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THE GENUS FAGEIELLA KRATOCHVIL AND THE GENUS ANTROHYPHANTES DUMITRESCO (ARANEAE, LINYPHIIDAE, LEPTHYPHANTEAE) IN THE CAVES OF BALKAN PENINSULA

The caves constitute biotopes limited in their area and therefore isolation is a major factor influencing the development of their fauna. This explains the discovery and description of numerous species of the aranean fauna of caves in the Balkan Peninsula and the presence of endemics of various taxonomic status.

Interesting from a morphological point of view, however little known, are the endemic genera Fageiella and Antrohyphantes, so far known only from caves in Yugoslavia and Bulgaria.

Kulczynski (1913) described a new species (Taranucnus patellatus) peculiar in morphological respect and belonging to the group of Lepthyphanteae. Later Kratochvil (1934) described the new genus Fageiella, based on its description. At the same time Drensky (1931) published a small study "Spiders from the Caves of Bulgaria" where he also described 8 new species, among them Bolyphantes sofianus, Lepthyphantes monticola balcanica and Troglohyphantes rhodopensis. All three species possess morphological characteristics similar to genus Fageiella. Kratochvil and Miller (1938) placed T. rhodopensis in the genus Lepthyphantes, while Miller (1958) described Lepthyphantes tranteevi, noting that B. sophianus should also be placed in the same genus. Considerably later Dumitresco (1971) established a new genus Antrohyphantes, on the basis of material from caves in the Rhodopes mountain (Bulgaria) and made a supposition that B. sophianus and L. tranteevi could be belong to the same genus. In his work on the Lepthyphantes genus in Bulgaria Deltshev (1972) separated as an independent species and established that B. sophianus and L. tranteevi are identical. In his second work on the genus Lepthyphantes Deltshev (1975) used the newly described Antrohyphantes rodopicus as conspecific with

T. rhodopensis. The last contribution concerning Fageiella genus we owe to Deeleman-Reinhold (1973) where she described a new species, Fageiella ensiger.

The present investigation includesholotypes and topotypes material including all known species of the Fageiella genus, as well as species related to the genus Antrohyphantes. The aim is to establish similarities and differences between genera which are closely related, as well as the species with the characteristics of the genus Antrohyphantes. Besides B. sophianus and T. rhodopensis we have added L. balcanica.

Fageiella Kratochvil, 1934

The genus belongs to the Lepthyphanteae group. The main differences from the Lepthyphantes genus are as follows : Very long legs with intensive spinulation. The chelicerae show sexual dimorphism. With the male palp, the patella is considerably elongated, with a tendency of forking. The tibia has a characteristic apophysis. The lamella is short, strongly sclerotized, while the embolus is elongated, broad and massive. The epigyne is provided with a long, fixed scape without stretcher.

Fageiella patellata (Kulczynski) (figs. 1-5, 20, 25)

Taranucnus patellatus,Kulczynski, 1913, p. 2-6, fig. 1-4 ; Fageiella patellata, Kratochvill, 1934, p. 190-192. f. 7-8 ; Deeleman-Reinhold, 1974, p. 14, f. 14-15, 19, 23.

The species showswell the main characteristicsof the genus Fageiella. It is known only from several caves from East Bosna. Troglophile, does not penetrate the inner parts of the cave and is usually found in the zone of twilight (Deeleman-Reinhold, 1974).

Material and locality:"Han Bulog" Bosna, 1 ♂, 2 ♀, 11.IX. 1908 (syntypes) (leg. K. Absolon);"Biostaca pecina", Socolac, Bosna, 1 ♂, 1 ♀, 10.VII.1969 (leg. C. Deeleman-Reinhold).

Fageiella ensiger Deeleman-Reinhold (figs. 6-9, 20, 26)

Fageiella ensiger, Deeleman-Reinhold, 1974, p. 14-16, fig. 10-13, 16-18.

Close to F. patellata, however with characteristic diffe-

Figs. 1-5: Fageiella patellata (Kulczynski). 1 male chelicerae frontal view (Deeleman.Reinhold, 1974; 2 male palp, external view; 3 male palp, internal view; 4 vulva, ventral view; 5 vulva, lateral view. Scale: 0,2 mm (2-5).

rences. Male chelicerae not so elongated, with one large bifid or trifid tooth on the inner row. The male palpal patela not incise. Embolus part similar, however the lamella more pronounced fan-shaped, with tendency towards denticulation.

