Iheringia
Série Zoologia

e-ISSN 1678-4766
www.scielo.br/isz

Museu de Ciências Naturais

Article

On the genus *Diphya*: notes on the Brazilian *D. bicolor* and a new species from Ecuador (Araneae: Tetragnathidae)

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Received 11 May 2022
Accepted 24 January 2023
Published 15 May 2023
DOI 10.1590/1678-4766e2023004

ABSTRACT. In this paper a new species of *Diphya* Nicolet, 1849, *D. napo* sp. nov. is described based on males and females from Ecuador. The female of *Diphya bicolor* Vellard, 1926 is described and illustrated for the first time and new records are presented. *Oarces ornatus* Mello-Leitão, 1935 and *Azilia eximia* (Mello-Leitão, 1940) are synonymized with *D. bicolor*, being *A. eximia* removed from the synonym of *Azilia* Keyserling, 1881 and being *Cardimia* Mello-Leitão, 1940 considered synonym of *Diphya*.

KEYWORDS. Neotropical, new records, South America, Tetragnathinae, taxonomy.

RESUMO. Sobre o gênero *Diphya*: notas sobre a brasileira *D. bicolor* e uma nova espécie do Equador (Araneae: Tretragnathidae). Neste artigo uma nova espécie de *Diphya* Nicolet, 1849, *D. napo* sp. nov. é descrita com base em machos e fêmeas do Equador. A fêmea de *Diphya bicolor* Vellard, 1926 é descrita e ilustrada pela primeira vez e registros novos são apresentados. *Oarces ornatus* Mello-Leitão, 1935 e *Azilia eximia* (Mello-Leitão, 1940) são sinonimizadas com *D. bicolor*, sendo *A. eximia* retirada da sinonímia de *Azilia* Keyserling, 1881 e *Cardimia* Mello-Leitão, 1940 é considerado sinônimo de *Diphya*.

PALAVRAS-CHAVE. Neotropical, novos registros, América do Sul, Tetragnathinae, taxonomia.

The genus *Diphya* was proposed by Nicolet (1849), with the type species *D. macrophtalma* Nicolet, 1849 from Chile. The genus contains 20 species, of which five have been described from South America: *D. bicolor* Vellard, 1926 from Brazil, *D. limbata* Simon, 1896 from Chile and Argentina, *D. spinifera* Tullgren, 1902, *D. rugosa* Tullgren, 1902 and the type species from Chile (World Spider Catalog, 2023).

Diphya is currently considered a Tetragnathinae, after a phylogeny performed by Álvarez-Padilla & Hormiga (2011). The genus appears as sister group of the clade formed by *Glenognatha* + *Pachygnatha* and *Cyrtognatha* + *Tetragnatha*. A series of characters are diagnostic of *Diphya* in relation to the other genera (Álvarez-Padilla & Hormiga, 2011), but the AME and PLE considerably smaller than the remaining eyes and located on separate tubercles, and legs I and II armed with a mesal row of macrosetae (see Tanikawa, 1995; Álvarez-Padilla & Hormiga, 2011).

The Brazilian species *Diphya bicolor* was described by Vellard (1926) from a single male collected in the state of Rio de Janeiro. The female has not been described so far. The type material was supposed to be deposited at the Instituto Vital Brazil, in Rio de Janeiro, but it was never located and is considered lost. By examining material of the species from different states in the Southern, Southeastern and Northeastern Brazil, we concluded that they belong to a single species and that they correspond to *Diphya bicolor* as described by Vellard (1926). Consequently, we present here the redescription of the male and described the female of the species and present new records of the species from Brazil. In addition, we described a new species of *Diphya* from Ecuador, an unprecedented country record in the distribution range of this genus. Finally, the species *Oarces ornatus* Mello-Leitão, 1935 and *Azilia eximia* (Mello-Leitão, 1940) are synonymized with *D. bicolor*, being *A. eximia* removed from the synonym of *Azilia* Keyserling, 1881 and being *Cardimia* Mello-Leitão, 1940 considered synonym of *Diphya*.

MATERIAL AND METHODS

The material examined is deposited in the following collections (curators in parenthesis): IBSP, Instituto Butantan, São Paulo (A. D. Brescovit); MCN, Museu de Ciências

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Naturais, SEMA, Porto Alegre (R. Ott); MZSP, Museu de Zoologia da Universidade de São Paulo, São Paulo (R. Pinto da Rocha); UFMG, Centro de Coleções Taxonômicas, Universidade Federal de Minas Gerais, Belo Horizonte (A. J. Santos).

Description format and terminology follows Álvarez-Padilla & Hormiga (2011). Epigynum terminology were partially adapted from Marusik & Omelko (2017). All measurements in the text are in millimeters. Incident light images were taken through a NIKON SMZ 800 stereomicroscope or a ZEIS Standard compound microscope with attached cameras and processed with Helicon Focus multi-range program. For scanning electron microscopy (SEM) images, the structures were removed and dehydrated through a series of graded ethanol (80–100%), dried by critical-point drying, mounted on metal stubs using adhesive copper tape for fixation, and sputter coated with gold. SEM images were taken with a FEI Quanta 250 scanning electron microscope at Laboratório de Biologia Estrutural e Funcional of Instituto Butantan, São Paulo, Brazil.

Abbreviations: AME, anterior median eye; ALE, anterior lateral eye; AP, anterior pockets; BP, basal plate; CD, copulatory duct; CEMP, cymbial ectomedian process; Co, conductor; CO, copulatory opening; Cy, cymbium; E, embolus; FD, fertilization ducts; LP, lateral plate of epigynum; MP, marginal plate of epigynum; PC, paracymbium; PLE, posterior lateral eye; PME, posterior median eye; RTA, retrolateral tibial apophysis; S, spermathecae; TO, tarsal organ.

TAXONOMY

Diphya Nicolet, 1849

Diphya Nicolet, 1849:406. Type species by subsequent designation *D. macrophthalma* Nicolet, 1849.

Cardimia Mello-Leitão, 1940:61. Type species by monotypy *C. eximia* Mello-Leitão, 1940 (removed from syn. with *Azilia*), **Syn. nov.**

Note. In this study, we had the opportunity to correct a historical mistake made by Levi (2002), who synonymized *Cardimia*, proposed in Araneidae, with *Azilia* Keyserling, 1881. Before the fire at the Museu Nacional do Rio de Janeiro, we had the opportunity to examine the type of *Cardinia eximia* Mello-Leitão, 1940. The comparison of the type with specimens of *Diphya bicolor* allows us to transfer this synonymy to *Diphya*, correcting the proposition of Levi (2002).

