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MITE FAUNA OF ANT NESTS – COMPARATIVE STUDY OF MITE FAUNA IN THE ARGEȘ RIVER BASIN (SOUTH ROMANIA)

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Abstract. This paper presents the results of a comparative study on the major groups of mites associated with ants in two different areas (hilly and mountain) of the Argeș basin. Mites from order Gamasida (Suborders Uropodina and Gamasina) and order Oribatida, and the ant fauna (Order Hymenoptera, family Formicidae) were investigated. Out of 31 mite species identified, *Oplitis hutae* is new to science (Constantinescu, in press), five are recorded for the first time in the Romanian fauna, and two for the second time. Also, one of the host ant species, *Lasius sabularum* is recorded for the second time in the Romanian myrmecofauna. In addition to the faunistic synopsis, a brief ecological and zoogeographical characterization is presented.

Résumé. L'article présente les résultats d'une étude comparative sur les principaux groupes d'acariens associés aux fourmis, dans deux zones différents (collines et montagnes) du bassin d'Argeș. Les acariens de l'Ordre Gamasida (Sousordres Uropodina et Gamasina) et de l'Ordre Oribatida, et la faune des fourmis (Ordre Hymenoptera, Famille Formicidae) ont été étudiés. Parmi les 31 espèces d'acariens identifiées, *Oplitis hutae* est nouvelle pour la science (Constantinescu, sous presse), cinq sont enregistrées pour la première fois dans la faune de Roumanie et deux autres espèces pour la deuxième fois. Aussi, l'une des espèces de fourmis hôte, *Lasius sabularum* est enregistrée pour la deuxième fois dans le myrmécofaune de Roumanie. En plus de la synthèse faunistique, une brève caractérisation écologique et zoogéographique a été réalisée.

Key words: Southern Romania, Gamasina, Uropodina, Oribatida, Formicidae, mites, myrmecophylia, faunistics, ecological characterization, zoogeographical spectrum.

INTRODUCTION

Mites are invertebrates with an extraordinary capacity for adaptation; they live in almost all habitat types on Earth, both in aquatic and terrestrial habitats, in favourable or extreme environmental conditions. They can use almost any food resources, and trophic adaptability of mite species varies largely, from omnivorous (mainly soil inhabitants) to the parasitic species, narrowly specialized, which live and feed on a specific host.

Ant nests can also offer proper habitat conditions for mites. In this type of microhabitat there is a concentration of organic matter, gathered by the ants from surrounding areas, complementing the milder microclimatic conditions of temperature, moisture and soil aeration. Some species of mites enter ant nests just to find here more favourable microclimate, but there are some stenotopic, strictly myrmecophilic species, that have a much closer connection with their hosts.

Recently Uppstrom (2010) summarized the data on mites living in ant nests starting with early studies (e.g. carried out by Berlese, who published in 1904 a list of 80 species of myrmecophilic mites and their ant hosts), and continuing with recent results published by different authors from all continents. Masán (2001) gave information about the host ant species and the ant nest dwelling Uropodina, and mentioned these mites attach to the body of their hosts, specifically close to the mandibles, picking up the pieces of host food, or around the anus where they suck on the excrements, thus contributing to the hygiene of the host.

In Romania studies dedicated to mites associated with ants had been carried out only in the case of Suborder Uropodina. Huţu (1978) published an ecological and faunistic survey concerning this suborder in North Moldavia, including a list of some Uropodina species identified in ant nests. Kontschán (2007) studying the distribution of species of the family Trachyuropodidae in the Carpathian Basin reports from Romania (Transylvania) three species (*Trachyuropoda riccardiana*, *T. hirschmanni* and *Oplitis wasmanni*).

Constantinescu (2007) also studied the Uropodina fauna of Argeş River basin, but none of the three studies provides any references to the host ant species.

In the frame of the present study the authors extend the research on mite fauna from ant nests in Argeş basin, by identifying mite species from several groups (Uropodina, Gamasina and Oribatida) and their ant host species. The species richness and relative abundance of mite fauna is analyzed, by comparing material collected from ant nests in two different habitat types: a hilly area and mountain area. A brief ecological and zoogeographical characterization of mites was also done.

MATERIAL AND METHODS

The material (24 samples, containing 402 individuals) was collected from two meadows (used as pasture), located in the hilly area of Argeş near Lacul lui Bârcă in Davideşti village (44º59’20.05” N, 24º59’17.11” E; 420 m a.s.l.), and a mountain area near Poienile Vâlsanului (45º22’20.82” N, 24º43’35.87” E; 870 m a.s.l.), on 21.07.2009 and 30.08.2009 respectively.

