

Egg parasitoids of *Taosa* spp. (Hemiptera: Dictyopharidae) in Formosa, Argentina, with descriptions of two new species

TRIAPITSYN, Serguei V.* and M. Cristina HERNÁNDEZ**

*Entomology Research Museum, Department of Entomology, University of California, Riverside, California, 92521, USA; e-mail: serguei.triapitsyn@ucr.edu

**USDA-ARS South American Biological Control Laboratory, General Simón Bolívar 1559 (B1686), Hurlingham, Buenos Aires, Argentina; e-mail: crisher@speedy.com.ar

Parasitoides oófagos de *Taosa* spp. (Hemiptera: Dictyopharidae) en Formosa, Argentina, y descripción de dos nuevas especies

■ **RESUMEN.** Se revisaron los parasitoides oófagos (Hymenoptera: Eulophidae y Platygasteridae) de *Taosa* (*Cuernavaca*) *longula* Remes Lenicov (Hemiptera: Dictyopharidae) y se presenta una clave para su identificación. Este dictiofárido se alimenta de camalote, *Eichhornia crassipes* (Martius) Solms-Laubach, y fue colectado en Formosa, Argentina, donde algunos de sus huevos estaban parasitados. Se describen dos especies nuevas: *Aprostocetus* (*Ootetrastichus*) *taosae* Triapitsyn, sp. nov. (Eulophidae: Tetrastichinae) y *Telenomus formosanus* Triapitsyn, sp. nov. (Platygasteridae: Telenominae). La última especie, que pertenece al grupo *crassiclava* de especies de *Telenomus* Haliday, también ataca los huevos de *Taosa* sp. sobre *Pontederia subovata* (Seubert) Lowden. Estos son los primeros parasitoides oófagos registrados para el género *Taosa* Distant.

PALABRAS CLAVE. Eulophidae. *Aprostocetus* (*Ootetrastichus*). Platygasteridae. *Telenomus*.

■ **ABSTRACT.** Egg parasitoids (Hymenoptera: Eulophidae and Platygasteridae) of *Taosa* (*Cuernavaca*) *longula* Remes Lenicov (Hemiptera: Dictyopharidae) are reviewed and keyed. This planthopper feeds on water hyacinth, *Eichhornia crassipes* (Martius) Solms-Laubach, and was collected in Formosa, Argentina, where some of its eggs turned out to be parasitized. Two new species are described: *Aprostocetus* (*Ootetrastichus*) *taosae* Triapitsyn, sp. nov. (Eulophidae: Tetrastichinae) and *Telenomus formosanus* Triapitsyn, sp. nov. (Platygasteridae: Telenominae). The latter species, which belongs to the *crassiclava* species group of *Telenomus* Haliday, also attacks eggs of *Taosa* sp. on *Pontederia subovata* (Seubert) Lowden. These are first records of egg parasitoids of the genus *Taosa* Distant.

KEY WORDS. Eulophidae. *Aprostocetus* (*Ootetrastichus*). Platygasteridae. *Telenomus*.

INTRODUCTION

The recently described dictyopharid planthopper *Taosa (Cuernavaca) longula* Remes Lenicov (Hemiptera: Dictyopharidae) is associated with aquatic plants of the family Pontederiaceae in northern Argentina and Peru (Remes Lenicov & Hernández, 2010). Previously misidentified in Argentina as *T. inexacta* (Walker), it is considered a candidate for biocontrol of water hyacinth, *Eichhornia crassipes* (Martius) Solms-Laubach, an invasive aquatic weed that has been challenging its control practitioners all over the world. However, difficulties in rearing of *T. (C.) longula* under laboratory conditions impede its potential as a candidate biological control agent; attempts to find an effective rearing method are underway. In the course of the studies on this planthopper at the USDA-ARS South American Biological Control Laboratory (SABCL), two species of its egg parasitoids from two families of Hymenoptera (Eulophidae and Platygasteridae) were discovered in Formosa province, Argentina, and these are keyed, reviewed, described, and diagnosed herein (both turned out to be previously undescribed taxa). Prior to this study, egg parasitoids of the genus *Taosa* Distant were unknown; in fact, we could not find any information on the known egg parasitoids of Dictyopharidae in the scientific literature available to us.