Diagnosis. According to a recent diagnosis presented by Álvarez-Padilla & Hormiga (2011, figs 27, 28), *Diphya* species can be distinguished from all other Tetragnathidae genera by the following combination of characters: AME considerably smaller, secondary eyes without reflective tapetum (Figs 3, 5; 28, 29; 41, 42; 51, 53); legs I and II armed with a mesal row of macrosetae (Figs 21, 30); epigynum a flat sclerotized plate with ventrally oriented copulatory openings, sclerotized spermathecae (Figs 31, 54), palp tibia of male with distal apophysis (Figs 46-48) which is inconspicuous in *D. bicolor* (Fig. 15) and cymbium with only ectomedian process, paracymbium with anterior apophysis (Figs 6, 9, 10; 11, 15, 16; 45-48); distally swollen, spherical tegulum, conductor with membranous aspect, with fine margins sclerotized, coiled and firmly attached to the center of the tegulum and lamelliform and curled embolus, opposite to conductor (Figs 6-10; 45-48).

Diphya bicolor Vellard, 1926

(Figs 1-38; 58)

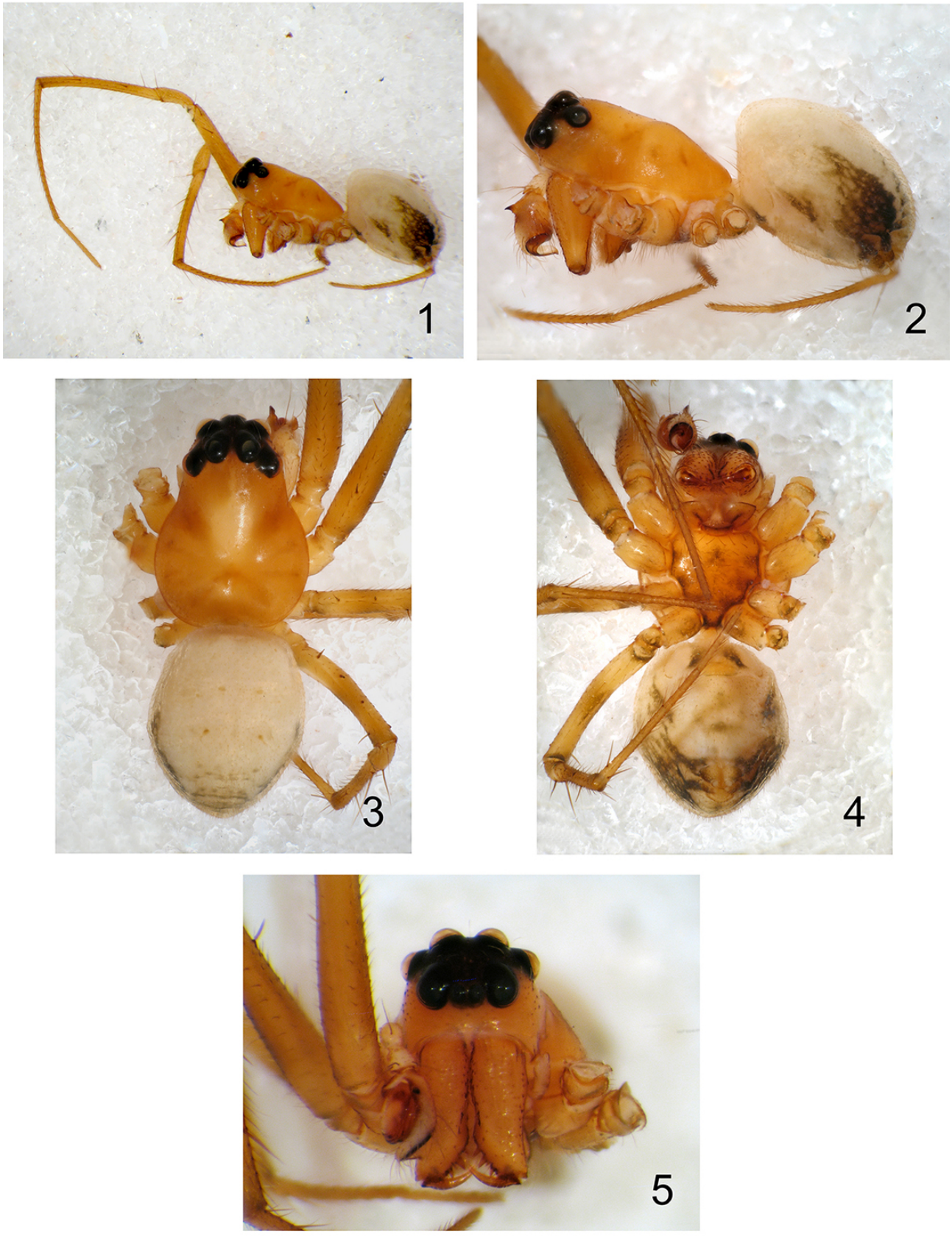
Diphya bicolor Vellard, 1926:328, fig. 1 (Holotype ♂ from Petrópolis, Rio de Janeiro, Brazil, IV/1924; should be in the Instituto Vital Brazil, Rio de Janeiro, not found, lost).

Oarces ornatus Mello-Leitão, 1935:325, figs 3, 4 (Holotype male from Serra de Paranapiacaba, São Paulo, Brazil, O. Leonardos coll., deposited in MNRJ 41895, examined, destroyed in the 2018 by fire), **Syn. nov.**

