

First records of four aphids (Hemiptera: Aphidoidea) from Macedonia

DÁVID MURÁNYI

Department of Zoology, Plant Protection Institute, Centre for Agricultural Research, Hungarian Academy of Sciences, Herman Ottó u. 15, H-1022 Budapest, Hungary, and Department of Zoology, Hungarian Natural History Museum, Baross u. 13, H-1088 Budapest, Hungary. E-mails: muranyi.david@agrar.mta.hu, d.muranyi@gmail.com, muranyi.david@nhmus.hu

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Abstract

Four aphid species *Anoecia* (*Anoecia*) *corni* (Fabricius, 1775), *Amphorophora* (*Amphorophora*) *ampullata* Buckton, 1876, *Pterocomma italica* Barbagallo & Stroyan, 1978 and *Lachnus pallipes* (Hartig, 1841) are reported for the first time from the (FY) Republic of Macedonia. All represents the first species of their genus from the country, as well as the first species of the tribe Lachnini and the subfamily Anoeciinae. *Pterocomma italica* is new for the Balkan Peninsula. Distinctive morphological characters of the Macedonian specimens of the four species are illustrated.

Key words: Aphididae, FYROM, morphology, *Anoecia*, *Amphorophora*, *Pterocomma*, *Lachnus*.

Introduction

Aphids are well-known phloem feeders with about 5000 known species distributed mainly in the Northern Temperate, but also the Tropics, Southern Temperate and Frigid Zones (Blackman & Eastop 2018, Favret 2018). Knowledge on their faunistics are at rather different level in the European countries (Nieto Nafría et al. 2013, Ripka 2008, Wojciechowski et al. 2015, 2016). The Republic of Macedonia (FYROM) is one of the least explored, data practically limited to faunistic papers about the former Yugoslavia (Tanasijević & Eastop 1963, Eastop & Tanasijević 1968).

In October 2017, we took a short collecting trip to the Pelister, Plačkovica and Golešnica Mts of Macedonia (Fig. 1). Four of the aphids preserved during the trip proved to be new for the fauna. Herein I enumerate their Macedonian data, together with illustrations on their morphological characters.

Material and Methods

The specimens were collected by singling. They are prepared on slides mounted in Canada balsam, further specimens stored in 70% ethanol, and deposited in the Plant Protection Institute, Centre for Agricultural Research, Hungarian Academy of Sciences (PPI HAS, accession numbers of the specimens signed as AP).



Figure 1. Collecting sites in Macedonia: **1** – Pelister Mts, loc.2017/3; **2** – Plačkovica Mts, loc.2017/7–8 (altitudes above 500, 1000 and 2000 meters are shaded in different grey).

Photos were made by a Keyence LHX5000 digital microscope, drawings were made on the basis of digital images. Terminology follows Blackman & Eastop (2018).

Distribution, life cycle and host data refer to records available in Blackman & Eastop (2018), Dransfield & Brightwell (2018), Favret (2018), Gotlin Čuljak et al. (2012), Nieto Nafria et al. (2013) and Tsitsipis et al. (2007).

Results and discussion

Anoeciinae Tullgren, 1909

Anoecia (Anoecia) corni (Fabricius, 1775)

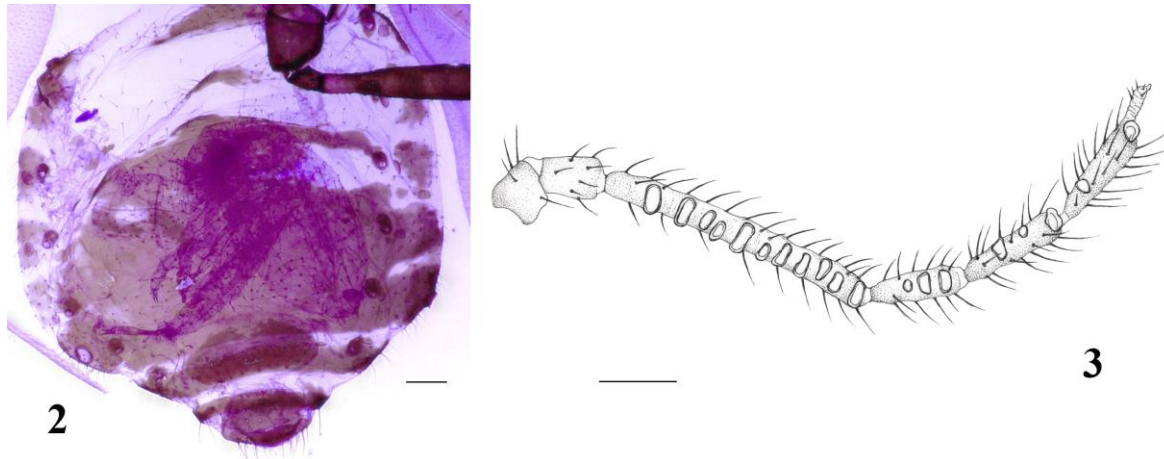
(Figs 2–3)

