



## CONTRIBUTION TO THE KNOWLEDGE ON THE MITE FAMILY RHAGIDIIDAE (ACARI: PROSTIGMATA) IN SLOVAKIA

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**Abstract:** The taxons of the predatory mite family Rhagidiidae Oudemans collected from Slovak territory during more than the last three decades are presented in this paper including both published and unpublished data. Altogether 33 species (identified into species level) within 11 genera are included in the paper together with detailed data on localities and habitats where the species were found.

**Key words:** faunistics, mites, Rhagidiidae, Slovakia

### INTRODUCTION

Soil mites of the family Rhagidiidae belong to relatively scarce mesoedaphic or edaphic predators. Taking into account the fact, that there are a few specialist on this group of mites in the world, the family belongs to the less studied ones. The first data on these mites from Slovak territory appeared in paper of ZACHARDA (1978) and mainly in the monograph published by the same author (ZACHARDA 1980), where the author in the frame of research of former Czechoslovakia, found out 7 genera and 13 species mainly in mountain areas of Central and Northern Slovakia. The majority of Slovak acarologists devote their attention to the study of mesostigmatic mites, at most. That is why, the further data on this group of prostigmatic mites had been presented in the papers of ZACHARDA (1988), KALÚZ (2000, 2001a, 2001b, 2003a, 2003b), KALÚZ & ČARNOGURSKÝ (2000) and also in other papers dealing with ecology and faunistics of soil mites mostly in wet lowland habitats of Podunajská nížina plane and Borská nížina lowland. The occurrence of representatives of these mites in various types of habitats closed to Bratislava was presented in the paper, bringing the results of research on soil mites of National Nature Reserve Devínska Kobyla (KALÚZ, 2005b). Other knowledge on family Rhagidiide from northern part of Nízke Tatry Mts. were obtained during the research of soil mites in several different habitats of mountain and subalpine zone of Chopok Mt. (KALÚZ, 2005a). The paper, dealing

with family Rhagidiidae only, is the paper of KALÚZ (2007a) where the author brings the knowledge on the representatives of Rhagidiidae, inhabiting soil and litter of oak forests in South–West Slovakia. The further data on the occurrence of species of family Rhagidiidae in Slovakia are in the papers focussing the attention to the study of Slovakian cave fauna (KOŠEL 1994; KOVÁČ et al. 1998, 2001, 2002a, 2002b, 2005). In another papers of (KOVÁČ et al. 2003, 2006) this family of mites was stated from caves, however without any presented taxons in these papers. Despite of these publications the family Rhagidiidae is still one of the least studied families of soil mites in Slovakia.

## **MATERIAL AND METHODS**

The field research on soil mites was widely focussed on faunistics and species spectrum, and run during the years 1981–2014. For the further study the members of the family Rhagidiidae were separated from collected materials of soil mites. The localities explored included many various areas and habitats of Slovak territory. The details on the localities and habitats are stated in the papers below that are involved into References. When the older paper, due to shortage of space, did not present the date and habitat of the collection of specimens, the relevant data had been taken from original protocols. During the years some individuals under slides were damaged resulting from lower quality of Swan medium and a subsequent re–identification was impossible. These individuals were not included into faunistic data of this paper despite of the fact, that they were already published in the past. All species of the family Rhagidiidae found in Slovakia are presented in this paper together with short characteristics of localities from which they were obtained. The mites were collected using soil samples (soil, litter, rhizosphere of various plants, moss and other soil materials). The mites in caves were also collected from rotten wood and pitfall traps. The soil samples much more prevailed during the whole period of the research. Mites from soil samples were isolated in Tullgren funnels, preserved in 70% ethyl–alcohol and mounted into permanent slides using Liquido de Swann. The same is concerned the mites from pitfall traps. The species spectrum of family Rhagidiidae is presented in the text together with some comments on the species and habitats. The mites of this family were identified under the light microscope using the key of ZACHARDA (1980). Abbreviations in the text: PN – protonymph, DN – deutonymph, TN – tritonymph.

## RESULTS

This paper presents altogether 33 species (identified into the species level) in 11 genera of the family Rhagidiidae collected from Slovak territory during the last more than three decades.

### Rhagidiidae Oudemans 1922

#### *Brevipalpia* Zacharda, 1980

##### *Brevipalpia minima* Zacharda, 1980

###### **Published data:**

SW–Slovakia, Borská nížina lowland, Veľké Leváre, Nat. Reserve Abrod, N–48.32.01, E–17.00.20, meadow, 152 m, 24.05.1999, 1♀; 29. 09. 1999, 15♀; 17.10.2006, 3♀ from soil samples, leg. S. Kalúz (KALÚZ 2000, 2003b, 2006; KALÚZ & ČARNOGURSKÝ 2000)

SW–Slovakia, Bratislava, Malé Karpaty Mts., Kamzík, *Quercus robur*, N–48.10.39, E–17.04.42, 200–350 m, 10.11.1997, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2007a)

SW–Slovakia, Bratislava, Nat. Reserve Fialkové údolie, *Quercus delechampii*, N–48.10.00, E–17.00.17, 162 m, 08. 09. 2000, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

N–Slovakia, Vysoké Tatry Mts., Tatranské Zruby, Zhorenisko, N–49.08.12, E–20.11.59, meadow, 1085 m, 26.05.2010, 1♀ from soil and grass rhizosphere, leg. S. Kalúz (KALÚZ 2011, 2013)

###### **Unpublished data:**

SW–Slovakia, Podhájska, N–48.07.16, E–18.20.03, *Acereto-Quercetum*, 145 m, 30.05.2005, 2♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Vydrany village env., N–48.02.47, E–17.37.01, *Populetum*, 112 m, 12.05.1983, 1♀; 10.08.1983, 1♀; 11.10.1983, 1♀ from soil samples, leg. S. Kalúz

**Remarks:** Rare species described from Cenral Bohemia on the base of 3 specimens only (ZACHARDA, 1980). The findings from Slovakia confirm that this species is really rare, known from several localities only. But, its occurrence from lowlands through higher altitudes up to mountains (High Tatras) indicates, that the ecological plasticity and zoogeographic distribution of this species would be much wider.

#### *Coccorhagidia* Thor, 1934

##### *Coccorhagidia clavifrons* (G. Canestrini, 1886)

###### **Published data:**

SW–Slovakia, Borská nížina lowland, Brodské, Gbelský les, N–48.41.07, E–17.04.04, *Querceto-Pinetum*, 176 m, 24.04.2006, 1♀; 11.12.2006, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)

- SW–Slovakia, Borská nížina lowland, Veľké Leváre, Nat. Reserve Abrod, N–48.32.01, E–17.00.20, meadow, 152 m, 07.05.1999, 53♀; 24.05.1999, 62♀ from soil samples, leg. S. Kalúz (KALÚZ 2003b, 2003c, 2006; KALÚZ & ČARNOGURSKÝ 2000)
- SW–Slovakia, Bratislava, Devín, N–48.10.31, E–16.58.38, *Quercetum*, 258 m, 19.04.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Nat. Reserve Devínska Kobyla, N–48.11.30, E–16.59.04, *Querceto–Crataegetum*, meadow, 276 m, 26.07.1996, 1♀; 22.08.2001, 2♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ, 2005b, 2007a)
- SW–Slovakia, Bratislava, Devínska N. Ves, Nat. Reserve Štokeravská vápenka, *Querceto–Crataegetum*, N–48.12.08, E–16.59.56, 286 m, 26.07.1996, 1♀; 19.04.2001, 1♀; 22.08.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Nat. Reserve Fialkové údolie, *Quercus delechampi*, N–48.10.00, E–17.00.17, 162 m, 26.07.1996, 1♀; 31.10.2000, 1♀; 02.07.2001, 4♀; 22.08.2001, 2♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Ostrov Kopáč, *Quercus delechampi*, N–48.05.43, E–17.09.44, 126 m, 06.11.1991, 1♀; 01.08.2006, 4♀; 12.10.2006, 2♀, 1N from soil samples, leg. S. Kalúz (KALÚZ 2007b)
- SW–Slovakia, Bratislava, Devín, Devínsky hradný vrch, xerotherm, N–48.10.31, E–16.58.38, 258 m, 19.04. 2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Malé Karpaty Mts., Železná Studienka, N–48.11.40, E–17.05.46, alluvial meadow, 200–350 m, 10.08.2009, 1♀; 18.09.2009, 1♀; 18.11.2009, 1♀ from grass rhizosphere, leg. M. Vrabc (VRABEC et al. 2012)
- SW–Slovakia, Bratislava, Petržalka, Ovsíšte, N–48.07.01, E–17.08.20, meadow, 135 m, 21.09.2009, 1♀; 18.11.2009, 5♀ from plant rhizosphere, leg. M. Vrabc (VRABEC et al. 2012)
- SW–Slovakia, Bratislava, Podunajské Biskupice, Topoľové, *Querceto–Crataegetum*, N–48.04.51, E–17.12.07, 126 m, 10.07.1989, 2N from soil samples, leg. S. Kalúz (KALÚZ 2003a)
- S–Slovakia, Cerová vrchovina Mts., Belina village env., Nat. Reserve Belinské skaly, N–48.14.12, E–19.51.50, 426 m, 19.06.2007, 3♀, 3N from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Drňa, Hostice, N–48.14.46, E–20.05.52; 252 m, pasture with *Corneto–Crataegetum* and *Thymus serpyllum*, 18.06.2007, 1♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Gemerské Dechtáre village env., N–48.14.49, E–20.01.29, old vineyard, steppe, 255 m, 01.10.2007, 1♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009) et al.
- S–Slovakia, Cerová vrchovina Mts., Šiatorská Bukovinka village env., Nat. Reserve Ragáč, N–48.10.24, E–19.49.25, 372 m, 03.10.2007, 3♀, 1N from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Petrovce village env., Nat. Reserve Fenek, N–48.10.36, E–20.02.48, *Quercetum*, 266 m, 20.06.2007, 1♀; 02.10.2007, 3♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)

