

**XANTHAPANTELES, A NEW GENUS OF MICROGASTRINAE
(HYMENOPTERA: BRACONIDAE) FROM SOUTH AMERICA**

JAMES B. WHITFIELD

Department of Entomology, University of Arkansas, Fayetteville, Arkansas 72701.

Abstract.—*Xanthapanteles*, a new genus of Microgastrinae, is described and illustrated, with *X. cameronae*, n. sp., from Argentina, as type species. A brief discussion and tabular comparison of the features of *Xanthapanteles* and several somewhat similar microgastrine genera is presented.

Key Words: Parasitoids, Neotropical, Apanteline, *Xanthapanteles cameronae* new genus and species

In the process of examining a large bulk of unplaced material of Microgastrinae to prepare a key to the genera for an upcoming manual of New World Braconidae, specimens of an extremely unusual undescribed species were encountered that could not be placed, even with some difficulty, into any known genus. The new species is described below and a new genus is erected for it. A comparison of critical features of the new genus with those of related genera is presented along with the generic description. The biological habits of the new genus are unknown.

As the new genus is at this time based on only a single species, only a brief discussion of characters distinguishing the genus from other known and presumably related genera will be presented. Accompanying this discussion is a tabular comparison of the states a number of characters of *Xanthapanteles* and those of a number of the most obviously similar genera (Table 1). Because the phylogeny of microgastrine genera has been a subject of much (and still unresolved) controversy (Mason 1981, Williams 1985, Walker et al. 1990, Austin 1990, Austin and Dangerfield 1992), it would be premature at this time to attempt

a phylogenetic placement of the genus within the subfamily. Nevertheless it is hoped that the character comparisons presented will ultimately contribute to the resolution of some of the remaining phylogenetic questions.

Terms for wing venation features follow Mason (1986) and a new venational nomenclature (modified slightly from that discussed by Sharkey, 1994) being developed for the upcoming identification manual to the New World genera of Braconidae. Microsculpture terms follow the usage of Harris (1979), except that some intermediates between the states discussed by Harris are indicated by compound designations.

***Xanthapanteles*, NEW GENUS**

Figs. 1–3

Type species: *Xanthapanteles cameronae* n. sp. (described below). Monobasic.

Xanthapanteles possesses a unique combination of features that will easily distinguish it from any known genus of Braconidae. Many features of this genus such as the wing venation (the configuration of forewing veins 1Rs and 1M and the absence or reduction to spectral traces of veins 2r-m, 4Rs and 4M, as well as the well-defined

Table 1. Comparison of several selected morphological characters across a range of microgastrine genera that might, on the basis of one or more of the characters, be confused with *Xanthapanteles*. Characters and states are presented in a simplified fashion; see text and description for further detail.

Genus	Antennal Placodes	Forewing Areolet	Propodeal Pattern*
<i>Alphomelon</i>	two ranks	open, 2r-m absent	areola, 2 anterior carinae
<i>Apanteles</i>	two ranks	open, 2r-m absent	areola (variable)
<i>Austrocotesia</i>	two ranks	closed, 2r-m present	areola, 1 ant. carina
<i>Choeras</i>	two ranks	variable	medial carina
<i>Dasylogon</i>	two ranks	closed, 2r-m present	areola, 1 or 2 ant. carinae
<i>Dolichogenidea</i>	two ranks	open, 2r-m absent	areola (variable)
<i>Exoryza</i>	two ranks	open, 2r-m absent	areola (poorly defined)
<i>Hygroplitis</i>	irregular or three ranks	closed, 2r-m present	medial carina
<i>Microgaster</i>	two ranks	closed 2r-m present	medial carina
<i>Miopotes</i>	two ranks	closed, 2r-m present	areola, 1 anterior carina
<i>Papanteles</i>	two ranks	closed, 2r-m present	areola, usu. 1 ant. carina
<i>Parapanteles</i>	two ranks	open, 2r-m absent	areola (variable)
<i>Pholetesor</i> (some)**	two ranks	open, 2r-m absent	areola, 1 anterior carina
<i>Promicrogaster</i>	two ranks	usually closed by 2r-m	medial carina or groove
<i>Rhygoplitis</i>	two ranks	open, 2r-m absent	medial carina
<i>Xanthapanteles</i>	irregular	open, 2r-m absent	areola, 2 ant. carinae
<i>Xanthomicrogaster</i>	two ranks	closed, 2r-m present	medial carina

* The propodeal pattern is, in several genera, poorly defined or obscured in some species; the predominant clear pattern is presented.

