

## THE CATALOGUE OF THE SPECIES OF APHIDS (HOMOPTERA:APHIDIDAE) THAT ATTACK FRUIT TREES IN VASLUI COUNTY

BY

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**Key words:** aphids, apple tree, pear tree, quince tree, plum tree, cherry tree, morello tree, apricot tree, peach tree, ungrafted apricot tree.

This paper presents 23 species of aphids, deleterious to the fruit trees of some mixed orchards situated on private properties in Vaslui County. Vaslui County is situated in Barlad's plateau, East Romania. The identified species belong to the Aphidinae subfamily, 9 of them belonging to the Aphidini tribe, and 14 belonging to the Macrosiphini tribe. For each identified species, the attached notes are presenting information regarding the identifying material, geographical distribution, and the species' biology. *Hyalopterus amygdali* Blanc., *Melanaphis pyrararia* Pass., and *Ovatus insitus* Walk. are aphids mentioned for the first time in Romania as species infesting fruit trees. *Dysaphis devecta* Walk. is mentioned for the first time in Moldova.

### Introduction

The main purpose of the article is the development of a catalog of the aphids attacking the fruit trees of private mixed orchards from different areas of Vaslui County. The identified aphids belong to the Aphidinae (Homoptera: Aphididae) subfamily. Aphids are parthenogenetic and viviparous insects, widely spread in the Holarctic area and eastern hemisphere. Most of the species present alternation of host plants, being found on both wooden and grassy plants.

### Material and methods

The material was gathered in the autumn of 2002 and in the summer of 2003 from mixed orchards in which a pesticide chemical control was never made. Specimens were collected from 9 types of fruit trees (apple tree, pear tree, quince tree, plum tree, cherry tree, morello tree, apricot tree, peach tree and ungrafted apricot tree) found in private gardens from: Banca, Bârlad, Bogdănești, Buhăiești, Crasna, Hocenii, Muntenii de Jos, Murgeni, Puiești, Solești, Tutova and Vaslui. A number of 1970 winged individuals were studied; the studied individuals were obtained from 216 samples

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extracted through direct and accidental breaking of the leaflets of the 9 species of fruit trees considered for experimentation.

### Results and discussions

Family Aphididae. Subfamily Aphidinae. Tribe Aphidini

#### 1. *Aphis craccivora*, Koch, 1854

**Identified material:** 22 winged individuals obtained from 9 samples: 7 samples from plum trees (15.10.02 Vaslui, Munteni, Crasna; 16.10.02 Bogdănești, Buhăiești, Puiești; 9.06.03 Bârlad), and 2 samples from pear trees (9.06.03 Crasna, 10.06.03 Bogdănești).

**Geographical distribution:** Europe, North America, Africa, Asia, Australia. Found in all regions of Romania /1/.

**Biology:** Migratory species. It hibernates as an egg deposit at the base of bush trunks and vegetable grassy plants.

#### 2. *Aphis fabae* Scopoli, 1763

**Identified material:** 42 winged individuals obtained from 18 samples: 3 samples from apple trees (15.10.02 Murgeni, Solești; 9.06.03 Vaslui), 2 from pear tree (15.10.02 Crasna, Murgeni), 8 from plum trees (15.10.02 Bârlad, Murgeni; 16.10.02 Banca, Bogdănești, Buhăiești, Tutova; 9.06.03 Solești, Vaslui), and 5 from cherry trees (16.10.02 Banca, Puiești, Tutova; 10.06.03 Bogdănești, Puiești).

**Geographical distribution:** Cosmopolitan. Found in all regions of Romania.

**Biology:** Migration and pole-vaulting species. It hibernates as an egg deposit at the base of buds or into the bush barks of *Evonimus*, *Viburnum*, *Philadelphus* etc.