- S–Slovakia, Cerová vrchovina Mts, Stará bašta, Pohanský hrad, N–48.12.03, E–19.55.25, *Quercetum*, meadow, 573 m, 03.10.2007, 1♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts, Šiatorská Bukovinka, Mačacia, N–48.10.17, E–19.51.43, *Carpinetum*, 463 m, 19.06.2007, 1N from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts, National Nat. Reserve Šomoška, Bukovinský creek alluvium, N–48.10.17, E–19.51.31, 18.06.2007, 350 m, 2♀ from litter, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Tachty village env., Dolina Gortvy, N–48.08.54, E–19.55.24, pasture, 320 m, 20.06.2007, 1N; 02.10.2007, 8♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.14.09, E–19.05.55, *Piceetum*, 1346 m, 29.07.1997, 5♀ from moss; 4♀ from spruce litter, leg. S. Kalúz (KALÚZ 1998c)
- SW–Slovakia, Malé Karpaty Mts., Smolenice village env., N–48.30.03, E–17.24.19, *Quercetum*, 430 m, 15.06.2001, 11♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2007a)
- N–Slovakia, Nízke Tatry Mts., Chopok, Jasná, N–48.57, E–19.35, 1996–1998, ski slope, unspecified number of individuals from grass rhizosphere (KALÚZ 2005a)
- S–Slovakia, Strážovské vrchy Mts., Trebichava env., Kňaží stôl, N–48.47.26, E–18.17.57; 637 m, limestone slope with solitary oaks, 13.10.2010, 2♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)
- S–Slovakia, Strážovské vrchy Mts., Trebichava env., Bradlo, N–48.47.48, E–18.17.07; 491 m, limestone slope, forest–steppe *Quercetum*, 13.10.2010, 3♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)
- S–Slovakia, Strážovské vrchy Mts., Trebichava env., N–48.48.43, E–18.17.51, 480 m, limestone slope, *Pinetum*, 13.10.2010, 8♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)
- S–Slovakia, Strážovské vrchy Mts., Čierna Lehota env., N–48.52.34, E–18.20.27, 494 m, thermophilous valley with *Cornus sanguineus*, *C. maas*, *Crataegus nonogyna*, 13.10.2010, 3♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)
- N–Slovakia, Vysoké Tatry Mts., Bielovodská dolina Valley, 30. 08.1974, 1♀, 1♂ from grass rhizosphere, leg. V. Bukva (ZACHARDA 1980).
- N–Slovakia, Vysoké Tatry Mts., Mlynická dolina Valley, 30. 08.1974, 12 ♀ from grass rhizosphere, leg. V. Bukva (ZACHARDA 1980)
- N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 2007–2008, 33♀ from soil and litter, leg. S. Kalúz (KALÚZ & FERENČÍK 2008)
- N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 24.08.2010, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)
- N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, *Piceetum*, 1146 m, 24.08.2010, 1♀ from litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, meadow, 1137 m, 24.08.2010, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

**Unpublished data:**

SW–Slovakia, Borská nížina lowland, Veľké Leváre, Borová, N–48.33.22, E–16.57.01, 151 m, sand dune, moss, grass, 06.05.1993, 1♀; 21.07.1993, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Borská nížina lowland, Vysoká pri Morave, N–48.18.40, E–16.54.10, *Salici–Populetum*, 143 m, 12.08.1992, 2♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Bratislava, Vrakuňa, *Salici–Populetum*, N–48.09.27, E–17.15.34, 130 m, 05.10.1982, 2♀ from soil samples, leg. S. Kalúz

N–Slovakia, Malá Fatra Mts., Nat. Reserve Kľačianska Magura, N–49.09.17, E–18.57.02, *Piceetum*, 1346 m, 11.07.1984, 4♀; 20.08.1984, 8♀ from soil samples, leg. S. Kalúz

N–Slovakia, Malá Fatra Mts., Nat. Reserve Kľačianska Magura, N–49.09.17, E–18.57.02, mountain meadow, 1342 m, 13.06.1984, 1♀; 11.07.1984, 2♀ from soil samples, leg. S. Kalúz

N–Slovakia, Malá Fatra Mts., Nat. Reserve Šrámková, N–49.11.13, E–19.07.19, *Alnetum*, 820 m, 23.06.1983, 1♀ from soil, leg. S. Kalúz (KALÚZ & ŽUFFA 1986 – published as *Coccorhagidia* sp.)

N–Slovakia, Malá Fatra Mts., Nat. Reserve Šrámková, N–49.11.17, E–19.07.10, *Fageto–Abietum*, 940 m, 10.08.1983, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ & ŽUFFA 1986 – published as *Coccorhagidia* sp.)

N–Slovakia, Malá Fatra Mts., Šútovská dolina valley, N–49.11.22, E–19.05.05, *Piceetum*, 849 m, 16.08.1996, 1♀ from moss, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Bodíky, *Salici–Populetum*, N–47.55.02, E–17.26.22, 124 m, 17.04.1991, 2♀; 29.09.1994, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Gabčíkovo env., Istragov, N–47.50.38, E–17.33.43, *Salicetum*, 121 m, 16.06.1994, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Hamuliakovo env., N–48.02.49, E–17.14.42, *Salicetum*, 128 m, 12.04.1989, 2N from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Kľúčovec, Sporná Sihot', *Salici–Populetum*, N–47.47.12, E–17.40.37, 120 m, 16.09.1992, 2♀ from soil samples, leg. S. Kalúz

S–Slovakia, Príbelce, N–48.12.20, E–19.15.53, 285 m, *Quercetum*, 28.05.1999, 1♀ from soil samples, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Hačava, Grečov vrch, N–48.40.06, E–20.49.23, pasture, 794 m, 04. 05. 1988, 1♀; 08.08.1988, 2♀, 1N; 14. 10. 1988, 1♀ from rhizosphere of grass, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Silica, Nat. Reserve Pod Fabiankou, N–48.32.51, E–20.31.48, pasture, 495 m, 06.05. 1987, 2N; 06.07.1987, 2♀; 27.07.1987, 1N; 21. 10. 1987, 1♀ from soil samples, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Silická Brezová, Nat. Reserve Kráľova studňa, N–48.31.15, E–20.30.12, meadow, 431 m, 17.09.1987, 3♀, 1N from soil samples, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Silica, Nat. Reserve Silická Ľadnica, N–48.32.52, E–20.30.39, chasm, pasture, 493 m, 06.07.1987, 2♀; 16. 09. 1987, 2♀; 21. 10. 1987, 3♀ from soil samples, leg. S. Kalúz,

NC–Slovakia, Veľká Fatra Mts., Smrekovica env., Nat. Reserve Skalná Alpa, N–48.59.26, E–19.10.05, *Acereto-Piceetum*, 1200 m, 1985–1986, 10♀ from litter and grass rhizosphere, leg. S. Kalúz (KALÚZ & ŽUFFOVÁ 1989 – published as *Coccorhagidia* sp.)

**Remarks:** Small mesoedaphic mite, very current and relatively abundant species in various ecological conditions. Its zoogeographic distribution includes Holarctic region and also South Africa (ZACHARDA 1980). In Slovak territory also current and very widely distributed in many localities and in various soil conditions from lowlands up to mountains. We can suppose, that the species has a wide ecological tolerance.

### *Coccorhagidia pittardi* Strandtmann, 1971

#### **Published data:**

SE–Slovakia, Slovenský kras, Ardovo, Ardovská cave, N–48.31.16, E–20.25.14, 314 m, 1997, 1♀ from soil sediment, 1♀ from rotten wood, leg. Ľ. Kováč (KOVÁČ et al. 2005)

N–Slovakia, Vysoké Tatry Mts., Koprovský štít Mt., 2367 m, 02.09.1974, 12♀, 1TN from moss and rhizosphere, leg. V. Bukva (ZACHARDA 1980).

N–Slovakia, Vysoké Tatry Mts., Nová Polianka, Danielov dom, N–49.07.96, E–20.09.47, meadow, 1120 m, 26.05.2010, 2♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Prielom Saddle, 2200 m, 29.08.1974, 3♀ from moss and rhizosphere, leg. V. Bukva (ZACHARDA 1980).

#### **Unpublished data:**

SW–Slovakia, Bratislava, Podunajské Biskupice, Topoľové, N–48.04.51, E–17.12.07, *Quercetum*, 132 m, 03.10.1989, 1♀ from soil samples, leg. S. Kalúz

N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.13.58, E–19.06.40, *Fagetum*, 1104 m, 05.06.1997, 3♀ from soil, leg. S. Kalúz

N–Slovakia, Malá Fatra Mts., Nat. Reserve Šrámková, N–49.11.13, E–19.07.19, *Fagetum*, 890 m, 10.08.1983, 1♀ from soil samples, leg. S. Kalúz

N–Slovakia, Nízke Tatry Mts., Chopok, Jasná, N–48.57., E–19.35, ski slope, mountain meadow, 1450 m, 31.05.1996, 1♀ from grass rhizosphere, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Dobrohošť, *Salici–Populetum*, N–47.59.20, E–17.20.42, 127 m, 30.09.1994, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Bodíky, *Salici–Populetum*, N–47.55.02, E–17.26.22, 124 m, 30.09.1994, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Gabčíkovo env., Istragov, N–47.50.38., E–17.33.43, *Salicetum*, 121 m, 17.04.1989, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Klúčovec, Sporná Sihoť, *Salici–Populetum*, N–47.47.12, E–17.40.37, 120 m, 30.09.1994, 1♀ from soil samples, leg. S. Kalúz

**Remarks:** Like in the previous species, but more scarce predatory mite. Its occurrence involves various habitats and soil conditions from lowlands up to mountains. The species found also in caves (KOVÁČ et al. 2005). We can suppose that the distribution of this species follow that of *C. clavifrons*.

***Crassocheles* Zacharda, 1980**

*Crassocheles muralis* Zacharda, 1980

**Published data:**

S–Slovakia, Strážovské vrchy Mts., Trebichava, Kňazi stôl, N–48.47.26, E–18.17.57, 637 m, limestone slope, xerotherm with solitary oaks, 13.10.2010, 1♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)

**Unpublished data:**

SE–Slovakia, Slovenský kras, Silica, Nat. Reserve Silická Ľadnica, N–48.32.52, E–20.30.39, chasm, pasture, 493 m, 16.07.1987, 2♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Borská nížina lowland, Plavecký Štvrtok, Bezedné, N–48.22.46, E–17.00.40, *Alneto–Pinetum*, 167 m, 14.07.1992, 1♀ from soil samples, leg. S. Kalúz

**Remarks:** Very rare species – 4 individuals found out in Slovakia at three different areas (mountains, chasm and sandy soil in lowland) during the whole period of investigation, only. Nothing is known on the distribution and ecological demands of this species. But, wide range of localities of its occurrence indicates, that the species would occur in the soil conditions of more various localities.