** Several species groups of *Pholetesor* would never be confused with *Xanthapanteles* due to structure of the metasoma and to absence of a propodeal areola.

vannal lobe of the hindwing—see Fig. 3), the 18-segmented antennae and the separation of the spiracle of the first metasomal tergum from its central tergite, all clearly indicate that the new genus belongs to the Microgastrinae as currently defined (Austin and Dangerfield 1992, Whitfield and Mason 1994). *Xanthapanteles* possesses perhaps the most complete (although perhaps somewhat exaggerated) pattern of propodeal areolation of any microgastrine (Fig. 2), suggesting at least that it does not belong to one of the lineages possessing derived or reduced propodeal carination patterns such as a medial longitudinal carina or completely rugose surface. The hypopygium is medially desclerotized, membranous and expandible through a series of submedial pleats, as in genera such as *Apanteles*, *Dolichogenidea*, *Choeras* and *Promicrogaster*. Austin (1990), in contrast to Mason (1981), considers this to be a possible synapomorphy for the above group of genera plus perhaps several others. The distribution of solid (evenly sclerotized) hypopygia, not only

among outgroup taxa but also among putatively basal lineages of Microgastrinae, would tend to support Austin's view. In addition, the structure of the pleated hypopygium in the Microgastrinae listed above and in *Xanthapanteles* is different from superficially similar hypopygia in Cardiochilinae and other related groups in lacking an apical sclerotized bridge. The ovipositor sheaths are moderately long, fairly hairy throughout, and attached about halfway or more up the second valvifers—again as in those genera (as also in many others—see discussions by Austin 1990, Williams 1985). Unlike any of those genera, however, the first metasomal tergite is strongly enlarged, entirely covering the dorsum of the first tergum and it, along with the second and third tergite, has a finely pebble-grained surface unlike that of any other known microgastrine (this appearance is only approximated in figure 2; it perhaps most resembles the sculpturing in some weakly sclerotized hormiines). Lastly, the antennae are unique: the first flagellomere is shorter than the second or third, and sub-

Table 1. Continued.

Metasomal Tergite 1	Tergite Sculpture	Hypopygium
moderately broad	smooth to punctate	evenly sclerotized
usu. posteriorly narrowing	smooth to aciculatorugose	medially pleated
usu. posteriorly narrowing	smooth to aciculatorugose	evenly sclerotized
moderately broad	smooth to aciculatorugose	medially pleated
very broad	smooth to punctate	medially pleated
moderately broad	smooth to aciculatorugose	medially pleated
very broad	aciculatorugose to rugose	medially pleated
very broad	aciculatorugose to rugose	evenly sclerotized
very broad	aciculatorugose to rugose	usually pleated
usually narrow	smooth to aciculatorugose	medially pleated
moderately broad	aciculatorugose	medially pleated
moderate to narrow	aciculatorugose	evenly sclerotized
moderate to broad	aciculatorugose to rugose	evenly sclerotized
moderately broad	smooth to aciculatorugose	medially pleated
moderate to broad	aciculate to rugose	medially pleated
extremely broad	smooth to finely colliculate	medially pleated
very broad	punctate to aciculatorugose	evenly sclerotized

equal with the length of the fourth, and the longitudinal placodes on all longer flagellomeres are arranged irregularly rather than in even single or double ranks. This irregular placement of the placodes is known from several other micrigastrine genera, but not from any others with a propodeal areola. The general appearance of the wasp is also slightly unusual, as the mesosoma is somewhat more slender and straight-backed than is typical for microgastrines, the color is primarily orangish yellow, and the wings are brownish and unusually slender (Fig. 1). In several of these body shape features *Xanthapanteles* somewhat resembles the presumably distantly related *Rhygoplitis* and *Hygropplitis*.