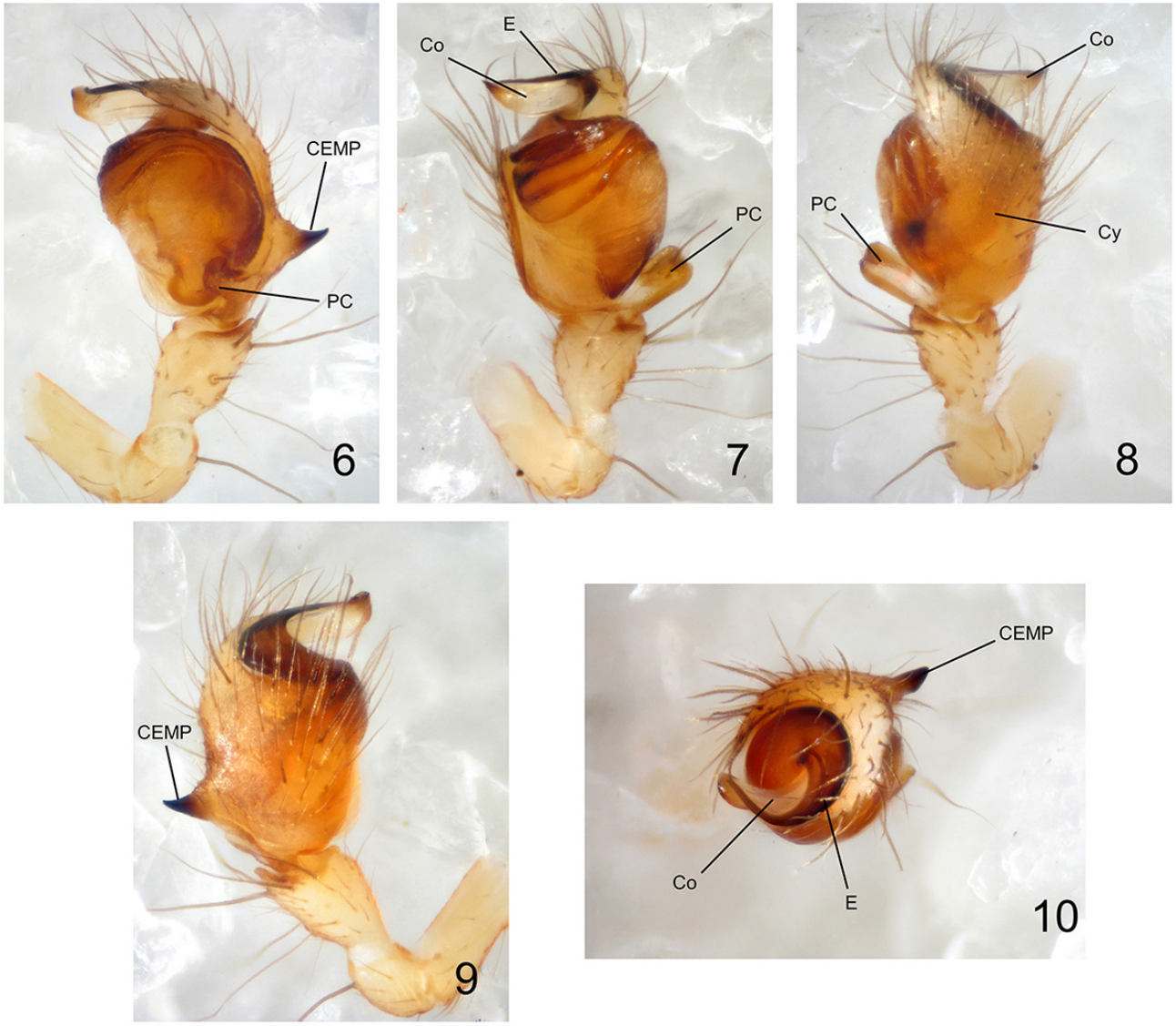
Cardimia eximia Mello-Leitão, 1940:61, fig. 7a, b (Holotype female from Rio Negro, Paraná, Brazil, F. Rohr coll., deposited in MNRJ 58292, examined, destroyed in the 2018 by fire), **Syn. nov.**

Azilia eximia: Levi, 2002:562 (transf., misidentification).

Other material examined. BRAZIL, **Bahia**: Abaíra, Mata da Forquilha, Serra do Barbado, Distrito de Catolés (13°17'27"S 41°54'6"W), ♀ (UFMG 14948); ♂ (UFMG 14960); 2♀ (UFMG 14987); 3♀ (UFMG 14988); ♀ (UFMG 14995), all collected in 31/X/2013 by L. S. Carvalho & M. B. da Silva; **Minas Gerais**: Alto Caparaó, Parque Nacional do Caparaó (20°26'05"S 41°47'2"W), 01-07/V/2002, Equipe Biota leg., ♀ (IBSP 170029); Ouro Preto, Estação Ecológica Tripuí (20°23'45"S 43°34'33"W), no date, Equipe Biota leg. (IBSP 236828); Belo Horizonte (19°55'08"S 43°56'19"W, 845 m), VI-VIII/1993, A. J. Santos *et al.* leg., ♂ (UFMG 147); Parque das Mangabeiras (19°57'03"S 43°54'18"W), 10/X/1994, A. J. Santos leg., ♂, 5 immatures (IBSP 20101; SEM); 17/X/1994, G. F. Dutra leg., 2♂, ♀, 4 immatures (IBSP 20102); 11-13/VIII/1993, A. H. D. Pereira & G. F. Dutra leg., 2♀ (IBSP 26942); Nova Lima (RPPN Mata Samuel de Paula, 20°0'S 43°52'W, 967 m), 4/VII/2007, J. P. P. Pena-Barbosa *et al*. leg., ♂ (UFMG 2635); **São Paulo**: Jundiaí (Reserva Biológica Municipal da Serra do Japi, 23°13'53.60"S 46°52'47.01"W), 05/V/1997, A. J. Santos leg., ♂, ♀ (IBSP 36347); 15-17/XII/2014, Exc. Alunos USP leg., 2♀ (IBSP 231086); VI/2018, G. A. Villanueva-Bonilla leg. (IBSP 251816); 27-28/IV/1996, A. D. Brescovit leg., ♀, 2 immatures (IBSP 7028); Serra do Japi (23°13'S 46°56'W), 15-19/VII/2002. Eq. Curso USP leg. (IBSP 236835); ♀ (IBSP 236836); ♀ (IBSP 236837); ♀ (IBSP 236838); ♀ (IBSP 236839); 21/III/2008, J. Sobjack leg., ♂ (UFMG 7390); Campos do Jordão (22°44'02"S 45°34'42"W), IX/2004-VIII/2005, D. Baretta leg. (IBSP 71824); São José do Barreiro (Parque Nacional da Serra da Bocaina, 22°43'S 44°36'W), 28/IV-3/V/2002, Eq. Biota leg., ♀ (IBSP 242816); Cabreúva (23°18'27"S 47°07'58"W), 27/X/2001,

