

## FIRST RECORD OF THE *Prociphilus oleae* (Leach ex Risso, 1826) IN SLOVENIA AND CROATIA

Tatjana MASTEN MILEK<sup>1</sup>, Gabrijel SELJAK<sup>2</sup>, Mladen ŠIMALA<sup>3</sup>, Maja PINTAR<sup>4</sup>

<sup>1,3,4</sup>Croatian Centre for Agriculture, Food and Rural Affairs – Institute for Plant  
Protection, Zagreb

<sup>2</sup>Agricultural and Forestry Institute Nova Gorica, Nova Gorica

### ABSTRACT

*Prociphilus oleae* (Leach ex Risso, 1826) [Hemiptera, Aphidoidea: Aphididae] was found for the first time in Slovenia in the middle of May 2018 on a garden olive tree in Solkan near Nova Gorica. It is assumed, that this pest was brought by olive plant seedlings from neighbour Italy. There is no significant damages for now, but it can still be considered as a potential but less significant olive pest. *P. oleae* was registered for the first time in Croatia in June 2018 in the olive grove on the Šibensko kninska county in two locations. The infested olives by this aphid, were exposed to low temperatures and adverse climatic conditions over the past winter. In the vicinity of the olive groves there were also vineyards. There is very little information about the bioecology of this pest. In the paper description of species, its biology and ecology, distribution in Europe, Slovenia and Croatia, natural enemies and potential control options are presented.

**Key words:** *Prociphilus oleae*, *Olea europaea*, Slovenia, Croatia

### 1 INTRODUCTION

*Prociphilus oleae* is by now the only known aphid that attacks the olive tree (*Olea europaea*). Beside olive tree, primary host plant can be *Phillyrea latifolia*, but less often. In spring compact colonies covered in white wax wool are settled on shoots near base of trunk. The secondary host plant of this pest is a grape vine (*Vitis vinifera*). On grape vine this aphid parasites at the roots.

So far it has been recorded in France, Greece, Italy, Spain and Turkey. In these countries, infestation of very high intensity, as well as the presence of these aphid at the primary and secondary hosts were recorded.

### 2 MATERIALS AND METHODS

Faunistic investigations aimed at these aphid species were carried out in 2018 in Solkan area near Nova Gorica in Slovenia and Šibensko-kninska county of Croatia. *P. oleae*

---

<sup>1</sup> dr. sc., Gorice 68b, HR-10000 Zagreb, Croatia, e-mail: [tatjana.masten@zeleni-prsten.hr](mailto:tatjana.masten@zeleni-prsten.hr)

<sup>2</sup> mr. sc., Pri hrastu 18, SI-5000 Nova Gorica

<sup>3</sup> dr. sc., Gorice 68b, HR-10000 Zagreb, Croatia

<sup>4</sup> dipl. ing., ibid

was found during inspections of olive trees. Host plants were surveyed visually for the presence of immature or adult stages with the help of a magnifying lens of 10x magnification. Host plant material infested with aphids (stems, shoots, part of branches) was collected and stored in plastic bags, each sample labelled with collection data (locality details, host plant, any damage symptoms, collectors name, samples number, date, GPS coordinates). Characteristics of collected specimens were observed under the dissecting stereo microscope. Aphids were subsequently slide mounted according to methods of Blackman & Eastop (2000) and microscopic identification was made on the basis of morphological characteristics of adult females according to key by Blackman & Eastop (1994) (Fig. 1).

374



Fig 1: Permanent slide of *P. oleae* (photo: G. Seljak).

### 3 RESULTS AND DISCUSSION

In Slovenia it was found for the first time in the middle of May 2018 on a garden olive tree in Solkan near Nova Gorica 45°58'14"N, 13°38'30"E. It is assumed, that this pest was brought by olive plant seedlings from neighbour Italy. There is no significant damages for now, but it can still be considered as a potential but less significant olive pest.

