ZooKeys 5: 65-74 (2009)
doi: 10.3897/zookeys.5.62
www.pensoftonline.net/zookeys

RESEARCH ARTICLE

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Mexican species of *Labena* Cresson (Hymenoptera, Ichneumonidae) with description of a new species

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Academic editor: *Gavin Broad* | Received 14 November 2008 | Accepted 19 January 2009 | Published 16 February 2009

urn:lsid:zoobank.org:pub:01028D1B-D0BE-4BEF-B55E-BAF6FE584C0F

Citation: Khalaim AI, Ruíz-Cancino E (2009) Mexican species of *Labena* Cresson (Hymenoptera, Ichneumonidae) with description of a new species. ZooKeys 5: 65-74. doi: 10.3897/zookeys.5.62

Abstract

Nine species of the genus *Labena* Cresson are recorded from México. One species, *Labena acerba* **sp. n.**, is described as new. Two species, *L. eremica* Gauld and *L. marginata* Szépl., are recorded from México for the first time. New data on distribution of *Labena* in México are provided. A key to Mexican species of *Labena* is given.

Keywords

México, Hymenoptera, Ichneumonidae, Labeninae, *Labena*, new species, taxonomy

Introduction

Labena Cresson, 1864 is a large, predominantly Australian and Neotropical genus with 37 described species (Yu et al. 2005). Seven species are known from Australia (Gauld and Holloway 1986), two species occur in the U.S.A. and Canada (Townes and Townes 1960), 21 in Costa Rica (Gauld 2000), and 11 in South America, including Bermuda and Grenada (Townes and Townes 1966, Yu et al. 2005). The real number of Neotropical species is much greater, Gauld (2000) mentioned at least 50 species for this region.

Townes and Townes (1966) in their Catalogue of Neotropic Ichneumonidae listed two species of *Labena* for México, *L. gloriosa* Cresson and *L. grallator* (Say); the first

one was described from México. Gauld (2000), in his study of Ichneumonidae of Costa Rica, recorded for México two species of this genus, *L. gloriosa* and *L. schausi* Cushman, among 21 Costa Rican species. In a paper on Mexican Labeninae and Brachycyrtinae (Hernández et al. 2000), *L. espinita* Gauld, *L. schausi*, *L tarsata* Gauld, *L. zerita* Gauld and one species mentioned as "*Labena* sp. n." were listed (the last species is considered to be a variation of *L. tarsata* in this paper). The latest paper on Mexican Ichneumonidae with data on the genus *Labena* (Ruíz-Cancino et al. 2002) includes 5 species of this genus, four species from the preceding paper and *L. gloriosa*.

One species, *Labena acerba* sp. n., is described in this paper as new. This species is similar to the Costa Rican *L. guanacasteca* Gauld as both have the first sternite with distinct transverse ridge centrally (Fig. 4), a notable synapomorphy unknown in other species, but differs in its black flagellum (Fig. 3), area superomedia + petiolaris shorter (Fig. 5), and body entirely yellow without black markings. Two more species, *L. eremica* Gauld and *L. marginata* Szépl., are recorded for the first time for México. A variation of *L. tarsata* with a darker metasoma and propodeum partly carinate is discussed. A key to nine Mexican species of *Labena* is provided and new data on distribution are presented. All of the species were examined from Mexican material with the exception of *L. gloriosa* and *L. grallator*, for which material was not available.

Species of *Labena* are known as ectoparasitoids of various wood-boring Coleoptera. Among the Mexican species, only *L. grallator* has host records.

Methods

This work is based on the material of the Universidad Autónoma de Tamaulipas in Cd. Victoria, México. Taxonomy is accepted as in the software program TaxaPad (Yu et al. 2005). Morphological terminology follows Gauld (2000). Photos were taken with a Leica MZ16 stereomicroscope with integrated Leica photo camera in the Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia). The captured images were assembled with Helicon Focus software and edited in Adobe Photoshop CS2. The holotype of the new species was obtained from Dr A. González Hernández (Universidad Autónoma de Nuevo León, Monterrey, México) and is deposited at the Universidad Autónoma de Tamaulipas, Cd. Victoria, México.