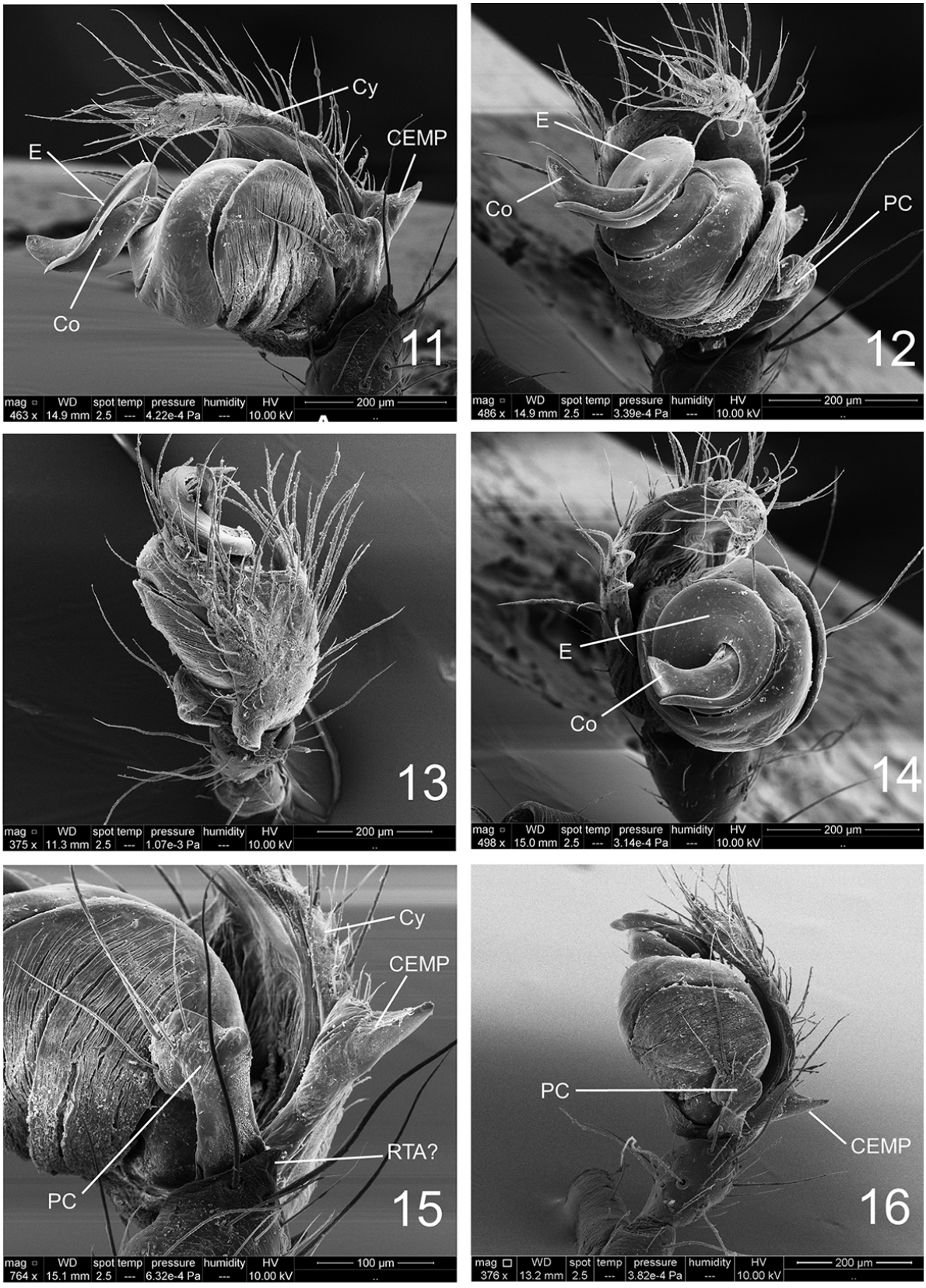


Figs 1-5. *Diphya bicolor* Vellard, 1926, male MCN 35220: 1, 2, lateral view; 3, dorsal view; 4, ventral view; 5, frontal view.

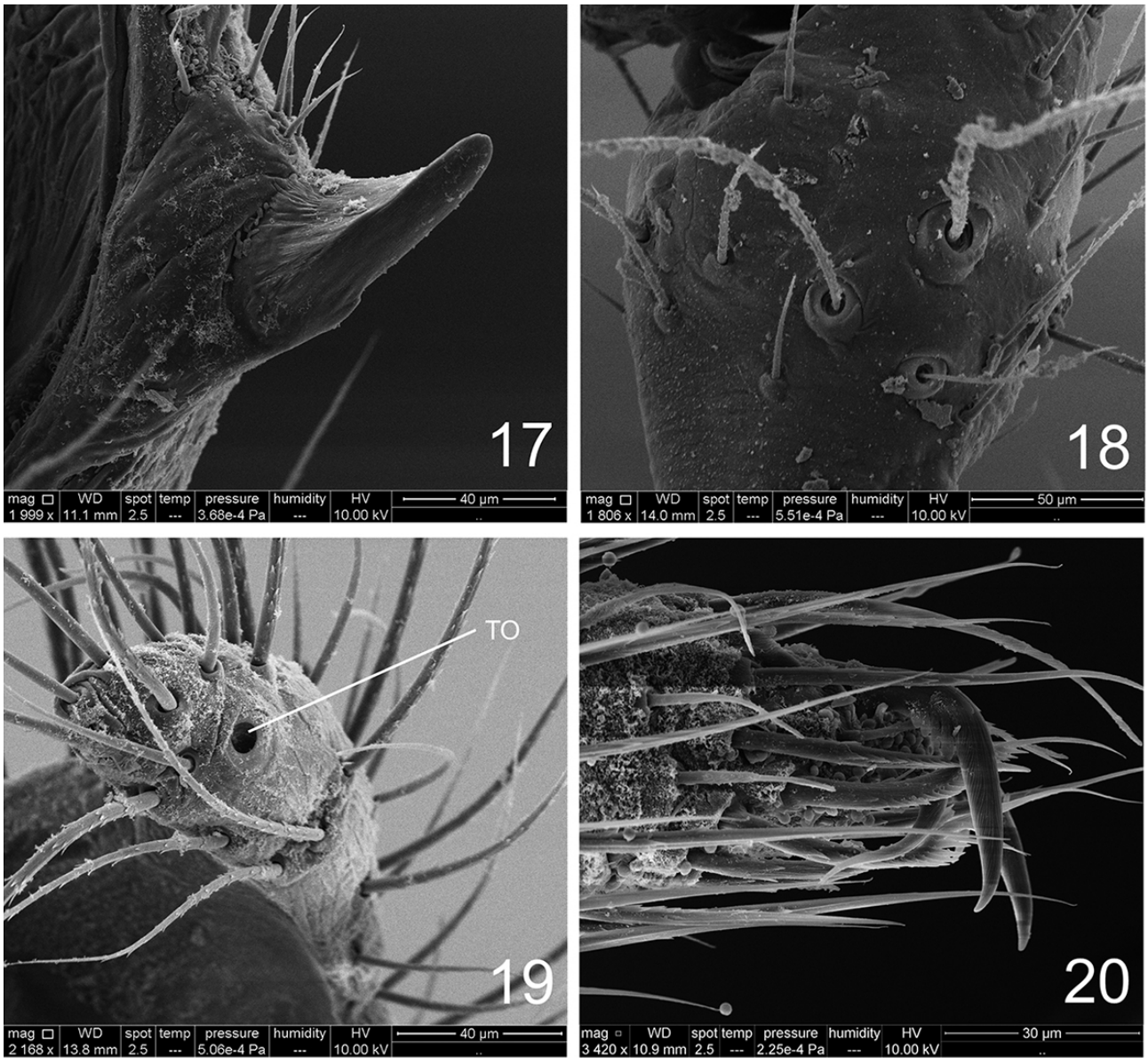


Figs 6-10. *Diphya bicolor* Vellard, 1926, male MCN 35220, palp: 6, retrolateral view; 7, ventral view; 8, dorsal view; 9, prolateral view; 10, frontal view (Co, conductor; Cy, cymbium; CEMP, cymbial ectomedian process; E, embolus; PC, paracymbium).

