

Additional mite records (Acari: Mesostigmata, Sarcoptiformes, Trombidiformes) from Syria

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Received: 2/05/2021

Accepted: 24/08/2021

Abstract

The present study is a part of a collection of mites fauna aimed to identify species that occurred on some cultivated plants and wild vegetation in Tartus governorate, Syria in November and December 2020. The results showed the presence of thirteen mite species belonging to six families, of which four species are new records for Syrian mite fauna: the predatory mite *Blattisocius dendritic* (order Mesostigmata, family Blattisociidae) collected on *Solanum melongena*; the predatory mite *Euseius finlandicus* (order Mesostigmata, family Phytoseiidae) collected on *Castanea* sp.; the predatory mite *Glycyphagus domesticus* (order Sarcoptiformes, family Glycyphagidae) collected on *Quecus* sp.; and the phytophagous mite *Cenopalpus tamarixi* (order Trombidiformes, family Tenuipalpidae) collected on *Pinus pinea*. Morphological measurements and complementary description is given for this later species.

Keywords: new record, *Blattisocius dendriticus*, *Euseius finlandicus*, *Glycyphagus domesticus*, *Cenopalpus tamarixi*, Syria

Introduction

Knowledge of mite fauna has relatively been advanced in Syria since 2010, with approximately 100 predatory and phytophagous mite species of several families were recorded, in particular in the citrus and some other agroecosystems of Latakia governorate (Barbar, 2013, 2016, 2017, 2018a, b; Zriki *et al.*, 2015; Zeity, 2017; Zeity and Negm, 2019; Zeity and Srinivasa, 2019). Surveys of mites in other Syrian governorates are poorly carried out. Consequently, more investigations are needed and it seems important to conduct surveys in other areas where nothing is known about mite fauna.

The aim of the present research was to identify mite species inhabiting some cultivated plants and wild vegetation in Tartus Governorate, Syria.

Materials and methods

Surveys of mite fauna were conducted several times in the Tatus governorate in November and December 2020. The mites were collected from leaves of several cultivated and wild plant species located at Draykish (34° 90' 59" N, 36° 13' 87" E; elevation 500 msl), Btaresh (34° 82' 89" N, 36° 17' 36" E; elevation 380 msl) and at Dwair Reslan (34° 95' 81" N, 36° 25' 38" E; elevation 760 msl) Tartus, Syria. Mites were extracted from leaves using the "dipping-checking-washing-filtering" method (Boller, 1984) and then mounted on slides in Hoyer's medium and dried at 45-50°C for 2-3 weeks.

Mite taxa were identified to family levels using the key of Krantz and Walter (2009). Identification to infra-familial levels was carried out mainly using the following works: (1) for Mesostigmata: Blattisociidae (Moraes *et al.*, 2016) and Phytoseiidae (Chant and McMurtry, 2007); (2) for Sarcoptiformes: Gylcyiphagidae (Colloff, 2009); (3) for Trombidiformes: Stigmaeidae (Fan *et al.*, 2016), Tenuipalpidae (Meyer 1979; Mesa *et al.*, 2009; Negm *et al.*, 2020) and Tetranychidae (Bolland *et al.*, 1998).

The specimens were deposited in the Arthropod Collection of the Department of Plant Protection, Faculty of Agriculture, Al-Baath University, Homs, Syria.

Results and discussion

Thirteen mite species belonging to six families are recorded in this study, of which four are recorded for the first time from Syria.

1- Newly recorded species

Order: Mesostigmata

Family: Blattisociidae

***Blattisocius dentriticus* (Berlese) (Figure 1)**

Examined material: one female, ex. *Solanum melongena* L. (Solanaceae), Btaresh, Tartus Governorate (34° 82' 89" N, 36° 17' 36" E, elevation 380 msl), Date of collection, 13. xi. 2020, Coll. Yousef HANNA.

Remarks: this is the first record of this species from Syria. It is widely found in Europe. It is also found in Egypt, India, Japan, USA and other countries (Santos *et al.*, 2021). It is reported to feed on larvae and eggs of *Tyrophagus putrescentiae* (Schrank) (Acaridae, Sarcoptiformes) and also on different stages of *Liposcelis entomophila* (Enderlein) (Liposcelididae, Psocoptera) (Moraes *et al.*, 2015).

