 2.2.1.1, spines 0.5–1 times as long as diameter of corresponding leg segment. Metatarsi I–III each with a trichobothrium. TmI 0.44. Abdomen 0.80 long, 0.60 wide, grey (Figs. 4, 5). Epigyne (Figs. 5, 11): Epigynal plate trapeziform, twice as high as base. Receptacles subspherical or bean-shaped.

Distribution. Known only from the type locality in northern Vietnam.



Figs. 12–17. Habitus of *Nasoonaria annam*, new species, male paratype (12, 13) and female paratype (14–17). 12, 13, male body, dorsal and dorso-lateral views, respectively; 14, 15, female body, dorsal and ventral views, respectively; 16, 17, epigyne, ventral view, different aspects. Scale bar = 1.0 mm (Figs. 12–15); 0.1 mm (Figs. 16, 17).

Nasoonaria Wunderlich & Song, 1995

Type species. *Nasoonaria sinensis* Wunderlich & Song, 1995, by original designation.

Species included. The genus contains five species, including the new one described below: *Nasoonaria mada* Tanasevitch, 2018, *N. magna* Tanasevitch, 2014, *N. pseudoembolica* Tanasevitch, 2019, *N. sinensis* Wunderlich & Song, 1995, and *N. annam*, new species.

Distribution. Southern China, Myanmar, Thailand, Laos, Vietnam, Indonesia (Sumatra) (World Spider Catalog, 2022).

Nasoonaria annam, new species (Figs. 12–17, 18–23)

Type material. Holotype, male, southern VIETNAM, Ba Ria-Vung Tau Province, Bing Chau-Phuoc Buu Nature Reserve, 10°32'N, 107°29'E, 50 m a.s.l., June 2007, coll. A.V. Abramov (ZMMU); 1 male, 1 female paratypes, collected together with the holotype (ZMMU).

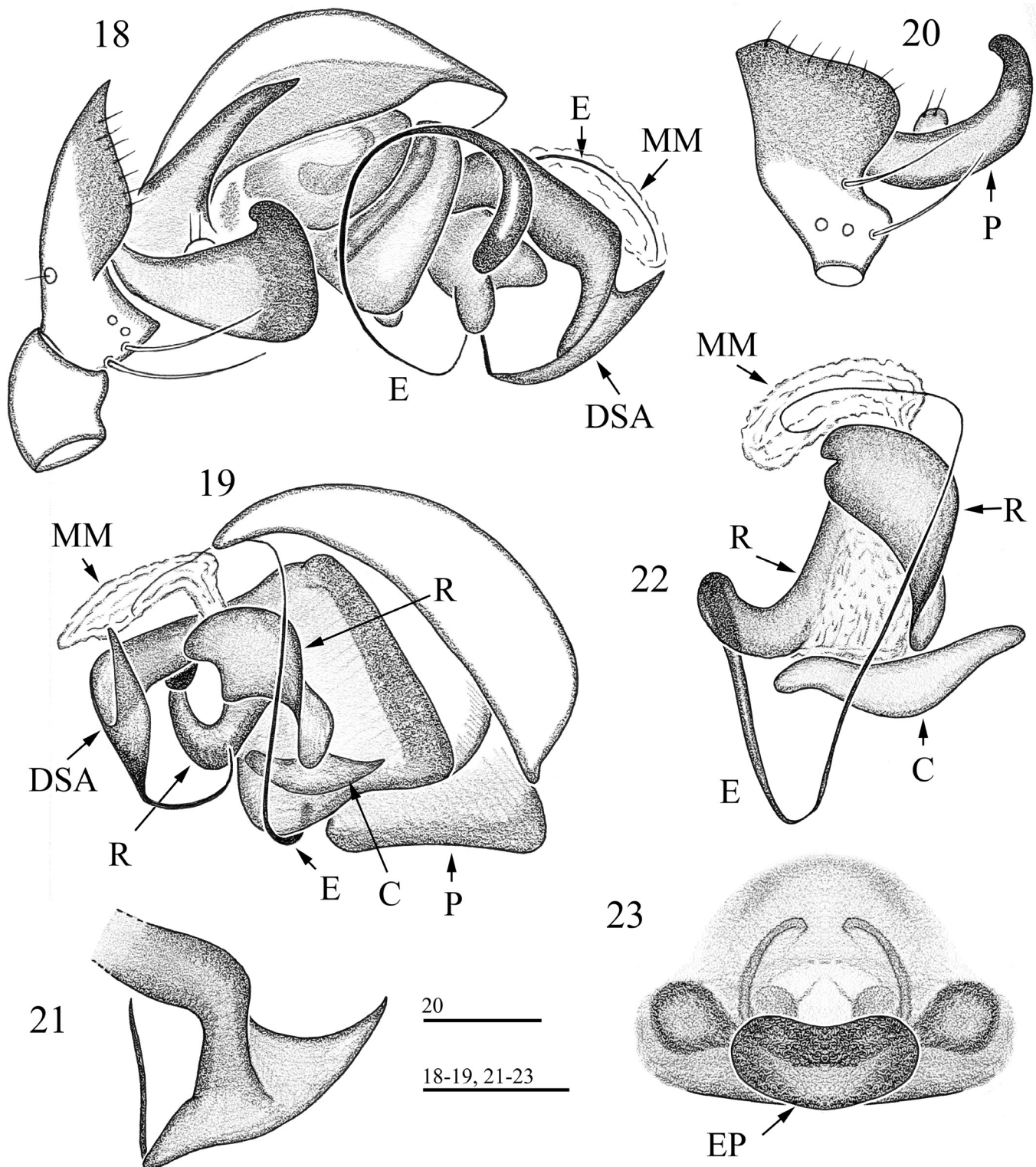
Etymology. The specific epithet is a noun in apposition referring to Annam, the old name of the country of origin.