D. F. Candiani & P. E. D. Francesconi leg., ♀ (IBSP 31983); Mogi das Cruzes (Parque Natural Municipal da Serra de Itapety, 23°29'S 46°12'W), 13-9/X/2003; Equipe Biota leg., ♀ (IBSP 236740); Cotia (Caucaia do Alto, 23°41'17"S 47°1'16"W), 18-26/VI/2002, Equipe Biota leg., 6♀ (IBSP 236776, 236778, 236779, 236780, 236783, 236785); Reserva Florestal Morro Grande (23°38'58.12"S 46°57'45.99"W), no data, A. A. Nogueira *et al*. leg., ♀ (IBSP 131390); 19/III/2003, A. A. Nogueira *et al*. leg., ♀ (IBSP 131384); 10/XII/2002, ♀ (IBSP 131385); ♀ (IBSP 131386); 10/XII/2002, ♀ (IBSP 131387), all collected by A. A. Nogueira *et al*.; Fragmento Florestal Lacerda (23°38'58"S 46°57'45"W), 11/XII/2002, A. A. Nogueira *et al*. leg., 2♀ (IBSP 131388, 131389); 16/III/2003, A. A. Nogueira *et al*. leg., ♂, 2♀ (MZSP 22604; MZSP 22605; MZSP 22606); Torres (23°38'58.12"S 46°57'45.99"W), 15/XII/2002, A. A. Nogueira *et al*. leg., ♂ (MZSP 22591); Grilos (23°38'58.12"S 46°57'45.99"W), 11/III/2003, A. A. Nogueira *et al*. leg., ♀ (MZSP 22592); Área B (23°38'58.12"S 46°57'45.99"W), 23/III/2003, A. A. Nogueira *et al*. leg., ♂ (MZSP 22593); Área D (23°38'58.12"S 46°57'45.99"W), 20.XII.2002, A. A. Nogueira *et al.* leg., ♀ (MZSP 22594); Fragmento Florestal Mioko (23°38'58.12"S 46°57'45.99"W), 12/III/2003, A. A. Nogueira *et al.* leg., 2♀ (MZSP 22595, 22596); Fragmento Florestal Pedroso (23°38'58.12"S 46°57'45.99"W), 9/XII/2002, A. A. Nogueira *et al.* leg., ♂, ♀ (MZSP 22597, 22598); Fragmento florestal Dito André (23°38'58.12"S 46°57'45.99"W), 10/XII/2002, A. A. Nogueira *et al*. leg., 4♀ (MZSP 22599- 22603); São Paulo (23°32'51"S 46°38'10"W), 18/V/1999, D. F. Candiani leg. (IBSP 30022); Parque Estadual do Jaraguá (23°27'34.3"S 46°46'2.8"W), 14-19/X/2002, Equipe Biota leg., ♀ (IBSP 236699); Campus USP (23°33'44"S 46°43'39"W), 11/

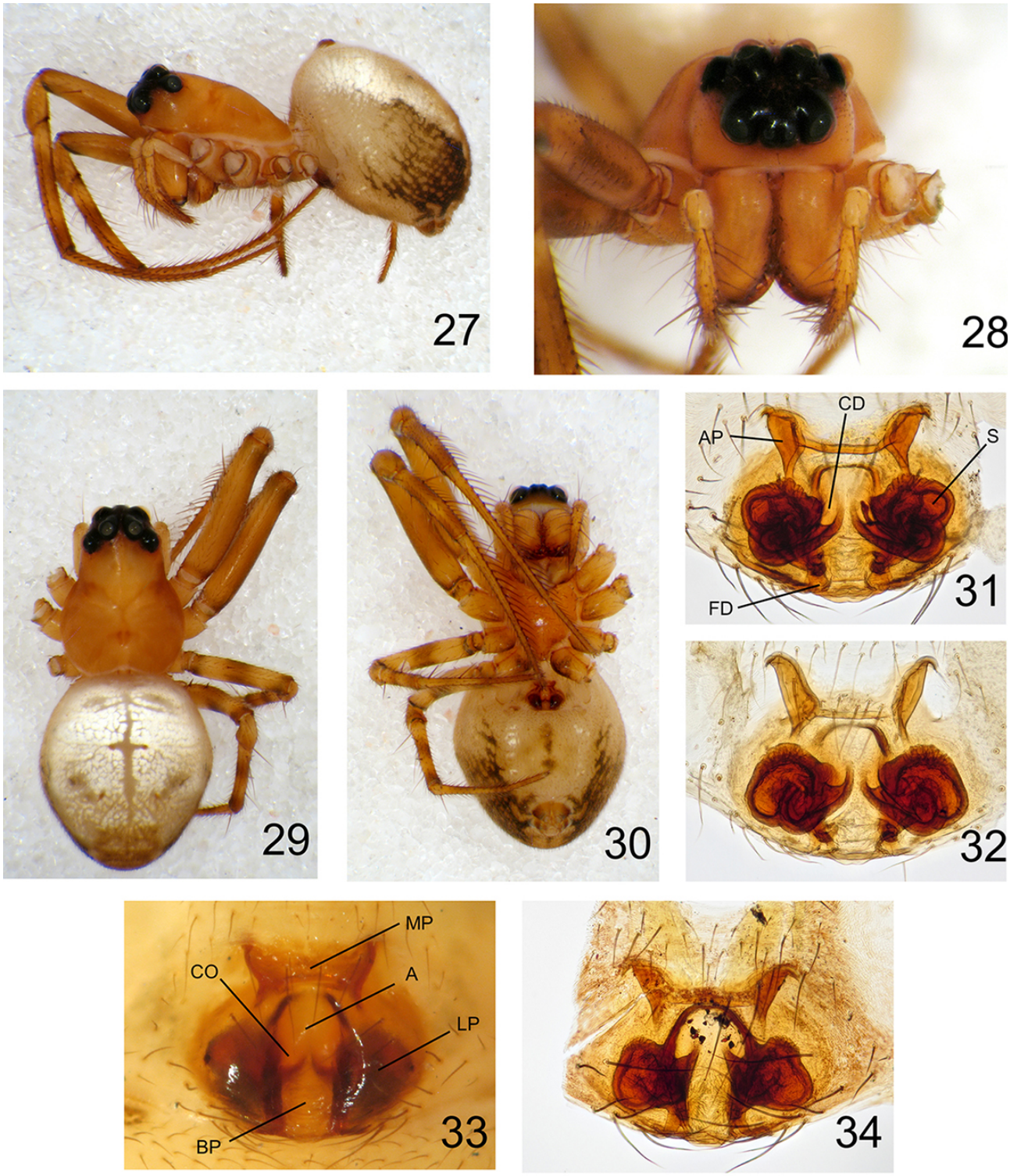


Figs 11-16. *Diphya bicolor* Vellard, 1926, male IBSP 20101. SEM palp: 11, retrolateral view; 12, ventro-apical view; 13, dorsal view; 14, apical view; 15, detail, posterior view; 16, prolateral view (Co, conductor; Cy, cymbium; CEMP, cymbial ectomedian process; E, embolus; PC, paracymbium; RTA, retrolateral tibial apophysis).



Figs 17-20. *Diphya bicolor* Vellard, 1926, male IBSP 20101. SEM: 17, palp, detail, cymbial ectomedian process; 18, tibia, dorsal view; 19, palp, detail, cymbium apical; 20, leg IV, claws (TO, tarsal organ).

