

A CHECKLIST OF APHID PARASITOIDS (HYMENOPTERA: APHIDIIDAE) IN YUGOSLAVIA

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Abstract. Investigations of aphid parasitoid fauna over the 1989-1998 period by the authors, as well as literature data, resulted in 88 species and 23 genera of aphidiid wasps known to date in the fauna of Yugoslavia (Serbia and Montenegro). Aphid host record for each species is reported.

KEY WORDS: Aphidiidae, aphid hosts, faunistic survey, Yugoslavia

The aphidiid fauna of the Balkan Peninsula and Yugoslavia (Serbia and Montenegro), as well as other small insect fauna is poorly known. The first investigations of aphidiids on the Balkans were carried out at the beginning of this century by GRAEFFE (1908) and by FAHRINGER (1924) who collected aphidiids of Istria, Dalmatia, Montenegro and Albania. Later VUKASOVIĆ (1928) and FERRIERE & VUKASOVIĆ (1928) reported data on aphidiid fauna of the Serbia. In the papers of FULMEK (1957) and MACKAUER (1959) data of several aphidiid species in Serbia were given. Some data of these references were included into the „Index of World Aphidiidae” by MACKAUER & STARY (1967). MITIĆ-MUŽINA & SRDIĆ (1977) studied the distribution and natural enemies of *Sitobion avenae* (Fabricius), English grain aphid and gave a list of aphidiid wasps parasitising on this aphid. PETROVIĆ (1992) studied cereal aphids of Serbia and presented a list of aphidiids parasitising them.

In the last few years, investigations of aphidiid wasps were intensified in Yugoslavia. The data on aphidiids of Yugoslavia can be also found in the papers by BRAJKOVIĆ (1990), BRAJKOVIĆ et al. (1992, 1993, 1995, 1996), TOMANOVIĆ (1994), TOMANOVIĆ et al. (1995, 1996, 1997, 1998a, 1998b, 1998c), STARY et al. (1998).

The investigations of the above mentioned authors with all reported literature data as well as our list of registered species of aphidiid wasps and their hosts are presented here.

1. *Aclitus obscuripennis* Förster, 1862
root aphid parasitoid. Collected by sweeping.
2. *Adialytus ambiguus* (Haliday, 1834)
Ref.: PETROVIĆ (1992): *Sipha maydis* Passerini and *S. elegans* del Guercio.
Hosts: *Sipha maydis* Passerini, *S. elegans* del Guercio, *Sipha* sp..
3. *Adialytus salicaphis* (Fitch, 1855)
Hosts: *Chaetophorus vitellinae* Schrank, *C. populeti* (Panzer), *Chaetophorus* sp.
4. *Aphidius absinthii* Marshall, 1896
Hosts: *Macrosiphoniella artemisiae* Boyer de Fonscolombe, *Macrosiphoniella* spp.
5. *Aphidius avenae* Haliday, 1834
Ref.: MITIĆ-MUŽINA & SRDIĆ (1977): *Sitobion avenae* (Fabricius)
Hosts: *Acyrtosiphon pisum* (Harris), *A. malvae* (Mosley), *Macrosiphum* sp.,
Myzus persicae Sulzer, *Sitobion avenae* (Fabricius), *Sitobion fragariae* (Walker),
Wahlgreniella sp.
6. *Aphidius aquilus* Mackauer, 1961
Hosts: *Callaphis flava* Mordvilko
7. *Aphidius cingulatus* Ruthe, 1859
Hosts: *Pterocomma populeum* Kaltenbach, *Pterocomma* sp.
8. *Aphidius eadyi* Starý, Gonzales & Hall, 1980
Hosts: *Acyrtosiphon pisum* (Harris)
9. *Aphidius eglanteriae* Haliday, 1834
Hosts: *Chaetosiphon chaetosiphon* Nevsky, *Chaetosiphon* sp., *Longicaudus trirhodus* (Walker).
10. *Aphidius ervi* Haliday, 1834
ref.: FERRIERE & VUKASOVIĆ (1928): unchecked hosts.
MITIĆ-MUŽINA & SRDIĆ (1977): *Sitobion avenae* (Fabricius).
PETROVIĆ (1992): *Metopolophium dirhodum* (Walker), *Schizaphis graminum* (Rondani), *Sitobion avenae* (Fabricius).
Hosts: *Acyrtosiphon pisum* (Harris), *Aulacorthum solani* Kaltenbach, *Metopolophium dirhodum* (Walker), *Macrosiphum euphorbiae* (Thomas), *Rhopalosip-*