MATERIAL AND METHODS

Most specimens were collected by M. Cristina Hernández in the laboratory by incubating petioles of water hyacinth infested with eggs of *T. (C.) longula* (collected in the field by G. J. Cabrera) in plastic containers with caps and also wet toilet paper on the bottom.

Terms for morphological features follow Gibson (1997); we also use the abbreviation F for an antennal flagellar segment (not counting the anelli, when present). Unless indicated otherwise, measurements are given in micrometers (μm) as length or, where appropriate (e.g. for the wings), as length:width ratios.

Abbreviations for depositories of specimens are as follows: BMNH, The Natural History Museum, London, England, UK; CNCI, Canadian National Collection of Insects, Ottawa, Ontario, Canada; MLPA, Museo de La Plata, La Plata, Buenos Aires, Argentina; OSUC, C. A. Triplehorn Insect Collection, Museum of Biological Diversity, The Ohio State University, Columbus, Ohio, USA; UCRC, Entomology Research Museum, University of California, Riverside, California, USA; USNM, National Museum of Natural History, Washington, District of Columbia, USA.

RESULTS

Taxonomy

Key to egg parasitoids of *Taosa (Cuernavaca) longula* in Argentina

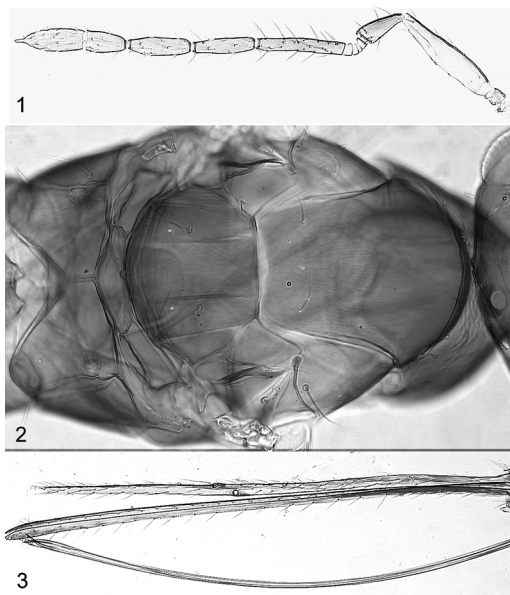
- 1 Antenna (excluding 4 anelli) 7-segmented (Fig. 1) female *Aprostocetus (Ootetrastichus) taosae* Triapitsyn, sp. nov.
 - Antenna 11- or 12-segmented (anelli absent) (*Telenomus formosanus* Triapitsyn, sp. nov.) 2
- 2 Antenna clavate, 11-segmented (Fig. 5) female *Telenomus formosanus* Triapitsyn, sp. nov.
 - Antenna filiform, 12-segmented (Fig. 8) male *Telenomus formosanus* Triapitsyn, sp. nov.

Eulophidae: Tetrastichinae

Aprostocetus (Ootetrastichus) taosae

Triapitsyn, sp. nov.
(Figs 1-4)

Type material. Holotype female [MLPA] on slide labeled: 1. "ARGENTINA: Formosa, near Palo Santo, 89 m, 25°40.857'S 59°24.469'W, 20.ii.2008, G. J. Cabrera. From eggs of *Taosa* sp. [later described as *Taosa (Cuernavaca) longula* Remes Lenicov (Remes Lenicov & Hernández, 2010)] on



Figs. 1-3. *Aprostocetus (Ootetrastichus) taosae* sp. nov., female (holotype): 1, antenna; 2, mesosoma; 3, apical parts of gaster and ovipositor.

water hyacinth petioles. Mounted at UCR/ERM by V. V. Berezovskiy 2009 in Canada balsam. MLPA"; 2. "Parasitoids collected in the laboratory by M. Cristina Hernández". Paratypes: ARGENTINA: Formosa: Herradura, "Laguna del Vivero" (an unnamed old meander of Río Paraguay near a nursery), 26°29'27"S 58°18'17"W, 61 m, 18.ii.2008, G. J. Cabrera (emerged in the laboratory from petioles of water hyacinth infested with eggs of *Megamelus* sp. (Delphacidae) and *T. (C.) longula*, parasitoids collected by M. C. Hernández) [2 females on points, MLPA, UCRC, and 1 female on slide, UCRC]. Near Palo Santo, 25°40.857'S 59°24.469'W, 89 m, 20.ii.2008, G. J. Cabrera (from eggs of *T. (C.) longula* on water hyacinth petioles, parasitoids collected in the laboratory by M. C. Hernández) [6 females on points, MLPA (2), UCRC (3), USNM (1), and 1 female on slide, UCRC].