***Crassocheles virgo* Zacharda, 1980**

**Published data:**

S–Slovakia, Strážovské vrchy Mts., Trebichava env., N–48.48.43, E–18.17.51, 480 m, limestone slope, *Pinetum*, 13.10.2010, 2♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)

**Remarks:** Until recent there are 2 females known from Slovak territory, only. Further data on the distribution and ecology of this species are absolutely missing.

***Evadorhagidia* Zacharda, 1980**

*Evadorhagidia janetscheki* (Willmann, 1935)

**Published data:**

S–Slovakia, Cerová vrchovina Mts., Petrovce village env., Nat. Reserve Fenek, N–48.10.36, E–20.02.48, *Quercetum*, 266 m, 02.10.2007, 5♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)

S–Slovakia, Strážovské vrchy Mts., Trebichava, Kňazi stôl, N–48.47.26, E–18.17.57, 637 m, limestone slope, xerotherm with solitary oaks, 25.09.2009, 2♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)

S–Slovakia, Strážovské vrchy Mts., Trebichava env., Bradlo, N–48.47.48, E–18.17.07, 491 m, limestone slope, forest–steppe *Quercetum*, 25.09.2009, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)

N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.13.58, E–19.06.40, 29.07.1997, *Fagetum*, 1104 m, 1♀ from soil, leg. S. Kalúz (KALÚZ 2001a)

**Unpublished data:**

N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.14.09, E–19.05.55, *Piceetum*, 1346 m, 29.07.1997, 1♀ from moss; 4♀ from spruce litter, leg. S. Kalúz



N–Slovakia, Nízke Tatry Mts., Chopok, Jasná, N–48.57, E–19.35, 03.10.1996, ski slope, 1450 m, 2♀ from grass rhizosphere, leg. S. Kalúz

**Remarks:** Rare mesoedaphic mite with predatory style of life. In the past the species was known mainly from Alpes (ZACHARDA 1980). The findings in Slovakia, indicate that the species would rather prefer the mountain conditions. All specimens were collected in less or more higher altitudes from Cerová vrchovina up to Nízke Tatry Mts. and were not observed in lowlands.

*Evadorhagidia oblikensis* Zacharda, 1980

**Published data:**

SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 11.12.2006, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)

**Remarks:** Extremely rare mesoedaphic predatory mite published from Czech territory and originally found at Oblík hill (ZACHARDA 1980). One finding is reported on the base of 1 individual from Slovakia. Recently, nothing is known on the distribution and ecology of this mite.

*Foveacheles* Zacharda, 1980

*Foveacheles (Mediostella) canestrinii* (Berlese et Trouessart, 1889)

**Published data:**

SW–Slovakia, Bratislava, Malé Karpaty Mts., Kamzík, N–48.10.57, E–17.06.05, *Quercetum*, meadow, 200–350 m, 10.08.2009, 1♀ from grass rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)

SW–Slovakia, Bratislava, Ostrov Kopáč, *Quercus delechampi*, N–48.05.43, E–17.09.44, 126 m, 01.08.2006, 1♀ from soil samples, leg. S. Kalúz, (KALÚZ 2007b)

SW–Slovakia, Bratislava, Petržalka, Ovsíšte, N–48.07.01, E–17.08.20, meadow, 135 m, 10.08.2009, 1♀; 21.09.2009, 1♀; 18.11.2009, 2♀ from plant rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)

SW–Slovakia, Podunajská rovina plane, Čičov env., N–47.45.56., E–17.43.21, *Salici–Populetum*, 118 m, 16.06.1994, 1♀; 02.10.2000, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2001a)

**Unpublished data:**

SW–Slovakia, Podunajská rovina plane, Čičov env., N–47.45.56, E–17.43.21, *Salici–Populetum*, 118 m, 23.11.1994, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Dobrohošť, *Salici–Populetum*, N–47.59.20, E–17.20.42, 127 m, 02.10.2000, 1♀ from soil samples, leg. S. Kalúz

**Remarks:** Very interesting and rare mite originally known from Atlantic shore in France (ZACHARDA 1980). In Slovak territory collected from soil samples and plant rhizosphere mainly in lowlands except for Kamzík hill (Bratislava). However, the findings include 10 specimens only and a little information comes on the distribution and ecology of this species.

*Foveacheles (Mediostella) rupestris* Zacharda, 1980

**Published data:**

N–Slovakia, Vysoké Tatry Mts., Koprovský štít Mt., 2367 m, 02.09.1974, 2♀ from grass rhizosphere leg. V. Bukva (ZACHARDA 1980)

N–Slovakia, Vysoké Tatry Mts., Prielom Saddle, 2200 m, 29.07.1974, 1♀, 1TN from grass rhizosphere, leg. V. Bukva (ZACHARDA 1980)

N–Slovakia, Vysoké Tatry Mts., Hlinská dolina Valley, 1830 m., 30.08.1974, 3♀ from grass rhizosphere; Hlinská dolina Valley, 2000 m., 02.09.1974, 1TN from grass rhizosphere, leg. V. Bukva (ZACHARDA 1980)

**Remarks:** No more findings appeared from Slovak territory after paper of ZACHARDA (1980).

*Foveacheles (Mediostella) willmanni* Zacharda, 1980

**Published data:**

S–Slovakia, Cerová vrchovina Mts., Gemerské Dechtáre village env., N–48.14.49, E–20.01.29, 18.06.2007, old vineyard, steppe, 255 m, 18.06.2007, 2♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)

**Remarks:** In the past the species was known from Austria (ZACHARDA 1980). In our territory the species was published from Cerová vrchovina Mts. only and no more further findings have been known. Body morphology indicates that it would be predatory mite, but nothing is known on its ecology, behaviour and distribution.

*Foveacheles (Spelaeocheles) troglodyta* Zacharda, 1988

**Published data:**

E–Slovakia, Slovenské Rudohorie Mts., Stratenská vysočina Highlans, Stratená dolina valley, Stratenská cave, 1000 m, 11.07.1985, 1♀, 1♂; 22.08.1985, 3♀ from substratum of cave, leg. V. Košel (ZACHARDA 1988)

N–Slovakia, Nízke Tatry Mts., Demänovská dolina valley, Demänovská cave, N–48.59.55, E–19.35.08, May–Sept. 2000, 915 m, unspecified number of individuals from pitfall traps and rotten wood, leg. L. Kováč (KOVÁČ et al. 2001, 2002a, 2002b)

**Remarks:** The species seems be troglophilous, because all findings come from caves, only.

*Latoempodia* Zacharda, 1980

*Latoempodia similis* Zacharda, 1980

**Published data:**

N–Slovakia, Vysoké Tatry Mts., Mengusovská dolina Valley, 1730 m., 02.09.1974, 1♀ from grass rhizosphere, leg. V. Bukva (ZACHARDA 1980)

**Remarks:** No more information on this species is known from Slovakia after the finding by ZACHARDA (1980)

***Parallelorhagidia* Zacharda, 1980**

*Parallelorhagidia evansi* (Strandtmann et Prasse, 1976)

**Published data:**

SW–Slovakia, Bratislava, Malé Karpaty Mts., Železná Studienka, N–48.11.40, E–17.05.46, alluvial meadow, 200 m, 18.11.2009, 1♀ from grass rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)

**Unpublished data:**

SW–Slovakia, Bratislava, Nat. Reserve Fialkové údolie, *Quercus delechampi* N–48.10.00, E–17.00.17, 162 m, 05.07.2001, 1♀ from grass rhizosphere, leg. S. Kalúz

**Remarks:** West-European representative sporadically occurring in the soil. Very rare in Central Europe (ZACHARDA 1980). In Slovakia reported from southern part of Malé Karpaty Mts., only. Two females are known from the soil and grass rhizosphere of oak forest and meadow, respectively.

*Poecilophysis (Dentocheles) pratensis* (C. L. Koch, 1835)

**Published data:**

SW–Slovakia, Borská nížina lowland, Brodské, Gbelský les, N–48.41.07, E–17.04.04, *Querceto–Pinetum*, 176 m, 24.04.2006, 3♀, 3N; 17.05.2006, 2♀, 5N; 21.06.2006, 1♀, 1N; 10.08.2006, 3♀, 3N; 13.09.2006, 6♀, 2N; 17.10.2006, 6♀, 2N; 11.12.2006, 7♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)

SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 24.04.2006, 3♀, 4N; 09.05.2006, 1♀, 2N; 13.09.2006, 5♀, 1N from soil samples, leg. S. Kalúz (KALÚZ 2007a)

SW–Slovakia, Borská nížina lowland, Veľké Leváre, Nat. Reserve Abrod, N–48.32.01, E–17.00.20, meadow, 152 m, 07.05.1999, 3♀; 24.05.1999, 5♀; 14.09.1999, 2♀ from soil samples, leg. S. Kalúz (KALÚZ & ČARNOGURSKÝ 2000; KALÚZ 2006)

SW–Slovakia, Bratislava, Devín, *Quercus cerris*, N–48.10.31, E–16.58.38, 258 m, 19.04.2001, 3♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

SW–Slovakia, Bratislava, Nat. Reserve Devínska Kobyla, *Quercus cerris*, N–48.11.30, E–16.59.04, *Querceto–Crataegetum*, meadow, 276 m, 23.08.2000, 4♀, 1N; 25.10.2000, 2♀, 2N; 19.04.2001, 1♀; 03.07.2001, 2♀; 02.08.2001, 2♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

SW–Slovakia, Bratislava, Malé Karpaty Mts., Nat. Reserve Devínska lesostep, N–48.10.07, E–16.59.41, *Quercetum*, meadow, 154 m, 25.10.2000, 1♀; 31.10.2000, 1♀; 22.08.2001, 2♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