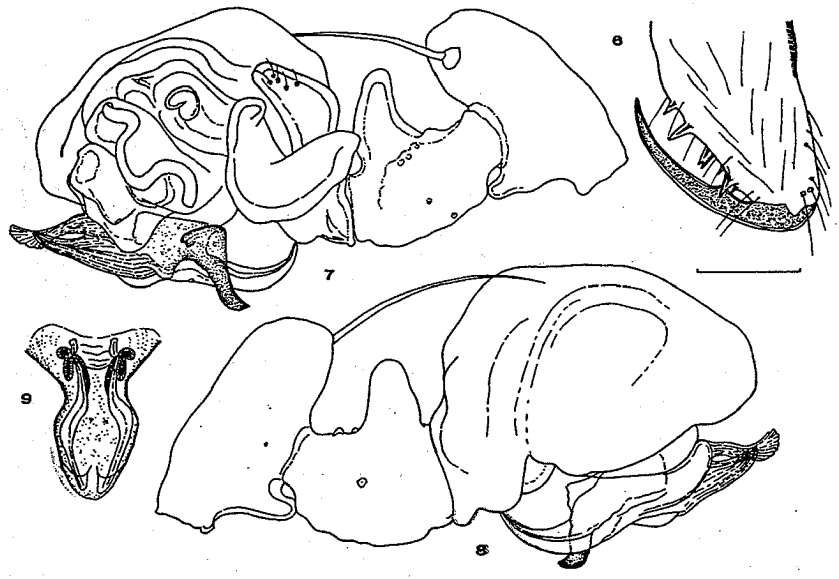
The species is known only from several caves of Montenegro and Serbia. Inhabits the same parts of the cave like F. patellata.

Material and locality: Small cave near the road Rozaje-Pec, 1 ♂, 22.VII.1972 (locus typicus) (leg. C. Deeleman-Reinhold).

Antrohyphantes Dumitresco, 1971

Generaly close to the genus Fageiella, uniting the characteristics of Fageiella and Lepthyphantes. Possesses most of the characteristics of Fageiella with some differences: The legs are not so elongated, spinulation close to Lepthyphantes. The

male chelicerae indicate sexual dimorphism, however not so deeply pronounced. The patellaof the male palp strongly elongated, varying from singular to bifurcated. Tibial apophysis in some cases very complicated. The embolus is smaller and the lamella is strongly elongated and denticulated. The epigyne is quite similar in some respects to this of Fageiella.



Figs. 6-9: Fageiella ensiger Deeleman-Reinhold. 6 male chelicera, frontal view (Deeleman-Reinhold, 1974); 7 male, palp, external view; 8 male palp, internal view; 9 vulva, dorsal view (Deeleman-Reinhold, 1974). Scale: 0.2 mm (7-8).

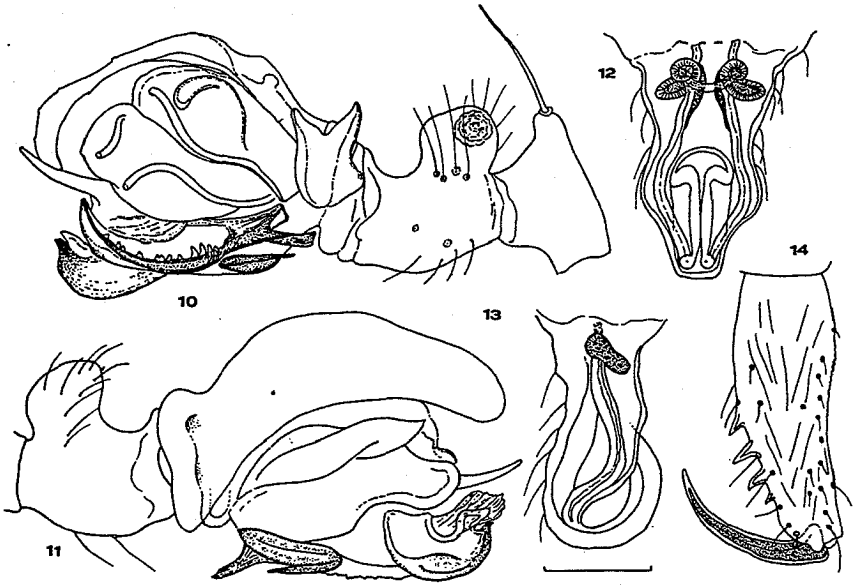
Antrohyphantes balcanica (Drensky) (figs. 10-14, 20, 27)