An equal number of samples (12) were collected from each sampling sites, each sample corresponding to a distinct ant nest. Soil samples containing ants and especially their brood (eggs, larvae and pupae) were collected using a shovel.

Samples were not equal in volume, thus relative abundances of species were used to characterize mite communities.

Mites were removed from ants’ nests by extraction from ant nesting material using Tullgren funnels, and ant fauna were extracted by washing soil samples. Mite specimens have been clarified in lactic acid, and then they were separated in systematic groups and identified, and finally stored in alcohol (96%).

In addition to the faunistic synopsis, the world distribution of each mite species (a) and their ecological characterization (b) were included. Species recorded for the first time in the fauna of Romania have been marked with one asterisk, and those recorded for the second time with two asterisks. *Oplitis hutae* is a new species (Constantinescu, in press), and have been marked with three asterisks.

The identification of ant species was carried out on the basis of currently available keys (Czechowski et al., 2002; Seifert, 2007). *Tetramorium* specimens belonging to the *caespitum* species group could not be identified due to the very limited number of specimens (1-2 inds.) available, thus all these individuals were handled as *Tetramorium* cf. *caespitum*. *Lasius balcanicus* Seifert, 1988 and *L. distinguendus* Emery, 1916 could not be distinguished due to the lack of gynes in the samples Seifert (2007).

RESULTS

All 31 species of mites were identified from the collected material; they belonged to 20 genera, 17 families and two orders, Gamasida (Suborders Uropodina and Gamasina) and Oribatida, while the ant hosts belonged to 4 genera (*Formica*, *Tetramorium*, *Lasius* and *Solenopsis*) (Tab. 1).

Faunistic synopsis:

Order Gamasida Leach, 1815

Suborder Uropodina Kramer, 1881

Family Trachyuropodidae Berlese, 1917

1. *Trachyuropoda coccinea* (Michael, 1891)

a. Palaearctic European and Siberian species;

b. Stenotopic, myrmecophilic species, with accidental occurrence in grassland areas.

2. *Trachyuropoda cristiceps* (Canestrini, 1884)

a. Palaeartic European and Mediterranean species;

b. Stenotopic, myrmecophilic species.

3. *Trachyuropoda riccardiana* (Leonardi, 1895)

a. Palaeartic European and Mediterranean species;

b. Stenotopic, myrmecophilic species, with accidental occurrence in grassland areas.

4. *Trachyuropoda excavata* (Wasmann, 1899)

a. Palaeartic European and Mediterranean species;

b. Stenotopic, myrmecophilic species, with accidental occurrence in other biotopes.

Table 1

Mite species (Uropodina, Gamasina, Oribatida) and associated ant host species, identified in ant nests at Lacul lui Bârcă (hilly area) and Poienile Vâlsanului (mountain area).

Acari			Insecta
Gamasida		Oribatida	Formicidae
Uropodina	Gamasina		
Lacul lui Bârcă (hilly area)			
Trachyuropoda coccinea *Trachyuropoda cristiceps*	*Gymnolaelaps* sp.	-	*Formica cunicularia* Latreille, 1798
Oplitis hutae *Tracytes irenae* *Trachyuropoda riccardiana*	*Laelaspis variopilis* *Laelaspis equitans* *Pachylaelaps tesselatus*	*Tectocepheus velatus* *Peloptulus phaenotus* *Ceratozetes* (*C.*) *conjunctus*	*Tetramorium* cf. *caespitum*
Oplitis hutae	-	-	*Tetramorium* cf. *caespitum*
-	*Laelaspis equitans* *Amblyseius* sp.	*Scheloribates* (*S.*) *labyrinthicus*	*Formica clara* Forel, 1886 *Solenopsis fugax* Latreille, 1798
Trachyuropoda cristiceps *Oplitis hutae*	*Gymnolaelaps* sp.	-	*Tetramorium* cf. *caespitum*
Trachyuropoda coccinea *Trachyuropoda cristiceps*	*Gymnolaelaps* sp.	-	*Formica rufibarbis* Fabricius, 1793
Trachyuropoda coccinea *Trachyuropoda cristiceps*	*Gymnolaelaps* sp. *Laelaspis equitans*	*Epilohmannia cylindrica*	*Solenopsis fugax* Latreille, 1798 *Formica clara* Forel, 1886 *Tetramorium* cf. *caespitum*
-	*Pachylaelaps tesselatus*	*Oribatula* (*Z.*) *glabra*	*Tetramorium* cf. *caespitum*

Table 1 (continued)