hum padi (Linnaeus), *Schizaphis graminum* (Rondani), *Sitobion avenae* (Fabricius), *Sitobion fragariae* (Walker).

11. *Aphidius funebris* Mackauer, 1961
Hosts: *Uroleucon cichorii* Koch, *Uroleucon muralis* Buckton, *Uroleucon sonchi* Geoffroy, *Uroleucon* spp.
12. *Aphidius hortensis* Marshall, 1896
Hosts: *Liosomaphis berberidis* Kaltenbach
13. *Aphidius hieraciorum* Starý, 1962
Hosts: *Nasonovia ribis-nigri* (Mosley)
14. *Aphidius matricariae* Haliday, 1834
Hosts: *Aphidura* sp., *Aphis intybi* Koch, *Aphis* spp., *Brachycaudus cardui* Linnaeus, *Capitophorus hippohaes* Walker, *C. carduinus* Walker, *Capitophorus* sp., *Galiobium langei* Börner, *Liniosiphon asperulophagus* Holman, *Myzus cerasi* Fabricius, *Myzus cymbalari* Stroyan, *Myzus lythri* Schrank, *Myzus persicae* Sulzer, *Ovatus mentharius* (Van der Goot), *Phorodon humuli* Schrank, *Rhopalosiphum nymphaeae* Linnaeus.
15. *Aphidius microlophii* Pennacchio & Tremblay, 1986
Hosts: *Microlophium carnosum* (Buckton)
16. *Aphidius phalangomyzi* Starý, 1963
Hosts: *Macrosiphoniella oblonga* Mordvilko
17. *Aphidius rhopalosiphii* DeStefani, 1902
Ref.: PETROVIĆ (1992): *Metopolophium dirhodum* (Walker), *Sitobion avenae* (Fabricius), *Rhopalosiphum padi* (Linnaeus), *Sitobion fragariae* (Walker)
Hosts: *Metopolophium dirhodum* (Walker), *Rhopalosiphum padi* (Linnaeus), *Sitobion avenae* (Fabricius), *Sitobion fragariae* (Walker).
18. *Aphidius ribis* Haliday, 1834
Hosts: *Cryptomyzus ribis* Linnaeus
19. *Aphidius rosae* Haliday, 1834
Ref.: FAHRINGER (1924): *Macrosiphum rosae* Linnaeus.
FULMEK (1957)
Hosts: *Macrosiphum rosae* Linnaeus
20. *Aphidius salicis* Haliday, 1834
Hosts: *Carvariella aegopodii* Scopoli, *Cavariella theobaldi* (Gillette & Bragg), *Cavariella* sp.
21. *Aphidius setiger* MACKAUER, 1961

Hosts: *Periphyllus* spp.