Lepthyphantes monticola balcanica, Drensky 1931, p. 2, 3, 14-16, 43, 44, f. 1 a-d ; Lepthyphantes balcanica: Deltshev, 1972 p. 137-142, f. 1-8 ; Deltshev, 1975, p. 210, 213, f. 2.

Characteristicsof the species are comparativly elongated male chelicerae and strongly elongated and denticulated lamella. The fan-shaped part is complicated presented. Only found in

caves of the Central Stara planina mountain. Usually occupies solitary stations. Weaves its fine webs between stones, bits of wood, and in little pits, formed in clay, both around the caves and their interior. Troglophile.

Material and locality: cave "Toplia", 1 female lectotype, 2 female lectotypes, 3.X.1925 (leg. N. Radev); materials from 9 caves all in the same region (Central Stara planina and comprised male and female specimens.



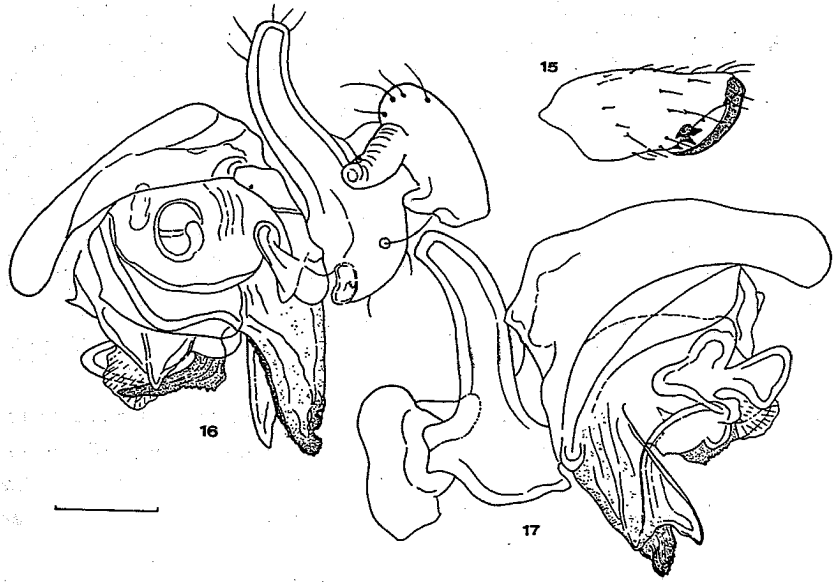
Figs. 10-14: Antrohyphantes balcanica (Drensky). 10 male palp, external view; 11 male palp, internal view; 12 vulva, ventral view; 13 vulva, lateral view; 14 male chelicera (Deltshev, 1972). Scale: 0.2 mm (10-13).

Antrohyphantes rhodopensis (Drensky) (figs. 15-19, 20, 28)

Troglohyphantes rhodopensis, Drensky, 1931, p. 2, 28-30, 49, f. 7, a-d ; Lepthyphantes rhodopensis: Kratochvil, Miller, 1938, p. 108 ; Antrohyphantes rodopicus, Dumitresco, 1971, p. 167-174, f. 1-13 ; Lepthyphantes (Antrohyphantes) rhodopensis: Deltshev, 1975, p. 213, f. 2.

Here too the elongated and denticulated lamella is pronounced, with well presented fan-shaped part. With the male chelicerae, there is a tooth with a tendency towards bifurcation. Found in the Western Rhodopes, Pirin and Rila mountains. Inhabits caves, both inside and outside, under stones. Does not enter the deeper parts of caves. Found together with Lepthyphantes centromeroides and Porrhomma convexum, the species staying in their individual regions.