Additional material examined. ARGENTINA, Misiones, Parque Nacional Iguazú, 25°42'12.5"S 54°25'30.9"W, 196 m, 18.ii.2009, S.V. Triapitsyn, D.A. Aquino, A.V. Ossipov (total sweeping near a campground) [1 female on point, UCRC].

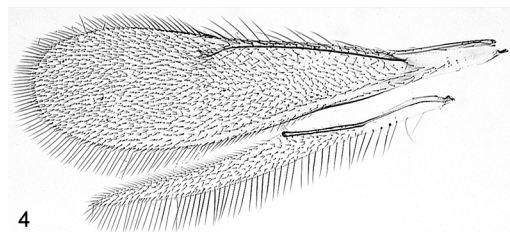


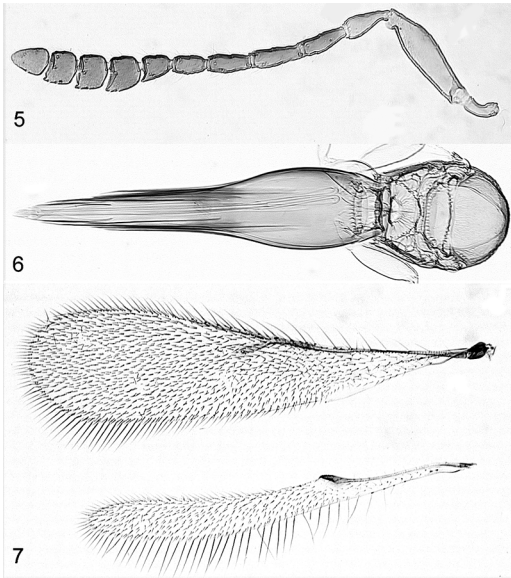
Fig. 4. *Aprostocetus (Ootetrastichus) taosae* sp. nov., female (holotype): pair of wings.

Description. Female (holotype and paratypes). Body length 2320-3400 μ m (dry-mounted paratypes). Head mostly yellowish or light brown except interocellar area and parts of occiput brown, eyes and ocelli dirty pink; pronotum brown to dark brown, rest of mesonotum greenish-bluish with bright metallic sheen, mesopleura mostly shining brown with some greenish tinge; basal gastral segment mostly yellow, remainder of gaster mostly brown; scape mostly light brown, remainder of antennal segments brown except anelli a little lighter; legs yellowish brown except most of metacoxa shining brown and all apical tarsomeres brown.

Antenna (Fig. 1) with scape minus short radicle 4.5-4.8x as long as wide, faintly longitudinally striate; funicle (excluding 4 anelli, second anellus very short) 3-segmented, F1 the longest funicle segment, much longer than pedicel, F2 about as long as F3 but slightly narrower; clava 2-segmented, apical claval segment (F5) with a spicula and 1.7-1.8x length of basal claval segment (F4); flagellar segments with long hairs and each with several hair-like longitudinal sensilla.

Mesosoma (Fig. 2) with pronotum entire, with conspicuous sculpture; mesoscutum and scutellum faintly longitudinally striate, midlobe of mesoscutum with 1 pair of setae, scutellum with 2 pairs of setae, scutellar placoid sensilla closer to posterior margin of scutellum than to its anterior margin. Axilla, metanotum, and propodeum with inconspicuous sculpture, almost smooth. Dorsellum narrow; propodeum divided mediolongitudinally.

Wings (Fig. 4). Forewing 3.8-3.9x as long



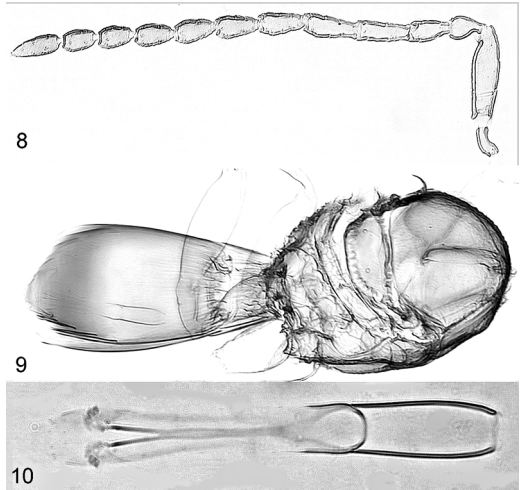
Figs. 5-7. *Telenomus formosanus* sp. nov., female: 5, antenna (paratype); 6, mesosoma and metasoma (holotype); 7, pair of wings (paratype).