VIII/1998, ♀ (IBSP 19669); 11/VIII/1998, ♀ (IBSP 19670); 12/VIII/1998, ♂ (IBSP 19671); 17/VIII/1998, ♀ (IBSP 19672); 17/VIII/1998, ♀ (IBSP 19673); 17/VIII/1998, ♂, ♀ (IBSP 19674); 17/VIII/1998, ♀ (IBSP 19675), all collected by F. S. Cunha; Campus Instituto Butantan (23°33'S 46°43'W), 05/X/1992, no coll., ♂ (IBSP 7438); 31/VII/1998, ♂, ♀ (IBSP 20121); 18/XII/1998, ♀ (IBSP 20122); 12/IX/1998, ♀ (IBSP 20123); 10/IX/1998, ♀ (IBSP 20124); 25/III/1998, ♂ (IBSP 20485); 25/VIII/1998, ♂ (IBSP 20490); 29/VII/1998, ♂, ♀ (IBSP 20856); 11/IX/1998, ♀ (IBSP 20858); 25/VIII/1998, ♀ (IBSP 20860); 14/VIII/1998, ♂, 2♀ (IBSP 20918); 11/VIIII/1999, ♂ (IBSP 24063); 18/VI/1999, ♀, 1 imm. (IBSP 24186); 03/X/2000, 2♀ (IBSP 27325); 13/X/2000, ♂ (IBSP 27326); 24/X/2000, 2♀ (IBSP 27327); 12/VIII/2000, 2♀ (IBSP 27464; SEM); 25/VIII/2000, 2♀ (IBSP 27468); 18/XI/1998, ♀ (IBSP 20349), all collected by F. S. Cunha; 14/X/2008, Alunos do curso 2008 leg., ♀ (IBSP 120108); Horto Oswaldo Cruz (23°33'S 46°43'W), V/2000 - II/2001, D. F. Candiani leg., ♀ (IBSP 76237); Parque Burle Marx (23°37'56"S 46°43'17"W), 18-23/III/2005, A. Bagio leg., male? Female? (IBSP 59321); Parque da Previdência (23°34'S 45°43'W), 01/III/2000, F. S. Cunha leg., ♀ (IBSP 30017); 10/VI/1999, R. P. Indicatti leg., ♀ (IBSP 30021); 10/VI/1999, R. P. Indicatti leg., ♂ (IBSP 30024); 20/V/1999, F. S. Cunha leg., ♀ (IBSP 30023); 01/III/2000, F. S. Cunha leg., 2♀ (IBSP 32812); 15/IX/2000, J. Império leg., ♂ (IBSP 30018), ♀ (IBSP 30019); 15/IX/2000, J. Império leg., ♀ (IBSP 30020); 12/V/2000, J. Império leg., ♀ (IBSP 33328); Parque Estadual



Figs 27-34. *Diphya bicolor* Vellard, 1926, female. 27-31, MCN 35220 (Rio Grande do Sul); 32, MCN 30679 (Rio Grande do Sul); 33, MCN 2214 (Rio de Janeiro); 34, IBSP 20102 (Minas Gerais). 27, lateral view; 28, carapace, frontal; 29, dorsal view; 30, ventral view; 31, epigynum, ventral view; 32-34, epigyna, ventral, cleared (A, atrium; AP, anterior pockets; BP, basal plate; CD, copulatory duct; CO, copulatory opening; FD, fertilization duct; LP, lateral plate; MP, marginal plate; S, spermathecae).

Figs 35-38. *Diphya bicolor* Vellard, 1926, female, alive appearance: 35, frontal view; 36, 37, lateral view; 38, dorsal view. Images: Felipe Rasmini, Iraí, RS.

Fontes do Ipiranga (23°38'24.6"S 46°37'3.1"W), 18/III/2017, Z. R. Mendes leg., ♀ (IBSP 229599); Itapevi, Condomínio Trensurb (23°35'4"S 46°57'56"W), 23/III/2000, V. Onofrio & D. M. Battesti leg., ♂ (IBSP 123536); **Paraná**: Almirante Tamandaré, 06/IV/1984, ♂ (MCN 12421), 25/V/1984, 2♀ (MCN 12427, 12437), 18/I/1984, 1 imm. (MCN 12555), all E. Corrêa Costa leg.; Foz do Iguaçú, A. B. Bonaldo leg., ♀ (MCN 21650); Três Barras do Paraná, A. B. Bonaldo leg., ♂ (MCN 23157); **Santa Catarina**: Chapecó (Lageado Monte Alegre), 2001-2002, J. M. Marques, ♀ (IBSP 93781); Rancho Queimado, 15-18/XI/1995, A. B. Bonaldo leg., ♀ (MCN 26820); São Bento do Sul (Centro de Estudos e Pesquisas Ambientais Rugendas, 26°16'49,6"S 49°19'32,5"W, 849 m), 15/XII/2011, I. L. F. Magalhães *et al.* leg., ♂ (UFMG 10886); **Rio Grande do Sul**: Passo Fundo, 01/VII/1986, A. A. Lise leg., 3♀ (MCN 15870); Cambará do Sul, 19-21. XII.1994, E. H. Buckup leg., ♂, ♀ (MCN 25950); A. F. Fransceschini leg., ♀ (MCN 26056); São Francisco de Paula (Usina Passo do Inferno), 19/XI/1997, M. A. L. Marques leg., ♂ (MCN 28773); (Barragem dos Bugres), 01-04/II.1999, 2♀ (MCN 30679); 04/II/1999, 2♀ (MCN 31021) both A. B. Bonaldo leg. (Floresta Nacional de São Francisco de Paula), R. Baldissera leg., ♂, 10♀ (MCN 35220); Nova Petrópolis (Linha Imperial), 20/12/1973, A. A. Lise leg.,

♀ (MCN 2214); Viamão (Morro do Côco), 25.VII.1985, A. A. Lise leg., 3♀ (MCN 13389).

Diagnosis. Males of *Diphya bicolor* resembles *D. macrophtalma* and *D. spinifera* by the palp with narrow and rounded cymbium (Figs 1-5, 6-9), coiled aspect of conductor and embolus, and swollen paracymbium. However, the species differs from *D. spinifera* and *D. macrophtalma* by the less conspicuous retrolateral tibial apophysis (Figs 6-9, 11, 15, 16; see also Álvarez-Padilla & Hormiga, 2011:744, fig. 29C, F, and Marusik & Omelko, 2017:4, figs 12, 16-18) and also from *D. macrophtalma* by the less indented paracymbium (Figs 7, 8, 11, 12, 15, 16; see also Marusik & Omelko, 2017:3, 4, figs 13, 16-18). Females of *Diphya bicolor* resembles that of *D. macrophtalma* and *D. rugosa* in the epigynum with a proportionally small atrium, which is not divided entirely by a septum, and a relatively small basal plate (Figs 26, 31-34; see also Marusik & Omelko, 2017:6 figs 25-32), but differ from both species by the shape of the epigynum with much more conspicuous and larger anterior pockets (Figs 31-34).

