New species of *Pseudognaptodon* Fischer (Hymenoptera: Braconidae: Gnamptodontinae) from Brazil

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Key words: Braconidae; Gnamptodontinae; *Pseudognaptodon*; new species; Brazil.
Eight new species of the genus *Pseudognaptodon* Fischer, 1965 (Hymenoptera: Braconidae: Gnamptodontinae) from Brazil are described and illustrated.

Introduction

Members of the subfamily Gnamptodontinae Fischer, 1970 (Hymenoptera, Braconidae) are characterized by the presence of a well defined line or groove delimiting a medio-basal, more or less rectangular area on the second metasomal tergite. All species are quite small (length of body usually less than 3 mm), lack the epicnemial carina and, usually, the occipital carina (Wharton et al., 1997).

This subfamily have been reared exclusively from leaf-mining larvae of Nepticulidae (Lepidoptera) (van Achterberg, 1983). Although apparently koinobiont parasitoids (Shaw & Huddleston, 1991) it is not yet known if Gnamptodontinae are endo-or ectoparasitic. Detailed biological studies are lacking (Wharton et al., 1997).

Three genera are presently included in this subfamily, but only two, *Gnamptodon* Haliday, 1833 and *Pseudognaptodon* Fischer, 1965, occur in the New World. The last revisions and keys to species are provided by Fischer (1977, 1987). The genus *Pseudognaptodon* included one species, *P. minutus* (Ashmead, 1894) occurring in the Neotropical region (Brazil: Nova Teutônia, Santa Catarina) (Fischer, 1967). Eight new species are described in this paper. The material was collected in "cerrado" as well in the gallery and humid atlantic forests from the western-central area of São Paulo State, using both Malaise and yellow pan traps. For morphological terms see Wharton et al. (1997) and for surface sculpturing terms see Eady (1967) and Harris (1979).

Key to New World species of the genus *Pseudognaptodon* Fischer

1. First tergite of metasoma yellow; fore wing as fig. 2 2
- First tergite of metasoma brown to black; fore wing variable 3
2. Medio-basal transverse area of second tergite truncate posteriorly, with irregular posterior border (fig. 3) ..... ***P. taua*** spec. nov.
- Medio-basal transverse area of second tergite triangular posteriorly, with regular border (fig. 15) ..... ***P. trilateralis*** spec. nov.

3. Metasomal suture between second and third tergites crenulate (figs 5, 7-9, 12) 4
- Metasomal suture between second and third tergites smooth (fig. 13) ..... ***P. icima*** spec. nov.
4. Posterior propodeal areola absent (fig. 10) 5
- Posterior propodeal areola closed anteriorly, semicircular (figs 4, 6) 6
5. Propodeum smooth with subparallel carinae posteriorly. ..... ***P. minutus*** (Ashmead, 1894)
- Propodeum irregulary sculptured (fig. 10) ..... ***P. murupe*** spec. nov.
6. Short median carina of propodeum present (fig. 6) ..... ***P. carinatus*** spec. nov.
- Median carina of propodeum absent (fig. 4) 7
7. Area behind medio-basal area of second tergite rugulose (fig. 5) ..... ***P. rugulosus*** spec. nov.
- Area behind medio-basal area of second tergite striate (figs 8, 9) 8
8. Third tergite smooth basally (fig. 8); second tergite coarsely sculptured (fig. 8) ..... ***P. descalvadensis*** spec. nov.
- Third tergite finely striate basally (fig. 9); second tergite finely sculptured (fig. 9) .... ***P. striatus*** spec. nov.

Pseudognaptodon taua spec. nov. Cirelli & Penteado-Dias
(figs 1-3)