as wide; venation extending to about 0.6x length of wing, disc almost hyaline except infumate behind base of marginal vein, mostly bare behind base of submarginal vein and densely setose elsewhere; the longest marginal seta 0.26-0.32x greatest width of disc. Hind wing 11.7-13.2x as long as wide; disc hyaline, bare behind base of venation and densely setose elsewhere; the longest marginal seta 1.1-1.4x greatest width of disc.

Metasoma with petiole short, inconspicuous in dry-mounted specimens; gaster, particularly the apical gastral tergum, strongly elongate (Fig. 3), much longer than mesosoma. Ovipositor occupying entire length of gaster, at most a little exerted beyond gastral apex; ovipositor length:metatibia length ratio 4.0-4.7:1.

Measurements (µm) of the holotype. Body: 3800; head: 307; mesosoma: 627; petiole: 61; gaster: 2952; ovipositor: 3013. Antenna: scape plus radicle: 249; pedicel: 88; F1: 173; F2: 121; F3: 121; clava (F4 + F5): 215. Forewing: 1636:430; longest marginal seta: 118. Hind wing: 1304:108; longest marginal seta: 127.

Male. Unknown.



Figs. 8-10. *Telenomus formosanus* sp. nov., male (paratypes): 8, antenna; 9, mesosoma and metasoma; 10, genitalia.

Diagnosis. In addition to the characters mentioned in the key below, female of *A. (Ootetrastichus) taosae* sp. nov. differs from that of *A. (Ootetrastichus) riverplaticus* Triapitsyn, to which it is most similar, in having a notably longer F1 relative to length of the pedicel, and also narrower fore- and hind wings (3.8-3.9x and 11.7-13.2x as long as wide, respectively). In *A. (Ootetrastichus) riverplaticus*, these wings are 3.3-3.4x and 10.4-10.8x as long as wide, respectively (Triapitsyn *et al.*, 2010).

To facilitate identification of the Neotropical species of *A. (Ootetrastichus)*, an updated key is provided here to complement the previous, partial key by Triapitsyn *et al.* (2010).

Key to the described Neotropical species of *Aprostocetus (Ootetrastichus)* (females)

- 1 Ovipositor length:metatibia length ratio about 1.5:1 *A. (O.) infulatus* (De Santis)
- Ovipositor length:metatibia length ratio at least 1.8:1 2
- 2 Head mostly brown or dark brown with or without green metallic sheen 3
- Head mostly yellow and light brown 5

- 3 Gaster with two basal terga mostly yellow
*A. (O.) riverplaticus* Triapitsyn
 – Gaster with two basal terga brown4
- 4 Head and mesosoma with dark green
 metallic sheen
 *A. (O.) cupreus* (Ashmead)
 – Head and mesosoma with bright green
 metallic sheen
 *A. (O.) coxalis* (Howard)
- 5 Ovipositor length:metatibia length ratio
 4.0-4.7:1
 *A. (O.) taosae* Triapitsyn, sp. nov.
 – Ovipositor length:metatibia length ratio
 2.7-3.0:1
 *A. (O.) yerbamatei* Triapitsyn

two basal gastral terga brown and subapical ones with greenish tinge; apical gastral tergum only slightly elongate. *Aprostocetus (Ootetrastichus) coxalis* is somewhat similar to *A. (Ootetrastichus) cupreus* (Ashmead), described from Saint Vincent and the Grenadines (Ashmead, 1894a) and also known from Grenada (De Santis, 1979); the two species are separated in the key by some minor differences in the coloration but a further study is needed to determine their true identities, which should be based, along with the type material, on well-prepared, fresh specimens.

Platygastridae: Telenominae

Telenomus formosanus Triapitsyn, sp. nov.
 (Figs 5-10)

Etymology. The species name refers to the host genus.

Host. *Taosa (Cuernavaca) longula* Remes Lenicov.

