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THE PRESENT KNOWLEDGE AND NEW RECORDS OF PHYTOSEIID AND TYDEID MITES (ACARI: PHYTOSEIIDAE, TYDEIDAE) FOR THE FAUNA OF SERBIA AND MONTENEGRO

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Thirty two (32) species of phytoseiids and six (6) species of tydeids (Acari: Phytoseiidae and Tydeidae) are known from Serbia and Montenegro. To add to that knowledge five (5) phytoseiid species namely: *Neoseiulus californicus, N. marginatus, N. bicaudus, Typhlodromus phialatus, Phytoseius canadensis* and four (4) tydeids namely: *Tydeus caudatus, Lorryia parainfatus, L. obliqua and Metatriophtydeus* sp. are recorded for the first time.

KEY WORDS : Phytoseiidae, Tydeidae, New records, Serbia and Montenegro.

Among the various plant-inhabiting mites, those belonging to the Families Phytoseiidae and Tydeidae are among the more common ones. Phytoseiid mites are predators on other microarthropods and especially on Tetranychoidea, Eriophyoidea, Thysanoptera and Homoptera. They are cosmopolitan in distribution. Over 1700 species have been described worldwide to date and more than 20 of these species are useful in the biological control of phytophagous mites and soft bodied insects that are agricultural pests. Tydeid mites are worldwide in distribution and very frequently encountered in moss, lichens, litter, soil, humus, grass, shrubs, cultivated and wild plants as well as in stored products. They were also recorded on insects and nests of mammals and birds. Although their feeding habits are not well known, some are reported to be plant feeders, others as predators but mostly as scavengers or fungivorous.

Table I. Known phytoseiids of Serbia and Montenegro

Species of phytoseiid mite	Relevant references of distribution	
	SERBIA	MONTENEGRO
AMBLYSEIINAE Muma		
Amblyseius andersoni (Chant, 1957)	2, 3, 4, 5, 6, 7	
Amblyseius denticulosus (Hirschmann, 1962)	6*	
Amblyseius tubae Karg, 1970	7*	
Euseius concordis (Chant, 1959)		1*
Euseius finlandicus (Oudemans, 1915)	3, 4, 5, 6, 7	1*
Euseius stipulatus (Athias-Henriot, 1960)		1*
Euseius vivax (Chant & Baker, 1965)		1*
Kampimodromus aberrans (Oudemans, 1930)	3, 4, 5, 6	1*, 4, 6,
Neoseiulus graminis (Chant, 1956)		6*
Neoseiulus reductus (Wainstein, 1962)	4*, 6	
Neoseiulus umbraticus (Chant, 1956)		1*
Neoseiulus zwoelferi (Dosse, 1957)		1*
Phytoseiulus macropilis (Banks, 1904)		1*
Phytoseiulus persimilis Athias-Henriot, 1957	4*	
Proprioseiopsis sororculus (Wainstein, 1960)	4*	
Typhlodromips bryophilus (Karg, 1970)	4*, 5	
PHYTOSEIINAE Berlese		
Amblydromella bakeri (Garman, 1948)		1*
Amblydromella rhenana (Oudemans, 1905)	3, 5, 6, 7	1*, 4, 6
Neoseiulella aceri (Collyer, 1957)	3*, 5	
Neoseiulella tiliarum (Oudemans, 1930)	3, 4, 5, 6	1*, 6
Galendromus longipilus Nesbitt, 1951	8	
Paraseiulus soleiger (Ribaga, 1902)	3*, 4, 6, 7	
Paraseiulus talbii Athias-Henriot, 1960	5*	
Phytoseius (Penn.) bulgariensis Wainstein, 1969		6*
Phytoseius (Penn.) finitimus Ribaga, 1902		1*
Phytoseius (Phyt.) echinus Wainstein & Arutunjan, 1970	6*	6*
Phytoseius (Phyt.) horridus Ribaga, 1902		1*
Phytoseius (Phyt.) juvenis Wainstein & Arutunjan, 1970	6*	
Phytoseius (Phyt.) macropilis (Banks, 1909)	3*, 4, 5, 6, 7	6
Phytoseius (Phyt.) spoofi (Oudemans, 1915)	6*	
Seiulus yugoslavicus (Mijuskovic & Tomasevic, 1975)		1*
Typhlodromus pyri Scheuten, 1857	4, 5, 6	1*, 6
32 (Number of species)	20	19