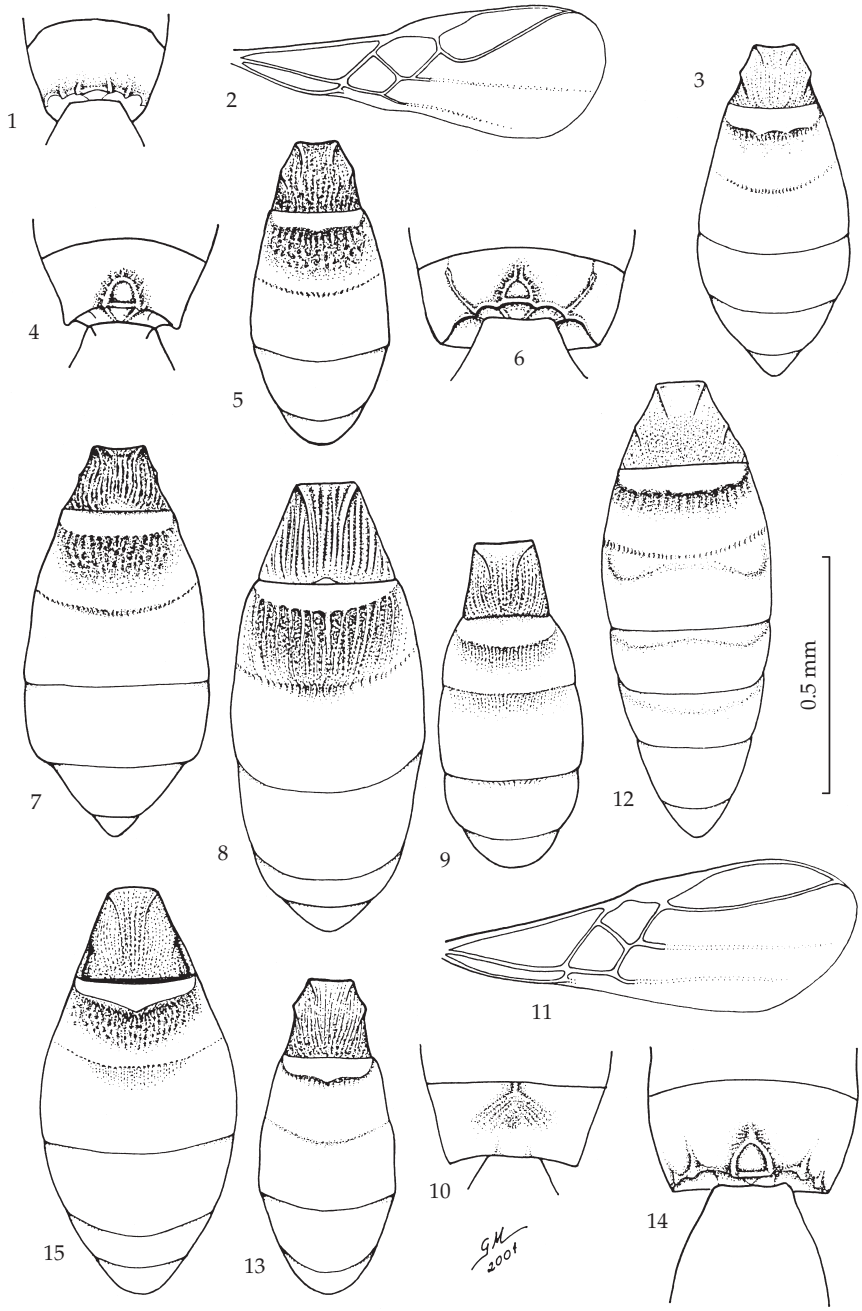
Material.— Holotype, ♀ (DCBU), "Brazil, Descalvado, 11.viii.2000, K.R.N. Cirelli". Paratypes: 1 ♀ (DCBU), id., but 13.v.2000; 1 ♀ (DCBU), "Brazil, São Carlos , 28.xii.1998, S.M.P. Braga"; 1 ♀ (RMNH), id., but 18.iii.1998.

Length of body 1.1 mm, of fore wing 1.2 mm.

Head.— Antenna with 15 segments, length of a segment 0.06 mm, apex of antenna with short spine; POL:Ø ocellus:OOL = 2:2:4; frons slightly concave, short and finely punctulate; vertex convex, setose, smooth and shiny; face slightly convex, entirely coarsely rugose to rugose-punctate and setose; labrum completely concealed by clypeus; clypeal margin convex; length of malar space twice basal width of mandible.

Mesosoma.— Length of mesosoma 1.8 times its height, mesonotum and scutellum smooth and setose; anterior part of notauli slightly impressed; propodeum mostly smooth and polished (fig. 1); without defined areola and median carina on propodeum; mesopleuron smooth and polished, with scattered setae; metapleuron punctate and setose; hind coxa twice as long as middle coxa; fore wing (fig. 2): pterostigma triangular, metacarpus as long as pterostigma; vein R1b present; vein r arising from middle of pterostigma; vein RS nearly straight, parallel to pterostigma; veins 1RS as long as r and (RS+M)b; stub tubular vein M reaching wing margin as a spectral vein; vein 1M 1.7 times the vein 1 m-cu, veins 2RS, 1CU and (RS +M)a subequal; first subdiscal cell of fore wing open (2cu-a absent).

