

# THE FIRST RECORDS OF THREE ERIOPHYID MITE SPECIES (ACARI: ERIOPHYIDAE) IN LATVIA

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Petrov D. 2023. The first records of three eriophyid mite species (Acari: Eriophyidae) in Latvia. *Acta Biol. Univ. Daugavp.*, 23(2): 265-269.

## Abstract

The research focuses on gall-forming eriophyid mites in Latvia and is based on data collected in 2021. Three new eriophyid mite species, which have not been previously recorded in the Latvian fauna are presented. Two species: *Aceria artemisiae* (Canestrini) and *Aceria laticincta* (Nalepa) are associated with herbaceous plants – *Artemisia vulgaris* L. (Asteraceae) and *Lysimachia vulgaris* L. (Primulaceae) respectively. *Eriophyes prunianus* Nalepa is found on domestic plums (*Prunus domestica* L.). Since the 1970s, the finding of *Stenacis triradiatus* (Nalepa) in Latvia has been reported again. Galls initiated by *S. triradiatus* have been found *Salix caprea* L. and *Salix cinerea* L. It is assumed that *A. artemisiae* is widely distributed throughout Latvia, whereas *A. laticincta* has been recorded only in the south. The single registration of *E. prunianus* suggests the need for additional research to clarify its distribution.

Keywords: Eriophyidae, eriophyid mites, gall-forming mites, galls, Latvia, new finds

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## INTRODUCTION

The Eriophyid mites (Acari: Eriophyidae) is a group of arthropods causing various disturbances and damages to plants. The history of researching gall mite fauna in Latvia is primarily related to the studying species of practical importance as pests of ornamental and cultivated plants (Shevchenko & Rupais 1964, Rupais 1981, Stalažs & Moročko-Bičevska 2016, Stalažs & Turka 2019). In 2019, a checklist of 67 species of eriophyid mites of Latvia was published. In 2020, two more species were added to the list: *Anthocoptes masseei* (Nalepa 1925) associated with blackcurrant (Salmane et al. 2020) and *Aceria erinea* damaging walnut (Stalažs et al. 2020). *Aceria erinea* is an alien species of Latvia and it has been actively

spreading across Europe over the last twenty years (Flechtmann et al. 2002, Hulme 2009, Stalažs et al. 2020).

## MATERIAL AND METHODS

The article is based on materials collected during the study of gall-inducing arthropods carried out in Latvia in 2021. It has to be noted that eriophyid species were identified on the bases on specific galls induced on plants by mite infestation and the characteristic of each mite species, not using the morphological characters of the mite species. Descriptions of plant damage and photographs given in the publication “Eriophyid mites (Acari: Eriophyoidea) of Poland” (Skoracka et al.

2005) and online databases, such as “Plant Parasites of Europe: leafminers, galls, and fungi” (Ellis 2020) and “GBIF: The Global Biodiversity Information Facility” (GBIF 2023), were used. Plant parts with galls were collected and dried, like herbarium samples. All materials are deposited in the collection of the Daugavpils University (Daugavpils University collection of Animal Biodiversity – DUBD). The validity of genus and species names was verified with of the GBIF Backbone Taxonomy (GBIF Secretariat 2022) in this paper.

## RESULTS

As a result of our research, we can state the presence of three new eriophyid mite species

in the Latvian fauna. Two species: *Aceria artemisiae* (Canestrini 1891) and *Aceria laticincta* (Nalepa 1892) are parasites associated with herbaceous plants. *Eriophyes prunianus* Nalepa, 1926 damages domestic plums (*Prunus domestica* L.). Description of galls induced by these species, their distribution and photos are given below.

### List of species

#### *Aceria artemisiae* (Canestrini, 1891)

**Host plant records from Latvia:** *Artemisia vulgaris* L. (Asteraceae).

**Description of galls:** Mites cause club-shaped galls on the upper leaf surface (Fig. 1A).



**Figure 1.** Galls of *Aceria artemisiae* (A) on leaves of *Artemisia vulgaris*; *Aceria laticincta* (B) on *Lysimachia vulgaris*; *Eriophyes prunianus* (C) on domestic plum (*Prunus domestica*). *Stenacis triradiatus* (D) on *Salix caprea*. Photo: D. Petrov.

**Records in Latvia:** DUBD-0001079, 03.07.2021, 55.86700305290941, 26.97262927892466, Lielborne, Salienas parish, Augšdaugavas district; DUBD-0001095, 05.07.2021, 56.16109299516547, 26.47725954346993, 5 km NE from Dreiski, Nīcgales parish, Augšdaugavas district; DUBD-0001273, 12.07.2021, 57.634940, 22.313110, 1,5 km NE Mierkalni, Šlītere, Dundagas parish, Talsu district; DUBD-0001161, 24.06.2021, 56.91398759416226, 27.012218241591818, 1 km E from Osa, Lazdukalna parish, Balvu district.