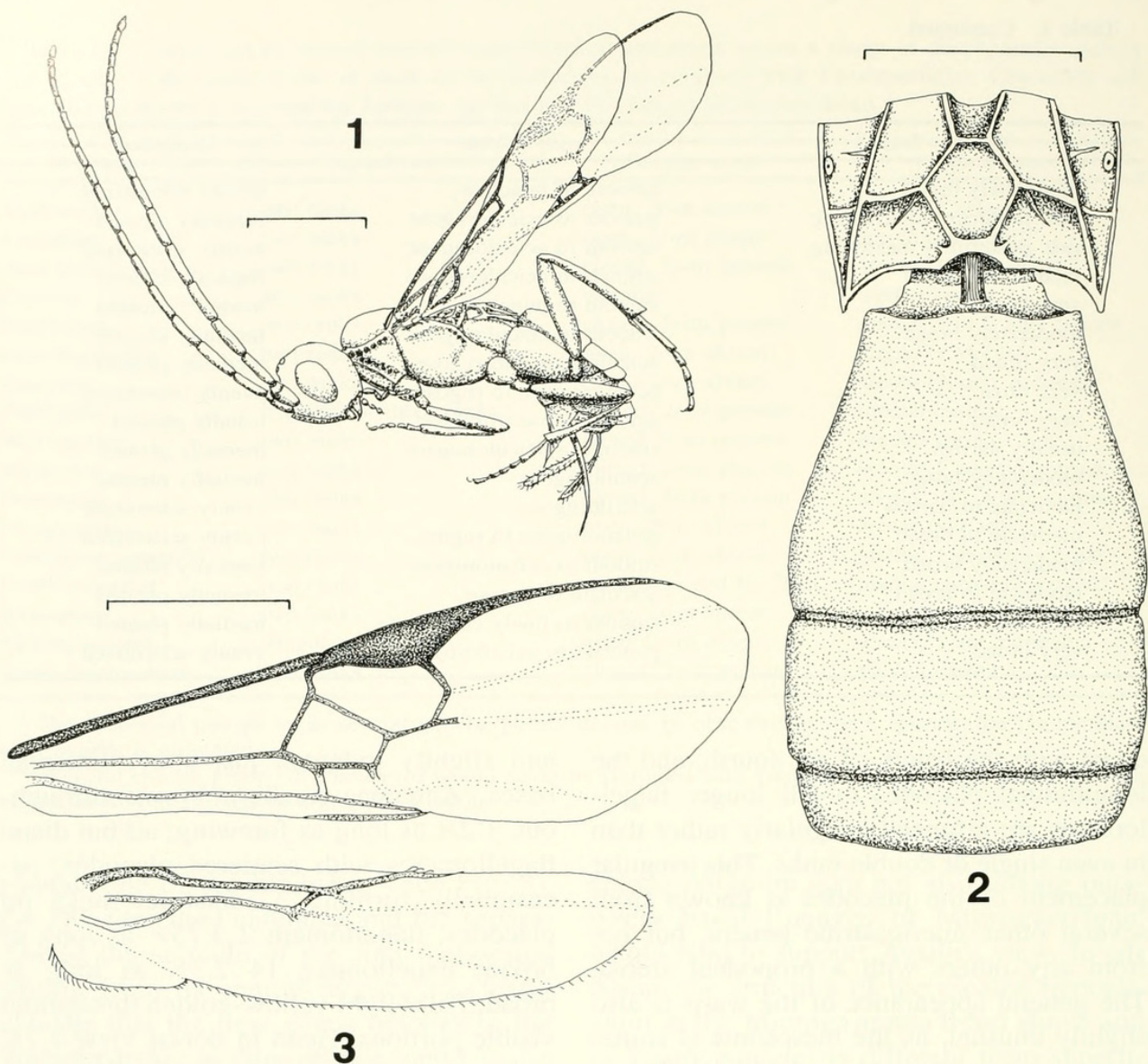
Xanthapanteles cameronae, NEW SPECIES
Figs. 1–3

Holotype female.—Body length 3.8 mm; forewing length 4.3 mm. Lateral habitus—Fig. 1.