SW–Slovakia, Bratislava, Devín, Devínsky hradný vrch, xerotherm, N–48.10.31, E–16.58.38, 258 m, 27.09.2000, 1♀; 19.04.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

SW–Slovakia, Bratislava, Nat. Reserve Fialkové údolie, *Quercus delechampi*, N–48.10.00, E–17.00.17, 162 m, 08.06.2000, 4♀, 2N; 08.09.2000, 3♀, 1N; 31.10.2000, 3♀, 1N; 19.04.2001, 3♀, 2N; 15.05.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

- SW–Slovakia, Bratislava, Devínska N. Ves, Nat. Reserve Štokeravská vápenka, *Querceto–Crataegetum*, N–48.12.08, E–16.59.56, 286 m, 25.10.2000, 1♀; 19.04.2001, 2♀; 15.05.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Malé Karpaty Mts., Kamzík, N–48.10.39, E–17.04.42, *Quercus robur*, 200–350 m, 10.11.1997, 1♀, 1N; 20.04.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2007a)
- SW–Slovakia, Bratislava, Malé Karpaty Mts., Kamzík, N–48.10.57, E–17.06.05, *Quercetum*, meadow, 350 m, 21.10.2009, 1♀; 18.11.2009, 1♀ from grass rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)
- SW–Slovakia, Bratislava, Malé Karpaty Mts., Železná Studienka, N–48.11.40, E–17.05.46, alluvial meadow, 200 m, 10.08.2009, 1♀ from grass rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)
- SW–Slovakia, Bratislava, Ostrov Kopáč, *Quercus delechampii*, N–48.05.43, E–17.09.44, 126 m, 06.11.1991, 1♀; 12.10.2006, 1♀ from moss, leg. S. Kalúz; 10.08.2006, 5♀, 2N from moss, leg. S. Kalúz, (KALÚZ 2007b)
- SW–Slovakia, Bratislava, Petržalka, Ovsište, N–48.07.01, E–17.08.20, meadow, 135 m, 18.11.2009, 1♀ from plant rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)
- S–Slovakia, Cerová vrchovina Mts., Belina village env., Nat. Reserve Belinské skaly, N–48.14.12, E–19.51.50, 426 m, 19.06.2007, 9♀, 11N from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Drňa, Hostice, N–48.14.46, E–20.05.52; 252 m, pasture with *Corneto–Crataegetum* and *Thymus serpyllum*, 18. 06. 2007, 1♀, 5N from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Gemerské Dechtáre village env., N–48.14.49, E–20.01.29, old vineyard, steppe, 255 m, 18.06.2007, 2♀, 2N; 01.10.2007, 1N from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Petrovce village env., Nat. Reserve Fenek, N–48.10.36, E–20.02.48, *Quercetum*, 266 m, 20.06.2007, 1N from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts, Stará bašta, Pohanský hrad, N–48.12.03, E–19.55.25, *Quercetum*, meadow, 573 m, 03.10.2007, 2♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts, Šiatorská Bukovinka, Mačacia, N–48.10.17, E–19.51.43, *Carpinetum*, 463 m, 19.06.2007, 3♀, 7N from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts, Nat. Reserve Šomoška, Bukovinský creek alluvium, N–48.10.17, E–19.51.31, 19.06.2007, 350 m, 1♀ from litter, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Šurice, Soví hrad, N–48.13.32, E–19.54.45, pasture with *Corneto–Crataegetum*, 246 m, 21.06.2007, 2N from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Tachty village env., Dolina Gortvy, N–48.08.54, E–19.55.24, pasture, 320 m, 20.06.2007, 1♀, 9N from grass rhizosphere; 02.10.2007, 3♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)

- S–Slovakia, Ipel'ské Úľany, N–48.07.51, E–19.01.00, *Quercetum*, 11.06.1998, 1♀ from litter (KALÚZ, 2007a)
- SW–Slovakia, Bratislava, Malé Karpaty Mts., Kamzík, *Quercus robur*, N–48.10.39, E–17.04.42, 200–350 m, 20.04.2001, 2♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2007a)
- SW–Slovakia, Malé Karpaty Mts., Smolenice village env., N–48.30.03, E–17.24.19, *Quercetum*, 430 m, 18.04.2001, 5♀, 3N; 15.06.2001, 2♀, 2N from grass rhizosphere, leg. S. Kalúz (KALÚZ 2007a)
- SW–Slovakia, Skalica, N–48.51.40, E–17.12.04, *Querceto–Pinetum*, 12. 05. 1993, 2♀ from soil samples, leg. J. Lysý (KALÚZ 2007a)
- SE–Slovakia, Slovenský kras, Turňa village, Turniansky hradný vrch, N–48.36.37, E–20.52.24, xerotherm, 321 m, 14.10.1988, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2001b)
- W–Slovakia, Strážovské vrchy Mts., Trebichava, Kňazi stôl, N–48.47.26, E–18.17.57, 637 m, limestone slope, xerotherm with solitary oaks, 25.09.2009, 2♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)
- W–Slovakia, Strážovské vrchy Mts., Trebichava env., Bradlo, N–48.47.48, E–18.17.07, 491 m, limestone slope, forest–steppe *Quercetum*, 25.09.2009, 6♀; 13.10.2010, 63♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)
- W–Slovakia, Strážovské vrchy Mts., Trebichava env., N–48.48.43, E–18.17.51, 480 m, limestone slope, *Pinetum*, 13.10.2009, 9♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)
- S–Slovakia, Štúrovo, Modrý vrch hill, N–47.49.12, E–18.39.27, meadow, moss, 183 m, 19.05.1999, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)
- N–Slovakia, Vysoké Tatry Mts., Mlynická dolina valley, 1650 m., 01.09.1974, 3♀ from grass rhizosphere, leg. V. Bukva (ZACHARDA 1980)
- N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 2007–2008, 19♀ from soil and litter, leg. S. Kalúz (KALÚZ & FERENČÍK 2008)
- N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 24.08.2010, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011, 2013)
- N–Slovakia, Vysoké Tatry Mts., Nová Polianka, Danielov dom, N–49.07.96, E–20.09.47, meadow, 1120 m, 26.05.2010, 2♀; 24.08.2010, 4♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2011, 2013)
- N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, *Piceetum*, 1146 m, 26.05.2010, 2♀ from spruce litter, leg. S. Kalúz (KALÚZ 2011, 2013)
- N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, meadow, 1135 m, 26.05.2010, 1♀; 24.08.2010, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2011, 2013)
- Unpublished data:**
- SW–Slovakia, Borská nížina lowland, Plavecký Štvrtok, Bezedné, N–48.22.46, E–17.00.40, *Alneto–Pinetum*, 167 m, 08.06.1992, 2♀; 14.07.1992, 1♀; 12.08.1992 1♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Borská nížina lowland, Vysoká pri Morave, N–48.18.40, E–16.54.10, *Salici–Populetum*, 143 m, 27.03.1996, 3♀ from soil samples, leg. S. Kalúz

- SW–Slovakia, Bratislava, Ostrov Kopáč, *Quercus delechampii*, N–48.05.43, E–17.09.44, 126 m, 12.06.2006, 2♀; 01.08.2006, 3♀, from moss, leg. O. Majzlan
- SW–Slovakia, Podunajská rovina plane, Bratislava, Vrakuňa, *Salici–Populetum*, N–48.0927, E–17.15.34, 130 m, 31.07.1981, 2♀ from soil samples, leg. S. Kalúz
- S–Slovakia, Kamenica nad Hronom, N–47.49.33, E–18.44.51, meadow, 24.08.2010, 2♀; 13.10.2010, 2♀ from grass rhizosphere, leg. S. Kalúz
- N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.14.09, E–19.05.55, *Piceetum*, 1346 m, 01.10.1995, 1♀ from moss; 4♀ from spruce litter; leg. S. Kalúz
- N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.14.09, E–19.05.55, *Fagetum*, 1220 m, 29.07.1997, 1♀ from soil, leg. S. Kalúz
- N–Slovakia, Malá Fatra Mts., Šútovská dolina valley, N–49.11.22, E–19.05.05, *Piceetum*, 849 m, 15.06.1991, 1♀; 16.09.1991, 1♀; 16.08.1996, 1♀ from moss, leg. S. Kalúz
- SW–Slovakia, Bratislava, Malé Karpaty Mts., Lozorno env., Košariská, N–48.17.14, E–17.07.35, meadow, 413 m, 28.07.2005, 2♀ from grass rhizosphere, leg. S. Kalúz
- SW–Slovakia, Podhájska, N–48.07.16, E–18.20.03, *Acereto–Quercetum*, 145 m, 30.05.2005, 1♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Pezinok, Stará hora., N–48.18.00., E–17.14.56, agrocenose, 164 m, 08.04.1981, 1♀; 05.11.1981, 3♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Podunajská rovina plane, Bodíky, *Salici–Populetum*, N–47.55.02, E–17.26.22, 124 m, 20.09.1989, 1♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Podunajská rovina plane, Hamuliakovo env., N–48.02.49, E–17.14.42, *Salicetum*, 128 m, 12.04.1989, 1N; 27. 06. 1989, 1♀; 03.10.1989, 2♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Podunajská rovina plane, Gabčíkovo env., Istragov, N–47.50.38., E–17.33.43, *Salici–Populetum*, 121 m, 17.04.1989, 2♀; 15.05.1989, 1♀, 1N; 20.06.1989 1♀; 30.03.1994, 1♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Podunajská rovina plane, Jurová village env., N–47.56.34, E–17.33.42, *Populetum*, 114 m, 20.06.1989, 2♀, 1N; 10. 07. 1989, 2♀; 11. 09. 1989, 1♀, 1N from soil samples, leg. S. Kalúz
- SW–Slovakia, Podunajská rovina plane, Klúčovec, Sporná Sihot', *Salici–Populetum*, N–47.47.12, E–17.40.37, 120 m, 17. 06.1991, 1♀; 15.07.1991, 1N; 18.05.1992, 1♀; 23.11.1994, 1♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Podunajská rovina plane, Bodíky, Kráľovská lúka, N–47.53.55, E–17.30.17, *Salici–Populetum*, 124 m, 17.04.1989, 1♀; 15.05.1989, 1♀; 20.06.1989, 1♀; 20.09.1989, 1♀; 03.10.1989, 2♀; 15.07.1991, 1♀; 24.11.1994, 2N from soil samples , leg. S. Kalúz
- SW–Slovakia, Podunajská rovina plane, Bratislava, Vrakuňa, *Salici–Populetum*, N–48.09.27, E–17.15.34, 130 m, 31.07.1981, 1♀ from soil samples, leg. S. Kalúz
- C–Slovakia, Štiavnické vrchy Mts., Čajkov village env., N–48.18.37, E–18.363.42, *Quercetum*, 331 m, 27.06.2003, 7♀, 3N from grass rhizosphere, leg. S. Kalúz
- C–Slovakia, Štiavnické vrchy Mts., Ladzany village env., N–48.17.24, E–18.53.48, *Quercetum*, 322 m, 26.06.2005, 1♀, 1N from grass rhizosphere, leg. S. Kalúz
- SW–Slovakia, Trnavská pahorkatina, Viničné, N–48.15.57, E–17.17.02, agrocenose 141 m, 25.06.1986, 2♀; 11.07.1989, 1♀ from soil samples, leg. S. Kalúz