Trachyuropoda excavata *Oplitis schmitzi*	*Gymnolaelaps* sp. *Pachylaelaps tesselatus*	*Scheloribates* (*S.*) *labyrinthicus* *Pergalumna nervosa*	*Lasius balcanicus /distinguendus*
-	-	*Peloptulus phaenotus* *Acrotritia ardua*	*Lasius balcanicus /distinguendus*
Oplitis schmitzi *Oplitis berleseiphiloctena* *Thrichocylliba comata*	*Ameroseius* sp.	*Epilohmannia cylindrica* *Acrotritia ardua*	*Lasius balcanicus /distinguendus*
Oplitis schmitzi *Trachyuropoda cristiceps* *Oplitis latisaetigera* *Trachyuropoda coccinea*	*Pseudoparasitus* sp.	*Mycobates* (*C.*) *tridactylus*	*Lasius paralienus* Seifert, 1992 *Lasius sabularum* (Bondroit, 1918)
Poienile Vâlsanului (mountain area)			
Oplitis ovatula *Trachyuropoda excavata*	-	-	*Tetramorium* cf. *caespitum*
Trachyuropoda excavata	-	-	*Tetramorium* cf. *caespitum*
Oplitis wasmanni	*Laelaspis myrmicae*	*Scheloribates* (*S.*) *labyrinthicus*	*Tetramorium* cf. *caespitum* *Lasius flavus* (Fabricius, 1782)
Trachyuropoda excavata *Oplitis ovatula*	-	*Liebstadia pannonica* *Scheloribates* (*S.*) *labyrinthicus* *Galumna* (*G.*) *tarsipennata*	*Tetramorium* cf. *caespitum*
Trachyuropoda excavata	-	-	*Tetramorium* cf. *caespitum*
Oplitis minutissima	-	*Liebstadia pannonica* *Scheloribates* (*S.*) *labyrinthicus* *Galumna* (*G.*) *tarsipennata*	*Lasius niger* (Linnaeus, 1758)
Trachyuropoda excavata	-	-	*Tetramorium* cf. *caespitum*

5. *Oplitis hutae* Constantinescu, in press***
a. Palaearctic European species, described in Romania.
b. Stenotopic, myrmecophilic species.

6. *Oplitis schmitzi* (Kneissl, 1908)
a. Palaeartic European and Mediterranean species;
b. Stenotopic, myrmecophilic species, with accidental occurrence in other biotopes.

7. *Oplitis wasmanni* (Kneissl, 1907)
a. Palaeartic European and Mediterranean species;
b. Stenotopic, myrmecophilic species.

8. *Oplitis latisaetigera* Mašán, 1999*
a. Palaeartic European species;
b. Stenotopic, myrmecophilic species.

9. *Oplitis berleseiphiloctena* Hirschmann, 1991*
a. Palaeartic European and Mediterranean species;
b. Stenotopic, myrmecophilic species.

10. *Oplitis minutissima* (Berlese, 1903)
a. Palaeartic European and Mediterranean species;
b. Stenotopic, myrmecophilic species, with accidental occurrence in grassland areas.

11. *Oplitis ovatula* (Berlese, 1903)**
a. Palaeartic European and Mediterranean species;
b. Stenotopic, myrmecophilic species.

Family Urodinychidae Berlese, 1917

12. *Thrichocylliba comata* (Leonardi, 1895)**
a. Palaeartic European and Mediterranean species;
b. Stenotopic, myrmecophilic and saprophilic species, with accidental occurrence in other biotopes.

Family Trachytidae Trägårdh, 1938

13. *Trachytes irenae* Pecina, 1970
a. Palaeartic European species;
b. Stenotopic sylvicolous species (litter and saprophilic), with accidental occurrence in other biotopes (ant nests, excrements, grassland areas).

Suborder Gamasina Leach, 1815
Family Laelapidae Berlese, 1892

14. *Gymnolaelaps* sp.

15. *Laelaspis variopilis* (Hirschmann, 1969)*
a. Central European species;
b. Myrmecophilic species recorded in *Tetramorium caespitum* nests (Karg, 1993).

16. *Laelaspis equitans* (Michael, 1891)*
a. Holarctic species;
b. Myrmecophilic species recorded in *Tetramorium caespitum* nests (Bregetova, 1977)

17. *Laelaspis myrmicae* (Hirschmann, 1969)*
a. Central European species;
b. Myrmecophilic species, recorded in *Myrmica rubra* nests (Karg, 1993).

Family Pachylaelapidae Vitzthum, 1931

18. *Pachylaelaps tesselatus* Berlese, 1920
a. European species;
b. Species cited in bryophytes, in decomposing organic material.

Family Phytoseiidae Berlese, 1916

19. *Amblyseius* sp.

Family Ameroseiidae Evans, 1963

20. *Ameroseius* sp.