#### 3. *Aphis pomi* De Geer, 1773

**Identified material:** 220 winged individuals obtained from 37 samples: 24 samples from apple trees (15.10.02 end 9.06.03 Bârlad, Crasna, Hoceni, Muntenii de Jos, Murgeni, Solești, Vaslui; 16.10.02 end 10.06.03 Banca, Bogdănești, Buhăiești, Puiești, Tutova), 6 from pear trees (15.10.02 Crasna, Solești; 9.06.03 Crasna, Munteni; 10.06.03 Banca, Bogdănești), and 7 from quince trees (15.10.02 Hoceni, Munteni, Murgeni; 16.10.02 Banca, Bogdănești, Buhăiești, Puiești).

**Geographical distribution:** Europe, North America, Africa, Asia (Japan, Taiwan), New Zealand. Found in all regions of Romania except for the mountain regions /1/.

**Biology:** It develops on both fruit and ornamental trees and bushes.

#### 4. *Hyalopterus amygdali* Blanchard, 1840

**Identified material:** 42 winged individuals obtained in 13 samples: 10 samples from plum trees (15.10.02 Crasna; 16.10.02 Banca, Bogdănești; 9.06.03 Crasna, Solești, Vaslui; 10.06.03 Banca, Bogdănești, Buhăiești, Tutova) and 3 samples from peach trees (9.06.03 Crasna; 10.06.03 Bogdănești, Puiești).

**Geographical distribution:** Europe, North Africa, Central Asia /1/.

**Biology:** It hibernates on fruit-bearing species. Secondary hosts are different graminee, tifacee, ciperacee.

*H. amygdali* is mentioned for the first time in Romania as a species harmful to fruit trees.

5. *Hyalopterus pruni* Geoffroy, 1762

**Identified material:** 206 winged individuals obtained in 28 samples: 24 samples from plum trees (15.10.02 and 9.06.03 Bârlad, Crasna, Hoceni, Muntenii de Jos, Murgeni, Solești, Vaslui; 16.10.02 and 10.06.03 Banca, Bogdănești, Buhăiești, Puiești, Tutova) and 4 from peach trees (15.10.02 Hoceni, Muntenii de Jos; 16.10.02 Bogdănești, Buhăiești).

**Geographical distribution:** Palearctic Region. Found in all regions of Romania /1/.

**Biology:** It hibernates in egg form on the branches of plum trees, peach trees, and apricot trees. Migrates on reed, where they are multiplying all summer. In the autumn, they turn back on the prunoidee.

6. *Melanaphis pyrararia* Passerini, 1861

**Identified material:** 26 winged individuals obtained in 4 samples from pear trees (9.06.03 Bârlad, Muntenii de Jos; 10.06.03 Banca, Bogdănești).

**Geographical distribution:** Europe, The Near East/1/.

**Biology:** Dioecic species found in the spring on the inferior side of the apple tree leaves. In the summer, they migrate on determined species of graminee.

*M. pyrararia* is mentioned for the first time in Romania as a species harmful to fruit trees.

7. *Rhopalosiphum insertum* Walker, 1849

**Identified material:** 58 winged individuals obtained in 28 samples: 12 samples from apple trees (15.10.02 Bârlad, Crasna, Hoceni, Muntenii de Jos, Murgeni, Solești, Vaslui; 16.10.02 Banca, Bogdănești, Buhăiești, Puiești, Tutova), 5 from pear trees (15.10.02 Crasna, Munteni; 16.10.02 Banca, Bogdănești, Tutova), 5 from quince trees (15.10.02 Bârlad, Murgeni, Solești; 16.10.02 Buhăiești, Tutova), and 6 from plum trees (15.10.02 Crasna, Murgeni, Vaslui; 16.10.02 Bogdănești, Buhăiești, Puiești).

**Geographical distribution:** Palearctic Region. Romania: Neamț, Constanța /1/.

**Biology:** Apple trees and the other fruit-bearing trees represent the main host. The second generation of winged aphids migrates on the roots of graminee.