Taxonomy

Key to Mexican species of *Labena*

1. Thorax coarsely punctate; punctures on mesopleuron separated by about their diameter. [Head with blackish band through ocelli. Wings usually more or less infuscate] ..... ***L. grallator* (Say)**, ♀♂
– Thorax smooth or finely punctate; mesopleuron usually polished, impunctate or very finely and sparsely punctate..... 2

2. Fore wing hyaline with a distinct blackish spot near distal end of marginal cell (Fig. 8). Metasoma in female sometimes very slender, 2.0-3.7 times as long as posteriorly broad 3
– Fore wing hyaline or yellowish, without an apical blackish spot. Metasoma in female quite stout, first tergite 1.6-2.0 times as long as posteriorly broad ... 14
3. Female 4
– Male 9
4. Flagellum, in dorsal view, with either a very pale median band, or with basal 0.7 pale yellowish brown, with distal apex black. Metasoma bicolored, tergites 2-7 widely black anteriorly, with yellow band posteriorly. [Mid tibia with a row of stout dark flattened bristles on outer surface] ..... ***L. espinita*** **Gauld**
– Flagellum, in dorsal view, more or less uniformly black. Metasoma more or less unicolourous, sometimes with median longitudinal stripes on first tergite 5
5. Head, in dorsal view, with a transverse black mark immediately in front of occipital carina. [Propodeum with area basalis half as long as wide. Legs yellow, hind coxa with a dorsal black spot (in material from Costa Rica) or without (in specimens from México)] ..... ***L. zerita*** **Gauld**
– Head, in dorsal view, yellow to brownish (Fig. 7), at most slightly darker brown close to occipital carina 6
6. Clypeus with lower margin truncate, with a very strong transverse raised crest parallel and close to lower margin ..... ***L. gloriosa*** **Cresson**
– Clypeus with lower margin strongly convex, with lower region flat, without transverse crest near lower margin 7
7. First tergite yellow with a median longitudinal black stripe. Ovipositor extending beyond apex of metasoma by about 2.6 times length of hind tibia. Propodeum with lateral end of posterior transverse carina quite strongly raised into a low, rounded flange, displaced forwards, slightly overhanging the area lateralis ..... ***L. schausi*** **Cushman**
– First tergite without longitudinal black stripe, more or less uniformly yellow to brown. Ovipositor extending beyond apex of metasoma by 1.5-1.9 times length of hind tibia. Propodeum with lateral end of posterior transverse carina raised or not raised into rounded flange 8
8. Propodeum with area lateralis small, of subequal area to area coxalis. Basal area usually slightly transverse. Mesoscutum yellow with three distinct brown longitudinal marks ..... ***L. tarsata*** **Gauld**
– Propodeum with area lateralis large, of much greater area than area coxalis. Basal area usually elongate, rarely almost as long as wide. Mesoscutum yellow to brown, without distinct longitudinal marks ..... ***L. eremica*** **Gauld**
9. Flagellum, in dorsal view, yellowish with distal apex black 10
– Flagellum, in dorsal view, more or less entirely black or blackish brown 11
10. Tergite 3 with hind margin transverse or very weakly concave. Outer surface of mid tibia with 4-5 large conspicuous dark bristles. Head, in dorsal view,

with a transverse black mark immediately in front of occipital carina. Mesopleuron yellow with black marks near anterior and posterior margins. Propodeum widely black anteriorly and laterally ..... ***L. espinita*** **Gauld**

– Tergite 3 with hind margin strongly concave. Outer surface of mid tibia with weak inconspicuous bristles. Mesopleuron yellow, without black marks. Propodeum yellow, sometimes brownish near anterior margin ..... ***L. tarsata*** **Gauld**

