**Nopyllus**, a new South American Drassodinae spider genus
(Araneae, Gnaphosidae)

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RESUMO. *Nopyllus*, um novo gênero de Drassodinae sul-americano (Araneae, Gnaphosidae). *Nopyllus* gen. nov. é proposto para incluir *Apopyllus isabelae* Brescovit & Lise, 1993 e *Nopyllus vicente* sp. nov. do sul do Brasil. *Nopyllus* gen. nov. é próximo de *Apodrassodes* e *Apopyllus*, pode ser diferenciado de ambos os gêneros pela ausência de escudos abdominais dorsais nos machos, ausência de apófise media no bulbo copulatório, pelo címbio curvo, estreito e reniforme e pela presença de uma conspicua projeção basal do címbio.


ABSTRACT. *Nopyllus* gen. nov. is proposed to include *Apopyllus isabelae* Brescovit & Lise, 1993 and *Nopyllus vicente* sp. nov. from southern Brazil. *Nopyllus* gen. nov. is close to *Apodrassodes* Vellard, 1924 and *Apopyllus* Platnick & Shadab, 1984, can be distinguished from both genera by the absence of a dorsal abdominal scutum in males, the absence of a median apophysis on bulb, the curved, narrow and reniform cymbium, and by the presence of a very conspicuous cymbial basal projection.

KEYWORDS. Neotropical Region, Brazil, *Apopyllus*, taxonomy.

South American gnaphosid species with long embolus are nowadays included in Drassodine (Platnick & Shadab, 1984; Platnick, 1990). The South American drassodines are distributed in two genera: *Apodrassodes* Vellard, 1924 and *Apopyllus* Platnick & Shadab, 1984 (Platnick, 2013). *Apodrassodes* includes ten species with the type species *A. guatemalensis* (F. O. P.-Cambridge, 1899), widely distributed from Mexico to meridional South America.

The genus *Apopyllus* is nowadays represented by nine Neotropical species. The genus was proposed by Platnick & Shadab (1984) and since then, only one species was added to the genus, namely *A. isabelae* Brescovit & Lise, 1993. According to Platnick & Shadab (1984), *Apopyllus* is most probably related to *Apodrassodes* due to the elongate embolus supported by a membranous tegular extension at the male palp. However, female genitalia are not quite similarly shaped in both genera, presenting smaller plates and long coiled ducts in *Apopyllus* and a rather larger plate and less coiled ducts with an anterior excavation covered by a short protruding scape in *Apodrassodes* (Platnick & Shadab, 1983, 1984).

Examining the gnaphosid material from Southern Brazilian museum collections, large number of *Apopyllus* specimens were found. However, my attention was particularly directed to some smaller and pale male specimens from Vicente Dutra country, in the state of Rio Grande do Sul. These specimens show male palp features very similar to those described for *A. isabelae*, including the absence of the “characteristic *Apopyllus* median apophysis” (Brescovit & Lise, 1993:110, figs 8, 9). After a closer examination of these specimens and the holotype of *A. isabelae*, it seemed that the males found at Rio Grande do Sul belong actually to an undescribed species. Based on the absence of median apophysis, on the inconspicuous “cymbial incision” sensu Platnick & Shadab (1984:6, figs 11, 12), presence of a cymbial basal projection, presence of a groove in almost the entire extension of the retrolateral border of cymbium covered with angular setae, and absence of dorsal abdominal scuta in all the examined males, it is proposed a new genus to include both species.

**MATERIAL AND METHODS**


Abbreviations in the text: AME, anterior median eyes; ALE, anterior lateral eyes; PM, cheliceral promargin; PLE, posterior lateral eyes; PME, posterior median eyes; RM, cheliceral retromargin; RTA, palpal retrolateral tibial apophysis; MA, tegular median apophysis.

Incident light images were taken through a stereomicroscope and compound microscope with an attached digital camera and processed with Helicon Focus multi-range program. Drawings were made using...
Nopyllus, a new South American Drassodinae spider genus...

printed image as model and compound microscope and stereomicroscope as three dimensional shape confirmation tools. Electron scanning microscope (SEM) images were taken using a Jeol-JSM-5200 with attached SLR digital camera. Before mounting SEM material was prepared using 80-90-100% Ethanol sequence and by last step drying out in a small vial containing a small piece of cotton imbied with Ether, for 24 hours. Posteriorly to the mounting process, stubs were dried out for 24 hours under a normal tungsten filament lamp. Apopyllus cf. silvestrii (Simon. 1905) scanning material from Roça da Estância, Mampituba, RS, Brazil, 01.XI.2006, A. Gonçalves leg. (MCN 49397).