Material and locality: cave near vill. Progled, 1 female lectotype, 1 female paralectotype, 30.VI.1924 (leg. P. Drensky); cave "Mecha dupka" (Pamporovo), 1 ♂, 2 ♀, 26.IX.1973; Materials from 4 caves in the same region (Western Rhodopes) and 4 locations in Pirin and 1 location in Rila mountains, comprised male and female specimens.



Figs. 15-19: Antrohyphantes rhodopensis (Drensky). 15 male chelicera, frontal view (Dumitresco, 1971); 16 male palp, external view; 17 male palp, internal view; 18 vulva, ventral view; 19 vulva lateral view. Scale: 0.2 mm (16-19).

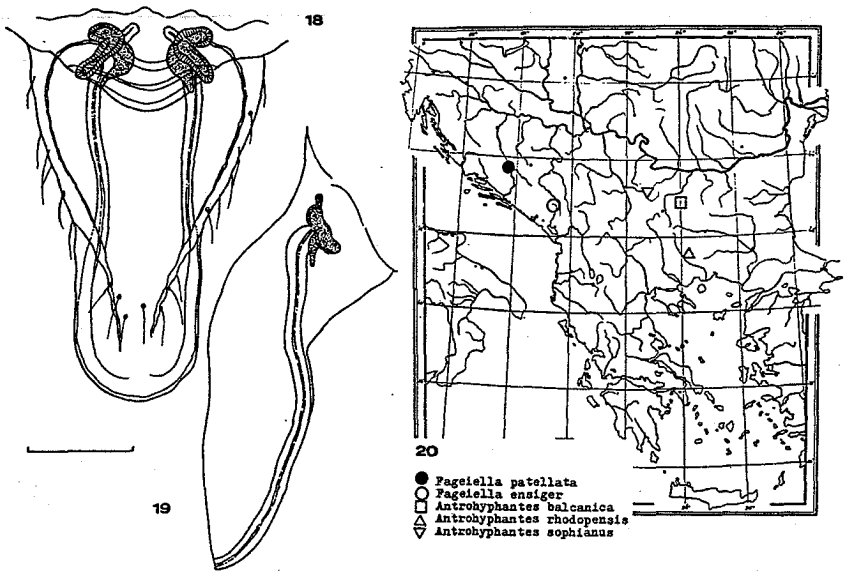


Fig. 20: Distribution of genus Fageiella and genus Antrohyphantes in Balkan Peninsula.

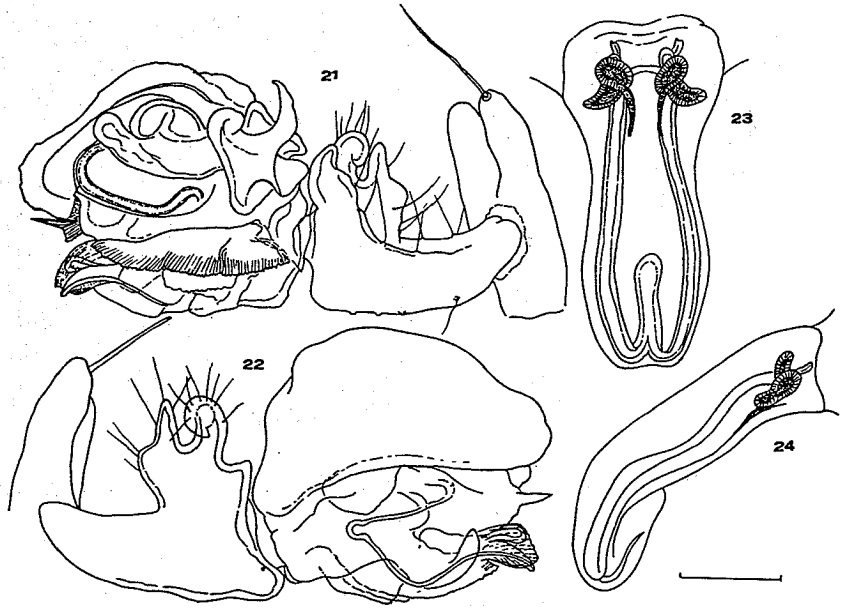
Antrohyphantes sophianus (Drensky) (figs. 20-24, 29)

Bolyphantes sofianus, Drensky, 1931, p. 2, 5, 31-33, 49, 50, f. 8 a-f ; Lepthyphantes tranteevi, Miller, 1958, p. 577-583, f. 48-55 ; Lepthyphantes sofianus: Deltshev, 1972, p. 145 ; Deltshev, 1975, p. 213, f. 2.

