

Professional Plant Protection
© 2019 Consultorías Noroeste S.C.

Hemiptera ornamental pests in Galicia I:
Aphidoidea & *Phylloxeroidea* species identified
on woody ornamental crops

*Especies de hemipteros plaga de importancia
ornamental en Galicia I: especies de Aphidoidea y
Phylloxeroidea identificadas en cultivos de especies
leñosas ornamentales*

Scientific paper - *Artículo científico*

J.L. Andrés Ares

Consultorías Noroeste S.C.



***Hemiptera* ornamental pests in Galicia I: *Aphidoidea* & *Phylloxeroidea* species identified on woody ornamental crops.**

Especies de hemípteros plaga de importancia ornamental en Galicia I: especies de Aphidoidea y Phylloxeroidea identificadas en cultivos de especies leñosas ornamentales.

SICI – 2445–1703(20190630)4:6<8:HOPIGI>1.0;CD;2–M

J.L. Andrés Ares

Consultorías Noroeste S.C.

Scientific paper–*Artículo científico*

Accepted for publication 2–4–19

probado 2–4–19

Free reference paper – *Artículo gratuito de referencia*

Abstract

In the present paper the author carries out a checklist with the *Hemiptera* species, belonging to *Aphidoidea* or *Phylloxeroidea*, identified in woody ornamental crops of Galicia, as part of his independent consultancy service, carried out from 1999 to 2018. A total number of 26 new different species were identified, 24 *Aphididae* and 2 *Phylloxeridae*. Considering only crop pests, 21 from 26 were new references for woody ornamental crops in Galicia and 19 of them were new references for Spain. Considering either crop pests or wild fauna there were 4 new references for Spain and 12 for Galicia.

Key words: ornamental aphids, ornamental *phylloxeras*, Galicia, woody ornamental crops.

Resumen

En el presente trabajo el autor relaciona la totalidad de especies de hemípteros de las superfamilias Aphidoidea y Phylloxeroidea identificadas en cultivos de especies leñosas ornamentales de Galicia, como consecuencia de su trabajo como consultor independiente, desde 1999 a 2018. Se identificaron un total de 26 especies diferentes, 24 de la superfamilia Aphididae y 2 pertenecientes a Phylloxeridae. En condiciones de cultivo, 21 de las 26 especies relacionadas son nuevas citas para Galicia y 19 de las mismas para España. Considerando tanto las plagas de cultivos como la fauna salvaje se han registrado 4 nuevas citas de especies para España y 12 para Galicia.

Palabras clave: áfidos ornamentales, filoxeras ornamentales, Galicia, cultivos de leñosas ornamentales.

1. Introducción

Except for the scarce references of *Camellia japonica* pests (Salinero & Vela, 2004; Mansilla *et al.*, 2005; Andrés, 2017), as well as of the different pest species of bamboo (Andrés, 2016), unfortunately there are no literature references about ornamental aphids or phylloxeras neither in Galicia nor in Spain, with the exception of certain references as garden pests (Villalva, 1996). All the in-

formation that a specialist can afford is based on faunistic studies carried out by a specific group of researchers not located in Galicia. All the technical information that the technical staff of the woody ornamental production centres can afford is based either on foreign literature references or on the adaptation of the relatively abundant information about forest pests published either in Galicia or in Spain.

The objective of the present paper, as well as of other to publish in the future, is to detail information about the hemiptera species considered pests on woody ornamental crops of this part of the country. We begin with two of the most important superfamilies considered as ornamental pests worldwide: *Aphididae* and *Phylloxeridae*.

2. Material & methods

The study was carried out only in woody ornamental production centres of Galicia, intermittently from 1999 to 2018. The samples were obtained from 21 nurseries belonging to the following Galician provinces: 14 in Pontevedra, 6 in A Coruña and 1 in Lugo. The entomological monitoring of the pests was carried out every 15 or 30 days, sampling periodically in order to identify the hemiptera species by means of classical entomological determinations.