22. *Aphidius sonchi* Marshall, 1896
Ref.: FERRIERE & VUKASOVIĆ (1928): unchecked hosts.
Hosts: *Hyperomyzus lactucae* Linnaeus
23. *Aphidius sussi* Pennacchio & Tremblay, 1988
Hosts: *Delphinobium junackianum* Karsch
24. *Aphidius tanacetarius* MACKAUER, 1962
Hosts: *Metopeurum fuscoviride* Stroyan
25. *Aphidius urticae* Haliday, 1834
Ref.: FERRIERE & VUKASOVIĆ (1928) (= *Aphidius lonicerae* Marshall): unchecked hosts.
Hosts: *Aulacorthum solani* Kaltenbach, *Macrosiphum daphnidis* Börner, *Macrosiphum funestum* Macchiati, *Microlophium carnosum* (Buckton), *Paraschizaphis scirpi* Passerini.
26. *Aphidius uzbekistanicus* Luzhetzki, 1960
Ref.: MITIĆ-MUŽINA & SRDIĆ (1977): *Sitobion avenae* (Fabricius).
PETROVIĆ (1992): *Metopolophium dirhodum* (Walker), *Rhopalosiphum padi* (Linnaeus), *Sitobion avenae* (Fabricius), *Sitobion fragariae* (Walker)
Hosts: *Sitobion avenae* (Fabricius), *Sitobion fragariae* (Walker)
27. *Betuloxys compressicornis* (Ruthe, 1859)
Hosts: *Euceraphis punctipennis* (Zetterstedt)
28. *Binodoxys acalephae* (Marshall, 1896)
Hosts: *Aphis craccivora* Koch, *Aphis craccae* Linnaeus, *A. euphorbiae* Kaltenbach, *A. idaei* van der Goot, *A. myrsinitidis* Petrović & Leclant, *A. nasturti* Kaltenbach, *A. spiraephaga* Müller, *A. urticata* Kaltenbach, *Aphis* spp.
29. *Binodoxys angelicae* (Halliday, 1833)
Hosts: *Aphis craccae* Linnaeus, *A. fabae* Scopoli, *A. hederiae* Kaltenbach, *A. pomi* de Geer, *A. rumicis* Linnaeus, *A. sambuci* Linnaeus, *A. spiraephaga* Müller, *A. viburni* Scopoli, *Aphis* spp., *Brachycaudus* sp., *Uhlmania singularis* (Börner).
30. *Binodoxys brevicornis* (Haliday, 1833)
Hosts: *Cavariella* sp.
31. *Binodoxys centaurae* (Haliday, 1833)
Hosts: *Uroleucon muralis* Buckton, *Macrosiphoniella artemisiae* Boyer de Fonscolombe.
32. *Binodoxys heraclei* (Haliday, 1833)

- Hosts: *Cavariella aegopodii* (Scopoli), *C. theobaldi* (Gillette & Bragg), *Cavariella* sp.
33. *Diaretellus palustris* Starý, 1960
Hosts: *Rhopalosiphum nymphaeae* Linnaeus
34. *Diaretiella rapae* (M'Intosh, 1855)
Ref.: FERRIERE & VUKASOVIĆ (1928) (= *Aphidius brassicae*): unchecked hosts.
PETROVIĆ (1992): *Diuraphis noxia* (Kurdjumov).
Hosts: *Brevicoryne brassicae* Linnaeus, *Diuraphis noxia* (Kurdjumov), *Hayhurstia cadiva* Walker, *Hayhurstia atriplicis* (Linnaeus), *Myzus persicae* Sulzer.
35. *Diaretus leucopterus* (Haliday, 1834)
Hosts: *Eulachnus rileyi* (Williams)
36. *Dyscritulus planiceps* (Marshall, 1896)
Hosts: *Drepanosiphum platanoidis* Schrank
37. *Ephedrus cerasicola* Starý, 1962
Hosts: *Brachycaudus helichrysi* (Kaltenbach), *Myzus cerasi* (Fabricius), *Phorodon humuli* (Schrank).
38. *Ephedrus helleni* Mackauer, 1968
Hosts: *Cavariella aegopodi* (Scopoli), *C. theobaldi* (Gillette & Bragg).
39. *Ephedrus lacertosus* (Haliday, 1833)
Ref.: FERRIERE & VUKASOVIĆ (1928): *Macrosiphoniella absinthii* (Linnaeus).
40. *Ephedrus laevicollis* (Thomson, 1895)
Hosts: *Chaetosiphon tetraerhodum* (Walker), *Longicaudus trirhodus* (Walker)
41. *Ephedrus nacheri* Quilis, 1934
Hosts: *Hayhurstia atriplicis* (Linnaeus)
42. *Ephedrus niger* Gautier, Bonnamour & Gaumont, 1929
Host: *Uroleucon cichorii* Koch, *U. muralis* Buckton, *Uroleucon* sp.
43. *Ephedrus persicae* Froggatt, 1904
Hosts: *Aphis pomi* de Geer, *Brachycaudus cardui* (Linnaeus), *B. helichrysi* (Kaltenbach), *B. prunicola* (Kaltenbach), *Brachycaudus* sp., *Dysaphis devecta* (Walker), *D. plantaginea* (Passerini), *D. reamuri* (Mordvilko), *Dysaphis* sp., *Melanaphis pyraria* (Passerini), *Myzus persicae* Sulzer, *Myzus cerasi* (Fabricius), *Phorodon humuli* (Schrank), *Rhopalosiphum nymphaeae* Linnaeus.

