

Nota Científica
(Short Communication)

**MELITTOBIA DIGITATA DAHMS (HYMENOPTERA: EULOPHIDAE)
AND MONODONTOMERUS MEXICANUS GAHAN
(HYM.: PTEROMALIDAE) ON A NEST OF TRYPOXYLON
(TRYPARGILUM) MEXICANUM (SAUSSURE) (HYM.: CRABRONIDAE)
COLLECTED NEAR XALAPA, VERACRUZ, MEXICO**

González, J.M., E. Acosta V., C. Sormani & S. B. Vinson. 2010. *Melittobia digitata* Dahms (Hymenoptera: Eulophidae) and *Monodontomerus mexicanus* (Gahan) (Hym.: Pteromalidae) on a nest of *Trypoxylon (Trypargilum) mexicanum* (Saussure) (Hym.: Crabronidae) collected near Xalapa, Veracruz, México. *Acta Zoológica Mexicana (n.s.)*, 26(1): 215-218.

ABSTRACT: In a mud-nest built by *Trypoxylon mexicanum*, collected near Xalapa, Veracruz, Mexico, we recorded the presence of two parasitoids *Monodontomerus mexicanus* (Pteromalidae) and *Melittobia digitata* (Eulophidae), and one ant: *Solenopsis geminata* (Formicidae). The pteromalid is reported for the first time from Veracruz while the eulophid is reported from Mexico attacking another hymenopteran. The presence of an ant inside an empty cell is possibly just a coincidence.

During June 2008 short trips were done in Veracruz to collect muddauber nests built by *Sceliphron* and *Trypoxylon* wasps (Hymenoptera: Sphecidae, Crabronidae), as well as fruits attacked by fruit flies (Diptera: Tephritidae). The main purpose of those collecting trips was to try to find parasitoids of the genus *Melittobia* (Hymenoptera: Eulophidae) attacking muddauber wasps and possibly fruit flies. After bringing all collected nests to the Instituto de Ecología (INECOL) laboratories for analysis, the contents of one nest of *Trypoxylon (Trypargilum) mexicanum* (Saussure) caught our attention.

This nest was collected from the eave of a house [Emiliano Zapata, Veracruz state, México. N19° 26.7' W96° 46.9', 890 m]. This solitary wasp was originally described (as *T. albitarse* var. *mexicana* Saussure, 1867; Not *T. mexicanum* Saussure, 1867 = *T. saussurei* Rohwer, 1912) from Orizaba, Veracruz, México (Coville 1982). The species is known to occur from Veracruz, México to Central America, but also in Hispaniola (Rau 1940; Rau 1943; Coville 1982; Genaro 2007).

The species was identified from an adult that emerged later at INECOL. The nest clearly resembled those of *T. (T.) politum* Say in the US (Rau & Rau 1916; Rau 1940; Cross *et al.* 1975) and was formed by two parallel tubes (A & B), with an incipient (and empty) one on top of both starting cells of tubes A & B. The nest contained 8 cells (4 per tube) and they were the following:

Tube A:

Cell 1: 11 specimens of at least 3 different undetermined species of Araneidae, were found inside. The number of spiders found somehow coincides with those previously found in cells of *T. (T.) mexicanum* in Jacala, Hidalgo (Rau 1943).

Cell 2: With a cocoon containing a prepupa of *T. (T.) mexicanum* (Saussure).

Cell 3: With a cocoon containing an adult *T. (T.) mexicanum* (Saussure) ready to emerge from the pupal skin.

Cell 4: Entrance cell; open to the outside.