The infested plant material samples were analyzed in the entomological laboratory of the firm CONSULTORIAS NOROESTE S.C.

The species determinations, carried out by the author, were carried out based on Blackman & Eastop methods (Blackman & Eastop 1994; Blackman & Eastop, 2006; Blackman & Eastop, 2000) as well as based on Alford species descriptions (Alford, 1995).

3. Results

List of identified especies

SUPERFAMILIA *APHIDOIDEA*

Family *Aphididae*

1. *Aphis arbuti* Ferrari, 1872

Host: *Arbutus unedo*.
Type of crop: container.
Province: Pontevedra.

2. *Aphis fabae* Scopoli, 1763

Host: *Peltaria spp.*
Type of crop: soil.
Province: Pontevedra.

3. *Aphis nerii* Boyer de Fonscolombe 1841

Host: *Nerium oleander*.
Type of crop: container.
Province: Pontevedra.

4. *Aphis pomi* de Geer, 1773

Host: *Photinia × fraseri*.
Type of crop: container.
Province: Pontevedra, A Coruña.

5. *Cavariella aegopodii* Scopoli 1763

Host: *Salix alba*.
Type of crop: soil.
Province: Pontevedra,

6. *Dysaphis anthrisci* Börner 1950

Host: *Malus domestica*
Type of crop: soil.
Province: Pontevedra,

7. *Eriosoma lanigerum* hausman 1802

Host: *Malus domestica*
Type of crop: soil.
Province: Pontevedra,

8. *Illinoia liriiodendri* Monell 1879

Host: *Liriodendron spp.*
Type of crop: container.
Province: Pontevedra,

9. *Euceraphis betulae* Koch, 1855

Host: *Betula pendula*.
Type of crop: soil.
Province: Pontevedra,

10. *Illinoia lambersii* Mac Gillivrag 1960

Host: *Rhododendron spp.*
Type of crop: container.
Province: A Coruña,

11. *Macrosiphon rosae* Linnaeus, 1758

Host: *Rosa canina*.
Type of crop: soil.
Province: Pontevedra,

12. *Macrosiphoniella sambornii* Gillette 1908

Host: *Argyranthemum*.
Type of crop: container.
Province: Pontevedra,

13. *Myzocallis castanicola* Baker, 1917
Host: *Castanea sativa*.
Type of crop: container.
Province: Lugo.
14. *Myzocallis boernerii* Stroyan, 1957
Host: *Quercus robur*.
Type of crop: soil.
Province: Lugo.
15. *Myzus persicae* Sulzer, 1779
Host: *Prunus spp.*, *Sasa tsuboiana*, *Phyllostachys rubromarginata*, *Phyllostachys aureosulcata*, *Phyllostachys bissetti*, *Phyllostachys humilis*, *Phyllostachys aurea*, *Phyllostachys nigra*, *Phyllostachys atrovaginata*, *Pseudosasa japonica*.
Type of crop: soil and container.
Province: A Coruña, Pontevedra.
16. *Peryphillus lyropictus* Kessler 1886
Host: *Acer platanoides*.
Type of crop: soil.
Province: Pontevedra.
17. *Mindarius abietinus* Koch 1857
Host: *Abies pinsapo*.
Type of crop: soil.
Province: Pontevedra.
18. *Pterocallis alni* de Geer, 1773
Host: *Alnus glutinosa*.
Type of crop: soil.
Province: Pontevedra.
19. *Takecallis arundicolens* Matsumura, 1917
Host: *Sasa tsuboiana*, *Phyllostachys rubromarginata*, *Phyllostachys aureosulcata*, *Phyllostachys bissetti*, *Phyllostachys humilis*, *Phyllostachys aurea*, *Phyllostachys nigra*, *Phyllostachys atrovaginata*, *Pseudosasa japonica*, *Fargesia scabrada*.
Type of crop: container.
Province: A Coruña, Pontevedra.
20. *Tetraneura ulmi* Linnaeus, 1758
Host: *Ulmus minor*.
Type of crop: soil.
Province: Pontevedra.
21. *Toxoptera aurantii* Boyer de Fonscolombe
Host: *Camellia japonica*, *Ilex aquifolium*, *Pittosporum tobira*, *Sasa tsuboiana*, *Phyllostachys rubromarginata*, *Phyllostachys aureosulcata*, *Phyllostachys bissetti*, *Phyllostachys humilis*, *Phyllostachys aurea*, *Phyllostachys nigra*, *Phyllostachys atrovaginata*, *Pseudosasa japonica*.
Type of crop: container.
Province: Pontevedra, A Coruña.
22. *Tuberculachnus salignus* Gmelin 1790
Host: *Salix alba*.
Type of crop: soil.
Province: Pontevedra.
23. *Aphis gossypii* Glover, 1877
Host: *Camellia japonica*.
Type of crop: container.
Province: Pontevedra.
24. *Paracolopha morrisoni* Baker 1919
Host: *Phyllostachys nigra*, *Phyllostachys bissetti*, *Phyllostachys aurea*, *Phyllostachys aureosulcata spectabilis*, *Phyllostachys decora*.
Type of crop: container.
Province: Pontevedra, A Coruña.