Comments. Although some authors recently regarded *Ootetrastichus* as a valid genus separate from *Aprostocetus* (Kostjukov, 2004; Yegorenkova *et al.*, 2007), we treat this new species in the subgenus *Aprostocetus (Ootetrastichus)* to ensure stability in this difficult group, until the status of *Ootetrastichus* is clarified based on a rigorous study of its species worldwide, and its relationships with other subgenera of *Aprostocetus* as well as with other genera of Tetrastichinae are better understood.

The holotype of *A. (Ootetrastichus) coxalis* (Howard) [BMNH], described from Grenada (Howard, 1897), was examined; it is mounted on a point and labeled: 1. "Mount Gay Est. (Leeward side) Grenada, W. I. H. H. Smith. 30", 2. "W. Indies. 99–331.", 3. "*Tetrastichus coxalis* n. sp. How", 4. [red-bordered circle] "Holo-type", 4. "B.M. TYPE HYM 5.3588 *coxalis*". The holotype is complete but in a rather poor condition (the head is collapsed), with one antenna apparently detached from the head and mostly immersed in glue. Body length about 1.3 mm; head and mesosoma with bright green metallic sheen, flagellum brown, legs yellow except metacoxa brown,

Type material. Holotype female [MLPA] on slide labeled: 1. "ARGENTINA: Formosa, Laguna Almirón near Fortín Sargento Primero Leyes, 110 m, 24°32.190'S 59°23.666'W, 17.ii.2005, G. J. Cabrera, J. Sacco. From eggs of *Taosa* sp. on *Pontederia subovata*. Mounted at UCR/ERM by V. V. Berezovskiy 2009 in Canada balsam. MLPA"; 2. "Parasitoids collected in the laboratory by M. Cristina Hernández". Paratypes: ARGENTINA, Formosa: Herradura, "Laguna del Vivero" (an unnamed old meander of Río Paraguay near a nursery), 26°29'27"S 58°18'17"W, 61 m: 18.ii.2008, G. J. Cabrera (from eggs of *T. (C.) longula* on water hyacinth, parasitoids collected in the laboratory by M. C. Hernández) [4 females, 4 males on points, MLPA, UCRC (equally divided), and 1 female, 1 male on slides, UCRC]; 18.ii.2008, G. J. Cabrera (emerged in the laboratory from petioles of water hyacinth infested with eggs of *Megamelus* sp. (Delphacidae) and *T. (C.) longula*, parasitoids collected by M. C. Hernández) [1 female on point and 1 female on slide, UCRC]. Laguna Almirón near Fortín Sargento Primero Leyes, 24°32.190'S 59°23.666'W, 110 m, 17.ii.2005, G. J. Cabrera, J. Sacco (from eggs of *Taosa* sp. on *Pontederia subovata* (Seubert) Lowden, parasitoids collected in the laboratory by M. C. Hernández) [15 females on points, CNCI

(2), MLPA (4), OSUC (2), UCRC (5), USNM (2), 14 males on points, CNCI (2), MLPA (4), OSUC (2), UCRC (4), USNM (2), and 1 female, 2 males on slides, UCRC]. Near Palo Santo, 25°40.857'S 59°24.469'W, 89 m, 20.ii.2008, G. J. Cabrera (from eggs of *T. (C.) longula* on water hyacinth petioles, parasitoids collected in the laboratory by M. C. Hernández) [1 female, 1 male on points and 1 female, 2 males on slides, UCRC].

Description. Female (holotype and paratypes). Body length 1250–1750 μm . Head and mesosoma dark brown; flagellum and gaster brown to dark brown; scape, pedicel, and legs light brown.

Face mostly smooth, rest of head with weak sculpture.

Antenna (Fig. 5) 11-segmented, with scape minus radicle 3.4–3.7x as long as wide and almost smooth; F1 as long as pedicel, F2 the longest flagellar segment; clava apparently 5-segmented (F5 longer than wide, a little wider than F1–F4 and notably narrower than F6–F8), F6 the broadest flagellar segment.

Mesosoma (Fig. 6) with mesoscutum reticulate and densely setose (setae short, weak); scutellum mostly smooth.

Wings (Fig. 7). Forewing 3.8–3.9x as long as wide; disc slightly infumate and densely setose; the longest marginal seta 0.32–0.34x greatest width of disc. Hind wing 9.6–10.0x as long as wide; disc slightly infumate and densely setose; the longest marginal seta 1.1–1.2x greatest width of disc.