Diagnosis. The new species can be assigned to *Nasoonaria*, based on the chaetotaxy (2.2.1.1) and trichobothriotaxy (I–

IV), the structure of the male palp, which has a hypertrophied distal suprategular apophysis, the presence of a convactor, as well as the presence of a whip-shaped embolus. The epigyne in the female is also of the same conformation as in most congeners. The new species is diagnosed by the unmodified carapace, by the complex and peculiar shapes of both the distal suprategular apophysis and the embolic division in the male. The female is distinguished by the structure of the epigyne. The species seems to be especially similar to *Nasoonaria sinensis* Wunderlich & Song, 1995. The male differs by the simple shape of the palpal tibia (vs. strongly modified in *N. sinensis*), as well as by the non-segmented radix in the embolic division. The female differs from all congeners by the presence of a dark and well-sclerotised epigynal plate partly covering the epigynal cavity.

Description. To avoid causing damage to the holotype, the male paratype is described here in due detail. Some measurements of the holotype are given in brackets. Carapace and abdomen shapes, body and leg colouration of the holotype are the same as in the male paratype.

Male paratype. Total length 1.85 (holotype 2.00). Carapace 0.85 long, 0.68 wide, unmodified, as in Figs. 12, 13, yellow to pale brown. Chelicerae 0.38 long, a mastidion absent. Legs yellow to pale brown. Leg I 3.26 long (0.85 + 0.23 + 0.85 + 0.78 + 0.55); IV 3.21 long (0.90 + 0.20 + 0.83 + 0.78 + 0.50). Chaetotaxy: 2.2.1.1. Length of spines 1.5–2 diameters



Figs. 18–23. Details of male palp structure of *Nasoonaria annam*, new species, male paratype (18–22) and epigyne of female paratype (23). 18, 19, right palp, retrolateral and prolateral views, respectively; 20, palpal tibia and paracymbium, dorsal view; 21, distal suprategular apophysis, frontal view; 22, embolic division, ventro-prolateral view; 23, epigyne, ventral view. Scale bars = 0.1 mm.

of leg segment. All metatarsi with a trichobothrium. Tml 0.84 (0.77 in holotype). Palp (Figs. 18–22): Tibia expanded anteriorly, with a deep notch retrolaterally. Paracymbium L-shaped, its distal part massive, slender when viewed from above, proximal part narrow, tapering and fang-shaped. Distal suprategular apophysis hypertrophied, long proximally, relatively narrow; abruptly widened distally, ending with a long thin process. Median membrane narrow at base,

tongue-shaped. Embolic division with a complex radix and a slender, slightly curved convector. Embolus thin, long, whip-shaped. Abdomen 1.13 long, 0.70 wide, dorsal pattern as in Figs. 12, 13.

Female paratype. Total length 2.23. Carapace 0.88 long, 0.70 wide, yellow to pale brown, unmodified, as in Fig. 13. Chelicerae 0.40 long, a mastidion absent. Legs yellow

to pale brown. Leg I 3.28 long (0.90 + 0.25 + 0.88 + 0.75 + 0.50); IV 3.32 long (0.93 + 0.23 + 0.88 + 0.80 + 0.48). All metatarsi with a trichobothrium. TmI 0.77. Abdomen 1.50 long, 1.03 wide, abdominal pattern as in Figs. 14, 15. Epigyne (Figs. 15–17, 23): Epigynal plate well-sclerotised, dark, bean-shaped, partly covering the epigynal cavity. Seminal ducts slender, forming an unclosed arch.

Distribution. So far known only from the type locality in southern Vietnam.

FAUNISTICS

Batueta voluta Locket, 1982

Material examined. 1 male, northern VIETNAM, Vinh Phuc Province, Vinh Yen Distr., Tam Dao, 900 m a.s.l., 27 April 2000, coll. A.V. Abramov (ZMMU).