Material examined: Macedonia: Pelagonia region, Bitola municipality, Pelister Mts, Dva Groba, spring of Maloviška Stream, beaten from springside bush, loc.2017/3, 2060 m, N40°59.113' E21°10.100', 3.x.2017, leg. Péter Juhász, Tibor Kovács, Dávid Murányi: alate sexupara (AP 40, on slide).

Diagnosis: Alate Anoeciinae with distinct, round MTu on abdominal terga 1–7, and large, dark dorsal abdominal patch fused on segments 4–6; secondary rhinaria on antennal segments: III 11, IV 3, V 3, VI 1.

Distribution and ecology: A widespread Holarctic species, known also from Argentina. Reported from most of the Balkan countries but Albania, and herein from Macedonia for the first time. This is the first Anoeciinae species reported from the country.

Holocyclic and host alternating between *Cornus* and Poaceae, sexuparae returning to *Cornus* from early autumn. The Macedonian specimen was caught probably during migration back to the primary host, at a rather high altitude over 2000 meters.



Figures 2–3. Alate sexupara of *Anoecia (Anoecia) corni* (Fabricius, 1775) from Macedonia: 2 – abdomen; 3 – antenna. Scale bars 0.1 mm.

Aphidinae Latreille, 1802

***Amphorophora (Amphorophora) ampullata* Buckton, 1876**

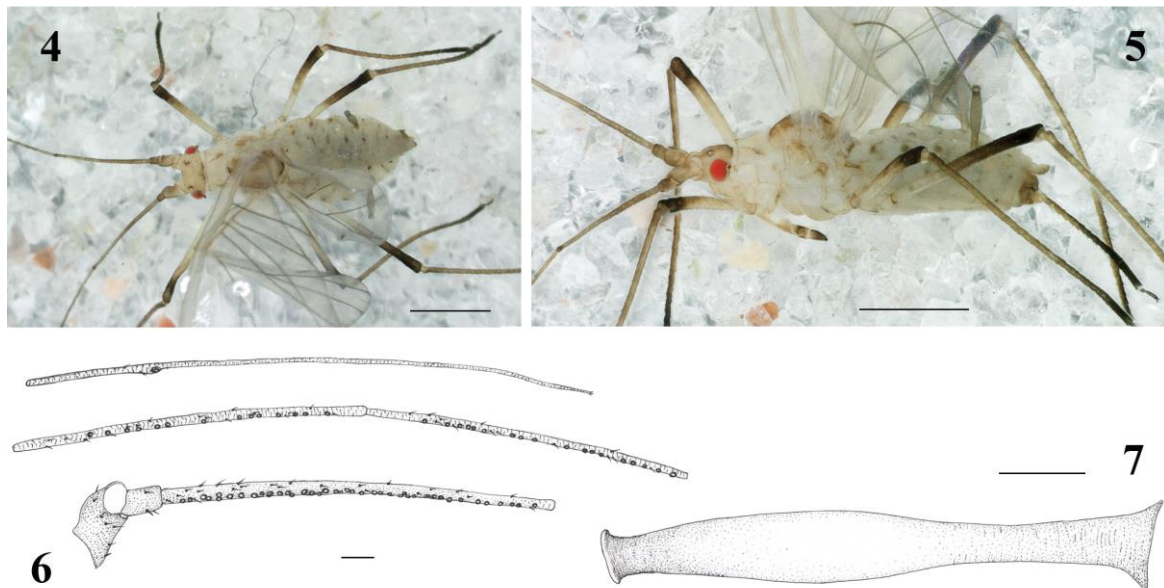
(Figs 4–7)

Material examined: Macedonia: Southeastern region, Radoviš municipality, Plačkovica Mts, brook in a beech forest beneath Beli Kamen resorts, beaten from littoral *Dryopteris sp.*, loc.2017/7, 1335 m, N41°44.67' E22°30.35', 5.x.2017, leg. Péter Juhász, Tibor Kovács, Dávid Murányi: viviparous alate female (AP 42, on slide).