SUPERFAMILIA PHYLLOXEROIDEA

Family Adelgidae

25. *Pineus pini* Macquart 1819

Host: *Pinus sylvestris*.
Type of crop: soil.
Province: Lugo.

Family Phylloxeridae

26. *Phylloxera quercus* Boyer de Fonscolombe 1834

Host: *Quercus robur*.
Type of crop: soil.
Province: Lugo.

4. Discussion

The results presented in this study confirm the thesis pointed out by the great Spanish specialists in aphidology summarized in the following words “ ... the study of the aphid fauna of this part

if Spain is of great interest for an entomologist, as though it has an excellent atlanticity in most part of its surface, it also presents certain zones with important continental influences as well as certain locations with notorious influence of the Mediterranean climate ...” (Mier & Nieto, 1982), the influence of the atlantic climate on the Galician region modulates the wild aphids as well as those injuring ornamental crops: 12 out of 26 aphid species identified and related in the present paper were also described by aphid specialists in the United Kingdom. (Alford, 1995).

It is important to mention the presence of *Aphis fabae* on cultivated *Peltaria spp.*, not referenced on this crop before neither in Galicia (Mier & Nieto, 1982; 1983; Mier *et al.*, 1988; García Prieto, 2004), nor in Spain (Gosh *et al.*, 1994; García Prieto *et al.*, 2004; Pérez Hidalgo *et al.* 2009; Mier & Nafría, 1997; Muñoz *et al.*, 2003) or in the United Kingdom (Alford, 1995). It is also remarkable to mention the presence of *Illinoia liriodendra* on *Liriodendron sp.*, of *Euceraphis betulae* on *Betula pendulae* and of *Illinoia lambersi* on *Rhododendron spp.*, being all of them cultivated hosts, and representing this the first report of them either in Galicia (Mier & Nieto, 1982; 1983; Mier *et al.*, 1988; García Prieto, 2004) or in Spain (Gosh *et al.*, 1994; García Prieto *et al.*, 2004; Pérez Hidalgo *et al.* 2009; Mier & Nafría, 1997; Muñoz *et al.*,

2003). The first two species were not referenced in the United Kingdom (Alford, 1995).

Considering the total number of 26 species presented in this study 21 of them had not been referenced before on such type of crops in Galicia (Mier & Nieto, 1982; 1983; Mier *et al.*, 1988; García Prieto, 2004), 19 of them had not been cited before in Spain (Villalva, 1996; Gosh *et al.*, 1994; García Prieto *et al.*, 2004; Pérez Hidalgo *et al.* 2009; Mier & Nafría, 1997; Muñoz *et al.*, 2003) and 14 had not been cited before on crops in the United Kingdom.

It is important to mention the new worldwide references of *Aphis fabae* on *Peltaria*, of *Myzocallis boernerii* on *Quercus robur* as well as of *Tetraneura ulmi* on *Ulmus minor* (Blackman & Eastop, 2006).