- S–Slovakia, Kamenica nad Hronom, N–47.49, E–18.44, *Quercetum*, 142 m, 26.08.2011, 1♀; 13.10.2011, 4♀; 04. 08. 2012, 2♀ from moss and plant rhizosphere, leg. S. Kalúz
- SE–Slovakia, Slovenský kras, Hačava, Grečov vrch, N–48.40.06, E–20.49.23, pasture, 794 m, 08.08.1988, 1♀ from rhizosphere of grass, leg. S. Kalúz
- SE–Slovakia, Slovenský kras, Silica, Nat. Reserve Pod Fabiankou, N–48.32.51, E–20.31.48, wetland, 495 m, 06.05.1987, 2♀; 27.07.1987, 6♀; 16.09.1987, 3♀; 21.10.1987, 1♀ from soil samples, leg. S. Kalúz
- SE–Slovakia, Slovenský kras, Silica, Nat. Reserve Silická Ľadnica, N–48.32.52, E–20.30.39, chasm, pasture, 493 m, 06.05.1987, 2N; 27.07.1987, 1♀, 1N; 16.09.1987, 1♀ from soil samples, leg. S. Kalúz,
- SW–Slovakia, Trnavská pahorkatina, Senec, N–48.13.22, E–17.23.06, agrocenose, 132 m, 26.05.2001, 2♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Trnavská pahorkatina, Viničné, N–48.15.57, E–17.17.02, agrocenose, 141 m, 25.06.1986, 2♀; 11.07.1989, 1♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Žemberovce, N–48.15.21, E–18.44.59, vineyard, 232 m, 07.10.1981, 1♀ from pitfall traps, leg. S. Kalúz

**Remarks:** One of the most known representatives of the family Rhagidiidae in Europe. Very current, rather large in body size and relatively abundant mite, occurring mainly in grassy habitats from lowlands up to mountains. This palearctic species inhabiting various soil conditions can occurs in different soil substrates, the base of its ontogeny is parthenogenetic thelytoky (ZACHARDA 1980). Due to very fine chitinization of body surface this species prefers mesohygrophilous soils with rich rhizosphere of various plants. In Slovak territory belongs to the most abundant species with wide distribution in many different habitats and localities.

*Poecilophysis (Dentocheles) wankeli* (Zacharda, 1978)

**Published data:**

- SW–Slovakia, Borská nížina lowland, Brodské, Gbelský les, N–48.41.07, E–17.04.04, *Querceto–Pinetum*, 176 m, 13.09.2006, 3♀; 17.10.2006, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)
- SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 21.06.2006, 1♀; 11.12.2006, 4♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)
- SW–Slovakia, Bratislava, Nat. Reserve Devínska Kobyla, N–48.11.30, E–16.59.04, *Querceto–Crataegetum*, meadow, 276 m, 22.08.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 17.10.2006, 3♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)
- S–Slovakia, Cerová vrchovina Mts, Stará bašta, Pohanský hrad, N–48.12.03, E–19.55.25, *Quercetum*, meadow, 573 m, 03.10.2007, 4♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- N–Slovakia, Vysoké Tatry Mts., Mlynická dolina valley, 1650 m., 01.09.1974, 4♀ from grass rhizosphere, leg. V. Bukva (ZACHARDA 1980)

N–Slovakia, Vysoké Tatry Mts., Bielovodská dolina valley, 29.08.1974, 1TN from grass rhizosphere, leg. V. Bukva (ZACHARDA 1980)

N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 2007–2008, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ & FERENČÍK 2008)

N–Slovakia, Vysoké Tatry Mts., Nová Polianka, Danielov dom, N–49.07.96, E–20.09.47, meadow, 1120 m, 26.05.2010, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

**Unpublished data:**

NC–Slovakia, Veľká Fatra Mts., Smrekovica env., NR Skalná Alpa, N–48.59.26, E–19.10.05, *Acereto-Piceetum*, 1200 m, 1985–1986, 1♀ from litter and grass rhizosphere, leg. S. Kalúz (KALÚZ & ŽUFFOVÁ 1989 – published as *Poecilophysis* sp.)

**Remarks:** So far, the species was reported from Central Europe only, and known mostly from higher altitudes or carst areas of Austria, Czech Republic and Slovakia, (ZACHARDA 1978, 1980; ASTALOŠ et al. 2009). The new findings had been coming also from lowland forest habitats in South–West Slovakia (KALÚZ 2005b, 2007a; VRABEC et al. 2012). We may predict that the species has not been requiring higher mountain altitudes only and would be more current in Slovakia than it was previously supposed.

*Poecilophysis (Dentocheles) weyerensis* Packard, 1888

**Published data:**

SW–Slovakia, Borská nížina lowland, Brodské, Gbelský les, N–48.41.07, E–17.04.04, *Querceto-Pinetum*, 176 m, 11.12.2006, 1♀ from moss, leg. S. Kalúz (KALÚZ 2007a)

S–Slovakia, Cerová vrchovina Mts., Petrovce village env., Nat. Reserve Fenek, N–48.10.36, E–20.02.48, *Quercetum*, 266 m, 02.10.2007, 1♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)

SW–Slovakia, Bratislava, Malé Karpaty Mts., Kamzík, N–48.10.57, E–17.06.05, *Quercetum*, meadow, 200–350 m, 18.11.2009, 1♀ from grass rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)

SW–Slovakia, Podunajská rovina plane, Bodíky, *Salici–Populetum*, N–47.55.02, E–17.26.22, 124 m, 29.09.1994, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2001a)

SE–Slovakia, Slovenský kras, Domica, Domická cave, N–48.28.41, E–20.28.10, 360 m, 1997, 1♀ from rotten wood, leg. L. Kováč (KOVÁČ et al. 2005)

**Unpublished data:**

SW–Slovakia, Podunajská rovina plane, Bodíky, *Salici–Populetum*, N–47.55.02, E–17.26.22, 124 m, 29.09.1994, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Borská nížina lowland, Vysoká pri Morave, N–48.18.40, E–16.54.10, *Salici–Populetum*, 143 m, 08.06.1992, 1♀ from soil samples, leg. S. Kalúz

**Remarks:** Probably the representative of Rhagidiidae with distribution in all the Holarctic region (ZACHARDA 1980). Troglophilous species scarcely occurring in dark and moist habitats, mainly in moss. Rare species in Slovakia, not many specimens reported until recent, but from various habitats and localities, mostly in lower altitudes (up to 300 – 400 m).



*Poecilophysis (Procerocheles) faeroensis* (Trägårdh, 1931)

**Published data:**

- SW–Slovakia, Bratislava, Ostrov Kopáč, N–48.05.43, E–17.09.44, 126 m, 12.10.2006, 1♀ from meadow moss, leg. S. Kalúz; 12.06.2006, 1♀; 01.08.2006, 1♀, from litter of *Quercetum*, leg. O. Majzlan; 10.08.2006, 1♀ from soil of *Salici–Populetum*, leg. S. Kalúz, (KALÚZ 2007b)
- S–Slovakia, Cerová vrchovina Mts., Belina village env., Nat. Reserve Belinské skaly, N–48.14.12, E–19.51.50, 426 m, 19.06.2007, 1♀, 2N from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Petrovce village env., Nat. Reserve Fenek, N–48.10.36, E–20.02.48, *Quercetum*, 266 m, 02.10.2007, 1♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- N–Slovakia, Veľká Fatra Mts., Čierny kameň, 1650 m., 18.06.1976, 2♀ from meadow rhizosphere, leg. V. Bukva (ZACHARDA 1980)
- N–Slovakia, Vysoké Tatry Mts., Mlynská dolina valley, 1650 m., 19.08.1974, 5PN from forest litter, leg. V. Bukva (ZACHARDA 1980)
- N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 2007–2008, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ & FERENČÍK 2008)
- N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 26.05.2010, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

**Unpublished data:**

- SW–Slovakia, Borská nížina lowland, Plavecký Štvrtok, Bezedné, N–48.22.46, E–17.00.40, *Alneto–Pinetum*, 167 m, 13.04.1992, 2♀; 08.06.1992, 1♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Bratislava, Ostrov Kopáč, N–48.05.43, E–17.09.44, *Querceto–Crataegatum*, 126 m, 06.02.1995, 2♀ from soil samples, leg. S. Kalúz
- SW–Slovakia, Podhájska, N–48.07.16, E–18.20.03, *Acereto–Quercetum*, 145 m, 30.05.2005, 1♀ from soil samples, leg. S. Kalúz
- W–Slovakia, Trábečské vrchy Mts., Škurátka, N–48.28.24, E–18.15.56, *Quercetum*, 540 m, 22.05.1985, 2♀ from soil samples leg. O. Majzlan

**Remarks:** The distribution of this species includes Europe only, but probably could be common in Holarctic region (ZACHARDA 1980). Troglophilous species preferring moister conditions in the soil, moss and in dark habitats. In Slovakia inhabiting various habitats from lowlands up to mountains, where is not abundant but common. When the individuals occurred in drier habitats, were mostly found in moss or in wet places.

