

## A new species of *Psyllaephagus* Ashmead from Mexico (Hymenoptera: Encyrtidae)

S.N. Myartseva, J.A. Martínez Ramírez, J.M. Coronado Blanco & E. Ruíz Cancino

Myartseva, S.N., Martínez Ramírez, J.A., Coronado Blanco, J.M. & Ruíz Cancino, E. 2003. A new species of *Psyllaephagus* Ashmead from Mexico (Hymenoptera: Encyrtidae). *Zoosystematica Rossica*, 11(2), 2002: 357-360.

*Psyllaephagus trjapitzini* sp. n. is described from Mexico (State of Tamaulipas). This species has been reared from Psyllidae developing on *Cedrela odorata* L.

S.N. Myartseva, J.A. Martínez Ramírez, J.M. Coronado Blanco & E. Ruíz Cancino, Centro de Investigación, UAM Agronomía y Ciencias, Universidad Autónoma de Tamaulipas, Ciudad Victoria, 87149, Tamaulipas, Mexico.

The genus *Psyllaephagus* Ashmead, 1900 includes over 200 described species and has a cosmopolitan distribution. Only 18 species are known in the New World, including 9 new species described from Costa Rica (Noyes & Hanson, 1996). Four species of this genus were recorded from Mexico (Trjapitzin & Ruíz Cancino, 2000): *P. gyces* Noyes & Hanson, *P. pilosus* Noyes, *P. trioziphagus* (Howard) and *P. yaseeni* Noyes. *P. gyces* was collected in Tamaulipas, the Reserve "El Cielo" situated in the mountains of Sierra Madre Oriental and reared from *Trioza limbata* (Enderlein) on *Psidium guajava*; *P. pilosus* was found in Coyoacán (Mexico, D.F.) on *Eucalyptus* sp.; *P. trioziphagus* was collected in Campeche; *P. yaseeni* is widely distributed in Mexico (states of Nuevo León, Veracruz, Michoacán, Distrito Federal, Guerrero and Oaxaca). A key to the Mexican species of *Psyllaephagus* is given by Trjapitzin & Ruíz Cancino (2000).

Several species of the genus *Psyllaephagus* have an important role in the natural control of pests of the family Psyllidae (Homoptera) in the world. *P. pilosus* and *P. yaseeni* were used in classical biological control programmes in the New World. *P. pilosus* was introduced into California (USA) and Wales (UK) from Australia in an attempt to control *Ctenarytaina eucalypti* (Maskell), a pest of *Eucalyptus* spp., also a native of Australia (Hodkinson, 1994). *P. yaseeni* is widely distributed in Central America. In Mexico, *P. yaseeni* is known as a parasitoid of *Heteropsylla cubana* Crawford on *Leucaena leucocephala* and other species of *Heteropsylla* in many areas (Trjapitzin & Ruíz-Cancino, 1995), and was in-

