

NEW RECORDS OF APHIDIINAE (HYMENOPTERA: BRACONIDAE) FROM SERBIA AND MONTENEGRO

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Abstract

During the last 20 years aphid parasitoids have been well-investigated in Serbia and Montenegro. That has resulted in the recording of more than half of the known European species and in revealing many new parasitoid species for science. Here we present a new record of Aphidiinae in Serbia and Montenegro which includes four new species (*Lysiphlebus alpinus*, *Aphidius colemani*, *Pseudopraon mindariphagum*, *Trioxys auctus*); one new genus (*Pseudopraon*) and two new parasitoid - aphid host - plant associations (*Typha latifolia* / *Schizaphis scirpi* / *Trioxys auctus* and *Typha latifolia* / *Rhopalosiphum nymphaeae* / *Trioxys auctus*).

KEY WORDS: Aphidiinae, Serbia, Montenegro, new records.

Introduction

Aphidiinae wasps are solitary endoparasitoids of aphids with a great impact on pest aphid control (STARÝ, 1970; HAGVAR & HOFVANG, 1991). Serbia and Montenegro are one of the most extensively researched European areas with 113 species recorded – 96 in Serbia and 48 in Montenegro (KAVALLIERATOS *et al.*, 2004; TOMANOVIĆ & KAVALLIERATOS, 2004; TOMANOVIĆ *et al.*, 2005; TOMANOVIĆ *et al.*, 2006; TOMANOVIĆ *et al.*, 2007a; TOMANOVIĆ *et al.*, 2007b; TOMANOVIĆ *et al.*, 2009a; TOMANOVIĆ *et al.*, 2009b; PETROVIĆ *et al.*, 2009), which is more than half of the European species (206 species in Europe according to Fauna Europea – VAN ACHTERBERG, 2005).

Here we present an additional contribution to the knowledge of the Aphidiinae of Serbia and Montenegro, including several new records of genera and species as well as host aphid associations.

Material and methods

Plant samples bearing both live and mummified aphids were collected from a few localities in Serbia and Montenegro over a period of 13 years. Live aphids were preserved in 90% ethanol and 75% lactic acid in a ratio of 2:1 (EASTOP & VAN EMDEN, 1972) for identification at a later date. The remaining aphids were maintained in the laboratory until parasitoid emergence. Mummies, each attached to a small leaf piece, were placed separately in small plastic boxes with a circular opening covered with muslin on the lid and put inside a growth cabinet (22.5 °C, relative humidity 65 %, 16L : 8D) (KAVALLIERATOS *et al.*, 2001). Slides were made in Canada balsam with dissected parasitoids specimens for later identification. The external structure of the emerged parasitoids was studied using a ZEISS Discovery V8 stereomicroscope. Female specimens were gold-coated with a sputter coater and examined using a Jeol JSM – 6460LV scanning electron microscope.

Abbreviations and symbols:

States: SER—Serbia, MNG—Montenegro

Legators: ŽT – Tomanović Željko; OP – Olivera Petrović-Obradović; SR – Sanja Radonjić; AP – Andjeljko Petrović; VG – Vesna Gagić; MJ – Marina Janković.

Results and Discussion

Review of new records from Serbia and Montenegro

Lysiphlebus alpinus Starý 1971

Figs. 1-3

Semiaphis dauci Fabricius: on *Daucus carota* (23♂, 73♀), Carska Bara, 02.07.1996, leg. OP (SRB); *Semiaphis* sp.: on *Daucus carota* (48♂, 77♀), Bački Monoštor, 16.07.1996, leg. OP (SRB); (25♂, 43♀) Carska Bara, 02.07.1996, leg. OP (SRB).

Aphidius colemani Viereck 1912

Figs. 4 and 5

Myzus persicae (Sulzer): on *Cucumis sativus* (1♂, 3♀), Zeta, 21.08.2007, leg. SR (MNG); on *Capsicum annum* (6♂, 15♀), Podgorica, 29.10.2007, leg. SR (MNG).