*Poecilophysis (Procerocheles) pseudoreflexa* Zacharda, 1980

**Published data:**

- SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 10.08.2006, 1♀; 11.12.2006, 2♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)
- S–Slovakia, Cerová vrchovina Mts., Petrovce village env., Nat. Reserve Fenek, N–48.10.36, E–20.02.48, *Quercetum*, 266 m, 02.10.2007, 3♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)

N–Slovakia, Vysoké Tatry Mts., Mlynická dolina valley, 1650 m, 31.08.1974, 2♀ from spruce forest litter, leg. V. Bukva (ZACHARDA 1980)

**Unpublished data:**

N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.14.09, E–19.05.55, *Piceetum*, 1346 m, 05.06.1997, 3♀ from moss; 4♀ from spruce litter, leg. S. Kalúz

**Remarks:** The distribution of this species covers probably all Holarctic region (ZACHARDA 1980). Belongs into rather troglophilous species preferring dark and moist habitats. Only few findings are reported from Slovakia, but involve various habitats from sandy lowlands up to mountains.

*Poecilophysis (Procerocheles) spelaea* (Wankel, 1861)

**Published data:**

SE–Slovakia, Slovenský kras, Hačava, Hačavská cave, N–48.39.40, E–20.51.26, 767 m, 1987, without details, leg. V. Košel, det. M. Zacharda (KOŠEL 1994)

N–Slovakia, Nízke Tatry Mts., Demänovská dolina valley, Demänovská cave, N–48.59.55, E–19.35.08, May–Sept. 2000, 915 m, unspecified number of individuals from pitfall traps and rotten wood, leg. L. Kováč (KOVÁČ et al. 2001, 2002a, 2002b)

**Unpublished data:**

SE–Slovakia, Slovenský kras, Silica, Nat. Reserve Silická ľadnica, N–48.32.52, E–20.30.39, chasm, 493 m, 06.05.1987, 1♀; 19.06.1987, 2♀; 06.07.1987, 2♀; 16.09.1987, 1♀; 21.10.1987, 3♀ from humid soil samples, leg. S. Kalúz

**Remarks:** Troglomorphic and troglotrophic mite inhabiting a large range in Europe (JUBERTHIE et al. 2001). This mite is common in caves of more European countries (ZACHARDA 1980; PALACIOS –VARGAS et al. 1998) and belongs to surface dwellings feeding on Collembola (ZACHARDA 1978). Known from Slovakian caves (KOŠEL 1994; KOVÁČ et al. 2001).

*Poecilophysis (Saprocheles) arena* Zacharda, 1980

**Published data:**

SW–Slovakia, Borská nížina lowland, Brodské, Gbelský les, N–48.41.07, E–17.04.04, *Querceto–Pinetum*, 176 m, 10.08.2006, 1♀; 13.09.2006, 9♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)

SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 10.08.2006, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)

SW–Slovakia, Bratislava, Nat. Reserve Devínska Kobyla, N–48.11.30, E–16.59.04, *Querceto–Crataegetum*, meadow, 276 m, 23.08.2000, 2♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

SW–Slovakia, Bratislava, Ostrov Kopáč, *Quercetum*, N–48.05.43, E–17.09.44, 126 m, 01.08.2006, 3♀; 10.08.2006, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2007b)

SW–Slovakia, Bratislava, Podunajské Biskupice, Topoľové, N–48.04.51, E–17.12.07, *Quercetum*, 132 m, 10.10.1989, 3♀ from soil samples, leg. S. Kalúz (KALÚZ 2003a)

S–Slovakia, Cerová vrchovina Mts., Petrovce village env., Nat. Reserve Fenek, N–48.10.36, E–20.02.48, *Quercetum*, 266 m, 02.10.2007, 1♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)

S–Slovakia, Cerová vrchovina Mts., Šurice, Soví hrad, N–48.13.32, E–19.54.45, pasture with *Corneto–Crataegetum*, 246 m, 21.06.2007, 1♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)

S–Slovakia, Strážovské vrchy Mts., Trebichava, Kňaží stôl, N–48.47.26, E–18.17.57, 637 m, limestone slope, xerotherm with solitary oaks, 25.09.2009, 3♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)

S–Slovakia, Strážovské vrchy Mts., Trebichava env., Bradlo, N–48.47.48, E–18.17.07, 491 m, limestone slope, forest–steppe *Quercetum*, 02.07.2009, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)

**Unpublished data:**

SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 21.06.2006, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Bratislava, Podunajské Biskupice, Topoľové, N–48.04.51, E–17.12.07, *Quercetum*, 132 m, 03.10.1989, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Bratislava, Podunajské Biskupice, Topoľové, N–48.04.51, E–17.12.07, agrocenose, 132 m, 19.05.1989, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Bratislava, Vrakuňa, *Salici–Populetum*, N–48.09.27, E–17.15.34, 130 m, 05.09.1989, 1♀ from soil samples, leg. S. Kalúz

N–Slovakia, Malá Fatra Mts., Nat. Reserve Šrámková, N–49.11.13, E–19.07.19, *Abietum*, 920 m, 10.08.1983, 2♀; 26.10.1983, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Myjavská pahorkatina, Košariská, N–48.40.13, E–17.35.39, garden, 345 m, 28.07.2005, 4♀, 1N from soil samples, leg. S. Kalúz

**Remarks:** Not many findings were reported concerned this species. Except for Czech and Slovak Republics this mite is known also from Italy and Hawaii. Probably, the species would be Palearctic (ZACHARDA 1980). The majority of findings in Slovakia come mostly from lowlands and not very high mountains (see above). Occuring in various habitats, but mostly solitary or in a small numbers of individuals.

*Poecilophysis (Saprocheles) saxonica* (Willmann, 1934)

**Published data:**

N–Slovakia, Vysoké Tatry Mts., Mlynická dolina Valley, 1650 m, 01.09.1974, 13♀, 1TN from grass rhizosphere, leg. V. Bukva (ZACHARDA 1980)

**Unpublished data:**

N–Slovakia, Malá Fatra Mts., Šútovská dolina valley, N–49.11.39, E–19.04.57, *Abietum*, 947 m, 16.09.1991, 2♀ from litter, leg. S. Kalúz

**Remarks:** European species frequent in cool and moist habitats, swamps and peat–bogs, but it can be distributed over the Holarctic region (ZACHARDA 1980). Rare in our territory, known only from two different areas of North–Slovakian mountains.

*Poecilophysis* sp. 1.

**Published data:**

SE–Slovakia, Slovenský kras, Turňa village, Turniansky hradný vrch, N–48.36.37, E–20.52.24, xerotherm, 321 m, 1988, 19 ♀ from soil samples, leg. S. Kalúz (KALÚZ 2001b)

**Remarks:** Impossible to identify due to damage of mite materials.

*Poecilophysis* sp. 2.

**Published data:**

SE–Slovakia, Slovenský kras, Turňa village, Turniansky hradný vrch, N–48.36.37, E–20.52.24, xerotherm, 321 m, 1988, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2001b)

**Remarks:** Impossible to identify due to damage of mite material.

***Rhagidia*** Thorell, 1871

*Rhagidia (Noerneria) diversicolor* (C. L. Koch, 1838)

**Published data:**

S–Slovakia, Cerová vrchovina Mts., Petrovce village env., Nat. Reserve Fenek, N–48.10.36, E–20.02.48, *Quercetum*, 266 m, 02.10.2007, 1♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)

S–Slovakia, Cerová vrchovina Mts., Tachty village env., Dolina Gortvy, N–48.08.54, E–19.55.24, pasture, 320 m, 02.10.2007, 1♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)

**Remarks:** Relatively rare species, so far known from Central Europe (ZACHARDA 1980). In Slovakia found in Cerová vrchovina Mts. and no more other findings were done in our territory. Its bionomy is unknown.

*Rhagidia (Noerneria) gigas* (Canestrini, 1886)

**Published data:**

N–Slovakia, Vysoké Tatry Mts., Mlynická dolina valley, 1650 m, 30.08.1974, 1♀ from spruce litter, leg. V. Bukva (ZACHARDA 1980)

N–Slovakia, Vysoké Tatry Mts., Mengusovská dolina valley, 1730 m, 02.09.1974, 1♀ from spruce litter, leg. V. Bukva (ZACHARDA 1980)

N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 26.05.2010, 1N from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

**Unpublished data:**

N–Slovakia, Malá Fatra Mts., Šútovská dolina valley, N–49.11.39, E–19.04.57, *Abietum*, 947 m, 16.09.1991, 1♀ from litter, leg. S. Kalúz

**Remarks:** Relatively rare species, so far known from Central Europe – Italy, Germany, Czech and Slovak Republics (ZACHARDA 1980). Large surface dwelling species, preferring wet conditions (peat–bogs, moss and forest litter). According ZACHARDA (1980) the adults appear mainly at the end of autumn and during the winter (in higher altitudes earlier). We also found adult individual in September.

*Rhagidia (Noerneria) rackae* Zacharda, 1980

**Published data:**

S–Slovakia, Cerová vrchovina Mts., Tachty village env., Dolina Gortvy, N–48.08.54, E–19.55.24, pasture, 320 m, 02.10.2007, 1♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)

**Remarks:** Very rare species, found in Czech and Slovak Republics. A very few individuals were collected from grass rhizosphere and pitfall traps (ZACHARDA 1980; ASTALOŠ et al. 2009). Nothing is known on the distribution and ecology of this species.

*Rhagidia (Noerneria) sp.*

**Published data:**

N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 2007–2008, 2♀ from soil and litter, leg. S. Kalúz (KALÚZ & FERENČÍK 2008)

**Remarks:** A reliable identification of this taxon is still impossible. More individuals are necessary to obtain for the study requiring taxonomic revision of the mite materials.

*Rhagidia sp.*

**Published data:**

S–Slovakia, Cerová vrchovina Mts., Drňa, Nat. Reserve Jalovské vrstvy, N–48.15.20, E–20.07.40, *Quercetum*, sandy slope, meadow, 224 m, 1.10.2007, 3♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)

**Remarks:** A reliable identification of this taxon is still impossible. More individuals are necessary to obtain for the study requiring taxonomic revision of the mite materials.