The references of *Takecallis arundicolens*, *Toxoptera aurantii* and *Paracolopha morrosoni* on different species of *Phyllostachys*, *Sasa* and *Fargesia* had been described before by the author that signs this paper on a previous study (Andrés, 2016).

Acknowledgements

The author would like to thank Mr. Lode Van Doorselaer for the aid with the collection of data presented in this study.

TABLE 1. HEMIPTERA SPECIES OF THE SUPERFAMILIES APHIDOIDEA AND PHYLLOXEROIDEA IDENTIFIED IN WOODY ORNAMENTAL CROPS IN GALICIA FROM 1999 TO 2018 AND ITS REFERENCES WORLDWIDE (I)

IDENTIFIED SPECIES	CITED IN GALICIA AS PART OF THE WILD APHID FAUNA	CITED IN GALICIA AS CROP PEST	CITED IN SPAIN AS CROP PEST (C), WILD APHID FAUNA (A), OR FOREST PEST (F). *	CITED IN THE UNITED KINGDOM ON WOODY ORNAMENTAL CROPS
1. <i>Aphis arbutii</i>	Mier & Nieto, 1983; García Prieto <i>et al.</i> , 2004		Gosh <i>et al.</i> , 1994; García Prieto <i>et al.</i> , 2004. A.	
2. <i>Aphis fabae</i>	Mier & Nieto, 1982; 1983. Mier <i>et al.</i> 1988; García Prieto <i>et al.</i> , 2004		Gosh <i>et al.</i> , 1994; García Prieto <i>et al.</i> , 2004; Pérez Hidalgo <i>et al.</i> , 2009. Villalva, 1996. C., A	Alford, 1995
3. <i>Aphis nerii</i>			García Prieto <i>et al.</i> , 2004; Pérez Hidalgo <i>et al.</i> , 2009. A	
4. <i>Aphis pomi</i>	García Prieto <i>et al.</i> , 2004		Gosh <i>et al.</i> , 1994; García Prieto <i>et al.</i> , 2004. A	Alford, 1995
5. <i>Cavariella aegopodii</i>	Mier & Nieto, 1983		Gosh <i>et al.</i> , 1994; Pérez Hidalgo <i>et al.</i> , 2009. A	Alford, 1995

* Type of reference: A – wild aphid fauna; C – ornamental pest; F – Forest pest.

TABLE 1. HEMIPTERA SPECIES OF THE SUPERFAMILIES APHIDOIDEA AND PHYLLOXEROIDEA IDENTIFIED IN WOODY ORNAMENTAL CROPS IN GALICIA FROM 1999 TO 2018 AND ITS REFERENCES WORLDWIDE (II)