8. *Rhopalosiphum nymphaeae* Linné, 1761

**Identified material:** 40 winged individuals obtained in 18 samples: 9 samples from plum trees (15.10.02 Crasna, Bârlad, Hoceni, Vaslui; 16.10.02 Banca, Buhăiești, Puiești, Tutova; 9.06.03 Vaslui), 4 from peach trees (15.10.02 Crasna, Murgeni; 16.10.02 Banca, Bogdănești), and 5 from cherry trees (15.10.02 Hoceni, Murgeni; 16.10.02 Bogdănești, Puiești, Tutova).

**Geographical distribution:** Cosmopolitan.

**Biology:** At the beginning of the summer, the viviparous females host on aquatic plants; in late autumn, oviparous females will leave the aquatic plants, to deposit eggs on fruit trees.

**Identified material:** 56 winged individuals obtained in 12 samples: 4 samples from plum trees (15.10.02 Crasna, Solești; 16.10.02 Bogdănești, Puiești) and 8 from quince trees (15.10.02 Munteni, Murgeni, Solești, Vaslui; 16.10.02 Banca, Buhăiești, Puiești, Tutova).

**Geographical distribution:** Cosmopolitan.

**Biology:** It hibernates as a resistant egg, on the trees and bushes bark or as non-winged forms on cereals and spontaneous poacee, realizing an anholociclic biological cycle.

Family Aphididae. Subfamily Aphidinae. Tribe Macrosiphini

10. *Aulacorthum solani* Kaltenbach, 1943

**Identified material:** 36 winged individuals obtained in 5 samples: 3 samples from quince trees (15.10.02 Crasna, Murgeni; 16.10.02 Banca) and 2 from ungrafted apricot trees (16.10.02 Puiești, Tutova).

**Geographical distribution:** Cosmopolitan.

**Biology:** A species with a big polyphagous. It hibernates on wooden species and as long as summer lasts, it advances on different grassy plants.

11. *Brachycaudus cardui* Linné, 1758

**Identified material:** 186 winged individuals in 44 samples: 24 samples from plum trees (15.10.02 și 9.06.03 Bârlad, Crasna, Hoceni, Muntenii de Jos, Murgeni, Solești, Vaslui; 16.10.02 and 10.06.03 Banca, Bogdănești, Buhăiești, Puiești, Tutova), 10 from cherry trees (15.10.02 Bârlad, Hoceni, Murgeni, Solești; 16.10.02 Banca, Bogdănești, Buhăiești, Tutova; 9.06.03 Bârlad, Solești), and 10 from peach trees (15.10.02 Bârlad, Hoceni, Muntenii de Jos, Murgeni, Solești; 16.10.02 Banca, Bogdănești, Buhăiești, Puiești, Tutova).

**Geographical distribution:** Palearctic Region. Found in all regions of Romania /1/.

**Biology:** Migrating, polivoltin and dioecic species. It hibernates in the form of egg deposits on the bark and branches of plum trees. It begins to advance on the first host; they later migrate on other plants.

12. *Brachycaudus helichrysi* Kaltenbach, 1843

**Identified material:** 76 winged individuals obtained in 14 samples: 7 samples from plum trees (15.10.02 Bârlad, Crasna; 16.10.02 Bogdănești; 9.06.03 Hoceni, Vaslui; 10.06.03 Banca, Bogdănești), 3 from cherry trees (15.10.02 Bogdănești, Murgeni; 16.10.02 Buhăiești), 2 from peach trees (9.06.03 Crasna; 10.06.03 Bogdănești), and 2 from apple trees (9.06.03 Murgeni, Solești).

**Geographical distribution:** Cosmopolitan.

**Biology:** Migrating, polivoltin and dioecic species. It hibernates in the form of egg deposits, on plum trees' bark and branches.

13. *Brachycaudus prunicola* Kaltenbach, 1843

**Identified material:** 50 winged individuals obtained in 6 samples: 4 samples from peach trees (9.06.03 Bârlad, Bogdănești, Munteni; 10.06.03 Puiești) and 2 samples from plum trees (9.06.03 Bârlad, Munteni).