Figs 1-7. Nopyllus isabelae comb. nov. 1, carapace, dorsal; 2, abdomen, dorsal. Left palp: 3, prolateral; 4, ventral; 5, retrolateral; 6, palpal tibia, retrolateral; 7, bulb, posterior (cpd, cymbial basal projection distal fold; rta, retrotibial apophysis).
Latitude and longitude coordinates of municipalities from Google Earth®. All measurements are in millimeters.

**Nopyllus gen. nov.**

*(Figs 1-40)*


Etymology. The generic name is a contraction between “no” (English negative term) and the generic name *Apopyllus*, and is masculine in gender.

Diagnosis. *Nopyllus* gen. nov. seems to be close to the Neotropical genera *Apodrassodes* and *Apopyllus* by the long filiform embolus; it can be distinguished from both genera by the absence of a dorsal abdominal scutum in males (Figs 2, 26), absence of a median apophysis (Figs 4, 13, 14, 29, 34), the differently shaped tegular extension (Figs 13, 14, 34) and curved, narrow and reniform cymbium with retrolateral groove covered by angular curved setae in all its extension (Figs 12, 27, 29). *Nopyllus* gen. nov. can be also distinguished from *Apopyllus* by the inconspicuous cymbial incision (Figs 12, 33, 35), by the presence of a cymbial basal projection (Figs 8, 9, 11), by the presence of sharp pointed scales at antero-retrolateral portion of tegulum (Figs 13, 15, 37) and by the RTA with two well developed processes. (Figs 6, 16-20, 32, 39, 40).

Description. Small yellowish spiders. Total length 2.11-2.82. Carapace oval in dorsal view; thoracic groove present at level of coxae III; eyes in two rows, anterior row recurved, posterior row slightly recurved; ALE the largest (Figs 1, 26). Clypeus height around AME radius. Chelicerae typically with five teeth on PM and three at RM. Endites rectangular; labium trapezoidal, narrowing anteriorly, half the length of endites in size (Fig. 27). Sternum rounded, widest around coxae II, posterior end very narrow and projecting between coxae IV (Fig. 27). Leg formula: I, 4, 2, 3 or 4, 1, 2, 3; legs I and IV very close in size. Leg scopulae absent; tibia and metatarsi I and II with ventral rows of paired spines; tarsi of all legs with ventral rows of paired thin spines. Abdomen dorsal scutum absent (Figs 2, 26). Male palp with RTA formed by two processes (Figs 6, 16, 17, 32, 39, 40). Cymbium C-shaped, with retrolateral groove covered by angular curved setae in all its retrolateral extension (Figs 12, 31, 33); conspicuously grooved and twisted, meringue-shaped,
Nopyllus, a new South American Drassodinae spider genus...

Figs 12-19. *Nopyllus isabelae* comb. nov., ♂: 12, cymbium ventral. Bulb: 13, ventral; 14, posterior; 15, detail, ventral. 16, fémur+patella+tibia+cbp, retrolateral; 17, cbp+rt, retrolateral; 18, fémur+patella+tibia+cbp, apical; 19, cbp, apical (cbp, cymbial basal projection; crg, cymbial retrolateral groove; emb, embolus; fe, femur; pa, patella; rta, retrotibial apophysis; ti, tibia). Scales: Figs 12-14, 16, 18 = 100 μm; 15, 17, 19 = 50 μm.
with a retrolateral, basal projection (Figs 8, 9, 11, 16-19, 39). Tegulum rounded, anteriorly covered with spine-shaped scales (Figs 13, 15, 37), tegular extension as a single, membranous, narrow and grooved structure, MA absent (Figs 13, 14, 34, 36-38). Embolus long and filiform, originating at retrolateral portion of tegulum (Figs 5, 13, 30, 34).

Females. Unknown.

Distribution. São Paulo and Rio Grande do Sul, Brazil.

**Nopyllus isabelae** (Brescovit & Lise, 1993) **comb. nov.**

*(Figs 1-21)*

*Apopyllus isabelae* Brescovit & Lise, 1993:109, figs 8-10; ♂ holotype from Fazenda Goldfarm, Botucatu (22°52’56”S, 48°26’39”W), São Paulo, Brazil; 18.I.1988; Rinaldi, I.M.P. & Forti, L. C. leg., deposited in MZSP 63144, examined.