Diagnosis: Alate, pale *Amphorophora* with femora scabrous on less than distal half; swollen portion of siphunculi about twice wider than dark proximal portion beneath flange, length $2.6 \times$ cauda; R IV+V $1.15 \times$ HT II and $0.35 \times$ antennal VI BASE, antennal PT/BASE 3.2; secondary rhinaria on antennal segments: III 46–49, IV 14, V 13–18.

Distribution and ecology: A widespread Holarctic species, in the Balkans it was known only from Montenegro and Serbia. This is the first species of the genus reported from Macedonia.

Holocyclic and monoecious on ferns but known from several species of ten fern genera. The single Macedonian specimen was caught in a wet deciduous forest, beaten from an unidentified *Dryopteris sp.*



Figures 4–7. Viviparous alate of *Amphorophora (Amphorophora) ampullata* Buckton, 1876 from Macedonia: 4 – dorsal habitus; 5 – lateral habitus; 6 – antennal segments VI, IV–V and III; 7 – siphunculi. Scale bars 1 mm for Figs. 4–5, 0.1 mm for Figs. 6–7.

***Pterocomma italica* Barbagallo & Stroyan, 1978**

(Figs 8–14)

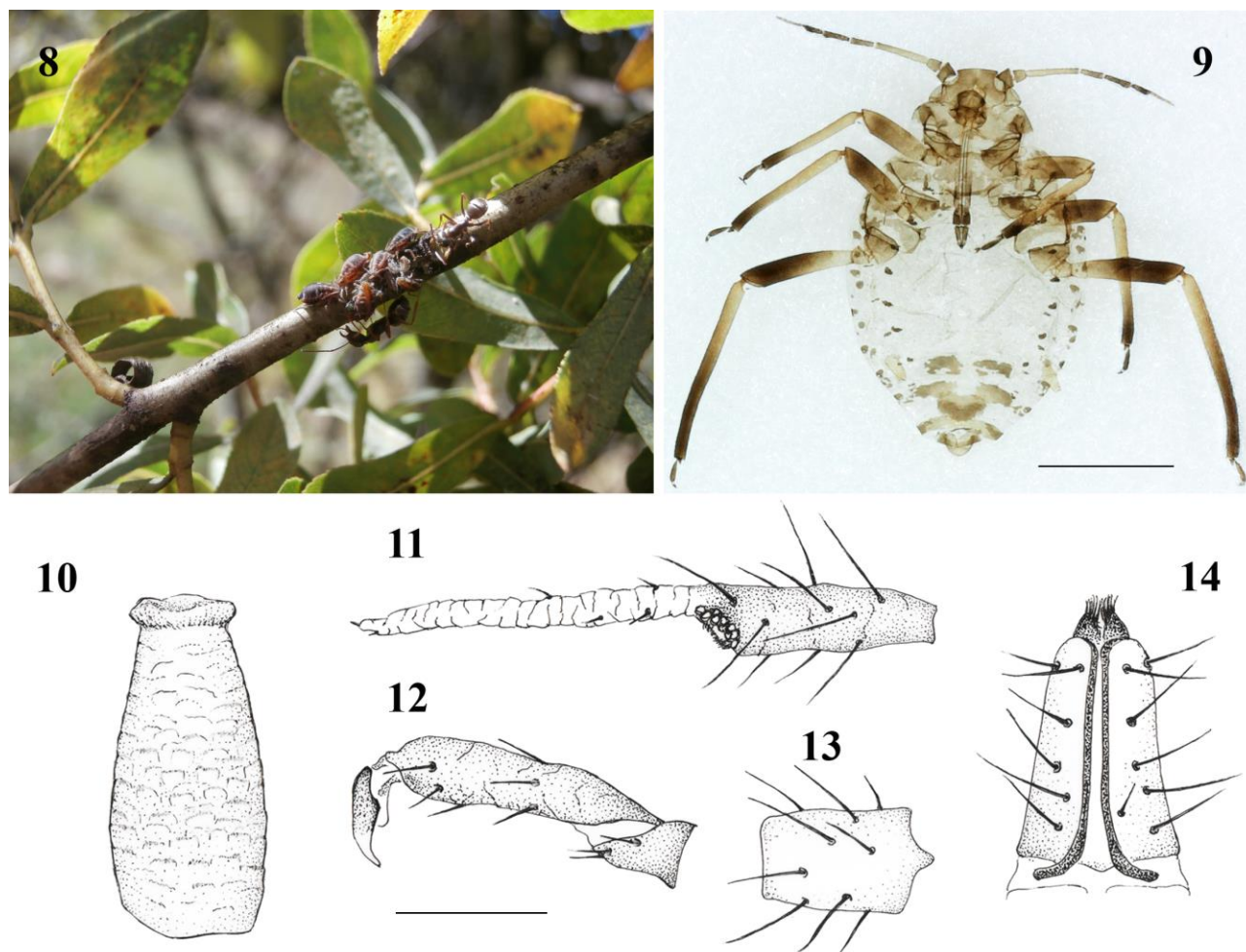
Material examined: Macedonia: Eastern region, Vinica municipality, Plačkovica Mts, valley of the Lumen (Lomija) Stream beneath Mt. Lisec, on small branches of *Salix sp.*, loc.2017/8, 1170 m, N41°45.858' E22°30.995', 5.x.2017, leg. Péter Juhász, Tibor Kovács, Dávid Murányi: viviparous aptera females and larvae (AP 36, 2 viviparous apterae on slide).