**Geographical distribution:** Europe. Romania: Cluj, Iași, Bacău, Ialomița, Sibiu /1/.

**Biology:** Non-migrating species. It colonizes the inferior side of the peach tree leaves. The species is protected by ants.

14. *Dysaphis devectora* Walker, 1849

**Identified material:** 24 winged individuals in 3 samples from apple trees (10.06.03 Banca, Bogdănești, Hoceni).

**Geographical distribution:** Europe (Holland, Germany, England, France, Poland, Ukraine, Russia etc.). Romania: Vrancea, Constanța, Cluj, Brașov, etc. /1/.

**Biology:** It advances on different species of *Malus*.

Species cited for the first time in Moldavia.

15. *Dysaphis plantaginea* Passerini, 1860

**Identified material:** 70 winged individuals obtained in 22 samples: 17 samples from apple trees (15.10.02 Bârlad, Hoceni, Vaslui; 16.10.02 Bogdănești, Tutova; 9.06.03 Bârlad, Crasna, Hoceni, Muntenii de Jos, Murgeni, Solești, Vaslui; 10.06.03 Banca, Bogdănești, Buhăiești, Puiești, Tutova) and 5 from pear trees (15.10.02 Hoceni; 16.10.02 Banca, Bogdănești; 9.06.03 Hoceni; 10.06.03 Bogdănești).

**Geographical distribution:** Europe, North America (USA), North Africa (Maroc, Egypt), Asia (Israel, Turkey, Iraq, Cyprus). Romania: Brașov, Cluj, Satu-Mare, Iași /1/.

**Biology:** Migratory species. It hibernates as isolated eggs, or small deposits of eggs, at the base of the buds on the annual branches of apple trees. The second host plant is represented by species of *Plantago*.

16. *Dysaphis pyri* Boyer de Foscolombe, 1841

**Identified material:** 36 winged individuals obtained in 4 samples from peach trees (9.06.03 Hoceni, Murgeni; 10.06.03 Bogdănești, Tutova).

**Geographical distribution:** Europe, Asia, South Africa, Australia. Romania: Cluj, Vrancea, Botoșani, Iași, Prahova, etc. /1/.

**Biology:** Heteroecic species. The pear tree is the main host and *Gallium* sp. is the second favourite host. The species is protected by ants.

17. *Hyperomyzus lactucae* Linné, 1758

**Identified material:** 10 winged individuals obtained in 2 samples from quince trees (16.10.02 Bogdănești, Crasna).

**Geographical distribution:** Cosmopolitan.

**Biology:** It develops on compositae and different saxifragaceae.

**Note:** The species is not cited as deleterious to quince trees (fruit trees). A possibility is that it arrived accidentally on these species of trees.

18. *Macrosiphum euphorbiae* Thomas, 1878

**Identified material:** 22 winged individuals obtained in 15 samples: 9 samples from apple trees (15.10.02 Bârlad, Hocieni, Muntenii de Jos, Murgeni, Solești; 16.10.02 Banca, Buhăiești, Puiești, Tutova) and 6 from ungrafted apricot trees (15.10.02 Crasna, Hocieni, Muntenii de Jos; 16.10.02 Banca, Buhăiești, Puiești).

**Geographical distribution:** Europe, North America (USA, Canada). Found in most regions of Romania /1/.

**Biology:** Anholocyclic and polyphagous species.

19. *Macrosiphum rosae* Linné, 1758

**Identified material:** 18 winged individuals obtained in 5 samples: 1 sample from apple trees (9.06.03 Bârlad), 2 from quince trees (16.10.02 Banca, Buhăiești), and 2 from ungrafted apricot trees (15.10.02 Hocieni, Murgeni).

**Geographical distribution:** Cosmopolitan.

**Biology:** It hibernates as eggs on rose branches. Around June, they will advance on the rose; they may migrate on secondary plants.