11. Tergites 3-5 with hind margins more or less straight. Posterior transverse carina of propodeum laterally very strongly raised 12

– At least some of tergites 3-5 with hind margins concave. Posterior transverse carina of propodeum laterally not noticeably strongly raised 13

12. Clypeus with lower margin truncate, with a very strong transverse raised crest parallel and close to lower margin. First tergite more or less entirely yellowish brown ..... ***L. gloriosa*** **Cresson**

– Clypeus with lower margin strongly convex, with lower region flat, without transverse crest near lower margin. First tergite yellow with a median longitudinal black stripe..... ***L. schausi*** **Cushman**

13. Propodeum with area dentipara open posteriorly. Mesoscutum more or less brownish yellow to yellowish, sometimes infuscate centrally... ***L. eremica*** **Gauld**

– Propodeum with area dentipara completely enclosed. Mesoscutum yellow with three black longitudinal marks ..... ***L. zerita*** **Gauld**

14. First sternite without a central transverse ridge. Propodeum with area superomedia closed by a carina posteriorly, thus discrete from area petiolaris which is usually replaced by a single median longitudinal carina. Head in dorsal view with gena moderately narrowed behind eyes. Mid leg in female with second tarsomere transverse, about as long as third and fourth tarsomeres together. Tergites 3-5 in male slightly transverse with hind margin straight... ..... ***L. marginata*** **Szépl.**, ♀♂

– First sternite with a distinct central transverse ridge (Fig. 4). Propodeum with area superomedia open posteriorly, broadly confluent with area petiolaris (Fig. 5). Head in dorsal view with gena strongly narrowed behind eyes (Fig. 2). Mid leg in female with second tarsomere longer than broad, longer than third and fourth tarsomeres together. Tergites 3-5 in male strongly transverse, with hind margin conspicuously concave (male of *L. acerba* sp. n. unknown) ... 15

15. Flagellum almost entirely black, narrowly yellowish basally and apically, without a pale median band (Fig. 3). Propodeal area which is comprised by the confluent areas superomedia and petiolaris slightly transverse, 0.9 times as long as maximally broad (Fig. 5). Body yellow except for three brownish longitudinal marks on mesoscutum ..... ***L. acerba*** **sp. n.**, ♀

– Flagellum blackish with a central yellowish band in female, and with proximal 0.7 or more yellowish orange and distal apex black in male. Propodeal area which is comprised by the confluent areas superomedia and petiolaris distinctly elongate, almost 1.5 times as long as maximally broad. Body yellow with black marks on occiput along occipital carina, around ocelli, on mesoscutum,

on peripheries of mesoscutum, scutellum and mesopleuron, and on carinae bordering area lateralis of propodeum..... ***L. guanacasteca*** **Gauld**, ♀♂

Labena acerba **Khalaim & Ruíz-Cancino, sp. n.**
urn:lsid:zoobank.org:act:C7EA0CA3-0C68-491E-9AA8-1FF1CFA9A23C
(Figs 1-5)

Diagnosis. The new species is very similar to the Costa Rican *L. guanacasteca* Gauld as both have a fore wing without an apical black spot, a propodeum with area superomedia open posteriorly and broadly confluent with area petiolaris (Fig. 5), and a first sternite with distinct transverse ridge centrally (Fig. 4). Unlike this species *L. acerba* sp. n. has a black flagellum, without a pale median band (Fig. 3), a shorter area superomedia + petiolaris of propodeum (Fig. 5), and a yellow body without any black marks. The new species can be distinguished from all Mexican species of *Labena* by the following characters in combination: 1) mesopleuron polished, impunctate, 2) fore wing without an apical spot, 3) first sternite with a transverse ridge, 4) flagellum extensively black, without a central yellowish band.

Figs 1-4. *Labena acerba* sp. n., ♀, holotype: 1 – head, anterior view; 2 – head, dorsal view; 3 – head with antenna, lateral view; 4 – first metasomal segment, lateral view.