**Distribution in the world:** Austria, Belarus, Canada, Germany, Lithuania, Netherlands, Norway, Poland, Russia, Spain, Sweden, United Kingdom (GBIF.org 2023a).

#### *Aceria laticincta* (Nalepa, 1892)

**Host plant records from Latvia:** *Lysimachia vulgaris* L. (Primulaceae).

**Description of galls:** Mites cause narrow rolling of leaf edges on the underside. Damaged leaves become deformed and turn red or maroon in color (Fig. 1B).

**Records in Latvia:** DUBD-0001049, 12.07.2021 56.465158584561735, 24.824975962273122, 4 km SE from Penderi, Valles parish, Bauskas district; 13.07.2023, 56.47941790049239, 24.561062814138182, 1,5 km S from Gaisma, Bārbeles parish, Bauskas district.

**Distribution in the world:** Denmark, France, Germany, Lithuania, Luxembourg, Netherlands, Poland, Sweden, United Kingdom (GBIF.org 2023b).

#### *Eriophyes prunianus* Nalepa, 1926

**Host plant records from Latvia:** *Prunus domestica* L. (Rosaceae).

**Description of galls:** Mites cause small (up to 2 mm) pubescent galls of light green or reddish coloration on the upper side of leaves (Fig. 1C).

**Records in Latvia:** DUBD-0001013, 24.06.2021, 56.42495264102208, 26.942195972159556, Pustinka, Silmala Parish, Rēzekne Municipality.

**Distribution in the world:** Belarus (Petrov 2021), France, Germany, Poland, Russia (GBIF.org 2023c).

In addition, on willows (*Salix caprea* L. and *Salix cinerea* L., (Salicaceae)) large galls (up to 5 cm) were recorded. These galls represent modified, significantly thickened lateral shoots or male and female buds with highly shortened scale-like leaves (Fig. 1D). It can be assumed that the formation of such galls is initiated by *Stenacis triradiatus* (Nalepa, 1892), which have been previously reported to Latvia as *Eriophyes triradiatus* Nal. (Cinovskis 1979), but later it was not mentioned in other publications. Records in Latvia: DUBD-0001189, 30.01.2022, 55.691657820524775, 26.783760590437513, Ilgas, Skrudalienas parish, Augšdaugavas district; DUBD-0001277, 13.07.2021, 57.542111, 22.664079, Žocene, Rojas parish, Talsu district; DUBD-0001061, 03.07.2021, 55.871617874714715, 26.862004415669556, 1,5 km SE from Orehovka 1, Vecsalienas parish, Augšdaugavas district; DUBD-0001306, 12.07.2021, 57.634940, 22.313110, 1,5 km NE Mierkalni, Šlītere, Dundagas parish, Talsu district; DUBD-0001025, 23.06.2021, 55.87381202127401, 26.62244505256965, Daugavpils.

## DISCUSSION

The research on gall-forming arthropods in Latvia has yielded new data on the diversity of eriophyid mites. The data received indicate the presence of three new species of eriophyid mites in the Latvian fauna: *A. artemisiae*,

*A. laticincta* and *E. prunianus*, which have not yet been reported in the fauna of Latvia (Stalažs & Turka 2019). It can be assumed that *A. artemisiae* is present throughout the territory of Latvia, considering the registration of this species in the east and north-west of the country. In addition, publications indicate that *A. artemisiae* is widely distributed in Europe, including Lithuania, Poland (Boczek & Petanovič 1996) and Belarus (Petrov 2021). There are only two known registration points of *A. laticincta* in the south of the country, but we do not exclude that with additional research the species may be found in other regions of Latvia. *E. prunianus* occurs rarely, with single records known. The species has no economic importance as a pest of domestic plum (*P. domestica*), in other European countries is also quite rare (Skoracka et al. 2005, Petrov 2021). Further research and monitoring are needed to find out the current distribution of the species in the country.

*S. triradiatus* was identified by characteristic plant damage caused by mite infestation. However, literature suggests the presence of inquilines, particularly *Aculus truncata* (Nalepa 1892), within these galls on willows (Denizhan et al. 2015). Therefore, if mites were identified based on mite morphology, *A. truncatus* could also be found in Latvia in the future.

## CONCLUSIONS

Considering the latest published records of new eriophyid mite species and the number of species mentioned in the latest Latvian checklist, together with the species reported in this report, 73 species can now be safely confirmed in Latvia. Supposedly, this list can be significantly expanded further to include eriophioid mites trophically associated with herbaceous plants.

## ACKNOWLEDGEMENTS

I am grateful to the two anonymous reviewers for the valuable comments in order to improve the manuscript.

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Received: 03.11.2023.

Accepted: 16.12.2023.