Note. Male holotype original number UEPB 908, from Universidade Estadual Paulista, Botucatu; this collection and type material is now at MZSP.

Diagnosis. *N. isabelae* comb. nov. can be recognized by the RTA ventral process shorter and sharply pointed and the dorsal one longer and slightly hooked distally (Figs 6, 16, 17).

Description. See Brescovit & Lise, 1993:106 for the male; female unknown.

Additional description. Legs: tarsi of legs I and IV
with pectinate claws (Fig. 21); teeth of tarsal claws of leg IV reduced in size (Fig. 22); trichobothrium base (tarsus, leg I) as in Fig. 23; tarsal organ rounded, raised and dome-shaped (Leg I) as in Fig. 25; unknown organ on the distal third of tarsus of leg I as in Fig. 24.

Variation. Carapace length 1.15-1.43.


Distribution. Known only for the type locality.
Figs 33-40. Nopyllus vicente sp. nov., ♂. Cymbium: 33, ventral; 35, basal detail, ventral; Bulb: 34, retrolateral; 36, detail, retrolateral; 37, retrolateral; 38, te, apical detail. 39, cbp+rta, apical; 40, rta, retrolateral (cbp, cymbial basal projection; crg, cymbial retrolateral groove; cyi, cymbial incision; emb, embolus; rta, retrotibial apophysis; te, tegular extension). Scales: 33, 34, 39 = 100 μm; 35-38, 40 = 50 μm.
Nopyllus, a new South American Drassodinae spider genus...


Nopyllus vicente sp. nov.
(Figs 22-36)


Etimology. The noun in apposition is taken from the type locality.

Diagnosis. Nopyllus vicente sp. nov. can be recognized and distinguished from N. isabelae comb. nov. by the RTA ventral process stout, with oblique distal end and the dorsal one narrow and sharply pointed (Figs 32, 39, 40).
Description. Male (MCTP 19922, holotype). Coloration yellowish (Figs 26, 27); carapace, endites, chelicerae, legs and spinnerets yellowish, sternum yellowish with darker borders; metatarsi and tarsi slightly darker; cymbium darker, slightly orange. Abdomen: dorsally pale gray with longitudinal darker gray spotted lateral areas; ventrally with gray spotted areas in all its length. Total length 2.53. Carapace 1.12 long, 0.92 wide. Clypeus 0.04. Chelicerae length 0.41. Chelicerae teeth: PM 5; RM 2-3 (very small). Eye diameters and interdistances: AME 0.04, ALE 0.06, PLE 0.04, PME 0.04, AME-AME 0.02, AME-ALE 0.015, PME-PME 0.03, PME-ALE 0.06, ALE-PLE 0.02. Leg formula: 1, 4, 2, 3. Leg segment length: I – femur 1.12/patella 0.62/tibia 1.08/metatarsus 0.82/tarsus 0.69/total 4.33; II – 0.95/0.49/0.69/0.66/0.59/3.38; III – 0.79/0.39/0.59/0.62/0.56/2.95; IV – 0.95/0.62/0.85/0.82/0.66/3.91. Leg spination: femur, I-Ill d1-1-0, III-Ill d1-1-2, I p0-0-1; tibiae, I v7 pairs in rows (full length), II v5 pairs in rows (full length), III-Ill d1-1-0, v1-2-2, III p0-0-1, r0-1-1, IV p0-1-1, r1-1-1; metatarsi, I v5 pairs in rows (full length), II v3 pairs in rows (full length), III d0-1-2, v2-0-1, p-r1-0-2, IV d1-0-1, v1-1-2, p0-0-1, r1-0-1. Tarsi also with ventral paired rows of very weak spines, I 7 pairs, II-III 6 pairs, IV 8 pairs. All femora with ventral paired rows of slightly enlarged setae; I-II 12 pairs, III 11 pairs, IV 9 pairs. Pulp spination: femur, d0-1-1-patella, p0-1-0; tibia, d0-1-0, cymbium, d0-2-0. Pulp (as for the genus, except noted) RTA with two processes, ventral one stout with oblique distal end and the dorsal one narrow and sharply pointed; cymbial basal projection folded and twisted, with stout tip covered by small denticles (Figs 32, 39, 40); tegulum with spine-like scales restricted to the front and ventro-retrolateral area (Fig. 37).