Description. Female. Fore wing length 9.3 mm. Mandible evenly tapered towards distal end, upper tooth much longer than lower tooth. Clypeus almost flat, twice as broad as high, with lower margin distinctly convex centrally. Malar space 0.3 times as long as basal width of mandible. Face with median vertical ridge (also reaching between antennal sockets) which has radiating, parallel rugae, and with a pair of lateral vertical carinae (along eye margins). Frons flat, dull, with scattered fine punctures. Vertex and temple smooth. Head in dorsal view with gena short, abruptly rounded behind eyes (Fig. 2); lower part of gena very broad. Posterior ocellus separated from eye by 1.4 times its own maximum diameter. Inner margin of eye with a strong concavity opposite antennal insertion (Fig. 1). Occipital carina complete, reaching hypostomal carina far from base of mandible, strongly raised between base of mandible and its junction with hypostomal carina. Flagellum of antenna with 42 segments; subbasal flagellomeres more or less elongate, median and subapical ones transverse, apical flagellomere subtriangular with apex truncate.

Mesosoma, excepting mesopleuron, metapleuron and dorsal areas of propodeum, bearing yellow hairs. Pronotum and mesoscutum finely punctate, smooth between punctures. Epomiae present. Notauli absent. Scutellum flat, without lateral carinae. Mesopleuron polished, impunctate. Metapleuron convex, polished and impunctate, confluent with area spiracularis of propodeum (pleural carina absent anteriorly). Submetapleural carina raised anteriorly. Propodeum smooth and shining, partly finely punctate, in profile abruptly declivous, in dorsal view with area superomedia delineated anteriorly, posteriorly confluent with area petiolaris, very slightly transverse, 0.92 times as long as maximally broad (Fig. 5), and with area basalis very short, almost 0.1 as long as wide (Fig. 5); area dentipara confluent with area posteroexterna; area externa short, transverse, fully enclosed; area lateralis large, transverse, subequal to area coxalis.

Mid leg with tibia inflated in distal 0.7, with slender bristles on outer surface, second tarsomere about twice as long as broad, longer than following two tarsomeres. Hind coxa about twice as long as deep.

Fore wing with areolet transverse, with 2*rs-m* longer than 3*rs-m*.

First tergite 1.6 times as long as posteriorly broad, depressed, without dorsolateral carina behind spiracle; sternite short, reaching 0.3 of length of tergite, with transverse ridge centrally (Fig. 4). Second tergite strongly transverse, 0.56 times as long as posteriorly broad. Ovipositor straight, compressed, almost twice as long as hind tibia.

Coloration: Yellow species. Mandible black apically. Antenna black, with base and apex yellowish (Fig. 3). Head slightly darkened around ocelli. Face and metasomal tergites with scattered reddish specks (more dense on face). Mesoscutum with three brownish longitudinal marks. Hind leg with tibia apically and tarsus posteriorly fuscous. Pterostigma yellow-brown. Ovipositor dark red, its sheath yellowish brown basally to fuscous apically.

Male unknown.

Type material. Holotype female: México, Jalisco, La Huerta, Estacion Biologica Chamela UNAM Vereda Tejon, 19°29.941' N, 105°02.591' W, CIB 00-0029, 25.VII.2000, coll. Y. Castillo O.

Distribution. México (Jalisco).

Etymology. From Latin "*acerbus*" (bitter, gloomy, dark) on account of the black coloration of flagellum.