* - the first recordings
1 - **Mijusković & Tomasević,1975**
2 - **Stamenković & Perić, 1982**
3 - **Radivojević & Petanović, 1984**
4 - **Kropczynska & Petanović,1987**
5 - **Stojnić, 1993**
6 - **Stojnić & Petanović, 1994**
7 - **Stojnić, 2001**
8 - **Petanović, 1995**, unpublished

The present knowledge of Phytoseiidae and Tydeidae in Serbia and Montenegro

The first faunistic paper of phytoseiid mites in Yugoslavia was from Montenegro (**Mijušković & Tomašević**, 1975). During this comprehensive study of leaf mites in numerous citrus orchards, authors revealed the presence of 16 phytoseiid species, and described one new species. Next papers were all from Serbia.

Firstly, efficacy of phytoseiids to *Tetranychus urticae* in glasshouse has been tested, and that was the first record of one phytoseiid species, *Amblyseius andersoni*, in Serbia (**Stamenković & Perić**, 1982). **Radivojević and Petanović** (1984) have recorded eight species in Serbia including two new species for Yugoslav fauna. **Kropczynska and Petanović** (1987) have recorded 13 species, including four new species for Serbian fauna (five for ex Yugoslav fauna). **Stojnić** (1993) has recorded 10 species of phytoseiids, including one new species for Serbian (and Yugoslav) fauna. In the paper, comparative faunistic analysis of phytoseiids and tetranychids have been given. The comparative faunistic analysis of phytoseiids and eriophyids has followed soon (**Stojnić & Petanović**, 1994). In this paper, 17 phytoseiid species were recorded, including six new species for Serbia and Montenego (8 for ex Yugoslavia). **Petanović and Stojnić** (1995) have summarized phytoseiid taxa in Yugoslavia, and numbered 30 species, 14 genera and 2 subfamilies. Finally, the analysis of structural changes of phytoseiid complex in apple orchard (**Stojnić**, 2001) revealed the presence of 6 species, including one new for fauna of Serbia and Montenegro.

Tydeid fauna in Serbia and Montenegro is not wellknown. The first data of one tydeid species were from citrus orchards in Montenegro (**Mijuškovic & Tomaševic, 1975**). In next decades, tydeids haven't been investigated. **Stojnić**

Table II. Known tydeids of Serbia and Montenegro

Species of tydeid mite	Relevant references of distribution	
	SERBIA	MONTENEGRO
Tydeus californicus (Banks, 1904)	2	1*
Tydeus plumosus Karg, 1975	2*	
Lorryia mali (Oudemans, 1929)	2*	
Lorryia maturus (Livshitz, 1973)	2*	
Nudilorryia cf. paraferula sp.nov., Kazmierski	2*	
Homeopronematus cf. staercki sp.nov., Kazmierski	2*	

* first recordings
1 - **Mijusković & Tomasević,1975**
2 - **Stojnić, 2001**

(**2001**) recorded six species from Serbia, including two new species (personal com. **Kazmierski**), from only one apple orchard. There is no other information.

New records of Phytoseiidae and Tydeidae in Serbia and Montenegro

The examination of collected material, kept in the Department of Entomology, Faculty of Agriculture - Belgrade University, revealed the presence of several new records of the above mentioned families in Serbia and Montenegro.

New records of Phytoseiidae in Serbia, Montenegro

The records of new phytoseiid species are all from Serbia.

Species	Host	Locality	Date
Neoseiulus marginatus	Soil - Cornfield	Airport Surčin	27/8/97
Neoseiulus californicus	*Cissus* sp.	Beograd Zelenilo	11/5/99
Neoseiulus bicaudus	*Lithrum salicaria*	Zrenjanin-Carska Bara	9/6/94
	Chamaedorea sp.	Beograd Zelenilo	4/2/94
	Stipa paniculata	Deliblato	25/5/93
Phytoseius canadensis	*Rubus idaeus*	Baćevac	2/5/91
Typhlodromus phialatus	*Crataegus monogyna*	Deliblato	25/5/99

Neoseiulus. californicus (McGregor, 1954) is a widespread species, known from Argentina, Chile, France, Greece, Guatemala, Peru. Common on glasshouses cultivations.