Order Oribatida Dugès, 1834
Family Epilohmanniidae Oudemans, 1923

21. *Epilohmannia cylindrica* (Berlese, 1904)
a. Cosmopolitan species;
b. Frequently reported from meadows, cultivated soils, less often from forest soils (humus layer).

Family Euphthiracaridae Jacot, 1930

22. *Acrotritia ardua* (C. L. Koch, 1841)
a. Cosmopolitan species;
b. Mainly sylvicolous species, eurytopic, mesophilic.

Family Tectocepheidae Grandjean, 1954

23. *Tectocepheus velatus* (Michael, 1880)
a. Cosmopolitan species;
b. Eurybiontic species.

Family Phenopelopidae Petrunkevich, 1955

24. *Peloptulus phaenotus* (C. L. Koch, 1841)
a. Palaearctic species;
b. Lawn species.

Family Ceratozetidae Jacot, 1925

25. *Ceratozetes* (*Ceratozetes*) *conjunctus* Mihelčič, 1956
a. Mediterranean species;
b. Meso-xerophilous species.

Family Punctoribatidae Thor, 1937

26. *Mycobates* (*Calyptozetes*) *tridactylus* Willmann, 1929
a. Palaearctic species;
b. Mainly sylvicolous species.

Family Oribatulidae Thor, 1929

27. *Oribatula* (*Zygoribatula*) *glabra* (Michael, 1890)
a. Palaearctic species;
b. Xerophilous species.

Family Liebstadiidae J. et P. Balogh, 1984

28. *Liebstadia pannonica* (Willmann, 1951)
a. Holarctic species;
b. Mainly lawn species.

Family Scheloribatidae Grandjean, 1933

29. *Scheloribates* (*Scheloribates*) *labyrinthicus* Jeleva, 1962
a. South and South-Eastern European species;
b. Lawn, eurytopic species.

Family Galumnidae Jacot, 1925

30. *Galumna* (*Galumna*) *tarsipennata* Oudemans, 1913
a. South Palaearctic and Brasil;
b. Thermo-xerophilous species.

31. *Pergalumna nervosa* (Berlese, 1914)
a. Holarctic and South Africa species.
b. Eurytopic, mesophilic species.

Generally, mites from the suborder Uropodina Kramer, 1881 were the most abundant (over 75%) in both sampling sites (Figs 1, 3). Out of the 13 species 12 are myrmecophilic, with accidental occurrence in other biotopes (soil samples from lawns, decaying trunks); *Trachytes irenae* is the only sylvicolous species, most likely present in the ant nests due to favourable microclimatic conditions.

The analysis of the zoogeographical distribution of Uropodina (Wisniewski, 1993) indicates that all species are spread in the Palaearctic region, the majority of species are Euro-Mediterranean (9 species), one species is Euro-Siberian (*Trachyuropoda coccinea*) and 2 species are European (*Trachytes irenae, Oplitis latisaetigera*).

Mites of the suborder Gamasina Leach, 1815 represented 11.15% of the total of Gamasida in the hilly stand, and only 0.97 % in mountain area; they are in both cases surpassed by Uropodina. In terms of number of species, a balance was found, meaning that representatives of the Gamasina in ant nests from hilly area made up approximately 35% of all species of the order, and in the mountain ecosystem only 1/5 of the total (Tab. 2). In terms of frequency of occurrence in the analysed samples, Gamasina were found in 83.3% of samples from the hilly area, and in only a single sample from ant nests of the mountainous area.

Overall, there were 7 species of mites of Gamasina, belonging to 5 genera and 4 families, of which the most represented family proved to be Laelapidae, with 2 genera and 4 species (Tab. 1). Three of these species are cited in literature as myrmecophilic, being collected only from ant nests. In terms of geographical spread, the majority of the analyzed species have European distribution (Karg, 1993; Bregetova, 1977).

Mites of the order Oribatida Dugès, 1834 were present in 8 of the 12 samples collected from ant nests around Lacul lui Bârcă; the 9 species sum up 37 specimens, representing 13.26% of all the mites (Tab. 1, fig. 1). In the mountain area of Valea Vâlsanului, Oribatida were found only in 3 samples; 3 species were reported with a total of 20 specimens, representing 16.26% of the total mites (Tab. 1, fig. 3).