Metasoma.— Length of first tergite subequal to its apical width, its surface moderately striate; dorsal carinae distinct in basal half of tergite; second tergite with medio-basal, transverse area smooth, polished and slightly rectangular, with irregular border posteriorly, area about 0.3 times as long as tergite, area behind medio-basal area punctuate medially (fig.3); third tergite smooth, polished and with a line of scattered setae; following tergites smooth and polished; second suture crenulate.



Figs 1-3, *Pseudognaptodon taua* spec. nov.; figs 4, 5, *P. rugulosus* spec. nov.; figs 6, 7, *P. carinatus* spec. nov.; fig. 8, *P. descalvadensis* spec. nov.; fig. 9, *P. striatus* spec. nov.; figs 10-12, *P. murupe* spec. nov.; fig. 13, *P. icima* spec. nov.; figs 14, 15, *P. trilateralis* spec. nov. 1, 4, 6, 10, 14, propodeum, dorsal aspect; 2, 11, fore wing; 3, 5, 7-9, 12, 13, 15, metasoma, dorsal aspect.

Colour.— Head, flagellomeres, mesosoma, posterior half part of second and following tergites of metasoma, hind tarsus and veins brown to black; pedicel and labrum light brown; scape, labrum, palpi, mandible, except its apex, tegula, legs, except both hind femur and tibia light brown, first tergite and basal half of second tergite yellow. Wings membrane hyaline.

Etymology.— The name refers to colour of the metasoma in Tupy language, *tauá* = yellow.

Variation ♀.— Length of mesosoma 1.3-1.5 times its height; length of first tergite 0.7 times its apical width; medio-basal transverse area of second tergite about 0.5 times length of tergite; body length 1.2–1.4 mm; fore wing length 1.3–1.5 mm.

Pseudognaptodon rugulosus spec. nov. Cirelli & Penteado-Dias
(figs 4, 5)

Material.— Holotype, ♀ (DCBU), "Brazil, São Carlos, SP, 27.i.1999, S.M.P. Braga". Paratypes: 1 ♀ (RMNH), "Brazil, Descalvado, SP, 13.v.2000, K.R.N. Cirelli"; 1 ♀ (DCBU), id., but 25.ix.2000; 1 ♀ (DCBU), "Brazil, São Carlos, SP, 6.xi.1998, S.M.P. Braga"; 1 ♀ (DCBU), id., but 1.vii.1998.

Body length 1.3 mm, of fore wing 1.4 mm.

The holotype agrees with the description of *P. taua* except for the following: frons granulate; face medially granulate and laterally granulate to rugulose; length of mesosoma 1.4 times its height, propodeum with propodeal areola closed anteriorly, semicircular (fig. 4); propodeum without median carina (fig. 4); metapleuron with long setae; length of first tergite 0.8 times its apical width, its surface rugulose; without distinct dorsal carinae; second tergite with medio-basal, transverse area finely punctulate and rectangular; behind this area largely rugulose (fig.5); third tergite with short anterior rugulose line. Head, flagellomeres, mesosoma, metasoma, fore tarsus and veins brown; scape, pedicel and fore legs, yellow. Hind and median legs, pale yellow.

Etymology.— The name refers to sculpture of the metasoma.

Variation (♀).— Length of mesosoma 1.6 times its height; scape light brown; body length 1.2 mm; fore wing length 1.2-1.3 mm.

Pseudognaptodon carinatus spec. nov. Cirelli & Penteado-Dias
(figs 6, 7)

Material.— Holotype, ♀ (DCBU), "Brazil, Descalvado, 13.v.2000, K.R.N. Cirelli". Paratypes: 1 ♀ (DCBU), id., but 22.vii.2000; 1 ♀ (RMNH), id., but 5.ii.2000; 1 ♀ (DCBU), "Brazil, São Carlos , 6.xi.1998, S.M.P, Braga".

Body length 1.3 mm, of fore wing 1.5 mm.

The holotype agrees with the description of *P. rugulosus* except for the following: length of mesosoma 1.6 times its height; propodeum with short median carina (fig. 6); first tergite as long as its apical width; second tergite with medio-basal transverse area smooth about 0.2 times as long as tergite; behind medio-basal area irregularly rugulose (fig. 7); legs yellow, hind tarsus infuscate.

Etymology.— The name refers to the sculpture of the propodeum.

Variation ♀.— Length of mesosoma 1.4-1.5 times its height; length of first tergite 0.6-0.9 times its apical width; 18 flagellomeres; first three flagellomeres yellow brown; body length 1.4-1.7 mm; fore wing length 1.3-1.6 mm.