44. *Ephedrus plagiator* (Nees, 1811)
Ref.: MITIĆ-MUŽINA & SRDIĆ (1977): *Sitobion avenae* (Fabricius).
PETROVIĆ (1992): *Metopolophium dirhodum* (Walker), *Sitobion avenae* (Fabricius), *Sitobion fragariae* (Walker).
Hosts: *Acyrtosiphon pisum* (Harris), *Aphis fabae* Scopoli, *Brachycaudus helichrysi* (Kaltenbach), *Corylobium avellanae* (Schrank), *Capitophorus* sp., *Dysaphis devecta* (Walker), *D. plantaginea* (Passerini), *Dysaphis* sp., *Macrosiphum rosae* (Linnaeus), *Metopolophium dirhodum* Walker, *Myzus cerasi* (Fabricius), *M. ligustri* (Mosley), *Phorodon humuli* (Schrank), *Rhopalomyzus lonicerae* Siebold, *Rhopalomyzus* sp., *Sitobion avenae* (Fabricius), *Sitobion fragariae* (Walker).
45. *Falciconus pseudoplatani* (Marshall, 1896)
Hosts: *Drepanosiphum platanoidis* Schrank
46. *Lipolexis gracilis* Förster, 1862
Hosts: *Aphis craccivora* Koch, *A. crepidis* (Börner), *A. fabae* Scopoli, *A. gossypii* Glover, *A. intybi* Koch, *A. urticata* Kaltenbach, *Myzus cerasi* (Fabricius).
47. *Lysaphidus arvensis* Starý, 1960
Hosts: *Coloradoa* sp.
48. *Lysaphidus viaticus* Sedlag, 1968
Hosts: *Pleotrichophorus duponti* Hille Ris Lambers
49. *Lysephedrus validus* (Haliday, 1833)
Collected by sweeping.
50. *Lysiphlebus balcanicus* Starý, 1998
Hosts: *Aphis psammophila* Szelegiewicz (root)
51. *Lysiphlebus cardui* (Marshall, 1896)
Hosts: *Aphis fabae cirsiacanthoidis* Schrank
52. *Lysiphlebus confusus* Tremblay et Eady, 1978
Hosts: *Aphis urticata* Kaltenbach, *A. schneideri* Börner, *Semiaphis dauci* Fabricius.
53. *Lysiphlebus dissolutus* (Nees, 1811)
Ref.: FERRIERE & VUKASOVIĆ (1928): unchecked host.
54. *Lysiphlebus fabarum* (Marshall, 1896)
Hosts: *Anoecia* sp. (root), *Aphis afinis* De Guer, *A. balloticola* Szelegiewicz, *A. carlinae* (Börner) (root), *A. craccivora* Koch, *A. crepidis* (Börner), *A. confusa* Walker, *A. davletshinae* Hille Ris Lambers, *A. fabae* Scopoli, *A. fabae cirsiia-*