The Oribatida fauna found in ant nests in the two sampling sites represented 11 species belonging to 11 genera and 10 families (Ghilarov & Krivolutsky, 1975; Perez-Iñigo, 1993; Weigmann, 2006). Zoogeographical analysis (Subias, 2004) showed that the Palaearctic species are more numerous and Cosmopolitan species follow; it is noteworthy that European species are equally present in Europe and South Mediterranean region. Regarding the ecological spectrum (Mahunka & Mahunka-Papp, 2004; Rajski, 1967, 1968; Schatz, 1983; Vasiliu et al., 1993), lawn species are well represented, some of which are the most abundant. Species with high abundance and even higher frequency are *Scheloribates labyrinthicus, Liebstadia pannonica, Pergalumna nervosa* with the first two being typical species of lawn; only *S. labyrinthicus,* a praticolous eurytopic species, was identified in both sample sites (Tab. 1).

Table 2

Abundance in individuals (A) and relative abundance (R.A. %) for mite species in two research areas; marked by thickening common species to both areas (hilly and mountain).

Locality / Species	Lacul lui Bârcă (hilly area)		Poienile Vâlsanului (mountain area)	
	A	R.A. %	A	R.A. %
Trachyuropoda coccinea	27	9.67	-	-
Trachyuropoda cristiceps	152	54.48	-	-
Trachyuropoda riccardiana	1	0.35	-	-
Trachyuropoda excavata	1	0.35	82	66.66
Oplitis hutae	9	3.22	-	-
Oplitis wasmanni	-	-	2	1.62
Oplitis latisaetigera	4	1.43	-	-
Oplitis schmitzi	11	3.94	-	-
Oplitis berleseiphiloctena	1	0.35	-	-
Oplitis minutissima	-	-	15	12.19
Oplitis ovatula	-	-	3	2.43
Thrichocylliba comata	8	2.87	-	-
Trachytes irenae	1	0.35	-	-
Gymnolaelaps sp.	14	5.02	-	-
Laelaspis variopilis	3	1.07	-	-
Laelaspis equitans	5	1.79	-	-
Pachylaelaps tesselatus	3	1.07	-	-
Amblyseius sp.	1	0.35	-	-
Ameroseius sp.	1	0.35	-	-
Laelaspis myrmicae	-	-	1	0.81
Epilohmannia cylindrica	2	0.72	-	-
Acrotritia ardua	2	0.72	-	-
Tectocepheus velatus	1	0.35	-	-
Peloptulus phaenotus	2	0.72	-	-
Ceratozetes (*C.*) *conjunctus*	1	0.35	-	-
Mycobates (*C.*) *tridactylus*	1	0.35	-	-
Oribatula (*Z.*) *glabra*	1	0.35	-	-
Liebstadia pannonica	-	-	9	7.31
Scheloribates (*S.*) *labyrinthicus*	23	8.24	3	2.43
Galumna (*G.*) *tarsipennata*	-	-	8	6.50
Pergalumna nervosa	4	1.43	-	-

The number of host ant species is low. Altogether 9 species were identified and the most common host ant species were *Tetramorium* cf. *caespitum* and members of the *Chthonolasius* subgenus (*Lasius balcanicus/distinguendus* and *L. sabularum*). Excepting *L. sabularum*, which is reported for the second time in Romania (Markó et al., 2006), all species are common.

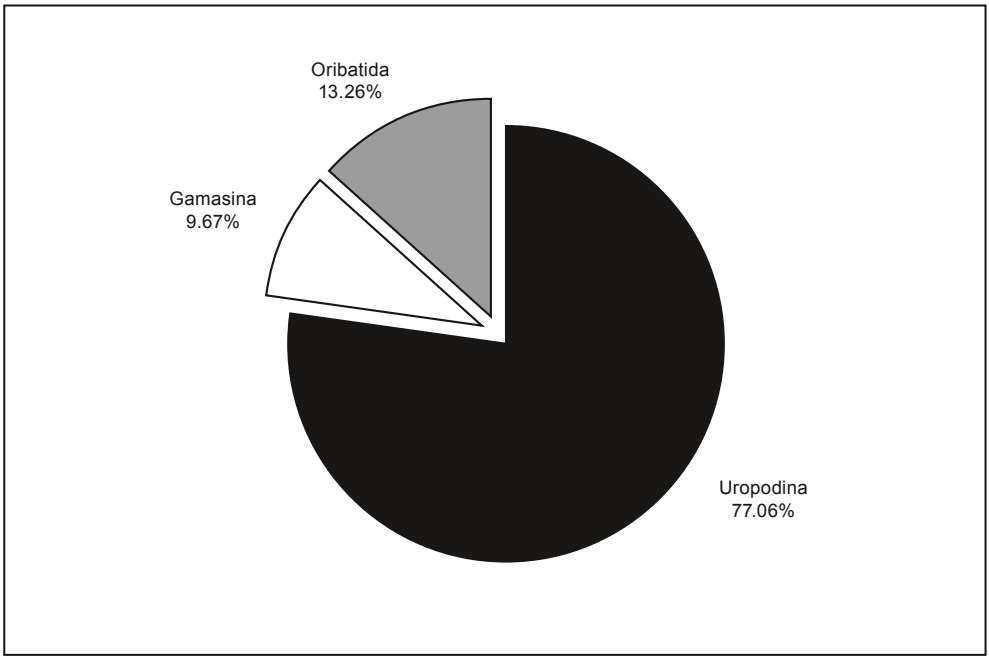

Fig. 1 - Relative abundance (%) of the three systematic groups of mites in Lacul lui Bârcă.