Diagnosis: Brown and dark brown colored *Pterocomma*; siphunculi pale and relatively small, bears distinct flange, imbricated with spicules but lack hairs, swollen around midlength to less than $1.3 \times$ basal width and twice longer than maximum width; ANT II with 9–12 hairs; antennal PT half as wide as BASE, PT with 1–4 hairs as long as its width while BASE with more than 10 hairs longer than its width, PT/BASE 1.4–1.7; R IV+V $0.95\text{--}1.05 \times$ HT II; antennal secondary rhinaria on antennal segments: III 0, IV 0, V 1.

Distribution and ecology: Known only from Italy and Switzerland, the present record is the first report from the Balkans and the first species of the genus found in Macedonia.

Life cycle unknown, the species was described from *Salix purpurea* L. The small colony in Macedonia was found on twigs of a broad-leaved *Salix sp.*, attended by ants and consisting of only viviparous apterae and a few medium-growth larvae.

Remarks: As it was mentioned both in the original description and in the Aphids on the World's Plant (Barbagallo & Stroyan 1978, Blackman & Eastop 2018), the species is very close to *P. jacksoni* Theobald, 1929, a rare European species that is also unknown from the Balkans. The Macedonian specimens are having some characters intermediate between the two species, but the shape, length and sculpture of the siphunculi, especially the presence of spicules shall refer on their identity as *P. italica*.



Figures 8–14. Viviparous aptera of *Pterocomma italica* Barbagallo & Stroyan, 1978 from Macedonia: **8** – colony on *Salix sp.*; **9** – ventral habitus on slide; **10** – siphunculi; **11** – antennal segment VI; **12** – hind tarsus; **13** – antennal segment II; **14** – combined rostral segments IV+V. Scale bars 1 mm for Fig. 9, 0.1 mm for Figs. 10–14, Fig. 8 not to scale.