Legs. Coxae and femora with weak, inconspicuous sculpture; tibiae almost smooth.

Metasoma (Fig. 6) much longer than mesosoma. Gaster strongly elongate, with second tergite constituting most of its length. Ovipositor occupying 0.7–0.9x length of gaster, usually not exerted beyond gastral apex but sometimes a little or, occasionally, notably exerted (by at most 0.25x own length); ovipositor length: metatibia length ratio 2.5–2.7:1.

Measurements (μm) of the holotype. Body: 1325 (taken from dry-mounted specimen); head: 165 (taken from dry-

mounted specimen); mesosoma: 357; gaster: 977; ovipositor: 824. Antenna: scape minus radicle: 155; pedicel: 67; F1: 67; F2: 72; F3: 61; F4: 51; F5: 42; F6: 52; F7: 44; F8: 45; F9: 54. Forewing: 935:237; longest marginal seta: 81. Hind wing: 830:83; longest marginal seta: 91.

Male. Similar to female except for the normal sexually dimorphic features such as antenna and genitalia, and the following. Body length 890–1170 μm . Head and mesosoma dark brown, gaster brown to dark brown; scape, pedicel, usually F1–F3 (or sometimes also F4), and legs light brown; remainder of flagellum brown. Antenna (Fig. 8) filiform, with scape minus radicle 3.3–3.7x as long as wide; flagellum 10-segmented, with F2 the longest flagellomere. Wings usually somewhat stronger infumate than in female; forewing 3.7–3.9x as long as wide, the longest marginal seta 0.34–0.38x greatest width of disc; hind wing 9.1–9.9x as long as wide. Metasoma (Fig. 9) much shorter than in female, just a little longer than mesosoma; genitalia (Fig. 10) occupying 0.4–0.5x length of gaster.

Diagnosis. *Telenomus formosanus* sp. nov. belongs to the *crassiclava* species group of *Telenomus* Haliday as defined by Johnson (1984). Species of this group have not been previously recorded from Argentina; the already described Neotropical species of the *crassiclava* group include *T. crassiclava* Nixon (Saint Lucia), *T. impressus* Ashmead (Brazil, Saint Lucia, and Saint Vincent and the Grenadines), and *T. taurus* Johnson (Chiapas, Mexico) (Ashmead, 1894b; Nixon, 1940; Johnson, 1980, 1984; Margaría *et al.*, 2009). The new species has the malar sulcus typical of *Telenomus* species but not the type found in the similar genus *Phanuromyia* Dodd whose members, like species of the *crassiclava* group of *Telenomus*, are also known to parasitize eggs of Fulgoromorpha (Johnson & Musetti, 2003). Female of *T. formosanus* differs from females of the previously described Neotropical species of the *crassiclava* group of *Telenomus* by the strongly elongate gaster, as indicated in the key below.

Key to the described Neotropical species of the *crassiclava* species group of *Telenomus* (females)

- 1 F5 longer than wide (Fig. 5); gaster strongly elongate (Fig. 6), notably longer than combined length of head and mesosoma*T. formosanus* Triapitsyn, sp. nov.
- F5 at least a little wider than long; gaster not as above, at most about as long as combined length of head and mesosoma2
- 2 F5 strongly transverse, much wider than long*T. crassiclava* Nixon
- F5 not strongly transverse, just a little wider than long3
- 3 Head with frontal horns; F4 strongly transverse, much wider than long; ovipositor notably exerted beyond apex of gaster*T. taurus* Johnson
- Head without frontal horns; F4 not as strongly transverse, just a little wider than long; ovipositor not exerted beyond apex of gaster*T. impressus* Ashmead

Etymology. The species name refers to the province in Argentina where it occurs.

Hosts. *Taosa* (*Cuernavaca*) *longula* Remes Lenicov and *Taosa* sp., which is an undescribed species different from *T. (C.) longula* (A. M. Marino de Remes Lenicov, personal communication).

ACKNOWLEDGEMENTS

We thank Guillermo (Willie) J. Cabrera Walsh (SABCL) for collecting the samples in Formosa, Vladimir V. Berezovskiy (UCRC) for mounting the specimens, Norman F. Johnson (OSUC) for valuable advice and identification of *Telenomus* sp. as an undescribed taxon, and Suzanne Ryder (BMNH) for the loan of the holotype of *A. (Ootetrastichus) coxalis*.