IDENTIFIED SPECIES	CITED IN GALICIA AS PART OF THE WILD APHID FAUNA	CITED IN GALICIA AS CROP PEST	CITED IN SPAIN AS CROP PEST (C), WILD APHID FAUNA (A), OR FOREST PEST (F). *	CITED IN THE UNITED KINGDOM ON WOODY ORNAMENTAL CROPS
6. <i>Dysaphis anthrisci</i>			Pérez Hidalgo <i>et al.</i> , 2009. A	Alford, 1995
7. <i>Eriosoma lanigerum</i>				
8. <i>Illinoia liriiodendri</i>				
9. <i>Euceraphis betulae</i>				
10. <i>Illinoia lambersi</i>				Alford, 1995
11. <i>Macrosiphon rosae</i>	Mier & Nieto, 1983		Gosh <i>et al.</i> , 1994; Pérez Hidalgo <i>et al.</i> , 2009. Villalva, 1996. A. C	Alford, 1995
12. <i>Macrosiphoniella sambornii</i>	Mier & Nieto, 1982;			Alford, 1995
13. <i>Myzocallis castanicola</i>			Gosh <i>et al.</i> , 1994; Mier & Nafria, 1997; Pérez Hidalgo <i>et al.</i> , 2009. A	Alford, 1995
14. <i>Myzocallis boernerii</i>			Mier & Nafria, 1997. A	
15. <i>Myzus persicae</i>	Mier & Nieto, 1983	Andrés, 2016	Gosh <i>et al.</i> , 1994; Pérez Hidalgo <i>et al.</i> , 2009. A	Alford, 1995
16. <i>Pineus pini</i>			Muñoz <i>et al.</i> , 2003. F	
17. <i>Phylloxera quercus</i>			Muñoz <i>et al.</i> , 2003. F	
18. <i>Periphyllus liripictus</i>			Mier & Nafria, 1997. A	
19. <i>Mindarius abietinus</i>			Muñoz <i>et al.</i> , 2003. F	
20. <i>Pterocallis alni</i>			Mier & Nafria, 1997. A	
21. <i>Takecallis arundicolens</i>		Andrés, 2016	Mier & Nafria, 1997. A	Alford, 1995
22. <i>Tetraneura ulmi</i>			Pérez Hidalgo <i>et al.</i> , 2009; Muñoz <i>et al.</i> , 2003. A. F	Alford, 1995
23. <i>Toxoptera aurantii</i>	García Prieto <i>et al.</i> , 2004;	Salinero & Vela, 2004; Mansilla <i>et al.</i> , 2005; Andrés, 2017; Andrés, 2016	García Prieto <i>et al.</i> , 2004; Pérez Hidalgo <i>et al.</i> , 2009. A	
24. <i>Tuberolachnus salignus</i>			Gosh <i>et al.</i> , 1994; Pérez Hidalgo <i>et al.</i> , 2009. F	Alford, 1995
25. <i>Aphis gossypii</i>	Mier & Nieto, 1983; García Prieto <i>et al.</i> , 2004	Salinero & Vela, 2004; Mansilla <i>et al.</i> , 2005; Andrés, 2017; Andrés 2016	García Prieto <i>et al.</i> , 2004; Pérez Hidalgo <i>et al.</i> , 2009. F	
26. <i>Paracolopha morrisoni</i>		Andrés, 2016		

* Type of reference: A – Wild aphid fauna; C – Ornamental pest; F – Forest pest.

TABLE 2. HOSTS OF THE HEMIPTERA SPECIES BELONGING TO THE SUPERFAMILIES APHIDOIDEA AND PHYLLOXEROIDEA IDENTIFIED IN WOODY ORNAMENTAL CROPS IN GALICIA FROM 1999 TO 2018 AND ITS REFERENCES WORLDWIDE (I)