Lachninae Herrich-Schaeffer in Koch 1854***Lachnus pallipes* (Hartig, 1841)**

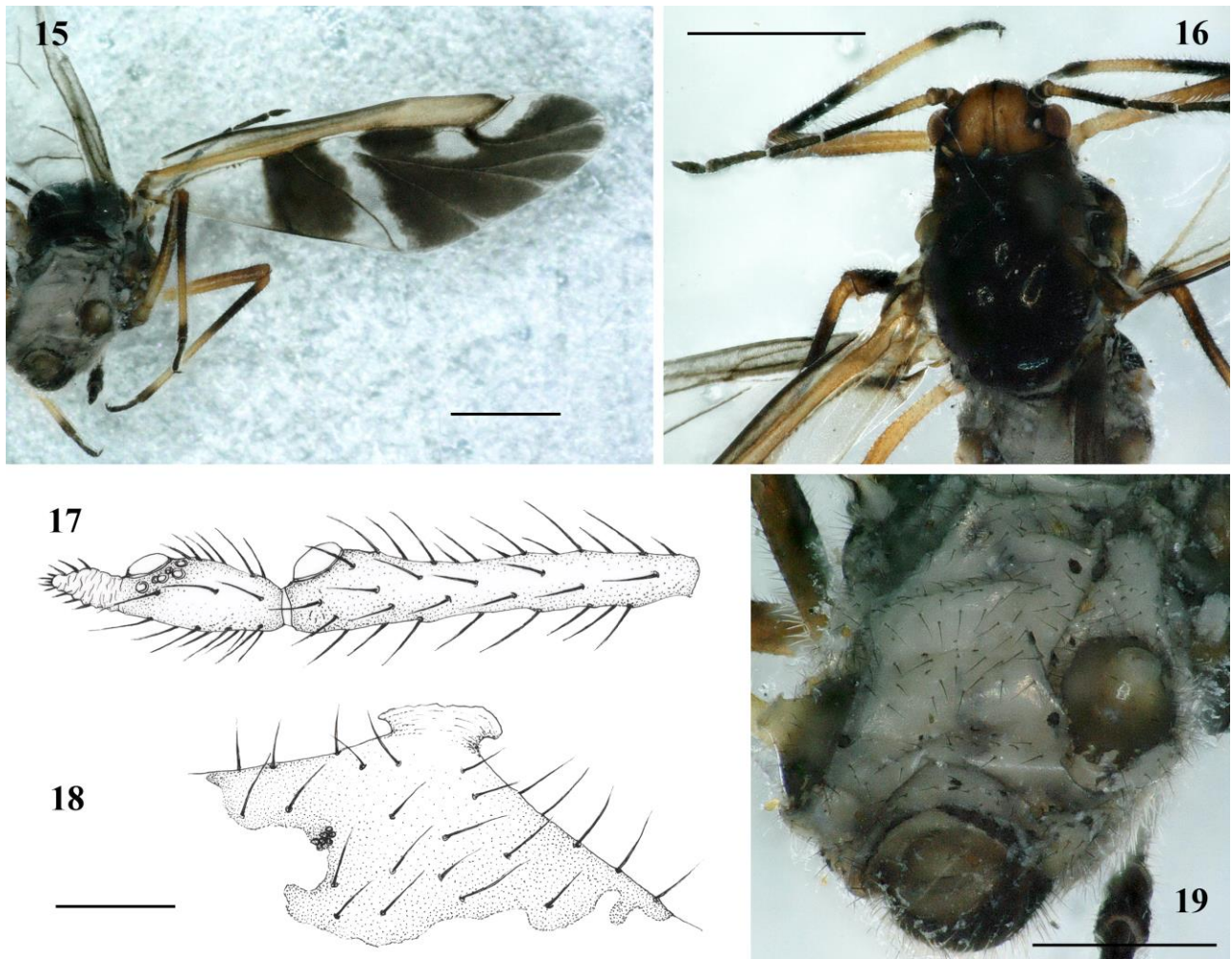
(Figs 15–19)

Material examined: Macedonia: Southeastern region, Radoviš municipality, Plačkovica Mts, brook in a beech forest beneath Beli Kamen resorts, beaten from littoral *Dryopteris* sp., loc.2017/7, 1335 m, N41°44.67' E22°30.35', 5.x.2017, leg. Péter Juhász, Tibor Kovács, Dávid Murányi: viviparous alate female (AP 41, on slide); Eastern region, Vinica municipality, Plačkovica Mts, valley of the Lumen (Lomija) Stream beneath Mt. Lisec, beaten from *Fagus sylvatica* L., loc.2017/8, 1170 m, N41°45.85' E22°30.95', 5.x.2017, leg. Péter Juhász, Tibor Kovács, Dávid Murányi: viviparous alate female (AP 35).

Diagnosis: Colorful *Lachnus*; wings with distinct pattern, slightly bent cubital veins and Rs cell clear only in the basal third, basal dark stripe wider than following clear stripe; antenna and legs with fine, very long hairs; siphunculi relatively small and pale but surrounded by relatively large sclerite; secondary rhinaria on antennal segments: III 8–10, IV 2, V 1.

Distribution and ecology: A widespread but uncommon European species, in the Balkans it was known only from Bulgaria and Greece. This is the first species of the tribe Lachnini Herrich-Schaeffer, 1854 reported from Macedonia.

Holocyclic and monoecious on *Quercus* and *Fagus*, usually on older branches and stem but may retreat on roots during summer. Both specimens were found solitary in old beech forest, the one beaten from ferns must be accidental migrant.



Figures 15–19. Viviparous alate of *Lachnus pallipes* (Hartig, 1841) from Macedonia: **15** – habitus with open wing; **16** – head and thorax, dorsal view; **17** – antennal segments V–VI; **18** – siphunculi; **19** – abdomen in oblique dorsal view. Scale bars 1 mm for Figs. 15–16, 0.5 mm for Fig. 19, 0.1 mm for Figs. 17–18.