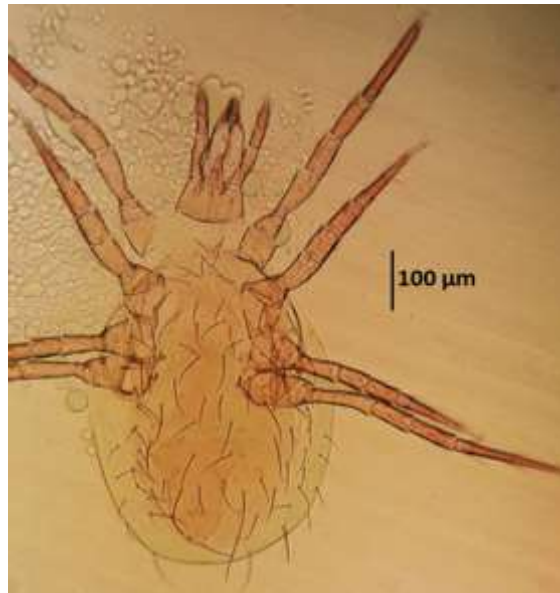


Figure 1: *Blattisocius dentriticus*, dorsum of female

Family: Phytoseiidae

***Euseius finlandicus* (Oudemans) (Figure 2)**

Examined material: one female, ex. *Castanea* sp. (Fagaceae), Dwair Reslan, Tartus Governorate (34° 95' 81" N, 36° 25' 38" E, elevation 760 msl), Date of collection, 15. xi. 2020, Coll. Rania EBRAHEEM and Aghnar KHADOR.

Remarks: this is the first record of this species from Syria. It is widely distributed in the northern hemisphere (Demite *et al.*, 2021) and found on apple, peach, grape, hazelnut and other trees. It can feed on several groups of mites (i.e. Tetranychidae, Eriophyidae and Tarsonemidae) and on pollen (Schausberger, 1998; Broufas *et al.*, 2002; Kasap, 2009).

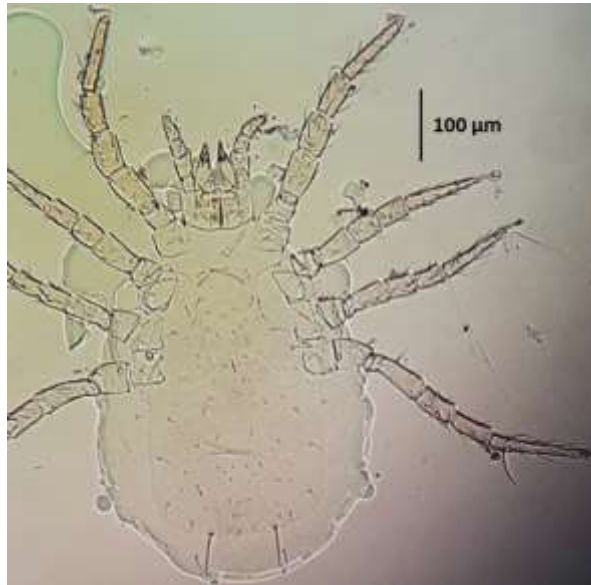


Figure 2: *Euseius finlandicus*, dorsum of female

Order: Sarcoptiformes

Family: Glycyphagidae

***Glycyphagus domesticus* (De Geer) (Figure 3)**

Examined material: one female, ex. *Quecus* sp. (Fagaceae), Dwair Reslan, Tartus Governorate (34° 95' 81" N, 36° 25' 38" E, elevation 760 msl), Date of collection, 29. xi. 2020, Coll. Rania EBRAHEEM and Aghnar KHADOR.

Remarks: this is the first record of this species from Syria and also the first report of its family. It is a common stored-food mite, has been reported from house dust in many countries, and found in nests, and bat roosts (Krantz and Walter, 2009; Hoy, 2011).