IDENTIFIED SPECIES	ORNAMENTAL HOST IDENTIFIED IN THIS STUDY i	REFERENCED IN SUCH CROP (BLACKMAN & EASTOP, 2000)	REFERENCED IN SUCH SPECIES NOT AS CROP BLACKMAN & EASTOP, 2006)
1. <i>Aphis arbutii</i>	<i>Arbutus unedo</i>	NO	YES
2. <i>Aphis fabae</i>	<i>Peltaria spp.</i>	NO	NO
3. <i>Aphis nerii</i>	<i>Nerium oleander</i>	NO	YES
4. <i>Aphis pomi</i>	<i>Photinia × fraserii</i>	NO	YES
5. <i>Cavariella aegopodii</i>	<i>Salix alba</i>	NO	YES
6. <i>Dysaphis anthrisci</i>	<i>Malus domestica</i>	On <i>Malus pumila</i>	YES
7. <i>Eriosoma lanigerum</i>	<i>Malus domestica</i>	On <i>Malus pumila</i>	YES
8. <i>Illinoia liriodendri</i>	<i>Liriodendron spp.</i>	NO	YES
9. <i>Euceraphis betulae</i>	<i>Betula pendula</i>	NO	YES
10. <i>Illinoia lambersi</i>	<i>Rhododendron spp.</i>	NO	YES
11. <i>Macrosiphon rosae</i>	<i>Rosa canina</i>	NO	YES
12. <i>Macrosiphoniella sambornii</i>	<i>Argyranthemum spp.</i>	On <i>Dendranthema × grandiflora</i>	YES
13. <i>Myzocallis castanicola</i>	<i>Castanea sativa</i>	On <i>Castanea sativa</i>	YES
14. <i>Myzocallis boernerii</i>	<i>Quercus robur</i>	NO	On <i>Quercus castanaefolia</i> , <i>Q. cerris</i> , <i>Q. ilex</i> , <i>Q. infectaria</i> , <i>Q. macrolepis</i> , <i>Q. suber</i> , <i>Q. variabilis</i> , <i>Q. ithaburensis</i>
15. <i>Myzus persicae</i>	<i>Prunus spp.</i> , <i>Sasa tsuboiana</i> , <i>Phyllostachys rubromarginata</i> , <i>P. aureosulcata</i> , <i>P. bissetti</i> , <i>P. humilis</i> , <i>P. aurea</i> , <i>P. nigra</i> , <i>P. atrovaginata</i> , <i>Pseudosasa japonica</i> .	On <i>Prunus armeniaca</i> y <i>Prunus mume</i> , <i>Prunus avium</i> , <i>Prunus insitia × domestica</i> ,	YES
16. <i>Pineus pini</i>	<i>Pinus sylvestris</i>	NO	YES
17. <i>Phylloxera quercus</i>	<i>Quercus robur</i>	NO	YES
18. <i>Periphyllus liropictus</i>	<i>Acer platanoides</i>	NO	YES
19. <i>Mindarius abietinus</i>	<i>Abies pinsapo</i>	NO	YES
20. <i>Pterocallis alni</i>	<i>Alnus glutinosa</i>	NO	YES
21. <i>Takecallis arundicolens</i>	<i>Sasa tsuboiana</i> , <i>Phyllostachys rubromarginata</i> , <i>P. aureosulcata</i> , <i>P. bissetti</i> , <i>P. humilis</i> , <i>P. aurea</i> , <i>P. nigra</i> , <i>P. atrovaginata</i> , <i>P. japonica</i> , <i>Fargesia scabrida</i>	NO	Only on <i>Phyllostachys bambusoides</i>
22. <i>Tetraneura ulmi</i>	<i>Ulmus minor</i>	NO	On <i>Ulmus japonica</i> , <i>U. glabra</i> , <i>U. androssouti</i> y <i>U. procera</i>

TABLA 2. HOSTS OF THE HEMIPTERA SPECIES BELONGING TO THE SUPERFAMILIES APHIDOIDEA AND PHYLLOXEROIDEA IDENTIFIED IN WOODY ORNAMENTAL CROPS IN GALICIA FROM 1999 TO 2018 AND ITS REFERENCES WORLDWIDE (II)

IDENTIFIED SPECIES	ORNAMENTAL HOST IDENTIFIED IN THIS STUDY i	REFERENCED IN SUCH CROP (BLACKMAN & EASTOP, 2000)	REFERENCED IN SUCH SPECIES NOT AS CROP BLACKMAN & EASTOP, 2006)
23. <i>Toxoptera aurantii</i>	<i>Camellia japonica</i> , <i>Ilex aquifolium</i> , <i>Pittosporum tobira</i> , <i>Sasa tsuboiana</i> , <i>Phyllostachys rubromarginata</i> , <i>P. aureosulcata</i> , <i>P. bissetti</i> , <i>P. humilis</i> , <i>P. aurea</i> , <i>P. nigra</i> , <i>P. atrovaginata</i> , <i>Pseudosasa japonica</i> .	On <i>Camellia sinensis</i>	On <i>C. caudata</i> , <i>C. japonica</i> , <i>C. kissi</i> , <i>C. sinensis</i> , <i>C. sasanqua</i> , <i>C. williamsi</i>
24. <i>Tuberolachnus salignus</i>	<i>Salix alba</i>	NO	YES
25. <i>Aphis gossypii</i>	<i>Camellia japonica</i>	On <i>Camellia sinensis</i>	YES
26. <i>Paracolopha morrisoni</i>	<i>Phyllostachys nigra</i> , <i>P. bissetti</i> , <i>P. aurea</i> , <i>P. aureosulcata</i> , <i>P. spectabilis</i> , <i>P. decora</i>	NO	On <i>Phyllostachys aurea</i> , <i>P. aureosulcata</i> , <i>P. bambusoides</i> , <i>P. nigra</i> y <i>P. vivax</i>