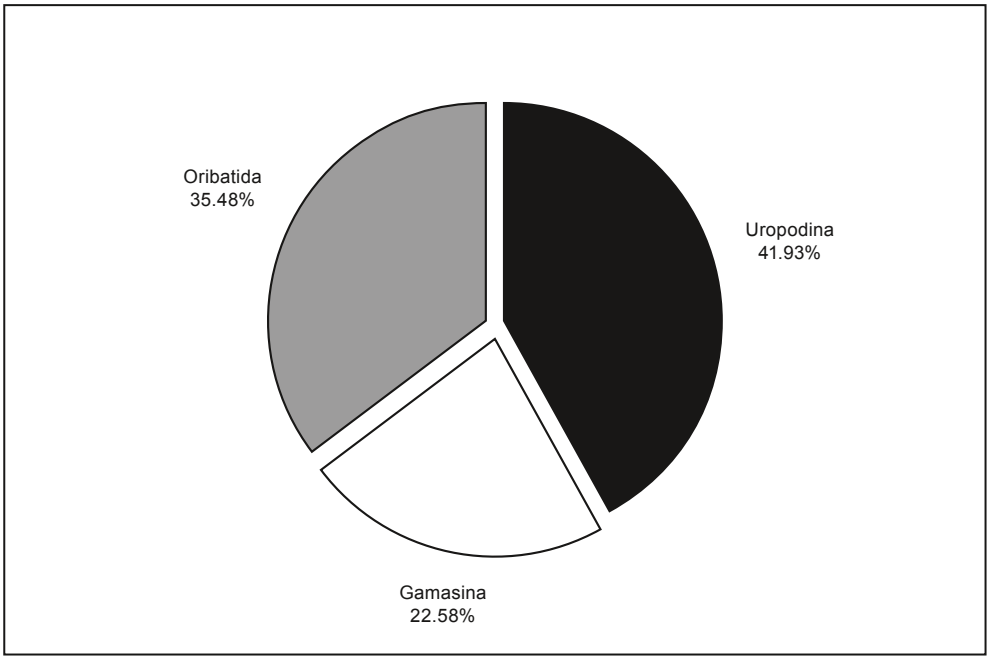

Fig. 2 - The percentage of the three systematic groups of mites according to number of identified species in Lacul lui Bârcă.

DISCUSSIONS

Analyzing the fauna of mites associated with ants in the two studied areas it was remarked a clear difference in the species composition; a single species, *Scheloribates* (*S.*) *labyrinthicus* was found both in the hilly and mountain areas.

In the hilly area, the number of mite species is more than three times higher than in the mountain area. High diversity of mites fauna in the hilly area is likely to be due to more favourable climatic conditions, on one hand, and greater diversity of host ant species, on the other hand (eight ant species have been identified in the hilly area and only three in the mountains area).

The three groups of mites (Uropodina, Gamasina, Oribatida) have different affinity to this microhabitat represented by ant nests. Uropodina species proved to be myrmecophilic (with one exception), only half of the Gamasina can be included in this category, while for the Oribatida species this microhabitat is only a secondary option.

Uropodina are numerically dominant in both study sites, in the hilly area the largest percentage is of *Trachyuropoda cristiceps* (54.48%) and in the mountain one *Trachyuropoda excavata* (66.66%). Of the 13 Uropodina species, one species is new to science (a part of the analyzed material used in species description comes from samples collected from Lacul lui Bârca). Species *Oplitis berleseiphiloctena* and *Oplitis latisaetigera* are for the first time recorded in the Romanian fauna; *Oplitis ovatula* and *Thrichocylliba comata* are recorded for the second time.

Out of the 7 species of suborder Gamasina Leach, 1815 identified, 3 are recorded for the first time in Romania and other 3 require a more detailed taxonomic and morphological study in order to be identified. The mites in Gamasina had the lowest percentage of all groups, both in number of individuals (9.67% in the hilly area and only 0.81% in the mountain area) and in the number of species (22.58% in the hilly area and 12.5% in the mountain area) (Figs 1-4). A single species – *Laelaspis myrmicae* was collected from Poienile Vâlsanului, the other species (*Gymnolaelaps* sp., *Laelaspis variopilis, Laelaspis equitans, Pachylaelaps tesselatus, Amblyseius* sp., *Ameroseius* sp.) were collected from Lacul lui Bârcă.