In June 2018 in the olive grove on the Šibensko kninska county in Croatia in two locations Ičevo 43°54'36.7"N, 15°54'32.5"E and Grabovci 43°51'39.71"N, 15°45'10.03"E *P. oleae* was registered. The infested olives by this aphid, were exposed to low temperatures and adverse climatic conditions over the past winter. In the vicinity of the olive groves there were also vineyards.

*P. oleae* was already mentioned in Croatia in the past, in 2001 in Istria (Žužić, 2008) and on island Brač - locality Supetar (Bjeliš, 2013). In these cases laboratory identification was not made according relevant keys and microscopic morphological characteristics. These previous records were done only by visual inspections what is not relevant faunistic data, but we can take it into account as a fact.

### Notes on morphological and ecological characters

Macroscopic characters are not reliable to separate *P. oleae* and *Euphyllura olivina* because they look very similar because of waxy filaments of this two species. It should be pointed out that only identification on the basis of microscopic morphological characters, according to the relevant keys can give reliable results of species identity. Adult female of *P. oleae* are grey with greyish yellowish abdomen (Fig. 2).



375

Figure 2: Adult alata *P. oleae* (photo: Tatjana Masten Milek).

Some microscopic characters important for a reliable identification of *P. oleae* are: missing siphunculi, group of well-developed glands on head and mesonotum, round rhinarium on antenna and transversal rhinarium on third and fourth segment of antenna and pale apical band on last segment of rostrum.

Compact colonies of the aphid occupied usually the basal part of 2 to 3-year old shoots at various heights in the trees up to 4 m, and mostly 1.5 to 2.5 from the ground (Fig. 3). Usually there was one colony per shoot. The colonies consisted of approximately 50 individuals, including fundatrices, alatae fundatrigeniae and immatures.

On olive the fundatrices occur in the fissures near the base of the trunk, while the fundatrigeniae almost exclusively infest the "wild shoots" at the base of the trunk, and seldom occur higher on the trunk. On *P. media* they occur on "stems and branches" towards their base.

A high percentage of the infested olive trees had some or all of the following characteristics: deep scars, fissures, or other cavities on the trunk or on the main limbs.

Those cavities were caused by the removal of limbs, shoots, or suckers in the past, or by large wounds of the bark. Some trees had knobs or galls at the base of the trunk, at or near the soil line or up to half a meter from it. The cavities seem to offer suitable sites for the sexuales to lay the winter eggs.



376

Figure 3: Colony of *P. oleae* (photo: Gordana Kožarić Silov).

The fundatrigeniae are winged and migrate at the end of April and early May from these oleaceous primary hosts to the roots of an unknown secondary host or hosts. Alatae sexuparae fly to the primary hosts in November - December and the fundatrix occurs in March. Infested trees are very often on uncultivated land.

#### 4 CONCLUSIONS

*Prociphilus oleae* are native to Europe. It is the only species of aphid known to infest olive trees. *P. oleae* has been reported from a number of countries of the Mediterranean,

namely Greece, Turkey, France, Italy, Slovenia and Croatia. It is new insect species for Slovenia and Croatia recorded for the first time in 2018, even occurrence of this species was mentioned in the past in Croatia only on the base of the visual inspection without laboratory diagnostic confirmation. There was no significant damages for now, but it can still be considered as a potential but less significant olive pest.

## 5 REFERENCES

- Blackman, R. L., Eastop, V. F. 1994. Aphids on the World's Trees. An Identification and Information Guide. Wallingford, Oxon, UK, CAB International: 987 pp.
- Blackman, R. L., Eastop, V. F. 2000. Aphids on the world's crops. An identification and information guide. Chichester, UK, Wiley: 476 pp.
- Institute for plant protection. 2013. Early warning system in 2013. – annual report – Institute for plant protection - CAFFRA (internal)
- Tzanakakis, M., Prophetou-Athanasiadou, D. 1988. Characteristics of infestation of olive trees by *Prociphilus oleae* (Leach ex Risso) (Homoptera: Pemphigidae). Entomologia Hellenica, 6: 49-54.
- Žužič, I. 2008. Maslina i maslinovo ulje (s posebnim osvrtom na Istru). Olea – udruga maslinara Istarske županije: 380 pp