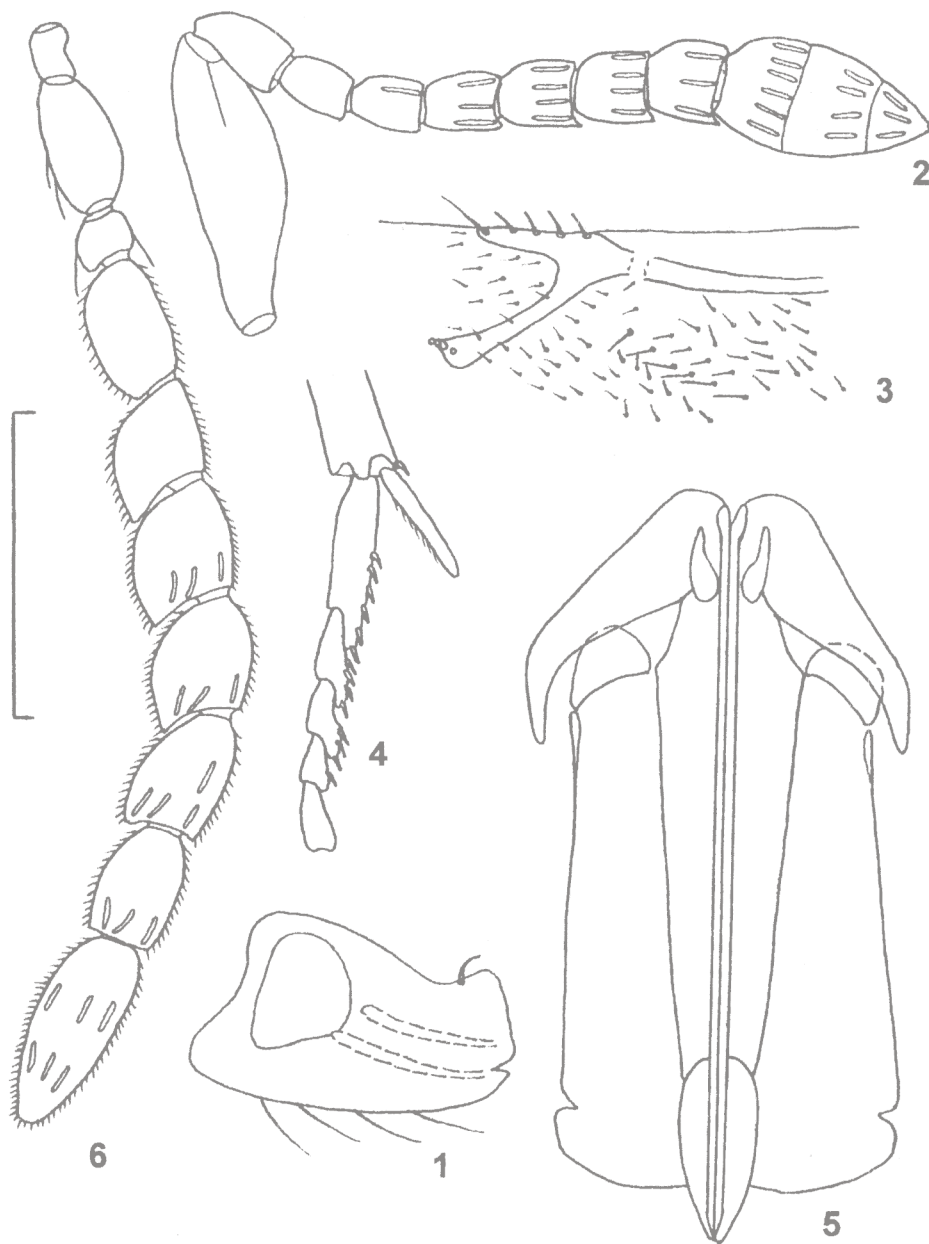
troduced into several countries in attempts to control of *H. cubana* (Hawaii, New Caledonia, China (Hainan), Philippines, Malaysia, Thailand, Nepal and Sri Lanka) (Noyes & Hanson, 1996).

The authors studied pests of *Cedrela odorata* L. (Meliaceae) in Tamaulipas, Mexico, and reared many specimens of *Psyllaephagus* from nymphs of Psyllidae. *Cedrela odorata* has an economic importance in Mexico, and that is why the study of parasitoids as natural enemies of pests of this tree is of practical interest. *P. trioziphagus* is widely distributed in the Nearctic and Neotropical Regions and was known in Costa Rica as parasitoid of the nymphs of psyllids *Trioza* sp. and *Mastigimas* sp. on *Cedrela odorata* (Noyes & Hanson, 1996). The description of a new species of *Psyllaephagus*, *P. trjapitzini* from Mexico, is given below.

***Psyllaephagus trjapitzini* Myartseva & Martínez Ramírez, sp. n.**  
(Figs 1-6)

*Holotype*. ♀, Mexico, Tamaulipas, Xicoténcatl, leaves with fruits, 11.II.2001, emerged from Psyllidae (J.A. Martínez Ramírez).

*Paratypes*. Mexico, Tamaulipas: 2 ♀, 2 ♂, same data as in holotype; 1 ♀, 2 ♂, Cd. Victoria, from Psyllidae, 11.II.1999 (S. Myartseva); 1 ♂, Xicoténcatl, Ej. La Quiche, on leaves with fruits, 4.III.2001 (J.A. Martínez Ramírez); 9 ♀, 2 ♂, Cd. Mante, R. El Penny, on leaves of *Cedrela*, 2.XII.2000 (J.A. Martínez Ramírez, J.M. Otero Martínez & R. Lerma G.); 2 ♀, Ocampo, on leaves, 28.I.2001 (R. Lerma G.); 1 ♀, Antiguo Morelos, on leaves with fruits, 11.III.2001 (R. Lerma G.); 2 ♀, 3 ♂, same label (J.A. Martínez Ramírez).