From an autecological point of view, half of all Gamasina species analysed in this paper are strictly myrmecophilic, however all belong to the fam. Laelapidae, which includes numerous representatives with affinity for ants (Tab. 1). A strict connection between certain species of ants and certain species of Gamasina couldn't ultimately be established. In the case of the species *Laelaspis variopilis* and *Laelaspis equitans,* cited in literature (Karg, 1993; Bregetova, 1977) as living in *Tetramorium caespitum* nests, the results of the present study converge towards the same association, but due to impossibility of precise identification of the host ant species this association is still presumptive. *Laelaspis myrmicae* was found in *Tetramorium* cf. *caespitum* and *Lasius flavus* nests, while previously it was reported from nests of *Myrmica rubra* (cited as *M. laevinodis*) (Karg, 1993).

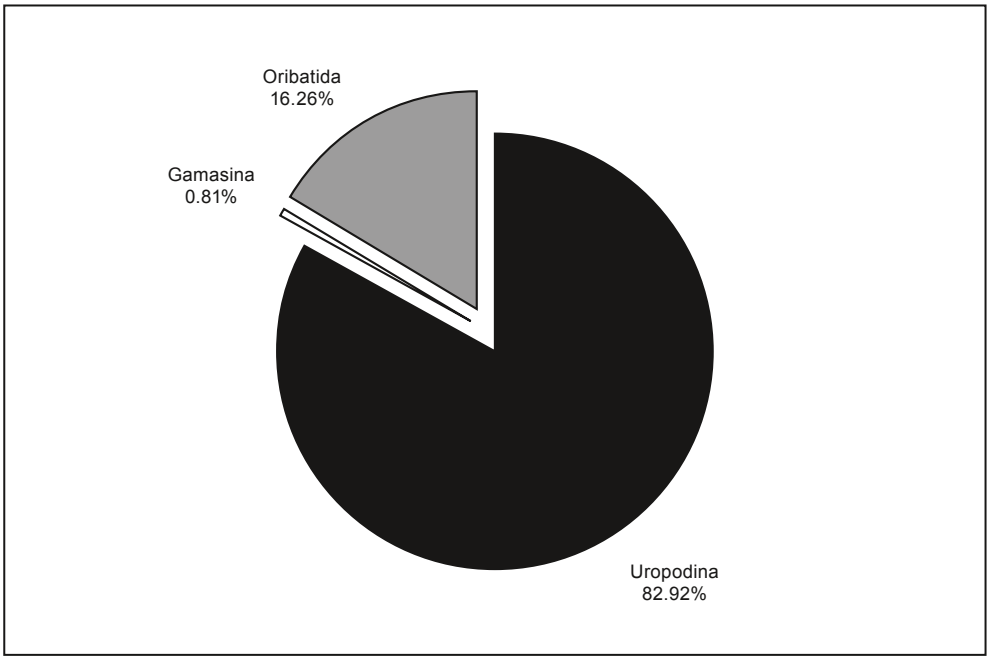

Fig. 3 - Relative abundance (%) of the three systematic groups of mites in Poienile Vâlsanului.