canthoidis Schrank, *A. farinosa* Gmelin, *A. frangulae* Koch, *A. gentinae* (Börner), *A. gossypi* Glover, *A. idaei* van der Goot, *A. intybi* Koch, *A. nasturtii* Kaltenbach, *A. newtoni* Theobald, *A. origani* Passerini, *A. pomi* De Geer, *A. ruborum* Börner, *A. salviae* Walker, *A. serpylli* Koch, *A. sanguisorbie* Schrank (root), *A. taraxacicola* Börner, *A. umbrella* Börner, *A. urticata* Kaltenbach, *A. verbasci* Schrank, *A. viburni* Scopoli, *Aphis* spp., *Brachycaudus cardui* Linnaeus, *B. schwartzi* (Börner), *Hyalopectus pruni* (Geoffrey), *Hyperomyzus picridis* (Börner & Blunck), *Myzus persicae* Sulzer, *Phorodon humuli* (Schrank), *Semiaphis dauci* Fabricius, *Sitobion avenae* (Fabricius).

55. *Lysiphlebus fritzmuelleri* Mackauer, 1960
Hosts: *Aphis craccae* Linnaeus
56. *Lysiphlebus hirticornis* Mackauer, 1960
Hosts: *Metopeurum fuscoviride* Stroyan
57. *Lysiphlebus melandriicola* Starý, 1961
Hosts: *Brachycaudus lychnidis* Linnaeus
58. *Monoctonus crepidis* (Haliday, 1834)
Hosts: *Nasonovia ribis-nigri* Mosley, *Nasonovia* sp.
59. *Monoctonus mali* van Achterberg, 1989
Hosts: *Dysaphis reamuri* (Mordvilko), *Dysaphis* sp., *Rhopalosiphum insertum* Walker
60. *Paralipsis enervis* (Nees, 1834)
Hosts: *Forda formicaria* von Heyden, *Geoica utricularia* (Passerini).
61. *Parapraon gallicum* (Starý, 1971)
Ref.: PETROVIĆ (1992): *Metopolophium dirhodum* (Walker), *Sitobion avenae* (Fabricius), *Schizaphis graminum* Rondani.
Hosts: *Metopolophium dirhodum* Walker, *Rhopalosiphum padi* (Linnaeus), *Sitobion avenae* (Fabricius), *Schizaphis graminum* Rondani.
62. *Parapraon necans* (Mackauer, 1959)
Hosts: *Rhopalosiphum nymphaeae* Linnaeus
63. *Pauesia cupressobii* (Starý, 1960)
Hosts: *Cinara* spp.
64. *Pauesia juniperorum* (Starý, 1960)
Hosts: *Cupressobium juniperi* De Geer
65. *Pauesia picta* (Haliday, 1834)