Literature References

Alford, D. 1995. A color atlas of Pests of Ornamental trees, Shrubs and Flowers. Manson Publishing. 447 pp.

Andrés Ares, J.L. 2016. Aphid pests of container bamboo species in ornamental nurseries of NW Spain. Professional Plant Protection (volume 1) nº 2: 32–39.

Andrés Ares, J.L. 2017. Artrópodos plaga identificados en viveros profesionales de producción de *Camellia japonica* container en el noroeste español. Professional Plant Protection (volumen 2) nº 3: 31–43.

Blackman, R.L. & V. F. Eastop. 1994. Aphids of the world plants. Electronic publication obtained from <http://www.aphidsonworldsplants.info/>

Blackman, R.L. & V. F. Eastop. 2000. Aphids on the World's Crops: An Identification and Information Guide. 2nd Edition. Wiley. 466 pp.

Blackman, R.L. & V. F. Eastop. 2006. Aphids on the world's herbaceous plants and shrubs. Publicación electrónica obtenida de <http://www.aphidsonworldsplants.info/>

García, F., Pérez, N., Mier, M.P. & J.M. Nieto. 2004. Updated check-list of Iberian-balearic Aphidini (Hemiptera, Aphididae). Graellsia, 60 (2): 197–214.

Gosh, A.K., Mier, M.P. & J.M. Nieto. 1994. Distribution of aphidofauna (Homoptera: Aphididae) in the North of Orocantabrian phytogeographic Province, Spain. Boln., Asoc., Esp. Ent. 18(3-4): 81–91.

Mansilla, P., Pérez, R., Salinero, C. & P. Piñón. 2005. Pests detected on camelia in Spain. Poster presented at the Camellia International Congress that took place in March 2005 in Locarno, Switzerland.

Mier, M.P. & J.M. Nieto. 1983. Aportaciones a la afidofauna de Galicia, II (Hom. Aphidoidea). Boletín Asoc. Esp., Entom. Vol. 6 (Fasc. 2): 325–336.

Mier, M.P. & J.M. Nieto. 1997. Relación de especies de la fauna iberobaleár de doce subfamilias de pulgones (*Hemiptera*, *Sternorrhyncha*: *Aphididae*). Boln. Asoc., Esp. Ent. 21(3-4): 251-268.

Mier, M.P. & J.M. Nieto. Aportaciones a la afidofauna de Galicia: I. 1982. Boletín Asoc. Esp., Entom. Vol. 5 (1981): 31-36.

Mier, M.P., Remaudière, G. & J.M. Nieto. 1988. Aportaciones a la afidofauna de Galicia, 4 (Hom. *Aphidoidea*). Boletín Asoc. Esp. Entom. Vol. 12: 259-268.

Muñoz, C., Pérez, V., Cobos, P., Hernández, R. & G. Sánchez. 2003. Sanidad Forestal. Mundi Prensa. 575 pp.

Pérez, N., Umaran, A., Mier, M.P. & J.M. Nieto. 2009. Aportaciones a la afidofauna ibero-baleár (*Hemiptera*, *Aphididae*) a partir de las fotografías (y de sus metadatos) depositadas en el "Banco taxonómico Faunístico Digital de los Invertebrados Ibéricos" (B.T.F.D.I.I.)*. Graellsia, 65 (2):171-181.

Salinero, C. & P. Vela. 2004. La camelia. Diputación de Pontevedra. 297 pp.

Villalva, S. 1996. Plagas y enfermedades de jardines. Mundi-Prensa. 192 pp.