Labena eremica Gauld, 2000

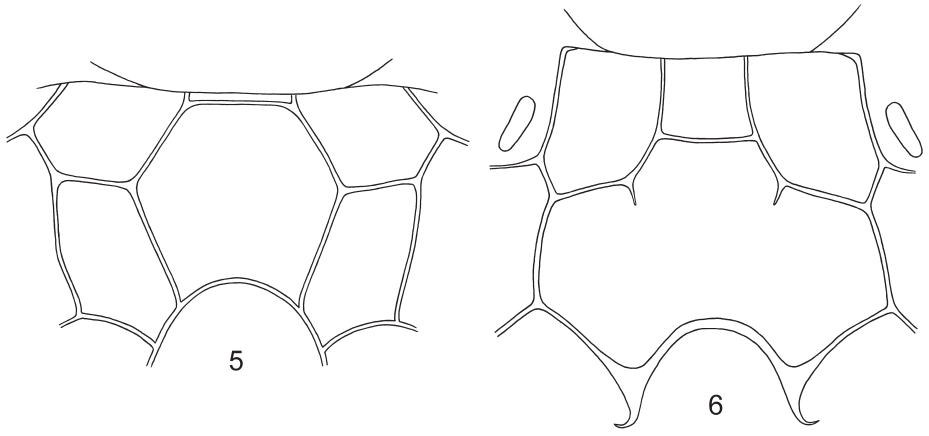
Material examined. México, Tamaulipas, Gómez Farías, Los Cedros and Alta Cima, Malaise trap, coll. S. Hernández A., C.A. Covarrubias D., D.R. Kasparyan, 1999: 16-23.I (2 ♂♂), 30.I-27.II (2 ♀♀), 6-27.III (6 ♀♀, 2 ♂♂), 3-24.IV (1 ♀, 1 ♂), 8.V-12.VI (2 ♀♀, 4 ♂♂), 31.VII-7.VIII (1 ♀); 4-26.VIII.2000 (2 ♂♂). Cd. Victoria, Cañón del Novillo, 27.VIII.1985, coll. H. Serna T., 1 ♂. Same locality, 21.VIII.2004, coll. J. Ramírez Pech, 1 ♀. Same locality, 28.IX.1964, coll. Hierbos, 1 ♂. Cd. Victoria, 31.V.1981, coll. E. Ruíz-Cancino C., 1 ♂. Same locality, Malaise trap, 19-26.VIII.2000, coll. Kasparyan, 1 ♀. 44 km S Cd. Victoria, Llera de Canales, matorral, Malaise trap, 2-30.IX.2000, coll. Kasparyan, 1 ♀, 2 ♂♂. 15 km N Llera de Canales, Tropico de Cancer, Malaise trap, 28.X-4.XI.2000, coll. Kasparyan, 1 ♂. G. Magaña, Abasolo, 24.09.1992, coll. M. Lara, 1 ♂.

Distribution. Costa Rica, México (Tamaulipas). First record for México.

Labena espinita Gauld, 2000

Material examined. México, Tamaulipas, Gómez Farías, Los Cedros and Alta Cima, Malaise trap, 24.IV-29.V, 31.VII-21.VIII.1999, 12-19.VIII.2000, coll. S. Hernández A., D.R. Kasparyan, 2 ♀♀, 4 ♂♂. Cd. Victoria, Cañón del Novillo, 27.IV, 19.VII, 19.VIII.1985, coll. H. Serna T., 2 ♀♀, 1 ♂. Yucatán, Sudzal Chico (SMSP) and Corral (SMSC), February and July 1999, coll. Hugo Delfin, 3 ♂♂.

Distribution. North Brazil, Costa Rica, México (Tamaulipas).



Figs 5-6. *Labena* spp., areolation of propodeum, dorsoposterior view: 5 – *L. acerba* sp. n., ♀ (holotype); 6 – *L. tarsata* Gauld, ♀, var. (Cañón del Novillo, 27.IV.1985).

Labena gloriosa Cresson, 1874

Distribution. Brazil, Peru, Costa Rica, South México (Veracruz: "Mirador", Cresson 1874).

Labena grallator (Say, 1835)

Distribution. Canada, U.S.A., North México ("northern Sonora", Cameron 1886, Townes and Townes 1966).