Pseudognaptodon descalvadensis spec. nov. Cirelli & Penteado-Dias
(fig. 8)

Material.— Holotype, ♀ (DCBU), "Brazil, Descalvado, 01.viii.2000, K.R.N. Cirelli".

Body length 1.5 mm, of fore wing 1.5 mm.

The holotype agrees with the description of *P. carinatus* except for the following: length of mesosoma 1.3 times its height; propodeum without median carina (fig. 4); length of first tergite 1.2 times its apical width, its surface striate; dorsal carinae distinct; second tergite striate, with medio-basal areas transverse, semi-circular and about 0.3 times length of second tergite (fig. 8); tegula and mesosternum yellow.

Etymology.— The name refers to locality where the holotype species was collected.

Pseudognaptodon striatus spec. nov. Braga & Penteado-Dias
(fig. 9)

Material.— Holotype, ♂ (DCBU), "Brazil, São Carlos, 10.iii.2000, S.M.P. Braga".

Body length 1.3 mm, of fore wing 1.3 mm.

The holotype agrees with the description of *P. descalvadensis* except for the following: face areolate-rugose and scattered setose; length of mesosoma equal to its height; first tergite less striate; with dorsal carinae distinct only in its basal half (fig. 9); second tergite less striate, with medio-basal transverse area about 0.4 times length this tergite; third tergite similar sculptured as second tergite (fig. 9); following of tergites slightly punctate; antenna, eyes, tegulae, clypeus and mandible light brown.

Etymology.— The name refers to sculpture of the metasoma.

Pseudognaptodon murupe spec. nov. Braga & Penteado-Dias
(figs 10-12)

Material.— Holotype, ♀ (DCBU), "Brazil, São Carlos, 27.i.1999, S.M.P. Braga".

Body length 1.7 mm, fore wing length 1.4 mm.

The holotype agrees with the description of *P. striatus* except for the following: temple area along posterior margin of eye slightly more light; length of malar space 1.3 times basal width of mandible; length of mesosoma 1.4 times its height; propodeum irregullary sculptured with short median carinam basally (fig. 10). Radial vein more parallel to anterior margin of fore wing (fig. 11); length of first tergite 0.75 times its apical width, its surface rugulose-striate (fig. 12).

Etymology.— The name refers to sculpture of the metasoma, in Tupy language, *murupé* = different.

Pseudognaptodon icima spec. nov Braga & Penteado-Dias
(fig. 13)

Material.— Holotype, 1 ♀ (DCBU), "Brazil, São Carlos, 6.x.1998, S.M.P, Braga"; paratype 1 ♂ (DCBU), id., but 23.ix.1998.

Body length 1.4 mm, of fore wing 1.3 mm.

The holotype agrees with the description of *P. murupe* except for the following: length of mesosoma 1.6 times its height; propodeum as in fig. 4; first tergite longer than its apical width, its surface striate; medio-basal transverse area of second tergite slightly protruding medio-posteriorly, and about 0.3 times as long as tergite (fig. 13) and rugulose only near posterior margin of medio-basal area; metasomal suture between second and third smooth (fig. 13); fore and middle legs yellow; fore tibia and tarsus yellow brown.

Etymology.— The name refers to suture between second and third metasomal segments, in Tupy language , *icíma* = smooth.

Variation ♂.— Length of mesosoma 1.3-1.5 times its height; body length 1.3-1.5 mm.

Pseudognaptodon trilateralis spec. nov. Braga & Penteado-Dias
(figs 14, 15)

Material.— Holotype, ♀ (DCBU), "Brazil, São Carlos (UFSCar), 30.iv.1998, S.M.P, Braga".

Body length 1.7 mm of fore wing 1.5 mm.

The holotype agrees with the description of *P. icima* except for the following: face punctate near eyes and medially setose; metapleuron rugulose and setose; mesopleuron glabrous; propodeum with median carina short (fig. 14); first and second tergites yellow; area behind medio-basal area of second tergite rugulose (fig. 15); third tergite medio-basally finely rugulose; second suture crenulate.

Etymology.— The name refers to the shape of the medio-basal area on the second metasomal tergite.

Acknowledgements and abbreviations

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DCBU stands for the Departamento de Ecologia e Biologia Evolutiva, Universidade Federal de São Carlos, São Carlos, SP, Brazil; RMNH for the National Museum of Natural History, Leiden, The Netherlands.

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