- Hosts: *Cinara pinea* Mordvilko, *Cinara* sp.
66. *Pauesia pini* (Haliday, 1834)
Hosts: *Cinara* spp.
67. *Pauesia unilachni* (Gahan, 1927)
Hosts: *Schizolachnus pineti* (Fabricius)
68. *Praon abjectum* (Haliday, 1833)
Hosts: *Aphis epilobii* Kaltenbach, *A. fabae* Scopoli, *A. grossulariae* Kaltenbach, *A. sambuci* Linnaeus, *A. spiraeophaga* Müller, *Aphis* spp.
69. *Praon absinthii* Bignell, 1894
Ref.: MACKAUER (1959): without hosts.
70. *Praon barbatum* Mackauer, 1967
Hosts: *Acyrtosiphon pisum* (Harris)
71. *Praon bicolor* Mackauer, 1959
Hosts: *Eulachnus rileyi* (Williams)
72. *Praon dorsale* (Haliday, 1833)
Hosts: *Uroleucon cichorii* (Koch), *Uroleucon* spp.
73. *Praon exsoletum* (Nees, 1811)
Ref.: FAHRINGER (1924): *Therioaphis trifolii* (Monell).
Hosts: *Therioaphis trifolii* (Monell)
74. *Praon flavinode* (Haliday, 1833)
Hosts: *Callaphis flava* Mordvilko
75. *Praon grossum* Starý, 1971
Hosts: *Amphorophora* sp.
76. *Praon pubescens* Starý, 1961
Hosts: *Nasanovia ribis-nigri* (Mosley), *Nasanovia* sp.
77. *Praon rosaecola* Starý, 1961
Hosts: *Macrosiphum rosae* Linnaeus
78. *Praon volucre* (Haliday, 1833)
Ref.: FERRIERE & VUKASOVIĆ (1928): unchecked hosts.
FULMEK (1957): *Brevicoryne brassicae* Linnaeus, *Uroleucon picridis* (Fabricius), *Uroleucon sonchi* Linnaeus, *Hyperomyzus lactucae* (Linnaeus).
MITIĆ-MUŽINA & SRDIĆ (1977): *Sitobion avenae* (Fabricius).
PETROVIĆ (1992): *Metopolophium dirhodum* (Walker), *Sitobion avenae* (Fabricius), *Schizaphis graminum* Rondani.

Hosts: *Acyrtosiphon pisum* (Harris), *Acyrtosiphon* sp., *Aphidura* sp., *Amphorophora* sp., *Aphis crepidis* (Börner), *A. fabae* Scopoli, *A. spiraephaga* Müller, *Brachycaudus helichrysi* Kaltenbach, *Brevicoryne brassicae* Linnaeus, *Cryptomyzus ribis* Linnaeus, *Hyalopterus pruni* (Geoffrey), *Macrosiphum daphnidis* Börner, *M. euphorbiae* Kaltenbach, *Metopolophium dirhodum* (Walker), *Microlophium carnosum* Buckton.

79. *Protaphidius wissmannii* (Ratzeburg, 1848)

Hosts: *Stomaphis juglandicola* Petrović

80. *Toxares deltiger* (Haliday, 1833)

Ref.: GRAEFFE, (1908): host unknown.

81. *Trioxyx betulae* (Marshall, 1896)

Hosts: *Symydobius oblongus* (von Heyden), *Callaphis flava* Mordvilko.

82. *Trioxyx cirsii* (Curtis, 1831)

Ref.: FERRIERE & VUKASOVIĆ (1928) (= *Trioxyx aceris* Haliday): unchecked hosts.

Hosts: *Drepanosiphum platanoidis* Schrank

83. *Trioxyx complanatus* Quilis, 1931

Hosts: *Therioaphis trifolii* (Monell)

84. *Trioxyx curvicaudus* Mackauer, 1967

Host: *Eucalipterus tiliae* (Linnaeus)

85. *Trioxyx falcatus* Mackauer, 1959

Hosts: *Peryphillus* sp.

86. *Trioxyx galiobii* Starý, 1974

Hosts: *Galiobium langei* Börner

87. *Trioxyx humuli* Mackauer, 1960

Hosts: *Phorodon humuli* Schrank

88. *Trioxyx pallidus* (Haliday, 1834)

Hosts: *Myzocallis carpini* (Koch), *Chromaphis juglandicola* Kaltenbach, *Pterocallis alni* (de Geer).