20. *Myzus cerasi* Fabricius, 1775

**Identified material:** 198 winged individuals obtained in 32 samples: 24 samples from cherry trees (15.10.02 and 9.06.03 Bârlad, Crasna, Hocieni, Muntenii de Jos, Murgeni, Solești, Vaslui; 16.10.02 and 10.06.03 Banca, Bogdănești, Buhăiești, Puiești, Tutova) and 10 from morello trees (15.10.02 Crasna, Munteni; 16.10.02 Banca, Bogdănești, Puiești; 9.06.03 Bârlad, Munteni; 10.06.03 Buhăiești, Puiești, Tutova).

**Geographical distribution:** Cosmopolitan. Found in all regions of Romania.

**Biology:** It hibernates in egg form, on the bark of the branches or at the base of the cherry tree buds. In June, the individuals will migrate on grassy plants and reproduce until the beginning of autumn. The sexuales developed individuals will commute back on the cherry trees for depositing the winter eggs.

21. *Myzus persicae* Sulzer, 1776

**Identified material:** 424 winged individuals obtained in 181 samples: 24 samples from plum trees (15.10.02 and 9.06.03 Bârlad, Crasna, Hocieni, Muntenii de Jos, Murgeni, Solești, Vaslui; 16.10.02 and 10.06.03 Banca, Bogdănești, Buhăiești, Puiești, Tutova), 24 from apple trees (idem plum tree), 24 from peach tree (idem plum tree), 24 from cherry trees (idem plum tree), 16 from quince trees (15.10.02 Bârlad, Crasna, Hocieni, Muntenii de Jos, Murgeni, Solești, Vaslui; 16.10.02 Banca, Bogdănești, Buhăiești, Puiești, Tutova; 9.06.03 Crasna, Hocieni; 10.06.03 Banca, Bogdănești), 24 from morello trees (idem plum trees), 14 from ungrafted apricot trees (15.10.02 Bârlad, Crasna, Hocieni, Muntenii de Jos, Murgeni, Solești, Vaslui; 16.10.02 Banca, Bogdănești, Buhăiești, Puiești, Tutova; 9.06.03 Bârlad, Hocieni), 7 from pear trees (15.10.02 Murgeni, Vaslui; 16.10.02 Bogdănești, Buhăiești; 9.06.03 Crasna; 10.06.03 Bogdănești, Buhăiești), and 24 from apricot trees (idem plum trees).

**Geographical distribution:** Cosmopolitan. Found in all regions of Romania.

**Biology:** Polivoltin species. 3-5 generations of fundatrigenae will develop on peach trees, and more generations of virginogene will develop on secondary host plants.

22. *Ovatus insitus* Walker, 1849

**Identified material:** 24 winged individuals obtained in 11 samples: 2 samples from apple trees (15.10.02 Vaslui; 16.10.02 Bogdănești), 2 from quince tree (16.10.02 Banca, Bogdănești), 4 from ungrafted apricot trees (15.10.02 Hocen, Vaslui; 16.10.02 Bogdănești, Tutova), and 3 from plum trees (9.06.03 Hocen, Solești; 10.06.03 Tutova).

**Geographical distribution:** Eurasia /1/.

**Biology:** Found on rose species and on some labiate.

*O. insitus* is mentioned for the first time in Romania as a species harmful to fruits trees.

23. *Phorodon humuli* Schrank, 1801

**Identified material:** 84 winged individuals obtained in 16 samples: 14 samples from plum trees (15.10.02 Munteni; 16.10.02 Bogdănești; 9.06.03 Bârlad, Crasna, Hocen, Muntenii de Jos, Murgeni, Solești, Vaslui; 10.06.03 Banca, Bogdănești, Buhăiești, Puiești, Tutova) and 2 from cherry trees (16.10.02 Bogdănești; 9.06.03 Bârlad).