Biology. Reared in the U.S.A. from species of *Knulliana* Linsley, *Megacyllene* Casey, *Psyrassa* Pascoe, *Rhopalophora* Audinet-Serville, *Saperda* F., *Stenosphenus* Dejean (Cerambycidae), *Agrilus* Dahl, *Chrysobothris* Solier, *Thrincopyge* LeConte (Buprestidae), *Lixus* F. and *Pissodes* German (Curculionidae) (Gauld 2000, Yu et al. 2005).

Labena marginata Szépligeti, 1914

Material examined. México, Tamaulipas, Gómez Farías, Alta Cima, Malaise trap, 1-22.V.1999, coll. S. Hernández A., 2 ♂♂.

Distribution. Brazil, Paraguay, Costa Rica, México (Tamaulipas). First record for México.

Labena schausi Cushman, 1922

Material examined. México, Tamaulipas, Gómez Farías, Los Cedros, Malaise trap, 20.III-12.VI.1999, coll. S. Hernández A., 4 ♀♀, 1 ♂. Cd. Victoria, Cañón del Novillo, 13.VIII.1985, coll. H. Serna T., 1 ♀. Yucatán, Corral (SMSC), June 1999, Hugo Delfin, 1 ♀.

Distribution. Panama, Costa Rica, Guatemala, México (Tamaulipas, Yucatán).

Labena tarsata Gauld, 2000

Material examined. México, Tamaulipas, Gómez Farías, Los Cedros and Alta Cima, Malaise trap, 20.III-12.VI.1999, coll. S. Hernández A., 3 ♀♀, 8 ♂♂. Cd. Victoria, Cañón del Novillo, 27.IV, 13.VIII.1985, 2 ♀♀. Jalisco, Est. Biol. Chamela, Malaise trap, 4-5.VII.1993, coll. Wharton and Sharkey, 1 ♀.

Distribution. Costa Rica, México (Tamaulipas, Jalisco).

Variation. Two females from Cañón del Novillo have a conspicuously darker metasoma. In the specimen from 13.VIII, tergite 1 is yellow and tergites 2-4 are reddish brown. In the specimen from 27.IV, tergites 1-6 (tergite 1 blackish in anterior 0.4) are dark reddish brown (Fig. 8), and in both specimens the metasoma is yellowish posteriorly (Fig. 8). The specimen from 27.IV, mentioned as "*Labena* sp. n." by Hernández et al.

Figs 7-9. *Labena tarsata* Gauld, ♀, var. (Cañón del Novillo, 27.IV.1985): 7 – head, dorsal view; 8 – forewing; 9 – hind legs and metasoma with ovipositor, dorsolateral view.

(2000), also has the propodeum with the area superomedia widely open posteriorly (Fig. 6). This area is more or less defined in the other Mexican specimens, but is very variable in the Costa Rican material, in which sometimes the posterior carina is only very faintly present (G. Broad, pers. comm.) . Both specimens are structurally similar to *L. tarsata* and have no other differences from typical specimens of this species in our material, excepting this one very variable character (area superomedia open posteriorly in female from 27.IV). Thus we consider these specimens to be a darker variation of *L. tarsata*.

Labena zerita Gauld, 2000

Material examined. México, Tamaulipas, Gómez Farías, Los Cedros and Alta Cima, Malaise trap, 10.IV-5.VI.1999, coll. S. Hernández A., 1 ♀, 3 ♂♂.

Distribution. Costa Rica, México (Tamaulipas).

Acknowledgements

We are thankful to Dr D.R. Kasparyan (Zoological Institute of the Russian Academy of Sciences, St. Petersburg) for his help with the preparation of this paper. We also acknowledge the hard work and important comments provided by Ivailo Stoyanov and two reviewers. This work was supported by the Russian Foundation for Basic Research (no. 07-04-00454), the Presidium of the Russian Academy of Sciences Program "Origin and evolution of Biosphere, Subprogram II", the CONACYT Project "Ichneumonidae y Aphelinidae (Hymenoptera) en bosques y matorrales de Tamaulipas, México" and the PROMEP Project "Avances en el conocimiento de la Entomofauna de México".

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