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REFERENCES

- BRAJKOVIĆ, M., 1990: Base for the aphidiid fauna of Yugoslavia (Aphidiidae, Hymenoptera). *Bulletin of Natural history Museum in Belgrade* B 46: 157-162 (in Serbian).
- BRAJKOVIĆ, M., TOMANOVIĆ, Ž. & KRUNIĆ, M., 1992. Aphidiidae (Hymenoptera)-parasite spectrum and relative abundance on corn aphids. *IX Yugoslav Symposium of Plant Protection*. Abstracts, 71-72 (in Serbian).
- BRAJKOVIĆ, M., TOMANOVIĆ, Ž. & KRUNIĆ, M., 1993. Aphidiidae (Hymenoptera), new data for Yugoslav fauna. *XXI Entomology Meeting of Yugoslavia*. Abstracts, 14 (in Serbian).
- BRAJKOVIĆ, M., TOMANOVIĆ, Ž., KRUNIĆ, M. & PETROVIĆ, O., 1995. The first contribution to the knowledge of the diversity of braconid fauna (Braconidae: Hymenoptera) of Eastern Serbia. *Proceedings of „Naša ekološka istina“*, 333-336 (in Serbian).
- BRAJKOVIĆ, M., KRUNIĆ, M., TOMANOVIĆ, Ž., STANISAVLJEVIĆ, Lj. & MILORADOVIĆ, Z., 1996. New species of parasitic wasps (Braconidae: Hymenoptera) for Eastern Serbia fauna. *Proceedings of „Naša ekološka istina“*, 209-212 (in Serbian).
- FAHRINGER, J., 1924. Beiträge zur Hymenopterenfauna Dalmatiens, Montenegros und Albanien, 3.: Braconidae, Aphidiidae und Serphidae. *Ann. Naturhist. Mus. Wien*, 38, 98-106.
- FERRIERE, CH. & VOUKASSOVITCH, P., 1928. Sur les parasites des aphides et leurs hyperparasites. *Bull. Soc. Ent. Fr.*, 26-29.
- FULMEK, L., 1957. Insekten als Blattlausfeinde. Kritisch-statistische Sichtung. *Ann. naturh. Mus. Wien*, 61, 110-227.
- GRAEFFE, E., 1908. Beiträge zur Fauna der Braconiden oder Ichneumonones adsciti des österr. Küstendlandes und südlichen Krains. *Boll. Soc. Adriat. Sci. Nat. Trieste*, 24, 137-158.
- MACKAUER, M., 1959. Die europäischen Arten der Gattungen *Praon* und *Areopraon* (Hymenoptera: Braconidae: Aphidiinae). *Beitr. Ent.* 9, Nr. 7/8, 810-865.
- MACKAUER, M. & STARY, P., 1967. Hymenoptera: Ichneumonidea, World Aphidiidae. In Delucchi, V. & G. Remaudiere (eds.): *Index of entomophagous insects*. Le Francois, Paris, 167 pp.
- MITIĆ-MUŽINA, N. & SRDIĆ, Ž., 1977. Distribution and natural enemy of *Macrosiphum (Sitobion) avenae* Fabr. (Homoptera, Aphidoidea) in Yugoslavia. *Zaštita bilja*, vol. XXVIII (3), No.141: 255-267.
- PETROVIĆ, O., 1992. *Cereal aphids of Serbia*. Mr. thesis, The Faculty of Agriculture, Zemun, Yugoslavia (in Serbian).
- STARY, P., TOMANOVIĆ, Ž. & PETROVIĆ, O., 1998. A new parasitoid of root-feeding aphids from the Balkan mountains (Hymenoptera, Braconidae, Aphidiinae). *Dtsch. entomol. Z.* 45, 2, 175-179.
- TOMANOVIĆ, Ž., 1994. *Parasitic wasps (Aphidiidae: Hymenoptera) and their importance on seasonal dynamics of pea aphid, Acyrthosiphon pisum (Harr.) (Aphididae: Homoptera)*. Mr. thesis, The Faculty of Biology, Belgrade, 62 pp. (in Serbian).