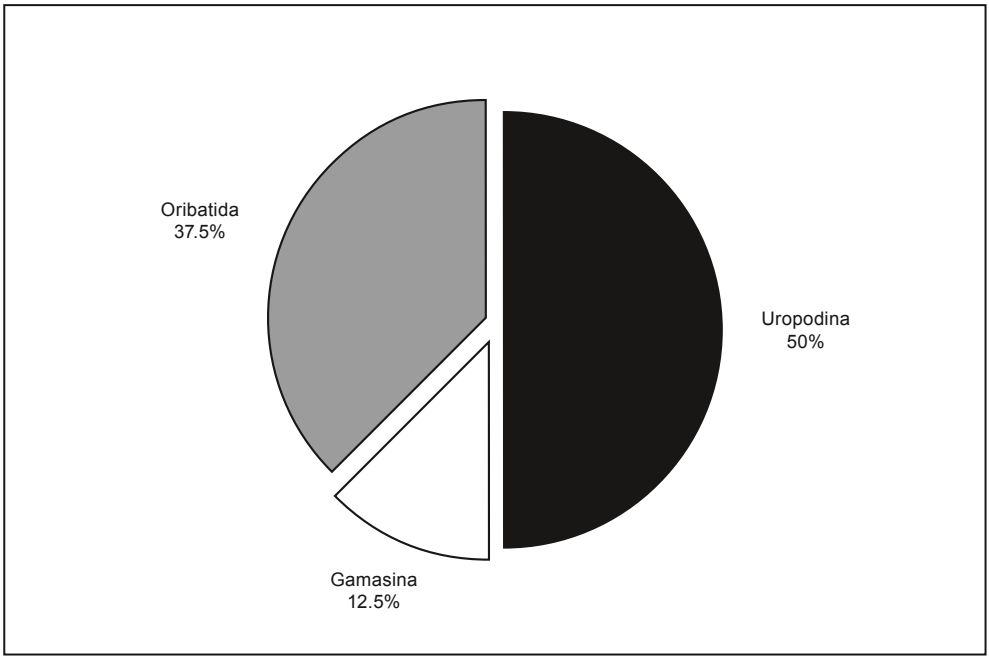

Fig. 4 - The percentage of the three systematic groups of mites according to number of identified species in Poienile Vâlsanului.

In grassland ecosystems, oribatids are well represented among the groups, both in number of species and individuals, within the soil mite fauna (Călugăr, 2006). The fauna collected in this study from ant nests can be appreciated as being reduced, in terms of abundance and number of species, in both sample sites (Tab. 1, figs 1-4). Judging from the proportion of major groups, we can notice the dominance of superior poronotic oribatids, that otherwise characterize grassland communities (Aoki, 1983). These species show greater adaptability and are able to populate other microhabitats outside edaphic environment itself.

Among the identified species some of them (*Acrotritia ardua, Tectocepheus velatus, Peloptulus phaenotus, Pergalumna nervosa*) have been already reported in ant nests, and are considered myrmecophilic (Rajski, 1967, 1968; Schatz, 1983; Laakso & Setälä, 1998). Based on an extensive bibliography Uppstrom (2010) presented the list of oribatid species cited in ant nests with the authors' observations, and it can be noted that only a few species of oribatids are truly associated with these insects, while many others are ordinary residents of ant nests or even of their favourite prey, among them most frequent are the representatives of Galumnidae, Scheloribatidae, Tectocepheidae families. In the material collected from the Argeş River basin, the first two families are best represented numerically, and family Galumnidae has two species, one in each site (Tab. 2).

As shown in Results, praticolous species prevail in the oribatid fauna of ant nests, so it is very likely that these species are among the members of the community at the basis of the ecosystem. For oribatid mites in particular, it is difficult to assess the possible affinity of some species to the habitat in question and the nature of relations with the ant hosts. This study may provide a starting point for further investigations, in which samples from the ant nests should be analysed, as well as samples of soil from the nest surroundings.

This research is a first approach, a mainly systematic one, to the study of the representative groups of mites associated with ants in Romania. Since most studies conducted worldwide focus smaller systematic group of mites associated with ants we consider these results very important. In other situations, although the whole mite fauna are studied, the identification of the material is at best done to the family level (Uppstrom, 2010). Given the novelty of faunistic information obtained in a relatively small material, the authors suggest further research on the mite fauna of ant nests, mainly by expanding the collection area to other parts of Romania.

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ACAROFAUNA DIN FURNICARE – STUDIUL COMPARATIV AL ACAROFAUNEI ÎN BAZINUL RÂULUI ARGEŞ (SUDUL ROMÂNIEI)

REZUMAT

Lucrarea prezintă rezultatele unui studiu comparativ al principalelor grupe de acarieni asociaţi cu furnicile, din două zone de relief diferite ale bazinului Argeşului (Lacul lui Bârcă - zona colinară şi Poienile Vâlsanului - zona montană). A fost investigată fauna de acarieni din ord. Gamasida (Subord. Gamasina şi Uropodina) şi ord. Oribatida, precum şi fauna de furnici (Ord. Hymenoptera, fam. Formicidae). Dintre cele 31 de specii de acarieni identificate o specie este nouă pentru ştiinţă (*Oplitis hutae*), cinci se află la prima citare (*Oplitis berleseiphiloctena, O. latisaetigera, Laelaspis variopilis, L. equitans* şi *L. myrmicae*), iar două la a doua citare în fauna României (*Oplitis ovatula* şi *Thrichocylliba comata*). De asemenea, o specie de furnică gazdă, *Lasius sabularum,* este identificată pentru a doua oară pe teritoriul României. Pe lângă lista faunistică a speciilor de acarieni s-a realizat o scurtă caracterizare ecologica şi zoogeografică a acestora, pe baza datelor personale şi a celor existente în literatură.

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