Neoseiulus marginatus (Wainstein, 1961) is known from Algeria, Greece, Kazakhstan, Ukraine (Crimea). It has been found mainly on Graminae and cotton.

Neoseiulus bicaudus *(Wainstein, 1962) is known from Armenia, Greece, France, Italy, Ukraine (Crimea). It is often found on Graminae and Vicia sp.*

Typhlodromus phialatus (Athias-Henriot, 1960) is known from Algeria, Greece, Israel, Italy, Ukraine (Crimea).

Phytoseius (Phytoseius) canadensis *Chant, 1965 is known only from Canada, USA and Greece.*

New records of Tydeidae in Serbia and Montenegro

Tydeus caudatus **(Duges, 1834).** Common species, wide spread on many hosts mainly in regions with mild climate. It is reported as a plant feeder in Africa.

Species	Host	Place	Date
Tydeus caudatus	*Cornus mas*	Vršački breg[1]	26/5/93
Lorryia obliqua	*Crataegus monogyna*	Deliblato[1]	29/9/93
Lorryia parainflatus	*Cornus mas*	Djurdjevića Tara[2]	19/7/90
Metatriophtydeus sp.	*Cornus mas*	NP "Djerdap"[1]	6/7/97
	Euphorbia amygdaloides	Suva Planina[1]	7/4/90
	Fagus sylvatica	NP "Djerdap"[1]	6/7/97

[1] Serbia; [2] Montenegro

In Europe it is found in Greece, Germany, Portugal, Ireland, Italy, Bulgaria, Hungary, Sweden, Canada, Egypt, Georgia, Crimea and Ukraine. It is encountered on various hosts such as citrus trees, *Vitis* sp. *Secale sereale*, *Olea europaea, Malus domestica, Juglans regia*, forest trees and shrubs.

***Lorryia parainflatus* (Momen & Lundqvist, 1995).** The species is described from Sweden where it was found on *Corulus avelana* and *Prunus padus*. It is recorded also in Greece by **Panou & Emmanouel, 1995** found on forest trees, litter and wild weeds in several regions of the country.

***Lorryia obliqua* (Kuznetzov, 1973).** It is described from the Nikitsky Botanical Gardens, Yalta, found on *Spirea* sp. It is also recorded in Hungary, on *Prunus domestica*. In **1997 Kazmiersky** examined material from Belgrade region, and informed the senior author about the presence of this species on *Tilia* sp. (unpublished data).

Metatriophtydeus sp. Under that genus which was proved to be synonym with *Triophtydeus* numerous species were described, but their status is still unclear. Most of the species are described from shrubs. They correspond to dubious cases however and need further study. This genus is known from Germany, Poland, Belgium, Sweden, Greece and Crimea.

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ДОСАДАШЊА ИСТРАЖЕНОСТ И НОВИ ПОДАЦИ О ФИТОЗЕИДАМА И ТИДЕИДАМА (ACARI: PHYTOSEIIDAE, TYDEIDAE) ЗА ФАУНУ СРБИЈЕ И ЦРНЕ ГОРЕ

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И з в о д

У раду је дат преглед врста фитозеида и тидеида (Acari: Phytoseiidae, Tydeidae) које су у периоду 1975-2001. регистроване на територији Србије и Црне Горе. Фитозеиде су до сада биле умерено истражена група у нашој земqи, са укупно 32 нађене врсте, од којих 20 у Србији а 19 у Црној Гори.

Код нас је раније нађено свега 6 врста тидеида, од чега у Србији свих шест, а у Црној Гори само једна врста. Услед недостатка наших специјалиста за тидеиде, ова група грињa је до данас остала неистражена.

У раду су изнети подаци о девет нових врста фитозеида и тидеида за нашу акарофауну. На територији Србије регистровано је пет врста фитозеида: *Neoseiulus californicus*, *N. marginatus*, *N. bicaudus*, *Typhlodromus phialatus* и *Phytoseius canadensis*. У Србији су нађене и три нове врсте тидеида - *Tydeus caudatus*, *Lorryia obliqua* и *Metatriophtydeus* sp. Једна врста тидеиде нађена је Црној Гори - *L. parainflatus*.

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