- TOMANOVIĆ, Ž., BRAJKOVIĆ, M., KRUNIĆ, M. & PETROVIĆ, O., 1995. Data on aphidiids fauna (Aphidiidae, Hymenoptera) of Federal Republic of Yugoslavia. *XXII Entomology Meeting of Yugoslavia*, Palić, 5-8. 9. 1995, Abstracts, 64 (in Serbian).
- TOMANOVIĆ, Ž., BRAJKOVIĆ, M., KRUNIĆ, M., & STANISAVLJEVIĆ, Lj., 1996. Seasonal dynamics, parasitization and colour polymorphism of the pea aphid, *Acyrtosiphon pisum* (Harris) (Aphidiidae, Homoptera) on alfalfa in south part of the Pannonian area. *Tiscia*, Vol. 30, 45-48.
- TOMANOVIĆ, Ž., BRAJKOVIĆ, M., KRUNIĆ, M., STANISAVLJEVIĆ, Lj., 1997. Parasite spectrum of three pests aphid species - *Myzus persicae*, *M. cerasi* and *M. varians* in Yugoslavia. *Biodiversity and ecological problems of Balkan fauna*. Sofia, 26-29 May 1997. Abstracts, 86.
- TOMANOVIĆ, Ž., BRAJKOVIĆ, M., PETROVIĆ, O. & LECLANT, F., 1998a. Species composition of aphids (Aphidiidae, Homoptera) and their primary parasitoids (Aphidiidae, Hymenoptera) on the *Prunus* spp. in Yugoslavia. *Arch. Biol. Sci.*, Belgrade, 50 (2-3), 17p-18p.
- TOMANOVIĆ, Ž., BRAJKOVIĆ, M., KRUNIĆ, M., PETROVIĆ, O. & STANISAVLJEVIĆ, Lj., 1998b. Zoogeographic and ecological characteristic of aphidiid fauna (Aphidiidae, Hymenoptera) of Yugoslavia. In: Leghakis A. (eds.): *Contributions to the zoogeography and ecology of the Eastern Mediterranean region*, Vol. II. 7th International congress on the zoogeography and ecology of Greece and adjacent regions. (in press).
- TOMANOVIĆ, Ž., BRAJKOVIĆ, M., PETROVIĆ, O., KRUNIĆ, M. & MIHAJLOVIĆ, Lj., 1998c. Aphids-parasitoids-hyperparasitoids relation between wheat and lucerne agroecosystems in Serbia. In: Leghakis A. (eds.): *Contributions to the zoogeography and ecology of the Eastern Mediterranean region*, Vol. I. 7th International congress on the zoogeography and ecology of Greece and adjacent regions (in press).
- VUKASOVIĆ, P., 1928. Contribution to the knowledge of entomophagous insect parasites. *Glas srpske kraljevske akademije* 131:45-72 (in Serbian).

ЧЕК ЛИСТА АФИДИИДНИХ ОСА (HYMENOPTERA: APHIDIDAE) ЈУГОСЛАВИЈЕ

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И з в о д

Фауна афидиидних оса као и других ситних инсеката Југославије и читавог Балканског полуострва је слабо позната. Прва истраживања афидиидних оса на просторима садашње Југославије забележена су од стране ентомолога GRAEFFE (1908) и FAHRINGER (1924). ВУКАСОВИЋ (1928) објављује податке о фауни афидида Србије. Каснија истраживања су се односила на паразитске комплексе појединих економских значајних врста биљних вашију (МИТИЋ-МУЖИНА и СРДИЋ, 1977; ПЕТРОВИЋ, 1992). Прва систематска истраживања афидида су садржана у раду БРАЈКОВИЋА (1990).

Последњих година истраживања афидиидне фауне у Југославији су интезивирани. Према малобројним литературним подацима и истраживањима од стране аутора у фауни Југославије је познато до сада 88 врста афидида класификованих у 23 рода. С обзиром да је у Европској фауни до данас познато око 150 врста и око 30 родова, можемо закључити да је истраженост фауне афидида у Југославији задовољавајућа.

У раду је дата листа до сада познатих 88 врста афидида са списком карактеристичних домаћина.

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