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References

- Barbagallo, S. & Stroyan, H.L.G. (1978) A new species of *Pterocomma* Buckton from Italy (Homoptera, Aphidoidea). *Bollettino di Zoologia Agraria e di Bachicoltura, Ser. II.*, 14, 17–24.
- Blackman, R.L. & Eastop, V.F. (2018) *Aphids on the World's Plants*. Available from: <http://www.aphidsonworldsplant.info> (15.01.2018).
- Buckton, G.B. (1876) *Monograph of the British Aphides. Vol. 1*. Ray Society, London, 193 pp. + i–iii., I–XXXVIII Pl.
- Dransfield, B. & Brightwell, B. (2018) *Aphid identification*. Available from: http://influentialpoints.com/Gallery/Aphid_genera.htm (15.01.2018).
- Eastop, V.F. & Tanasijević, N. (1968) Aphid records from Yugoslavia. *Entomologist's Monthly Magazine*, 104, 55–57.
- Fabricius, J.C. (1775) *Systema entomologiae: sistens insectorum classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus*. Officina Libraria Kortii, Flensburgi et Lipsiae, 832 pp.
- Favret, C. (2018) *Aphid Species File*. Version 5.0/5.0. Available from: <http://Aphid.Species.File.org> (15.01.2018).
- Gotlin Čuljak, T., Grubišić, D., Mešić, A. & Juran, I. (2012) List of aphids (Homoptera: Aphidoidea) and their host plants in Croatia. *Natura Croatica*, 21(1), 191–221.
- Hartig, T. (1841) Versuch einer Eintheilung der Pflanzenläuse nach der Flügelbildung. *Zeitschrift für die Entomologie, herausgegeben von Ernst Friedrich Germar*, 3(9), 359–376.
- Herrich-Schaeffer, G.A.W. (1854) Vorwort des Herausgebers. In: Koch, C.L. *Die Pflanzenläuse Aphiden, getreu nach dem Leben abgebildet und beschrieben. Erstes Heft*. J.L. Lotzbeck, Nürnberg, pp. III–VIII.
- Latreille, P.A. (1802) *Histoire naturelle, générale et particulière des crustacés et des insectes: ouvrage faisant suite aux oeuvres de Leclerc de Buffon, et partie du cours complet d'histoire naturelle rédigé par C. S. Sonnini, membre de plusieurs Sociétés savantes. Tome 3*. F. Dufart, Paris, 467 pp.
- Nieto Nafria, J.M., Andreev, A.V., Binazzi, A., Mier Durante, M.P., Pérez Hidalgo, N., Rakauskas, R. & Stekolshchikov, A.V. (2013) *Fauna Europea: Aphidoidea*. Fauna Europea version 2.6.2. Available from: <http://www.fauna-eu.org> (15.01.2018).
- Ripka, G. (2008) Checklist of the Aphidoidea and Phylloxeroidea of Hungary (Hemiptera: Sternorrhyncha). *Folia Entomologica Hungarica*, 69, 19–157.
- Tanasijević, N. & Eastop, V.F. (1963) Aphid records from Yugoslavia. *The Entomologist*, November 1963, 265–269.
- Theobald, F.V. (1929) *The Plant Lice or Aphididae of Great Britain. Volume 3*. Headley Bros, Ashford, Kent, 364 pp.
- Tsitsipis, J.A., Katis, N.I., Margaritopoulos, J.T., Lykouressis, D.P., Avgelis, A.D., Gargalianou, I., Zarpas, K.D., Perdakis, D.C. & Papapanayotou, A. (2007) A contribution to the aphid fauna of Greece. *Bulletin of Insectology*, 60(1), 31–38.
- Tüllgren, A. (1909) Aphidologische Studien. I. *Arkiv för Zoologi*, 5(1), 1–190.
- Wojciechowski, W., Depa, Ł., Halgoš, J., Matečný, I., Lukáš, J. & Kanturski, M. (2016) *Aphids of Slovakia. Distributional catalogue, checklist, keys and list of host plants*. Comenius University, Bratislava, 346 pp.
- Wojciechowski, W., Depa, Ł., Kanturski, M., Węgierek, P. & Wieczorek, K. (2015) An annotated checklist of the Aphids (Hemiptera: Aphidomorpha) of Poland. *Polish Journal of Entomology*, 84, 383–420.