*Robustocheles (Amoveocheles) dentata* Zacharda, 1980

**Unpublished data:**

SW–Slovakia, Podunajská rovina plane, Bratislava, Vrakuňa, *Salici–Populetum*, N–48.0927, E–17.15.34, 130 m, Sept. – Oct. 1982, 1♀ from pitfall traps, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Gabčíkovo env., Istragov, N–47.50.38., E–17.33.43, *Salici–Populetum*, 121 m, 14.07.1994, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Klúčovec, Sporná Sihoť, *Salici–Populetum*, N–47.47.12, E–17.40.37, 120 m, 04.09.1991, 2♀ from soil samples, leg. S. Kalúz

**Remarks:** Until recent known from Czech Republic only (ZACHARDA, 1980). New species for Slovak acarofauna.

*Robustocheles* Zacharda, 1980

*Robustocheles (Amoveocheles) tricuspidata* Zacharda, 1980

**Published data:**

SW–Slovakia, Podunajská rovina plane, Dobrohošť, *Salici–Populetum*, N–47.59.20, E–17.20.42, 127 m, 15.07.1991, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2001a)

S–Slovakia, Strážovské vrchy Mts., Trebichava, Kňaží stôl, N–48.47.26, E–18.17.57, 637 m, limestone slope, xerotherm with solitary oaks, 25.09.2009, 3♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)

S–Slovakia, Strážovské vrchy Mts., Trebichava env., Bradlo, N–48.47.48, E–18.17.07, 491 m, limestone slope, forest–steppe, *Quercetum*, 02.07.2009, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)

N–Slovakia, Vysoké Tatry Mts., Nová Polianka, Danielov dom, N–49.07.96, E–20.09.47, meadow, 1120 m, 15.07. 2010, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

**Unpublished data:**

SW–Slovakia, Myjavská pahorkatina, Skalica, N–48.51.40, E–17.12.04, *Querceto–Pinetum*, 08. 06. 1993, 1♀ from soil samples, leg. J. Lysý

**Remarks:** The species found in Czech and Slovak Republics in a few numbers of specimens. Distribution and ecology of this mite is unknown.

*Robustocheles (Levia) hilli* (Strandtmann,1971)

**Published data:**

SE–Slovakia, Slovenský kras, Ardovalo, Ardovská cave, N–48.31.16, E–20.25.14, 314 m, 1997, 1♀ from soil sediment, leg. Ľ. Kováč (KOVÁČ et al. 2005)

SE–Slovakia, Slovenský kras, Domica, Domická cave, N–48.28.41, E–20.28.10, 340 m, 1997, 1♀ from rotten wood, leg. Ľ. Kováč (KOVÁČ et al. 2005)

**Remarks:** ZACHARDA (1980) reported that this species was known only from Nord America. However, more Slovakian authors (KOŠEL 1994; KOVÁČ et al. 2005) presented the findings of this species from cave system of Slovenský kras. These findings are very interesting, but I have not studied these mites.

*Robustocheles (Robustocheles ) montana* Zacharda, 1980

**Published data:**

SW–Slovakia, Borská nížina lowland, Brodské, Gbelský les, N–48.41.07, E–17.04.04, *Querceto–Pinetum*, 176 m, 24.04.2006, 1♀; 17.05.2006, 2♀; 21.06.2006, 2♀; 10.08.2006, 3♀, 2N; 13.09.2006, 1♀, 1N; 11.12.2006, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)

SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 24.04.2006, 1♀; 17.05.2006, 3♀; 21.06.2007, 1♀; 10.08.2006, 1♀; 11.12.2006, 2♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)

SW–Slovakia, Bratislava, Malé Karpaty Mts., Kamzík, N–48.10.39, E–17.04.42, *Quercus robur*, 200–350 m, 26.07.2003, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2007a)

SW–Slovakia, Malé Karpaty Mts., Smolenice village env., N–48.30.03, E–17.24.19, *Quercetum*, 430 m, 15.06.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2007a)

N–Slovakia, Veľká Fatra Mts., Čierny Kameň, 18.06.1974, 1♀ from litter and grass rhizosphere, leg. V. Bukva (ZACHARDA 1980)

N–Slovakia, Vysoké Tatry Mts., Mlynická dolina valley, 1650 m, 02.09.1974, 1♀ from grass litter, leg. V. Bukva (ZACHARDA 1980)

N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 26.05.2010, 12♀; 24.08.2010, 6♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Nová Polianka, Danielov dom, N–49.07.96, E–20.09.47, meadow, 1120 m, 26.05.2010, 4♀; 15.07.2010, 3♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, *Piceetum*, 1146 m, 22.06.2010, 3♀ from litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, meadow, 1137 m, 26.05.2010, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Tichá dolina valley, 31.08.1974, 6TN, 5DN from spruce litter, leg. V. Bukva; Vysoké Tatry Mts., Mlynická dolina valley, 1650 m, 02.09.1974, 2PN, 2DN from grass litter, leg. M. Zacharda (ZACHARDA 1980)

**Unpublished data:**

SW–Slovakia, Borská nížina lowland, Plavecký Štvrtok, Bezedné, N–48.22.46, E–17.00.40, *Alneto–Pinetum*, 167 m, 11.05.1992, 1♀ from soil samples, leg. S. Kalúz

S–Slovakia, Kamenica nad Hronom, N–47.49, E–18.44, *Quercetum*, 142 m, 26.08.2011, 6♀; 13.10.2011, 1♀ from moss and plant rhizosphere, leg. S. Kalúz

N–Slovakia, Malá Fatra Mts., Nat. Reserve Kľačianska Magura, N–49.09.17, E–18.57.02, mountain meadow, 1342 m, 13.06.1984, 2♀, 2N; 20.08.1984, 3♀ from soil samples, leg. S. Kalúz (KALÚZ & ŽUFFA 1988 – published as Rhagidiidae indet.)

N–Slovakia, Malá Fatra Mts., Nat. Reserve Kľačianska Magura, N–49.09.17, E–18.57.02, *Piceetum*, 1342 m, 13.06.1984, 1♀, 4N; 20.08.1984, 1♀, 2N from soil samples, leg. S. Kalúz (KALÚZ & ŽUFFA 1988 – published as Rhagidiidae indet.)

N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.13.58, E–19.06.40, *Fagetum*, 1104 m, 05.06.1997, 1♀ from soil, leg. S. Kalúz

N–Slovakia, Malá Fatra Mts., Šútovská dolina valley, N–49.11.22, E–19.05.05, *Piceetum*, 849 m, 25.06.1991, 3♀ from moss, leg. S. Kalúz

N–Slovakia, Nízke Tatry Mts., Chopok, Jasná, N–48.57, E–19.35, 1450 m, ski slope, 03.10.1996, 1♀ from grass rhizosphere, leg. S. Kalúz

NC–Slovakia, Veľká Fatra Mts., Smrekovica env., NR Skalná Alpa, N–48.59.26, E–19.10.05, *Acereto–Piceetum*, 1200 m, 1985–1986, 96♀ from litter and grass rhizosphere, leg. S. Kalúz (KALÚZ & ŽUFFOVÁ 1989 – published as *Poecilophysis* sp.)

**Remarks:** In Slovakia the species widely distributed in many various habitats and localities from lowlands up to mountains. Not abundant, but common. Known from Central Europe, preferring moist forest habitats, peat–bogs and moist forest litter (ZACHARDA 1980). In our territory found out also from grass rhizosphere and from moss in meadows (KALÚZ 2007a, 2011; KALÚZ et al. 2013)

*Robustocheles (Robustocheles) mucronata* (Willmann, 1936)

**Published data:**

SW–Slovakia, Borská nížina lowland, Brodské, Gbelský les, N–48.41.07, E–17.04.04, *Querceto–Pinetum*, 176 m, 24.04.2006, 1♀; 17.05.2006, 3♀, 4N; 21.06.2006, 5♀; 10.08.2006, 1♀; 13.09.2006, 2♀; 17.10.2006, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)

- SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 24.04.2006, 2♀; 17.05.2006, 4♀, 3N; 21.06.2006, 4♀; 10.08.2006, 5♀, 2N; 13.09.2006, 7♀; 17.10.2006, 3♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)
- SW–Slovakia, Borská nížina lowland, Veľké Leváre, Nat. Reserve Abrod, N–48.32.01, E–17.00.20, meadow, 152 m, 24.05.1999, 3♀; 30.06.1999, 2♀ from soil samples, leg. S. Kalúz (KALÚZ & ČARNOGURSKÝ 2000)
- SW–Slovakia, Bratislava, Devín, Devínsky hradný vrch, N–48.10.31, E–16.58.38, xerotherm, 258 m, 19.04.2001, 1♀; 07.06.2001, 4♀; 02.08.2001, 2♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Nat. Reserve Devínska Kobyla, N–48.11.30, E–16.59.04, 276 m, *Querceto–Crataegetum*, meadow, 26.07.1996, 1♀; 14.05.2001, 2♀; 07.07.2001, 3♀; 02.08.2001, 1♀; 22. 08. 2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Devínska N. Ves, Nat. Reserve Štokeravská vápenka, *Querceto–Crataegetum*, N–48.12.08, E–16.59.56, 286 m, 15.05.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Malé Karpaty Mts., Nat. Reserve Devínska lesostep, N–48.10.07, E–16.59.41, *Quercetum*, meadow, 154 m, 20.04.2001, 1♀; 15.05.2001, 1♀; 02.08.2001, 2♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Nat. Reserve Fialkové údolie, *Quercus delechampii* N–48.10.00, E–17.00.17, 162 m, 15.05.2001, 1♀; 02 07.2001, 1♀; 02.08.2001, 2♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)
- SW–Slovakia, Bratislava, Malé Karpaty Mts., Kamzík, N–48.10.57, E–17.06.05, *Quercetum*, meadow, 350 m, 10.08.2009, 4♀; 21.09.2009, 1♀; 18.11.2009, 1♀ from grass rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)
- SW–Slovakia, Bratislava, Malé Karpaty Mts., Železná Studienka, N–48.11.40, E–17.05.46, alluvial meadow, 200–350 m, 10.08.2009, 1♀; 18.09.2009, 5♀ from grass rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)
- SW–Slovakia, Bratislava, Ostrov Kopáč, *Quercus delechampii*, N–48.05.43, E–17.09.44, 126 m, 10.08.2006, 4♀; 12.10.2006, 3♀ from soil samples, leg. S. Kalúz (KALÚZ 2007b)
- SW–Slovakia, Bratislava, Petržalka, Ovsište, N–48.07.01, E–17.08.20, meadow, 135 m, 21.09.2009, 2♀; 21.10.2009, 2♀ from plant rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)
- S–Slovakia, Cerová vrchovina Mts., Belina village env., Nat. Reserve Belinské skaly, N–48.14.12, E–19.51.50, 426 m, 19.06.2007, 1N from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Drňa, Hostice, N–48.14.46, E–20.05.52; 252 m, pasture with *Corneto–Crataegetum* and *Thymus serpyllum*, 18.06.2007, 4♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Drňa, Nat. Reserve Jalovské vrstvy, N–48.15.20, E–20.07.40, *Quercetum*, sandy slope, meadow, 224 m, 1.10.2007, 1♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)