LITERATURE CITED

1. ASHMEAD, W. H. 1894a. Report on the parasitic Cynipidae, part of the Braconidae, the Ichneumonidae, the Proctotrypidae, and part of the Chalcididae. Part II, pp. 108-188. In: Riley, C. V., W. H. Ashmead & L. O. Howard. Report upon the parasitic Hymenoptera of the island of St. Vincent. *J. Linn. Soc. Zool.* 25: 56-254.
2. ASHMEAD, W. H. 1894b. Report on the parasitic Cynipidae, part of the Braconidae, the Ichneumonidae, the Proctotrypidae, and part of the Chalcididae. Part III, pp. 188-254. In: Riley, C. V., W. H. Ashmead & L. O. Howard. Report upon the parasitic Hymenoptera of the island of St. Vincent. *J. Linn. Soc. Zool.* 25: 56-254.
3. DE SANTIS, L. 1979. *Catálogo de los himenópteros calcidoideos de América al sur de los Estados Unidos*. Publicación especial, Comisión de Investigaciones Científicas de la provincia de Buenos Aires, La Plata, 488 pp.
4. GIBSON, G. A. P. 1997. Chapter 2. Morphology and terminology. In: Gibson, G. A. P., J. T. Huber & J. B. Woolley (eds), *Annotated keys to the genera of Nearctic Chalcidoidea (Hymenoptera)*, NRC Research Press, Ottawa, Ontario, Canada, pp. 16-44.
5. HOWARD, L. O. 1897. On the Chalcididae of the Island of Grenada, BWI. *J. Linn. Soc. Zool.* 26: 129-178.
6. JOHNSON, N. F. 1980. Descriptions of two unusual new species of Neotropical *Telenomus* (Hymenoptera: Scelionidae). *J. Kansas Entomol. Soc.* 53 (4): 781-786.
7. JOHNSON, N. F. 1984. Systematics of Nearctic *Telenomus*: classification and revisions of the *podisi* and *phymatae* species groups (Hymenoptera: Scelionidae). *Bull. Ohio Biol. Surv. (n. ser.)* 6 (3): i-x + 1-113.
8. JOHNSON, N. F. & L. MUSETTI. 2003. Redefinition of the genus *Phanuromyia* Dodd (Hymenoptera: Scelionidae). *J. New York Entomol. Soc.* 111 (2-3): 138-144.
9. KOSTJUKOV, V. V. 2004. [On the status of the subgenera of the genus *Aprostocetus* Westwood, 1833 (Hymenoptera, Eulophidae, Tetrastichinae) with description of *Stepanovia*, gen.n.] In: Nadikiti, V. D., V. Y. Ismailova, G. I. Levashova & E. S. Sugonjaev (eds), [Biological protection of plants is the basis of stabilization of agroecosystems], Proc. Intern. Sci.-Pract. Conf., Krasnodar, 2004, 1, pp. 36-44. [In Russian.]
10. MARGARÍA, C. B., M. S. LOIÁCONO & A. A. LANTERI. 2009. New geographic and host records for scelionid wasps (Hymenoptera: Scelionidae) parasitoids of insect pests in South America. *Zootaxa* 2314: 41-49.
11. NIXON, G. E. J. 1940. New species of Proctotrupeoidea. *Ann. Mag. Nat. Hist. (ser. 11)* 6: 497-512.
12. REMES LENICOV, A. M. DE & M. C. HERNÁNDEZ. 2010. A new species of *Taosa* (Hemiptera: Dictyopharidae) from South America associated with water hyacinth. *Ann. Entomol. Soc. Am.* 103 (3): 332-340.
13. TRIAPITSYN, S. V., A. J. SOSA & M. C. HERNÁNDEZ. 2010. Egg parasitoids of *Megamelus* spp. (Hemiptera: Delphacidae) in Argentina. *Rev. Soc. Entomol. Argent.* 69 (3-4): 171-188.
14. YEGORENKOVA, E. N., Z. A. YEFREMOVA & V. V. KOSTJUKOV. 2007. Contributions to the knowledge of tetrastichine wasps (Hymenoptera, Eulophidae, Tetrastichinae) of the Middle Volga Region. *Entomol. Rev.* 87 (9): 1180-1192.