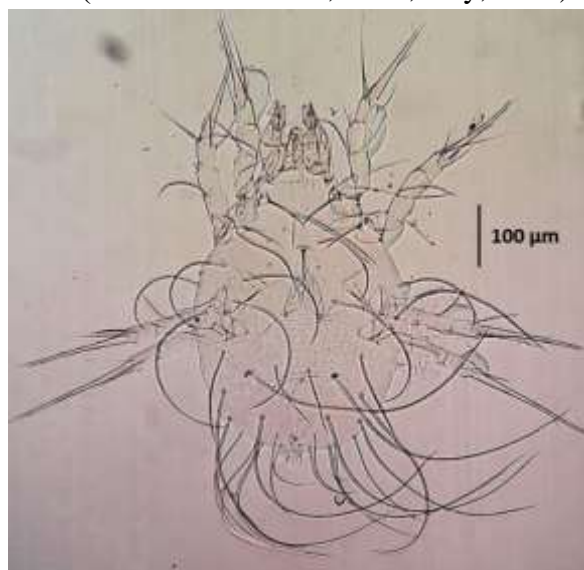


Figure 3: *Glycyphagus domesticus*, dorsum of female

Order: Trombidiformes**Family Tenuipalpidae*****Cenopalpus tamarixi* Nassar and Kandeel**

Examined material: three females and one nymph, *Pinus pinea* L. (Pinaceae), Draykish, Tartus Governorate (34° 90' 59" N, 36° 13' 87" E, elevation 500 msl), Date of collection, 15. xi. 2020, Coll. Rania EBRAHEEM and Aghnar KHADOR.

Remarks: this is the first record of this species from Syria and the second international record. It was described from Egypt on *Tamarix articulata* Vahl. Measurements (in micron) and morphological characteristics of Syrians specimens are presented as the following:

***Female* (n = 3)**

Dorsum - Idiosoma length (280–300), excluding gnathosoma; width (160–184), at level of sejugal furrow. Rostral shield with 2 medial lobes (Figure 4); reticulation and striation as described by Nassar and Kandeel (Zaher, 1984); setae v_2 shorter than distance between v_2 – v_2 . Lengths of dorsal setae: v_2 (19–22), sc_1 (17–19), sc_2 (22–23), c_1 (20–22), c_2 (18–20), c_3 (19–20), d_1 (12–13), d_3 (18–20), e_1 (10–11), e_3 18, f_2 (18–21), f_3 (18–21), h_1 (15–17), h_2 (18–21) (Figure 5).

Venter - Lengths of ventral setae: 1a (60–68) (Figure 6A), 3a (75–82), 4a (88–92) (Figure 6B); aggenital setae ag (11–12); genital setae g_1 (18–21), g_2 (21–22) (Figure 6C); anal setae ps_1 (12–14), ps_2 (12–13). Distances between genital area setae: ag–ag 28–31, g_1 – g_1 41–43, g_2 – g_2 52–56.