Head: Pale honey-orange throughout except darker antennae and area between ocelli. Frons 2.0× as broad at midheight as long medially, weakly punctate; inner margins of eyes converging towards clypeus,

and slightly indented just above antennal bases. Antennae medium brown throughout, 1.2× as long as forewing; all but distal flagellomeres with scattered placodes, occasionally forming 3 indistinct ranks on placodes; flagellomere 2 3.75× as long as broad; flagellomere 14 2.3× as long as broad. Palpi light yellow-golden throughout visible portions. Head in dorsal view 1.7× as broad as medially long. Vertex relatively smooth and extremely finely granular, nearly appearing polished.

Mesosoma: Entire mesosoma pale orange-brown except darker dorsal portion of pronotum, lateral portions of metanotum and posteromedial section of propodeum. Pronotum with strong, broad, crenulate upper and lower grooves. Mesoscutum evenly, finely granular but appearing superficially smooth and polished; width just anterior to tegulae slightly less than that of head. Scutoscutellar scrobe composed of approximately 5–6 partly confluent crenulations, nearly straight medially. Scutellar disc slightly longer than anteriorly broad, similarly sculptured to mesoscutum. Mesopleuron finely granular, convex, without obvious longitudinal depression. Metanotum an-



Figs. 1–3. *Xanthapanteles cameronae* n. sp. 1, Lateral habitus. 2, Propodeum and anterior metasomal tergites. 3, Wings. Scale lines: 1—1 mm; 2—0.5 mm; 3—1 mm.

teriorly appressed to scutellum; sublateral setiferous lobes not clearly distinct. Propodeum (Fig. 2) with strongly raised areolate pattern of carinae, the areola being hexagonal and bearing 2 anterior carinae leading to anterior margin of propodeum; background sculpturing not obvious.

Legs: Coloration entirely honey-orange except darker terminal tarsomeres (fore- and mid-legs), apices of hind femora and tibiae, and most of hind tarsi. Spines on outer faces of hind tibiae tiny, inconspicuous, irregularly scattered. Apical spurs of hind tibiae subequal in length, the inner spur about 0.4 length of hind basitarsus.

Wings: More slender (Fig. 3) than in most microgastrines. Tegulae pale honey-yellow. Forewing venation moderate yellow-brown; wings tinged slightly brownish. Vein 2r weakly arched, somewhat longer than $2 + 3RS$, meeting it at about 100° angle. Vein 2r-m absent. Vein R1 (metacarp) much longer than stigma, approximately $4\times$ as long as distance from its distal end to end of $4RSb$ fold along wing edge. Stigma $4\times$ as long as broad. Hindwing with vannal lobe subapically flattened, sparsely fringed with hairs.

Metasoma: Entirely honey-orange except darker ovipositor sheaths. Anterior ter-

gites—Fig. 2. Tergite I fused to tergite II posteriorly, although not clearly so laterally; broadening posteriorly, slightly longer than posteriorly broad, with extremely precipitous and short anterior excavation; anterolateral portions strongly raised over edges of tergite; entire surface finely granular. Tergite II sculptured similarly to I, fused posteriorly to II, subquadrate and just over twice as broad as long. Tergite III sculptured similarly to I and II, much shorter than II and with weakly rounded posterolateral corners. Succeeding terga of normal, unsculptured, overlapping form. Hypopygium moderately long, acute apically, desclerotized medially into a series of expandable pleats. Ovipositor sheaths about 0.75 as long as hind tibiae, deep brown, slender-fusiform, hairy over most of length. Ovipositor weakly decurved, bladelike.