Figs 1-6. *Psyllaephagus trjapitzini* sp. n.: 1, mandible; 2, antenna, female; 3, venation of fore wing (part); 4, middle tarsus and tibial spur; 5, ovipositor; 6, antenna of male. Scale: 250  $\mu$ m (1), 500  $\mu$ m (2-6).

The holotype and paratypes (3 ♀, 3 ♂) are deposited at the Entomological Museum of University of California (Riverside, USA); other paratypes (13 ♀, 5 ♂) are deposited at the National Museum of Natural History (Washington, USA), the Mu-

seum of Natural History (London, U.K.), the Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia), and the Insects Museum of UAM Agronomía y Ciencias, University of Tamaulipas (Ciudad Victoria, Mexico).

**Description. Female.** Body length 1.20-1.36 mm (in holotype, 1.24 mm).

**Coloration.** Head black; frontovertex with metallic blue-green lustre, postocellar area with purple reflections; face and scrobal area purplish violet, interantennal prominence and clypeal margin sometimes with blue-green lustre. Scape black, slightly metallic, its apex yellow; pedicel black; flagellum brownish yellow to brownish. Mesoscutum metallic green, with light purplish reflections anteriorly and on sides; scutellum metallic purple, on apex and sides green; axillae purple-violet; tegula black, with metallic lustre; sides of thorax metallic purple-violet-green; sides of propodeum metallic green. All coxae black, with metallic lustre; fore and hind femora black, with metallic lustre, their apices yellow; middle femur black, with base and apex yellow; fore and hind tibiae black in basal half and yellow in apical half; middle tibia yellow, with brown to dark ring near base, or all tibiae yellow, with dark ring near base, more broad on fore and hind tibiae; all tarsi yellow, with last segment brown to black. Wings hyaline; venation brown. Metasoma black, with metallic purplish green lustre, more pronounced green on basal tergite. Ovipositor sheaths black, with metallic lustre.

**Structure.** Head wider than mesosoma, slightly less than twice as wide as long and slightly wider than high. Frontovertex about as long as wide, about 0.4 times as wide as head. Its sculpture finely reticulate, with conspicuous piliferous punctures, extending down between antennal scrobes and eye margins to level of antennal toruli; each puncture with a thin short seta. Occipital margin slightly concave. Ocelli arranged in slightly obtuse triangle; posterior ocelli separated from eyes by distance less than diameter of ocellus, and from occipital margin, by distance more than diameter of ocellus, or rarely these distances subequal. Inner margins of eyes diverging down. Eye 1.5-2 times as long as malar space. Mandibles broadly truncate, with one tooth (Fig. 1).

Labial and maxillary palpi 3- and 4-segmented, respectively. Antennae (Fig. 2) inserted immediately under level of lower margin of eyes. Antennal scrobes fused above. Distance between antennal toruli about 1.5 times as long as distance from toruli to eyes and about twice the distance from toruli to margin of mouth. Antennal scape slightly widened, about 3.5 times as long as wide; pedicel almost twice as long as wide and about 0.4 times as long as scape; funicle slightly elongated, widened to clava, 1st-5th funicular segments longer than wide; 1st and 2nd segments 1.5 times as long as wide, 3rd and 4th segments about 1.3 times as long as wide, 6th segment square; clava about twice as long as wide and slightly shorter than three preceding funicu-

lar segments combined; setation of flagellum shorter than half of segment width.

Mesoscutum with fine, imbricate-reticulate sculpture. Scutellum with fine, longitudinally reticulate sculpture; propodeum smooth. Scutellum about as long as wide, almost as long as mesoscutum. Fore wing about 2.5 times as long as its maximum width; marginal vein punctiform, postmarginal vein about half as long as stigmal vein (Fig. 3). Midtibial spur (Fig. 4) shorter than basitarsus; tarsi of middle legs slightly widened. First-fourth segments with short stout pegs. Metasoma shorter than mesosoma. Ovipositor (Fig. 5) 1.5 times as long as middle tibia, its exerted part shorter or rarely not shorter than midtibial spur; sheaths about 0.3 times the length of inner plates.