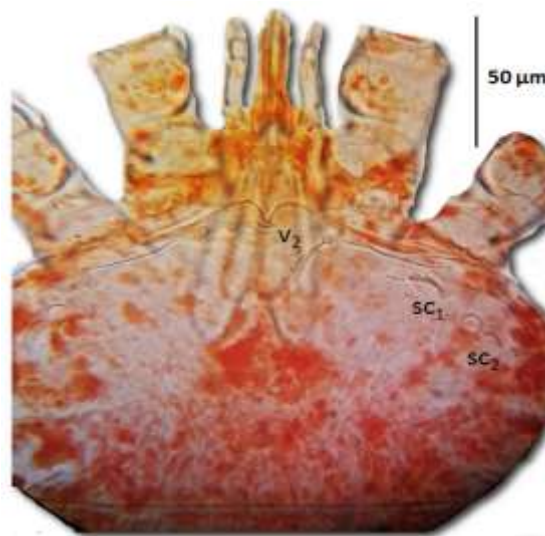


Figure 4: *Cenopalpus tamarixi*, prodorsum of female

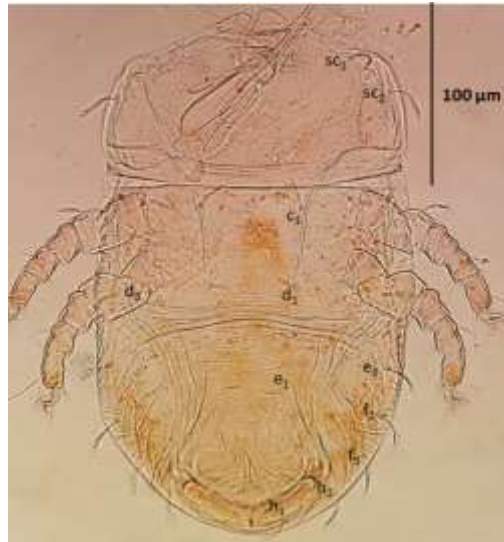


Figure 5: *Cenopalpus tamarixi*, dorsum of female

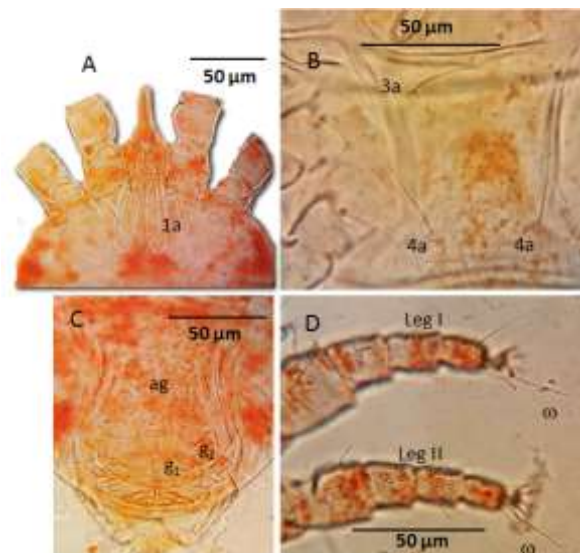


Figure 6: *Cenopalpus tamarixi*, ventral (A and B), aggenital and genital (C) setae; leg I and II (D) of female

Gnathosoma - Rostrum reaching distal ends of femur I. Palp 4-segmented, palp tarsus with asolenidion and 2 eupathidia, palp tibia with 1 seta, palp femur/genu with 1 dorsal seta.

Legs. Chaetotaxy of legs as described by Nassar and Kandeel (Zaher, 1984); tarsus I and II with solenidia I ω 31-34, II ω 28 (Figure 6D).

2- Already known species

Nine other species belonging to four families were also collected. All of these species has already been recorded from Syria.

Order: Mesostigmata

Family: Phytoseiidae

Euseius scutalis (Athias-Henriot)

Examined material: one female ex. *Citrus limon* (L.) (Rutaceae) Burm in Draykish, Tartus Governorate, Date of collection, 8. xi. 2020, Coll. Rania EBRAHEEM and Aghnar KHADOR.

Remarks: this species was widely collected from citrus orchards and on wild plant such as *Malva sylvestris* L., *Amaranthus retroflexus* L., *Sonchus oleraceus* L., and *Xanthium strumarium* L. in Latakia governorate (Barbar, 2013, 2014).

***Phytoseius finitimus* Ribaga**

Examined material: six females and one male of this species were collected *S. melongena*, Btaresh, Tartus Governorate, Date of collection, 13. xi. 2020, Coll. Yousef HANNA.

Remarks: This species was observed on *S. melongena* and widely collected from *Rubus fruticosus* L. and also found on *Rhamnus* sp., *Ficus carica* L., *X. strumarium* and on *Eriobotrya japonica* (Thunb.) Lindl. in Latakia governorate (Barbar, 2013, 2016).

***Typhloromus (Typhlodromus) athiasae* Porath and Swirski**

Examined material: one female of this species was collected on *Cupressus sempervirens* L., Draykish, Tartus Governorate, 15. xi. 2020, Coll. Rania EBRAHEEM and Aghnar KHADOR.

Remarks: this species was widely collected from citrus orchards in Latakia governorate. High number of specimens was also collected from *C. sempervirens* and other plant such as *Cirsium arvense* L. and *M. sylvestris* (Barbar, 2013, 2014).