Males: Unknown.

Variation: Only two virtually identical females known.

Cocoons: Unknown.

Material examined.—Holotype female: ARGENTINA: Buenos Aires, La Plata (Fac. Agronomia), X-XI-1968, C. Porter (MCZ). Paratype: 1 female, same data. Holotype and paratype in Museum of Comparative Zoology, Harvard University.

Hosts:—Unknown.

Comments:—The species is named for Dr. Sydney Cameron, for her unfailing support for my own efforts, for her many collections of braconid wasps over the years, and for her keen interest in the South American fauna.

ACKNOWLEDGMENTS

I would like to acknowledge the helpful notes that the late Bill Mason (Ottawa) placed with the specimens described above—although he did not provide many details, he clearly recognized this species as unusual and had planned to describe it himself as a new genus. A collection improvement grant from the National Science Foundation (BSR-82-03845) to Edward O. Wil-

son helped support Mason's initial studies of these specimens. This and other studies of New World braconid genera have been supported by a grant from the National Science Foundation (DEB-9300517). Chris Carlton, Sydney Cameron and Scott Shaw provided useful comments on the manuscript; Scott Shaw also provided useful information on the curatorial history of these specimens.

LITERATURE CITED

- Austin, A. D. 1990. Revision of the enigmatic Australasian genus *Miopotes* Nixon (Hymenoptera: Braconidae: Microgastrinae), with comments on the phylogenetic importance of the female ovipositor system. *Systematic Entomology* 15: 43–68.
- Austin, A. D. and P. C. Dangerfield. 1992. Synopsis of Australasian Microgastrinae (Hymenoptera: Braconidae), with a key to genera and description of new taxa. *Invertebrate Taxonomy* 6: 1–76.
- Harris, R. A. 1979. A glossary of surface sculpturing. *Occasional Papers in Entomology*, No. 28. State of California, Department of Food and Agriculture, Sacramento. 31 pp.
- Mason, W. R. M. 1981. The polyphyletic nature of *Apanteles* Foerster (Hymenoptera: Braconidae): a phylogeny and reclassification of Microgastrinae. *Memoirs of the Entomological Society of Canada* 115: 1–147.
- . 1986. Standard drawing conventions and definitions for venational and other features of wings of Hymenoptera. *Proceedings of the Entomological Society of Washington* 88: 1–7.
- Nixon, G. E. J. 1965. A reclassification of the tribe Microgasterini (Hymenoptera: Braconidae). *Bulletin of the British Museum (Natural History) Entomology Supplement* 2: 1–284.
- Sharkey, M. J. 1994. Another look at wing vein/cell nomenclature. *Ichnews* 14: 2–5.
- Walker, A. K., I. J. Kitching, and A. D. Austin. 1990. A reassessment of the phylogenetic relationships within the Microgastrinae (Hymenoptera: Braconidae). *Cladistics* 6: 291–306.
- Whitfield, J. B. and W. R. M. Mason. 1994. Mendsellinae, a new subfamily of braconid wasps (Hymenoptera: Braconidae) with a review of relationships within the microgastroid assemblage. *Systematic Entomology* 19: 61–76.
- Williams, D. J. M. 1985. The New World genus *Lathrapanteles* n. gen.: phylogeny and placement in the Microgastrinae (Hymenoptera: Braconidae: Cotesiini). *Canadian Journal of Zoology* 63: 1962–1981.



Whitfield, James B. 1995. "XANTHAPANTELES, A NEW GENUS OF MICROGASTRINAE (HYMENOPTERA: BRACONIDAE) FROM SOUTH AMERICA." *Proceedings of the Entomological Society of Washington* 97, 879–883.

View This Item Online: <https://www.biodiversitylibrary.org/item/54712>

Permalink: <https://www.biodiversitylibrary.org/partpdf/54792>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Smithsonian

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Entomological Society of Washington

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.