Variation. Total length, 2.11-2.53; carapace length, 1.06-1.12. Cymbium dorsal spines, 0-0-0 to 0-2-0. Chelicerae PM teeth 2-3 in same specimen, as also between specimens.

Distribution. Known only for the type locality.

**DISCUSSION**

According to Platnick (1990) there is no generally accepted subfamilial classification for the Gnaphosidae, being Drassodinae used merely as “wastebasket…for genera which do not obviously belong to other subfamilies”. However, Apodrassodes and Apopyllus are placed by the same author at Drassodinae. Murphy (2007) tried another approach for grouping the Gnaphosidae genera and placed both genera in a group named “Echemus group”. He characterized this group by the plain colored abdomen and by the males with dorsal abdominal scutum. The absence of dorsal scutum in males of Nopyllus do not agree with Murphy’s “Echemus group” characters. Anyway, as stated by Murphy (2007), this grouping proposition is only “for identification purpose” and it may not reflect the evolutionary relationships between genera. According to Platnick & Shadab (1984) Apodrassodes and Apopyllus are closely related based on the presence of a long embolus and a membranous tegular extension. Since the genus described here also presents these structures (but see discussion about the homology of tegular extension below), it could be related to Apodrassodes and Apopyllus. The absence of a dorsal scutum in Nopyllus could be a secondary loss. This question, however, can only be answered after a formal phylogenetic analysis of gnaphosid genera.

The presence of a median apophysis in Apodrassodes was noted by Platnick & Shadab (1983) but is not diagnosed in Apopyllus by Platnick & Shadab (1984). However, the presence of a median apophysis at the male palp bulb in Apopyllus seems to be obvious, as an usually long, well sclerotized and hooked structure originating from the tegulum near the base of the embolus (see Platnick & Shadab, 1984:3, 6; figs 1, 11). Both genera presents only two accessory structures to the embolus, the “tegular extension”, originating from the anterior portion of tegulum (well developed in Apopyllus and reduced in Apodrassodes), and the tegular median apophysis, arising from tegulum near the embolus base. The latter sclerite is conspicuous in Apopyllus and somewhat hidden by the embolus in Apodrassodes.

In Nopyllus only a single structure accessory to the embolus can be found: a membranous, elongated and grooved structure (Figs 13, 14, 34, 36-38). Although it was also identified as the “tegular extension” in this paper, it apparently does not originates at the anterior portion of the tegulum (Figs 13, 14, 34, 36) as in Apodrassodes and Apopyllus (Figs 42, 46, 47). In Nopyllus the referred structure originates retrolaterally to the tegulum, near the embolus base (Figs 34, 36), in a similar placement as expected for the “tegular median apophysis” of Apopyllus (Figs 42, 43, 46), but it seems not to share its shape or function. The possible homology between “tegular extension” and “conductor” should be also considered. In most cases the conductor should be a well recognizable sclerite at Gnaphosidae male palp bulb, rather than an apophysis which can be present or absent (Übick et al., 2005).

The cymbial incision observed in Apopyllus species (Figs 41, 44) is apparently reduced (Fig. 35) with the cymbial proximal portion strongly modified into the cymbial basal projection in Nopyllus (Figs 8, 9, 11), as noted by BreScovit & LiSe (1993:106). The main function of the cymbial incision or cavity in Apopyllus seems to be the accommodation of terminal embolus loop (Platnick & Shadab, 1984:2). In the case of Nopyllus the accommodation of the embolus loop seems to be regarded to cymbial basal projection that acts probably in similar way of a “paracymbium”. In Nopyllus the RTA is also quite differently shaped than in Apopyllus. In the former the RTA is represented by two relatively simple processes (Figs 17, 40) and in the latter the RTA is folded and complex, also very possibly with an embolus supporting function (Fig. 45; see also Platnick & Shadab, 1984:2, 3; figs 1, 2).

Based on the very long embolus and the strongly
modified cymbium it is suggested that *Nopyllus* is closer
to *Apopyllus* than to any other neotropical gnaphosid.
*Apopyllus* still holds a possible synapomorphy that is not
shared with *Nopyllus*, the typical folded RTA. *Nopyllus*
also have some presumptive exclusive characters, like the
curved and narrow reniform cymbium with retrolateral
groove covered by angular curved setae and the sharp
pointed scales at antero-retrolateral portion of tegulum.

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