***Typhlodromus (Typhlodromus) ernesti* Ragusa and Swirski**

Examined material: one female of this species was collected on *P. pinea* in Draykish, Tartus Governorate, 15. xi. 2020, Coll. Rania EBRAHEEM and Aghnar KHADOR.

Remarks: this is the first record from this plant in Syria. It was recorded on *Pinus halepensis* Mill., in Latakia governorate (Barbar, 2018b).

***Typhlodromus (Typhlodromus) pyri* Scheuten**

Examined material: nine females of this species were collected on *Castanea* sp., in Dwair Reslan, Tartus Governorate, 13. xi. 2020, Coll. Rania EBRAHEEM and Aghnar KHADOR.

Remarks: this species the first record of this species on this plant and the second record from Syria since it was observed on apple trees in the south of Syria (Swaida governorate) (Majd Jamal, personal communication, 2021).

Order: Trombidiformes

Family: Stigmaeidae

***Agistemus exsertus* Gonzalez-Rodriguez**

Examined material: three females of this species were collected on *Abelmoschus esculentus* (L.) Moench in Btaresh, Tartus Governorate, 13. xi. 2020, Coll. Yousef HANNA.

Remarks: this is the second record of this species from Syria. It was observed on *C. limon* in Latakia governorate (Barbar, 2016).

Family Tenuipalpidae

***Brevipalpus obovatus* Donnadieu**

Examined material: two females of this species were collected on *S. melongena* in Btaresh, Tartus Governorate, 13. xi. 2020, Coll. Yousef HANNA.

Remarks: this is the second record of this species from Syria. It was observed on *E. japonica* in Latakia governorate (Barbar, 2016).

Family Tetranychidae

***Panonychus citri* (McGregor)**

Examined material: two females of this species were collected on *C. limon* in Draykish, Tartus Governorate, 8. xi. 2020, Coll. Rania EBRAHEEM and Aghnar KHADOR.

Remarks: it is a common species in citrus orchards in Latakia governorate (Zriki *et al.*, 2015; Qurhaily *et al.*, 2016).

***Tetranychus* sp.**

Five females of this genus were collected on *A. esculentus*, *Mentha* sp. and *Mirabilis jalapa* L., in Btaresh, Tartus Governorate, 2 and 13 November, 2020. It was impossible to confirm the species of this genus since the male was not collected.

Conclusion: four new records of mites from Syria are presented in this paper. Further studies are required to identify mites in other locations in Tartus Governorate and also in other Syrian governorates, and to clarify their potential effects as beneficial mites or pests in Syrian agrosystems.

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تسجيلات جديدة للأكاروسات, (Acari: Mesostigmata, Sarcoptiformes, Trombidiformes) في سورية

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تاريخ الاستلام: 2021/05/2 تاريخ القبول: 2021/08/24

الملخص

تشكل الدراسة الحالية جزءاً من عملية جمع للأكاروسات وقد هدفت إلى تحديد الأنواع الأكاروسية الموجودة على بعض النباتات المزروعة والبرية في محافظة طرطوس، سورية. تم التحري عن الأكاروسات خلال شهري تشرين الثاني وكانون الأول عام 2020. أظهرت النتائج وجود 13 نوع أكاروسي تتبع لست فصائل، منها أربعة أنواع تُسجل لأول مرة في سورية : النوع المفترس *Blattisocius dentriticus* (فصيلة Blattisociidae) وقد جُمع من أوراق الباذنجان *Solanum melongena*، والنوع المفترس *Euseius finlandicus* (فصيلة Phytoseiidae) وقد جُمع من أوراق الكستناء *Castanea sp.* والنوع *Glycyphagus domesticus* (فصيلة Glycyphagidae) وجمع من أوراق *Quercus sp.* والنوع *Cenopalpus tamarixi* وقد جُمع من أوراق الصنوبر الثمري *Pinus pinea*. وقد أضيفت القياسات الشكلية وبعض المعلومات لوصفه المورفولوجي.

كلمات مفتاحية : تسجيل جديد, *Blattisocius dentriticus*, *Euseius*, *Glycyphagus domesticus*, *Pinus pinea*, *Cenopalpus tamarixi*, سورية