Tube B:

Cell 1: It contained a cocoon of *T. (T.) mexicanum* filled with several individuals of *Monodontomerus mexicanus* Gahan (Hymenoptera: Pteromalidae) (2 males and 18 females). The parasitoid is distributed from Mexico to Panama (Grissell 2000). It does not appear among the Mexican Chalcidoidea mentioned by González-Hernández (2000), but Ruiz-Cancino *et al.* (2004) lists the species for the country. The species was originally described from 7 males and 20 females reared from *T. (T.) mexicanum* collected at Jacala, Hidalgo, and it is also known from Chiapas, Guerrero and Zacatecas, parasitizing several Hymenopterans (Gahan 1941; Grissell 1979; Grissell 1995; Grissell 2000; Rau 1947; Torchio 1974). As far as we know, this is the first record of *M. mexicanus* for Veracruz.

Cell 2: Empty, except for the presence of a single immature spider (Araneidae).

Cell 3: With 9 males and 298 macropterous females of *Melittobia digitata* Dahms (Hymenoptera: Eulophidae) inside a cocoon of *T. (T.) mexicanum*. *Melittobia digitata* is known to occur only in North America, parasitizing several insect orders (Dahms 1984; González *et al.* 2008; Matthews *et al.* 2009). The parasitoid species was previously reported from Mexico parasitizing Mexican fruit flies (Diptera: Tephritidae: *Anastrepha ludens* Loew) (Copeland *et al.* 2008; González *et al.* 2008; Matthews *et al.* 2009) but this is the first record of *M. digitata* attacking a Hymenoptera in this country.

Cell 4: Cell open to the outside containing a dead specimen of *Solenopsis geminata* (Fabricius). This ant species is widely distributed in the Americas (Bolton 1995; Creighton 1930; Trager 1991). Even though the arthropod fauna associated to mud dauber nests is frequently similar, very well known and constitutes an intricate food web (Matthews 1997), it is not uncommon that other insects not associated to such food web can be eventually encountered inside the mud nests (González & Vinson 2007). This specimen was possibly a scout from a nearby colony and its presence was probably just a coincidence.

ACKNOWLEDGEMENTS: We thank the TAMU-CONACyT Collaborative Research Grant program, project 100108. The first author wish to thank Martín Aluja, Alberto Anzures, Andrea Birke, Larissa

Guillén, Rafael Ortega Casas, Juan Rull, students and personnel of the Applied Entomology Unit of Instituto de Ecología, A.C. Xalapa, Veracruz, México, for their help at different stages of the project, as well as their kindness and attention to the first author while in Mexico. Thanks also to two anonymous reviewers for their helpful comments and corrections.