**Male.** Body length 0.90-1.16 mm. Similar to female in coloration and sculpture, but face metallic green, flagellum brown, fore and hind tibiae sometimes entirely black, except for yellow apices. Frontovertex slightly wider than long, half as wide as head. Eye about 2.5 times as long as malar space. Ocelli arranged in more obtuse triangle (as compared with female). Antennae (Fig. 6) inserted above the level of lower margin of eyes. Scape twice as long as wide; pedicel about 0.8 times as long as wide; funicle with 2nd-5th segments widened, these latter slightly longer than wide; 1st funicular segment about 1.8 times as long as wide, 6th funicular segment 1.5 times as long as wide; clava not wider than funicle, about 2.5 times as long as wide and shorter than two preceding funicular segments combined; setae of funicle and clava very short, looking as ciliae. Metasoma shorter than mesosoma. Phallobase of genitalia about half of the middle tibia length; digital sclerites with two teeth at apex.

**Comparison.** *Psyllaephagus trjapitzini* sp. n. is similar to *P. gyces* Noyes & Hanson, but can be distinguished by the following characters:

1) coloration: the mesoscutum is with very light blue and purplish reflections; the scutellum is metallic purple;

2) structure: the sculpture of the scutellum is as fine as on the mesoscutum; punctures on the frontovertex are arranged sparsely; the scape is widened, about 3.5 times as long as wide, the 4th and 5th funicular segments are longer than wide, the 6th segment is square; the mandible has one tooth and a truncation; the exerted part of ovipositor is shorter than midtibial spur.

In *P. gyces*, these characters are as follows:

1) coloration: the mesoscutum is with strong blue and purplish reflections; the scutellum is metallic green;

2) structure: the sculpture of the scutellum is clearly deeper than that of the mesoscutum; punctures on the frontovertex are arranged densely;

the scape is cylindrical, more than 3.5 times as long as wide, the 4th and 5th funicular segments are subsquare, the 6th segment is transverse; the mandible has two teeth and a truncation; the exserted part of ovipositor is as long as midtibial spur.

The male of *P. trjapitzini* is similar to the male of *P. creusa* Noyes & Hanson in the structure of the antenna.

*P. trjapitzini* can be distinguished from the very variable and widely distributed *P. triocephalus* (Howard), recorded in Costa Rica as a parasitoid of the psyllid *Mastigias* sp. on *Cedrella odorata*, by the following characters: the sculpture of the scutellum is shallow as on the mesoscutum and longitudinally reticulate, the face is metallic purple violet, the metasoma shorter than the mesosoma. In *P. triocephalus*, these characters are as follows: the sculpture of the scutellum is shallower than that of the mesoscutum and not longitudinal, the face is metallic green, the metasoma is as long as the mesosoma.

*P. trjapitzini* sp. n. is the third species with conspicuous deep piliferous punctures on the fronto-vertex and face. Two other species, *P. creusa* Noyes & Hanson and *P. gyges* Noyes & Hanson, were described from Costa Rica.

**Etymology.** The new species is named in honour of Vladimir Alexandrovich Trjapitzin, pro-

fessor of the Zoological Institute (St. Petersburg, Russia), and of Universidad Autónoma de Tamaulipas (Cd. Victoria, Tamaulipas, Mexico) for his important contribution to the study of the family Encyrtidae in Mexico.

#### Acknowledgements

The authors are thankful to Prof. V.A. Trjapitzin (University of Tamaulipas, Cd. Victoria, Mexico) for the help in identification of the new species, and to CONACYT-SIREYES for support of the project "Plagas del cedro *Cedrella odorata* L. y sus enemigos naturales en Tamaulipas, norte de Veracruz y San Luis Potosí, México".

#### References

- Hodkinson, J. 1994. Biocontrol of the eucalyptus psyllid in the U.K. A request for help. *Antenna*, **18**(4): 205.
- Noyes, J.S. & Hanson, P. 1996. Encyrtidae (Hymenoptera: Chalcidoidea) of Costa Rica: the genera and species associated with jumping plant-lice (Homoptera: Psyllodea). *Bull. Mus. natur. Hist. Lond. (Entomol.)*, **65**(2): 105-164.
- Trjapitzin, V.A. & Ruiz Cancino, E. 1995. Annotated check-list of encyrtids (Hymenoptera: Chalcidoidea: Encyrtidae) of Mexico. *Folia entomol. Mex.*, **94**: 7-32.
- Trjapitzin, V.A. & Ruiz Cancino, E. 2000. Encirtidos (Hymenoptera: Encyrtidae) de importancia agrícola en México. *Ser. Publ. Cient. CIDAFF-UAT*, **2**: 1-162. Cd. Victoria, Tamaulipas.

Received 19 August 2002