This species has the most elongated and denticulated lamella. The patella with male palp is bifurcated most prominently and the tibial apophysis is considerably complicated. This is also valid with the paracymbium. The epigyne is closest to that of the genus Fageiella. Found only in caves, occupying both the entrance area and the interior. Coexists with Lepthyphantes centromeroides, Centromerus cavernarum, Porrhomma convexum, and when it takes over the entire territory it establishes large populations. Found only in the caves of the Western Stara planina mountain.

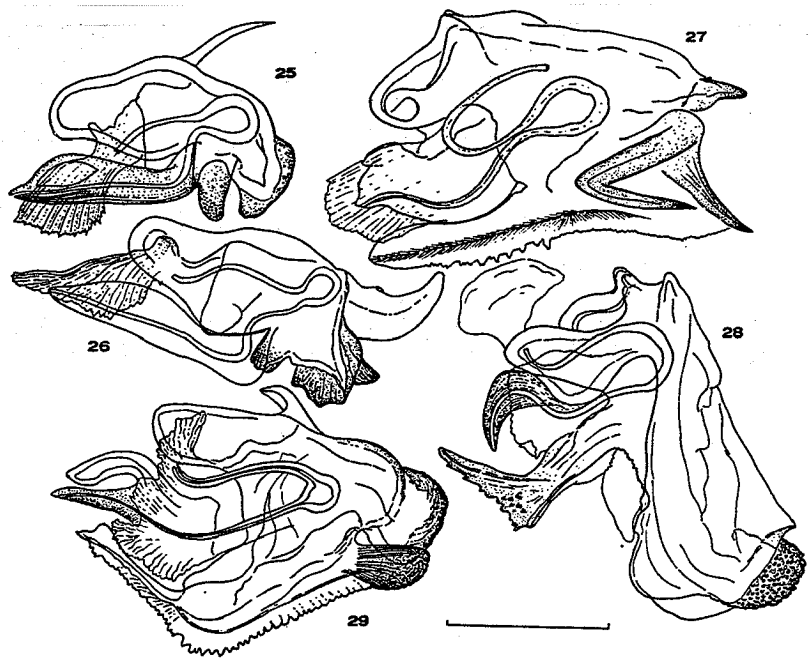
Material and locality: cave near vill. Brese, 1 male lec-

totype, 1 female paralectotype, 8.VII.1925 (leg. P. Drensky); Materials from 11 caves in the same region (Western Stara planina mountain), comprised male and female specimens.



Figs. 21-24: Antrohyphantes sophianus (Drensky). 21 male palp, external view; 22 male palp, internal view; 23 vulva, ventral view; 24 vulva, lateral view. Scale: 0.2 mm.

Conclusions: The genera Fageiella and Antrohyphantes are endemics on the Balkan Peninsula. Quite close generically, while their distribution comes to show that they had already spread some time befor the establishment of the Vardar tectonic zone. If we judge from the theory of plesiomorphic and apomorphic characteristics, we can voice the supposition that the genus Fageiella is older, because of its morphologically simpler sexual organs. The distribution has alopatric character, while the species of the genus Antrohyphantes also have alopatric distribution.



Figs. 25-29: Embolus part of the species. 25 Fageiella patellata; 26 Fageiella ensiger; 27 Antrohyphantes balcanica; 28 Antrohyphantes rhodopensis; 29 Antrohyphantes sophianus. Scale: 0.2 mm.

The conclusion could be drawn, that the Dinar mountain, Stara planina mountain and Rhodope mountain are important centers in the formation of endemic genera and species of the Linyphiidae family, inhabiting caves in the Balkan Peninsula.

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