LITERATURE CITED

- Bolton, B.** 1995. *A new general catalogue of the ants of the world*. Harvard University Press, Cambridge, Massachusetts.
- Copeland, C.S., R.W. Matthews, J.M. González, M. Aluja & J. Sivinski.** 2008. *Wolbachia* in two populations of *Melittobia digitata* Dahms (Hymenoptera: Eulophidae). *Neotropical Entomology*, 37:633-640.
- Coville, R.E.** 1982. Wasps of the genus *Trypoxylon* subgenus *Trypargilum* in North America (Hymenoptera: Sphecidae). *University of California Publications, Entomology* 97:1-147.
- Creighton, W.S.** 1930. The New World species of the genus *Solenopsis*. *Proceedings of the American Academy of Arts and Sciences*, 66:39-151.
- Cross, E.A., M.G. Stith & T.R. Bauman.** 1975. Bionomics of the organ-pipe mud-dauber, *Trypoxylon politum* (Hymenoptera: Sphecoidea). *Annals of the Entomological Society of America*, 68:901-916.
- Dahms, E.C.** 1984. Revision of the genus *Melittobia* (Chalcidoidea: Eulophidae) with the description of seven new species. *Memoirs of the Queensland Museum*, 21:271-336.
- Gahan, A.B.** 1941. A revision of the chalcid-flies of the genus *Monodontomerus* in the United States National Museum. *Proceedings of the United States National Museum*, 90:461-482.
- Genaro, J.** 2007. Primer registro de *Trypoxylon mexicanum* para la Hispaniola, Antillas Mayores (Hymenoptera: Apoidea: Crabronidae). *Insecta Mundi*, 6:1-5.
- González, J.M. & R.W. Matthews.** 2005. An annotated bibliography of *Melittobia* (Hymenoptera: Eulophidae). *Caribbean Journal of Science, Special Publication*, 8:1-41.
- González, J.M., R.W. Matthews & A. Aluja.** 2008. Distribution and host records of *Melittobia* (Hymenoptera: Eulophidae) from Mexico. *Revista Mexicana de Biodiversidad*, 79:529-531.
- González, J.M. & S.B. Vinson.** 2007. Does *Polistes exclamans* (Viereck) hibernates inside muddauber nests? *Southwestern Entomologist*, 32:69-71.
- González-Hernández, A.** 2000. Chalcidoidea (Hymenoptera). Pp. 649-659. In: J.E. Llorente-Bousquets, E. González-Soriano & N. Papavero (Eds.). *Biodiversidad, taxonomía y biogeografía de artrópodos de México. Hacia una síntesis de su conocimiento*, volumen II. Instituto de Biología, UNAM, México, D.F.
- Grissell, E.E.** 1979. Torymidae. Pp. 748-769. In: K.V. Krombein, P.D. Hurd, D.R. Smith & B.D. Burks (Eds.). *Catalog of Hymenoptera in America North of Mexico. Vol. I. Symphita and Apocrita*. Smithsonian Institution Press, Washington, D.C.
- Grissell, E.E.** 1995. Toryminae (Hymenoptera: Chalcidoidea: Torymidae) a redefinition, generic classification, and annotated world catalog of species. *Memoirs on Entomology, International* 2:1-470.
- Grissell, E.E.** 2000. A revision of New World *Monodontomerus* (Hymenoptera: Chalcidoidea: Torymidae). *Contributions of the American Entomological Institute*, 32(1):1-90.
- Matthews, R.W.** 1997. Teaching biological interactions with mud dauber nests. *American Biology Teacher*, 59(3):152-158.
- Matthews, R.W., J.M. González, J.R. Matthews & L.D. Deyrup.** 2009. Biology of the Parasitoid *Melittobia* (Hymenoptera: Eulophidae). *Annual Review of Entomology*, 54:251-266.
- Rau, P.** 1940. Some mud-daubing wasps of Mexico and their parasites. *Annals of the Entomological Society of America*, 33:590-595.

- Rau, P.** 1943. The nesting habits of certain sphecid wasps of Mexico, with notes on their parasites. *Annals of the Entomological Society of America*, 36:647-653.
- Rau, P.** 1947. Bionomics of *Monodontomerus mandibularis* Gahan, with notes on other chalcids of the same genus. *Annals of the Entomological Society of America*, 30:324-342.
- Rau, P. & N. Rau.** 1916. The biology of the mud-daubing wasps as revealed by the contents of their nests. *Journal of Animal Behavior*, 6:27-63.
- Ruiz-Cancino, E., J.M. Coronado-Blanco, M. Svetlana N. & J.F. Luna Salas.** 2004. Adenda a Chalcidoidea (Hymenoptera). Pp. 725-734. In: J.E. Llorente-Bousquets, J.J. Morrone, O. Yáñez & I. Vargas (Eds.). *Biodiversidad, taxonomía y biogeografía de artrópodos de México. Hacia una síntesis de su conocimiento, volumen IV*. Instituto de Biología, UNAM, México, D.F.
- Torchio, P.F.** 1974. Notes on the biology of *Ancyloscelis armata* Smith and comparisons with other anthophorine bees (Hymenoptera: Anthophoridae). *Journal of the Kansas Entomological Society*, 47:54-62.
- Trager, J.C.** 1991. A revision of the fire ants, *Solenopsis* group (Hymenoptera: Formicidae: Myrmicinae). *Journal of the New York Entomological Society*, 99:141-198.

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