Description. Male (IBSP 20918). Carapace orange with border of eyes black (Figs 1-3). Chelicerae orange (Figs 1, 2). Labium, endites and sternum yellow with brown borders. Legs (Figs 1-5) yellowish, with sparse greenish gray stripes. Oval shaped abdomen (Fig. 3), dorsally cream, with posterior border black, lateral borders with black stripes and ventrally cream with sparse transverse striations (Figs 1-4). Measurements: total length 2.7; carapace 1.4 long, 1.1 wide; eye diameters and interdistances: AME 0.04; ALE 0.10; PME 0.08; PLE 0.08; AME-AME 0.02; AME-ALE 0.02; PME – PME 0.05; legs: femur I 2.6; patella + tibia I 2.0; metatarsus I 1.7; tarsus I 0.8; patella + tibia II 1.6; patella + tibia III 1.0; patella + tibia IV 1.3; palp: cymbium 0.7; tibia 0.3. Leg IV claws as in Fig. 20. Palp with orange-colored bulbus, tibia, patella and femur yellow; bulb relatively small, length about half of chelicerae length; cymbium covering almost the whole bulbus when in prolateral view (Figs 1, 2), tarsal organ very conspicuous (Fig. 19); embolus and cymbial ectomedian process heavily sclerotized (Figs 1, 2, 5, 6-10, 15-17); broad conductor with an almost squared tip and a small, heavily sclerotized border (Figs 6-10, 11-14); paracymbium rounded distally, lobe-like; tibial retrolateral apophysis inconspicuous (Figs 6-9, 11, 12, 15, 18).

Female (IBSP 20918). Coloration as in male, except legs with more accentuated greenish gray bands (Figs 27-30), and oval abdomen dorsally white, with two black spots on the anterior edge, brown stripes on the posterior edge or the lateral black edge. Ventrally orange, pigmented with guanine stains. Measurements: total length 3.8; carapace 1.6 long, wide 1.3; eye diameters and interdistances: AME 0.04; ALE 0.12; PME 0.10; PLE 0.11; AME-AME 0.02; AME-ALE 0.02; PME–PME 0.06; legs: femur I 1.6; patella + tibia I 2.0; metatarsus I 1.6; tarsus I 0.8; patella + tibia II 1.8; patella + tibia III 1.1; patella + tibia IV 1.5. Leg I as in Figs 21, 22. Palp claw as in Fig. 23. Chelicera as in Figs 24, 25. Epigynum with relatively narrow basal plate (about spermathecae diameter), atrium about same width of basal plate (Fig. 31), only divided by a septum at posterior half (Fig. 26); conspicuous and heavy sclerotized H-shaped marginal plate, anterior pockets large, almost as long as spermathecae diameter (Figs 31-34).

Variation. Males (n=10): total length 2.6-3.0; carapace 1.4-1.7; femur I 1.4-1.8. Females (n=10): total length 3.4-4.3; carapace 1.4-2.1; femur I 1.5-1.9.

Distribution. Brazil (Bahia, Minas Gerais, Rio de Janeiro, São Paulo to Rio Grande do Sul) (Fig. 58).

Note. Color of alive specimens with red carapace; abdomen anteriorlly white and posteriorlly reddish-brown (Figs 35-38).

***Diphya napo*, sp. nov.**

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(Figs 39-58)

Types: male holotype and female paratype IBSP 283136; male paratype IBSP 283137; male paratype MCN-ARA 56875; all from Equador: Napo, Cantón Quijos, Parroquia Cosanga, Yanayacu Research Station (00°35.955'S 77°53.431'W) 2128 asl, 24-31.XI.2009, Equipe PBI Oonopidae leg.

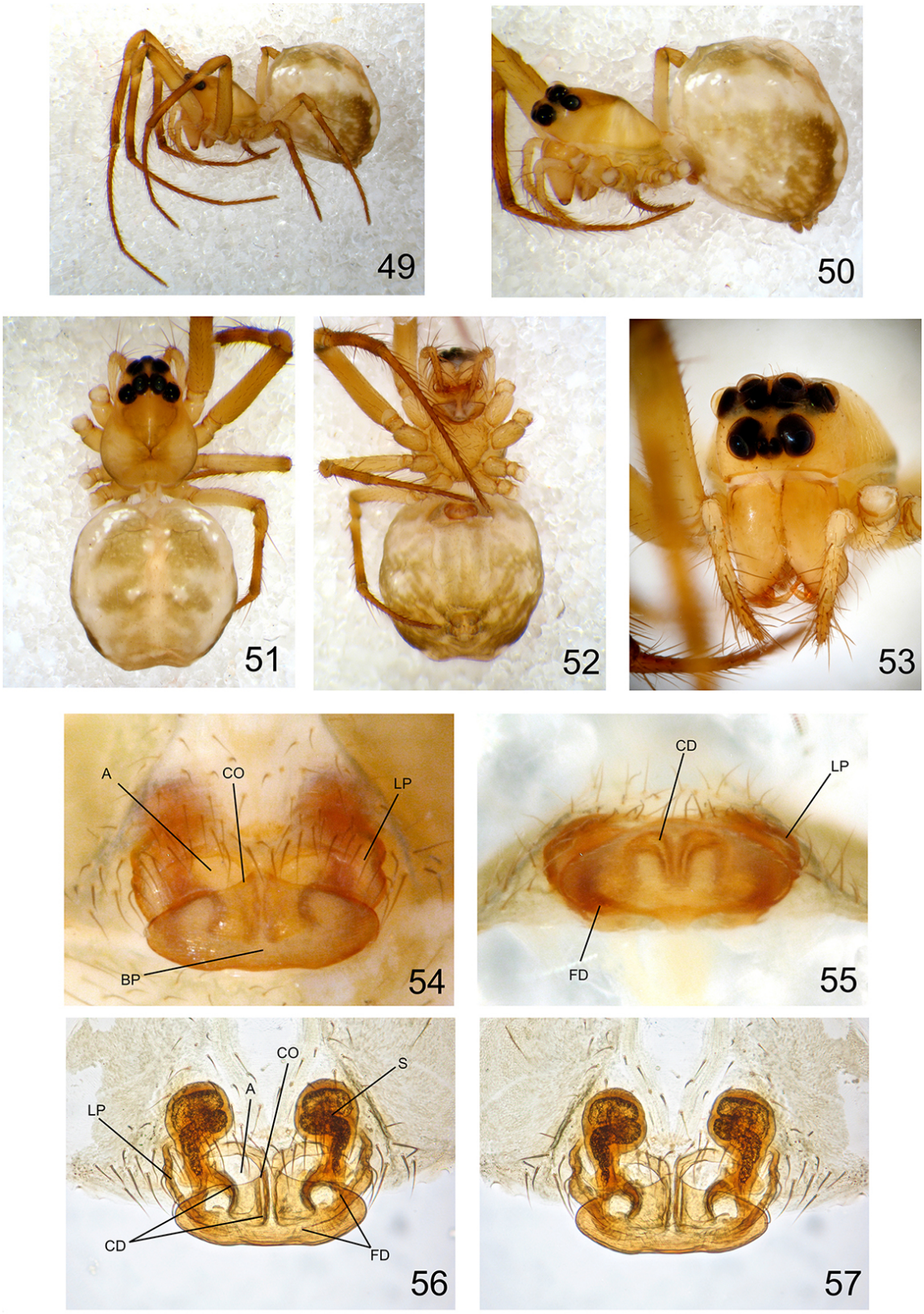
Etymology. The species name is a noun in apposition taken from the type locality.