**Geographical distribution:** Europe, North America, Asia (China, India, Korea). Romania: Cluj, Sibiu, Bacău, Iași, Mureș, Brașov /1/.

**Biology:** Migratory species with the first host represented by plum trees, peach trees and secondary host represented by hops.

**Conclusions**

A number of 23 species of deleterious aphids are mentioned; these are infesting 9 species of fruit trees found in private mixed orchards situated in 12 localities of Vaslui County. *Hyalopterus amygdali* Blanc., *Melanaphis pyrraria* Pass., and *Ovatus insitus* Walk. are species mentioned for the first time in Romania as harmful to fruit trees. *Dysaphis devector* Walk. is mentioned for the first time in Moldova. The most widely spread aphid species is *Myzus persicae* Sulz., and the most vulnerable species of trees is the plum tree (see table 1).

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**Table 1. The evidence of the nourish relations between aphids and fruit trees**

| Aphids \ Trees                 | apple tree | pear tree | quince tree | plum tree | cherry tree | morello tree | peach tree | apricot tree | ungrafted apricot tree | Total |
|--------------------------------|------------|-----------|-------------|-----------|-------------|--------------|------------|--------------|------------------------|-------|
| <i>Aphis craccivora</i>        |            | *         |             | *         |             |              |            |              |                        | 2     |
| <i>Aphis fabae</i>             | *          | *         |             | *         | *           |              |            |              |                        | 4     |
| <i>Aphis pomi</i>              | *          | *         | *           |           |             |              |            |              |                        | 3     |
| <i>Hyalopterus amygdali</i>    |            |           |             | *         |             |              | *          |              |                        | 2     |
| <i>Hyalopterus pruni</i>       |            |           |             | *         |             |              | *          |              |                        | 2     |
| <i>Melanaphis pyrarica</i>     |            | *         |             |           |             |              |            |              |                        | 1     |
| <i>Rhopalosiphum insertum</i>  | *          | *         | *           | *         |             |              |            |              |                        | 4     |
| <i>Rhopalosiphum nymphaeae</i> |            |           |             | *         | *           |              | *          |              |                        | 3     |
| <i>Rhopalosiphum padi</i>      |            |           | *           | *         |             |              |            |              |                        | 2     |
| <i>Aulacortum solani</i>       |            |           | *           |           |             |              |            |              | *                      | 2     |
| <i>Brachycaudus cardui</i>     |            |           |             | *         | *           |              | *          |              |                        | 3     |
| <i>Brachycaudus helichrysi</i> | *          |           |             | *         | *           |              | *          |              |                        | 4     |
| <i>Brachycaudus prunicola</i>  |            |           |             | *         |             |              | *          |              |                        | 2     |
| <i>Dysaphis devector</i>       | *          |           |             |           |             |              |            |              |                        | 1     |
| <i>Dysaphis plantaginea</i>    | *          | *         |             |           |             |              |            |              |                        | 2     |
| <i>Dysaphis pyri</i>           |            | *         |             |           |             |              |            |              |                        | 1     |
| <i>Hyperomyzus lactucae</i>    |            |           | *           |           |             |              |            |              |                        | 1     |
| <i>Macrosiphum euphorbiae</i>  | *          |           |             |           |             |              |            |              | *                      | 2     |
| <i>Macrosiphum rosae</i>       | *          |           | *           |           |             |              |            |              | *                      | 3     |
| <i>Myzus cerasi</i>            |            |           |             |           | *           | *            |            |              |                        | 2     |
| <i>Myzus persicae</i>          | *          | *         | *           | *         | *           | *            | *          | *            | *                      | 9     |
| <i>Ovatus insitus</i>          | *          |           | *           | *         |             |              |            |              | *                      | 4     |
| <i>Phorodon humuli</i>         |            |           |             | *         | *           |              |            |              |                        | 2     |
| Total                          | 10         | 8         | 8           | 13        | 7           | 2            | 7          | 1            | 5                      |       |