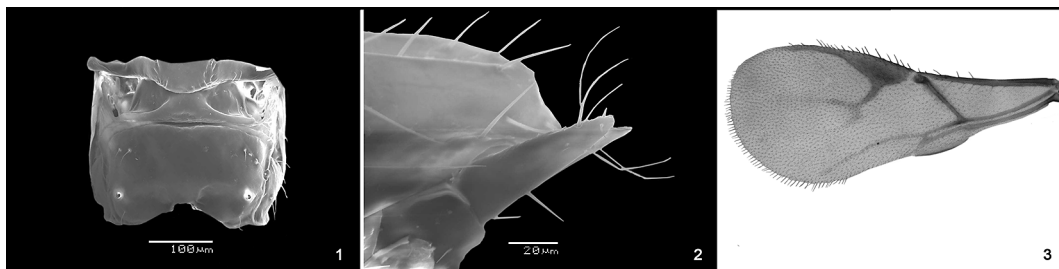
Pseudopraon mindariphagum Starý 1975

Mindarus abietinus Koch: on *Abies alba* (2♀), Hridsko jezero, 20.07.2006, leg. AP and ŽT (SRB).

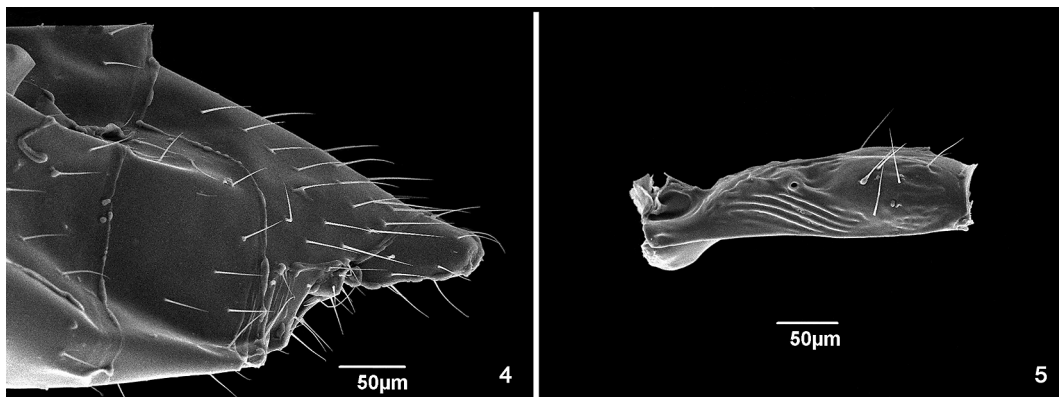
Trioxys auctus (Haliday 1833)

Fig. 6

Rhoplosiphum nymphaeae Linnaeus: on *Typha latifolia* (21♂, 10♀), Padinska Skela, 14.05.2007, leg. ŽT and VG (SRB); *Schizaphis scirpi* Passerini on *Typha angustifolia* (3♀), Padinska skela, 03.06.2008, leg. MJ (SRB).



Figures 1-3. *L. alpinus*: propodeum (1), ovipositor sheath, lateral aspect (2) and forewing (3).



Figures 4 & 5. *A. colemani*: ovipositor sheath, lateral aspect (4) and petiole, lateral aspect (5).

Lysiphlebus alpinus has been described by STARÝ (1970) as a species restricted to Alpine areas from mountain and subalpine zones. It was reared from a *Semiaphis* sp. / *Lonicera coerulea* association. However, after we carefully checked material reared from the *Semiaphis dauci* / *Daucus carota* association we confirmed the presence of this species in lowland areas. It seems that *L. alpinus*, although originally described as from the Alps, has a much broader distribution following their *Semiaphis* aphid hosts.