Diagnosis. The male palp of *Diphya napo* sp. nov. resembles the South American species of *Dyphia* by the shape of cymbium, embolus, conductor and also the rounded prolateral paracymbium; however it can be easily distinguished from all known South American species by the shape of the retrolateral tibial apophysis, which is flattened, slightly C-shaped in the prolateral and retrolateral view, elongated, with internal groove on bulb facing side and a very conspicuous spur at distal end (Figs 8F, H-J); retrolateral tibial apophysis is inconspicuous in *D. bicolor* (see Figs 6-9, 11, 15, 16), hook-like in *D. spinifera* (see also Álvarez-Padilla & Hormiga, 2011:744, fig. 29C, F) and finger-like in *D. macrophtalma* (see Marusik & Omelko, 2017:4-5, figs 12, 16-18). Females of *Diphya napo* sp. nov. can be recognized by the epigynum without a conspicuous marginal plate and anterior pockets, by the presence of a septum dividing the whole atrium and by the large, triangular-shaped basal plate (Figs 54-57). The last character is shared between *D. napo* and African species of the genus (see Omelko *et al*., 2020:275-276, figs 11A-D, 12A-L; same as "Sb, septum base").

Description. Male (Paratype, IBSP 283137). Carapace yellow, border of eyes black, cephalic portion behind eyes with olive-colored pattern; borders of carapace slightly

Figs 39-48. *Diphya napo* sp. nov., male paratype IBSP 283137: 39-43, body; 44-48, palp. 39, 40, Lateral view; 41, dorsal view; 42, carapace, frontal view; 43, ventral view; 44, detail, retrolateral tibial apophysis, prolateral view; 45, dorsal view; 46, prolateral view; 47, ventral view; 48, retrolateral view (Co, conductor; Cy, cymbium; CEMP, cymbial ectomedian process; E, embolus; PC, paracymbium; RTA, retrolateral tibial apophysis).

darker, suffused with olive color (Figs 39-42). Chelicerae yellow; endites suffused with olive color; labium yellow with anterior border suffused with olive color; sternum yellow, border with narrow olive colored area (Figs 42, 43). Legs yellow with conspicuous, dark olive-colored distal markings at each article and also a stripe of same color at first half of tibia of legs I and II; tarsi of legs I-IV orange, metatarsi of legs I and II also orange (Figs 39, 40, 43). Abdomen oval,



Figs 49-57. *Diphya napo* sp. nov., female paratype IBSP 283136: 49-53, body; 54-57, epigynum. 49, 50, lateral view; 51, dorsal view; 52, ventral view; 53, carapace, frontal view; 54, epigynum, ventral view; 55, epigynum, posterior view; 56, ventral, clove oil cleared; 57, dorsal, clove oil cleared (A, atrium; BP, basal plate; CD, copulatory duct; CO, copulatory opening; FD, fertilization duct; LP, lateral plate; S, spermathecae).

Fig. 58. Distribution of *Diphya bicolor* Vellard, 1926 and *D. napo* sp. nov. in South America.

slightly elongated, with cream colored background; dorsally with some very small, white guanine dots at anterior half; two olive-colored, broad, sinuous lines on each border, and some transversal olive lines in the posterior quarter (Fig. 41); laterally with a large, white guanine patch on the anterior third and from this patch backwards some wrinkled tegument bearing olive colored longitudinal lines (Figs 39, 40); ventrally suffused in olive color around the book lungs area, central area cream colored without patterns, some transversal olive lines in front of spinnerets (Fig. 43).

Measurements: total length 2.63; carapace 1.48 long, 1.14 wide; eye diameters and interdistances: AME 0.06; ALE 0.17; PME 0.16; PLE 0.16; AME-AME 0.03; AME-ALE 0.02; PME–PME 0.05; legs: femur I 1.91; patella + tibia I 2.27; metatarsus I 2.30; tarsus I 0.96; patella + tibia II 1.71; patella + tibia III 0.96; patella + tibia IV 1.29; palp: cymbium 0.35; tibia 0.18. Palp with orange-colored bulbus, tibia, patella and femur yellow; bulb relatively small, length about half of chelicerae length; cymbium covering almost the whole bulbus when in prolateral view (Figs 8B, H); embolus and cymbial ectomedian process heavily sclerotized (Figs 45-48); broad conductor with an stout and abruptly narrowed tip (Figs 45-48); paracymbium rounded distally; retrolateral apophysis slightly flattened and C-shaped with internal groove on bulb facing side and a very conspicuous spur at distal end (Figs 44, 46-48).

Female (paratype, IBSP 283136). As in male except as noted (Figs 49-53). Abdomen slightly oval, almost rounded, more conspicuous dorsally (Fig. 51); laterally and ventrally olive-colored markings distributed in patches rather than in stripes, small white guanine dots present (Figs 49, 50, 52).

Measurements: total length 3.60; carapace 1.68 long, 1.38 wide; eye diameters and interdistances: AME 0.06; ALE 0.17; PME 0.16; PLE 0.16; AME-AME 0.03; AME-ALE 0.02; PME–PME 0.05; legs: femur I 1.58; patella + tibia I 2.02; metatarsus I 1.72; tarsus I 0.83; patella + tibia II 1,80; patella + tibia III 0.92; patella + tibia IV 1,26. Epigynum with large basal plate forming a posteriorly directed, broad, triangular, and flaplike projection; lateral plates strongly sclerotized at ectal borders; atrium clearly divided by septum; copulatory openings at mesal portion of atrium, at anterior border of basal plate (Figs 54, 56, 57); copulatory ducts originating at dorsal most portion of atrium, directed posteriorly and then ventrally, making a strong 180 degree turn in dorsal direction and then running ectally to the spermathecae (Figs 54-57); fertilization ducts runs straight from spermathecae to posterior direction and then mesally along the posterior border of the basal plate; spermathecae comma-shaped, anterior portion rounded (Figs 56,57).

Variation. Males (n=3): total length 2.63−2.69; carapace length 1.48−1.55; femur I length 1.91−2.14.

Distribution. Known only for the type locality (Fig 58).

Acknowledgements. We would like thank Fernando A.-Padilla (UNAM) for the suggestions along this research. To Norman I. Platnick (AMNH) (*in memorian*) and PBI Oonopidae staff for providing the possibility of field work in Ecuador. To the curators Ricardo P. da Rocha (MZSP) and Adalberto J. Santos (UFMG) for providing access to collection material. We also thank Beatriz Mauricio, microscope technician from *Centro de Microscopia Eletrônica* at the *Instituto Butantan*, for the SEM images. This work was supported by *Conselho Nacional de Desenvolvimento Científico e Tecnológico* CNPq (ENLR grant PQ 305220/2019-5; ADB grant PQ 303903/2019-8). The authors are very grateful to the editor Luciano de A. Moura (MCN-SEMA/RS) and anonymous reviewers for their careful reading of the manuscript.

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