Distribution. This species was originally described from Singapore by Locket (1982). N.B. The type locality was mistakenly mentioned by the author as situated in West Malaysia: “Seletar reservoir, just outside Singapore” (Locket, 1982: 361). Later, it was recorded from Thailand and West Malaysia (Tanasevitch, 2014b), Vietnam (Tanasevitch, 2017), and Laos (Komisarenko et al., 2019). In Vietnam, *B. voluta* was registered from its southern part: Mada, Dong Nai Province (Tanasevitch, 2017). Tam Dao is the northernmost locality of the presently known species distribution.

Enguterothrix simpulum (Tanasevitch, 2014)

Material examined. 1 male, southern VIETNAM, Ba Ria-Vung Tau Province, Bing Chau-Phuoc Buu Nature Reserve, 10°32'N, 107°29'E, 50 m a.s.l., June 2007, coll. A.V. Abramov (ZMMU).

Remarks. This species was originally described from northern and north-eastern Thailand as the type species of a new genus, *Apophygone* Tanasevitch, 2014 (Tanasevitch, 2014b). This genus has since been synonymised with *Enguterothrix* Denis, 1962, known from the Afrotropical Region (Democratic Republic of the Congo), see Tanasevitch (2016).

Distribution. Thailand (Tanasevitch, 2014b), Malaysia (Borneo), Indonesia (Bali) (Tanasevitch, 2017), and Vietnam (first record).

Nasoonia crucifera (Thorell, 1895)

Material examined. 1 male, 1 female, southern VIETNAM, Ba Ria-Vung Tau Province, Bing Chau-Phuoc Buu Nature Reserve, 10°32'N, 107°29'E, 50 m a.s.l., June 2007, coll. A.V. Abramov (ZMMU).

Remarks. In Vietnam, *N. crucifera* has been recorded from Dong Nai and Lao Cai provinces (Tanasevitch, 2017).

Distribution. Widespread in the Oriental Region and recorded from the southern part of the East-Asian Palaearctic (World Spider Catalog, 2022).

Nasoonaria pseudoembolica Tanasevitch, 2019

Material examined. 1 male, 2 females, southern VIETNAM, Ba Ria-Vung Tau Province, Bing Chau-Phuoc Buu Nature Reserve, 10°32'N, 107°29'E, 50 m a.s.l., June 2007, coll. A.V. Abramov (ZMMU).

Remarks. The species was originally described from both sexes from Ma Da Forest, Dong Nai Province, Vietnam (Tanasevitch, 2019a).

Distribution. Known from Vietnam only.

Nasoonaria sinensis Wunderlich & Song, 1995

Material examined. 1 female, southern VIETNAM, Ba Ria-Vung Tau Province, Bing Chau-Phuoc Buu Nature Reserve, 10°32'N, 107°29'E, 50 m a.s.l., June 2007, coll. A.V. Abramov (ZMMU).

Remarks. In Vietnam, *N. sinensis* was recorded from its northern part: Tam Dao National Park, Vinh Phuc Province (Tanasevitch, 2021).

Distribution. China (Wunderlich & Song, 1995), Laos (Tanasevitch, 2014a), Thailand (Tanasevitch, 2014b), Indonesia (Sumatra) (Tanasevitch, 2017), Vietnam (Tanasevitch, 2021).

Nematogmus cf. *digitatus* Fei & Zhu, 1994

Material examined. Male, northern VIETNAM, Vinh Phuc Province, Vinh Yen Distr., Tam Dao, 900 m a.s.l., 27 April 2000, coll. A.V. Abramov (ZMMU).

Remarks. *Nematogmus digitatus* was described by Fei & Zhu (1994) from Jilin Province, China and later re-described based on the types by Song & Li (2008). The specimen from Tam Dao is quite consistent with the drawings of Fei & Zhu (1994), but the tooth on the palpal tibia, denoted as RTT in op. cit. is significantly larger.

Distribution. The species is known from Jilin Province, China (Fei & Zhu, 1994) and northern Vietnam (first record).

DISCUSSION

Considering the above new information, the linyphiid spider fauna of Vietnam presently comprises not less than 27 species. Twenty of them belong to the subfamily Erigoninae, five belong to Linyphiinae, and only two species are from Micronetinae. Of course, these figures are far from complete, and are expected to significantly increase along with future research. The most speciose genus in Vietnam is *Nasoonaria*, with four species. The fauna of Vietnam is mainly composed

of Oriental species, some of which have so far been found only in this country. A few species seem to represent southern East Asian Palearctic elements (sensu Vtorov & Drozdov, 1978) in the fauna of Vietnam, e.g., *Gongylidioides onoi* Tazoe, 1994, *Microbathyphantes aokii* (Saito, 1982), *Nerienne cavaleriei* (Schenkel, 1963), *Ummeliata insecticeps* (Bösenberg & Strand, 1906) (for details see World Spider Catalog, 2022). The only widespread species present in the Vietnamese fauna is the Palearctic *Hylyphantes graminicola* (Sundevall, 1830); in addition to Vietnam, *H. graminicola* can be found in the northern parts of the Oriental region, i.e., Myanmar, Thailand and Laos (World Spider Catalog, 2022).

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