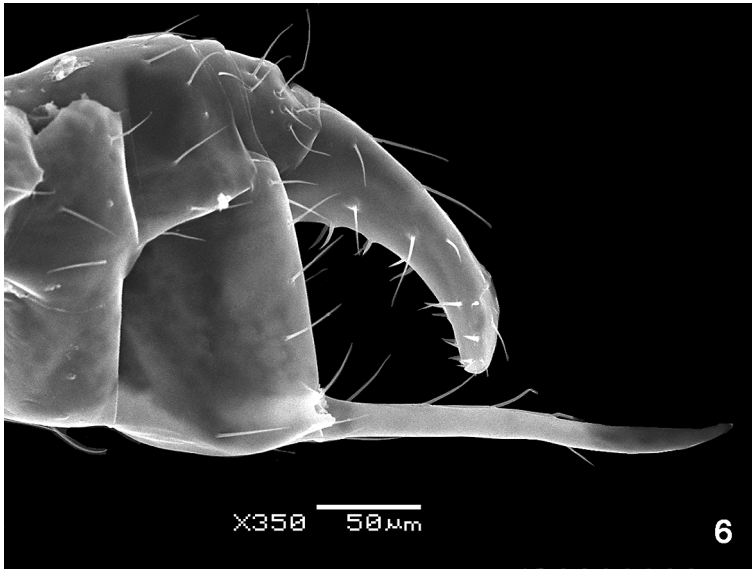


Figure 6. *T. auctus*, ovipositor sheath, lateral aspect.

Aphidius colemani is restricted to the Mediterranean area of Europe, and it is also considered native in wide areas of tropical and subtropical Africa and Asia; in other tropical regions it is probably exotic (South America and southeast Asia through Australia), and it was intentionally introduced into some parts of continental Europe (only in indoor conditions), since this species is commercially used as a biocontrol agent against pest aphids in glasshouses.

Pseudopraon is a monotypic genus and the species *Pseudopraon mindariphagum* is rarely collected in Europe [the only existing data is for Czech Republic and Slovakia (VAN ACHTERBERG, 2005)]; nonetheless, we supposed that this species is common in the *Abies alba* / *Mindarus abietinus* association on mountains in southern parts of Europe, and in the mountains and the lowlands in central and northern parts of Europe. Except in Europe *P. mindariphagum* is also known from Baja California, Mexico (STARÝ & REMAUDIERE, 1982). *M. abietinus* is distributed all over N America and also occurrence of *P. mindariphagum* there is probable.

Trioxys auctus was reported as parasitoid of *Rhopalosiphum padi* (L.) on cereals in several European countries (STARÝ, 1981, 2006), as well as parasitoid of *Rhopalosiphum insertum* (Walker) from Italy (STARÝ, 1981). *Schizaphis scirpi* and *Rhopalosiphum nymphaeae* are reported for the first time as aphid hosts for *T. auctus*.

These new data will heighten the knowledge of the aphidiines of Serbia and Montenegro. They will also bring new insights into the distribution, biogeography and biology of newly recorded species.

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НОВИ НАЛАЗИ ПАРАЗИТСКИХ ОСА (HYMENOPTERA: BRACONIDAE) У СРБИЈИ И ЦРНОЈ ГОРИ

АНЂЕЉКО ПЕТРОВИЋ, ЖЕЉКО ТОМАНОВИЋ, ВЛАДИМИР ЖИКИЋ,
НИКОЛАС Г. КАВАЛИЕРАТОС И ПЕТР СТАРИ

Извод

Паразитоиди биљних вашију на простору Србије и Црно Горе су добро истражени, нарочито у последњих 20 година. До сада је забележено присуство више од половине европских врста и откривен већи број нових врста за науку. У овом раду представљамо нове налазе паразитских оса који укључују четири нове врсте (*Lysiphlebus alpinus*, *Aphidius colemani*, *Pseudopraon mindariphagum*, *Trioxys auctus*), један нови род (*Pseudopraon*) за фауну Србије и Црне Горе. Асоцијације *Typha latifolia* / *Schizaphis scirpi* / *Trioxys auctus* и *Typha latifolia* / *Rhopalosiphum nymphaeae* / *Trioxys auctus* су нове за науку.

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