- S–Slovakia, Cerová vrchovina Mts., Gemerské Dechtáre village env., N–48.14.49, E–20.01.29, old vineyard, steppe, 255 m, 18.06.2007, 1♀, 2N from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Petrovce village env., Nat. Reserve Fenek, N–48.10.36, E–20.02.48, *Quercetum*, 266 m, 20.06.2007, 1♀; 02.10.2007, 1♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Šiatorská Bukovinka, Mačacia, N–48.10.17, E–19.51.43, *Carpinetum*, 463 m, 19.06.2007, 7♀, 3N from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts, Nat. Reserve Šomoška, Bukovinský creek alluvium, N–48.10.17, E–19.51.31, 350 m, 19.06.2007, 3♀ from litter, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts, Nat. Reserve Šomoška, N–48.10.17, E–19.51.31, *Crataegetum*, 450 m, 04.10.2007, 3♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Šurice, Soví hrad, N–48.13.32, E–19.54.45, pasture with *Corneto–Crataegetum*, 246 m, 21.06.2007, 1♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- S–Slovakia, Cerová vrchovina Mts., Tachty village env., Dolina Gortvy, N–48.08.54, E–19.55.24, pasture, 320 m, 20.06.2007, 5♀, 3N from grass rhizosphere; 02.10.2007, 1♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)
- SW–Slovakia, Malé Karpaty Mts., Smolenice village env., N–48.30.03, E–17.24.19, *Quercetum*, 430 m, 18.04.2001, 6♀; 15.06.2001, 8♀, 4N from grass rhizosphere, leg. S. Kalúz (KALÚZ 2007a)
- S–Slovakia, Strážovské vrchy Mts., Trebichava env., Kňaží stôl, N–48.47.26, E–18.17.57, 637 m, limestone slope with solitary oaks, 13.10.2010, 1♀ from moss and grass rhizosphere, leg. S. Kalúz (KALÚZ 2013)
- S–Slovakia, Štúrovo, Modrý vrch hill, N–47.49.12, E–18.39.27, meadow, moss, 183 m, 19.05.1999, 14♀ from soil samples, leg. S. Kalúz (KALÚZ 2007a)
- N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 2007–2008, 11♀ from soil and litter, leg. S. Kalúz (KALÚZ & FERENČÍK 2008)
- N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 22.06.2010, 3♀ from soil and litter, leg. S. Kalúz (KALÚZ, 2011; KALÚZ et al. 2013)
- N–Slovakia, Vysoké Tatry Mts., Tatranské Zruby, Zhorenisko, N–49.08.12, E–20.11.59, meadow, 1085 m, 15.07.2010, 6♀; 22.06.2010, 4♀ from soil and grass rhizosphere, leg. S. Kalúz (KALÚZ 2011, 2013)
- N–Slovakia, Vysoké Tatry Mts., Tichá dolina valley, 31.08.1974, 1♀ from moss in spruce forest, leg. V. Bukva (ZACHARDA 1980)
- N–Slovakia, Vysoké Tatry Mts., Nová Polianka, Danielov dom, N–49.07.96, E–20.09.47, meadow, 1120 m, 15.07.2010, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ, 2011, 2013)
- N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, *Piceetum*, 1146 m, 22.06.2010, 1♀ from litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, meadow, 1137 m, 24.05.2010, 2♀; 15.07.2010, 1♀; 24.08.2010, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

**Unpublished data:**

SW–Slovakia, Borská nížina lowland, Veľké Leváre, Borová, N–48.33.22, E–16.57.01, 151 m, sand dune, moss, grass, 08.006.1993, 1♀ from soil samples, leg. S. Kalúz

S–Slovakia, Cerová vrchovina Mts, Obručná, N–48.11.39, E–19.52.25, meadow, 319 m, 20.05.1999, 1♀ from litter, leg. S. Kalúz

C–Slovakia, Dobrá Niva, N–48.37.21, E–19.07.42, 454 m, *Quercetum*, meadow, 11.06.1998, 1♀ from grass rhizosphere, leg. S. Kalúz

SW–Slovakia, Bratislava, Podunajské Biskupice, Topoľové, N–48.04.51, E–17.12.07, *Quercetum*, 132 m, 03.10.1989, 1♀ from soil samples, leg. S. Kalúz (KALÚZ, 2003a)

N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.14.09, E–19.05.55, *Piceetum*, 1346 m, 05.06.1997, 1♀; 29.07.1997, 1♀ from spruce litter, leg. S. Kalúz

SW–Slovakia, Podhájska, N–48.07.16, E–18.20.03, *Acereto-Quercetum*, 145 m, 30.05.2005, 2N from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Hamuliakovo env., N–48.02.49, E–17.14.42, *Salicetum*, 128 m, 03.10.1989, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Gabčíkovo env., Istragov, N–47.50.38., E–17.33.43, *Salici-Populetum*, 121 m, 17.04.1989, 2♀; 15.05.1989, 2♀; 20.07.1989, 2♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Jurová village env., N–47.56.34, E–17.33.42, *Populetum*, 114 m, 20.06.1989, 4N; 11.07.1989, 3♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Bratislava, Vrakuňa, *Salici-Populetum*, N–48.09.27, E–17.15.34, 130 m, 31.07.1981, 1♀; 05.09.1989, 1♀ from soil samples, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Hačava, Grečov vrch, N–48.40.06, E–20.49.23, pasture, 794 m, 08.08.1988, 2♀, 1N from rhizosphere of grass, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Kečovo, Nat. Reserve Kečovské škrapy, N–48.29.39, E–20.29.12, pasture, 365 m, 27.07.1987, 1♀ from grass rhizosphere, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Silica, Nat. Reserve Pod Fabiankou, N–48.32.51, E–20.31.48, pasture, 495 m, 16.09.1987, 5♀ from soil samples, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Turňa village, Turniansky hradný vrch, N–48.36.37, E–20.52.24, xerotherm, 321 m, 02.06.1988, 8♀ from soil samples, leg. S. Kalúz

C–Slovakia, Štiavnické vrchy Mts., Čajkov village env., N–48.18.37, E–18.363.42, *Quercetum*, 331 m, 27.06.2003, 1♀, 1N from grass rhizosphere, leg. S. Kalúz

SW–Slovakia, Trnavská pahorkatina, Viničné, N–48.15.57, E–17.1717.02, *Zea mays* agrocenose, 141 m, 25.06.1986, 6♀ from soil samples, leg. S. Kalúz

NC–Slovakia, Veľká Fatra Mts., Smrekovica env., Nat. Reserve Skalná Alpa, N–48.59.26, E–19.10.05, *Acereto-Piceetum*, 1200 m, 1985–1986, 118♀ from litter and grass rhizosphere, leg. S. Kalúz (KALÚZ & ŽUFFOVÁ 1989 – published as *Rhagidia* sp.)

**Remarks:** Well known mesoedaphis predatory mite with relatively large body size. More data exist on its occurrence and geographic distribution. Reported from Central Europe to North America (Alaska) and the zoogeographic distribution of this species is expected

in the whole Palearctics (ZACHARDA 1980). In Slovakia widely distributed in many various meadow (KALÚZ 2007a) and forest habitats and localities from lowlands up to mountains (KALÚZ & FERENČÍK 2008; KALÚZ et al. 2013). Preferring mainly moist habitats, but inhabits also grass rhizosphere and moss of drier habitats of rocky steppes. Abundant species and together with *P. (D.) pratensis* belongs to the most current and the most abundant rhagidiid mites in Slovakia.

*Robustocheles (Robustocheles) robusta* Zacharda, 1980

**Published data:**

SW–Slovakia, Bratislava, Nat. Reserve Fialkové údolie, *Quercus delechampii* N–48.10.00, E–17.00.17, 162 m, 02.07.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

SW–Slovakia, Bratislava, Malé Karpaty Mts., Nat. Reserve Devínska lesostep, N–48.10.07, E–16.59.41, *Quercetum*, meadow, 154 m, 03.07.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 26.05.2010, 1♀; 22.06.2010, 1♀; 24.08.2010, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Tatranské Zruby, Zhorenisko, N–49.08.12, E–20.11.59, meadow, 1085 m, 26.05.2010, 1♀ from soil and grass rhizosphere, leg. S. Kalúz (KALÚZ 2011, 2013)

N–Slovakia, Vysoké Tatry Mts., Nová Polianka, Danielov dom, N–49.07.96, E–20.09.47, meadow, 1120 m, 22.06.2010, 1♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, *Piceetum*, 1146 m, 26.05.2010, 2♀; 22.06.2010, 1♀ from litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

**Unpublished data:**

SW–Slovakia, Borská nížina lowland, Devínske jazero, Šrek, N–48.16.10, E–16.57.06, alluvial meadow, 138 m, 12.06.1996, 1♀ from grass rhizosphere, leg. S. Kalúz

SW–Slovakia, Borská nížina lowland, Šaštín, Šaštínsky les, Gazárka, N–48.37.22, E–17.08.36, *Querceto–Pinetum*, 188 m, 24.04.2006, 1♀ from soil samples, leg. S. Kalúz

S–Slovakia, Kamenica nad Hronom, N–47.49.33, E–18.44.51, 135 m, meadow, 13.10.2010, 1♀ from grass rhizosphere, leg. S. Kalúz

S–Slovakia, Kamenica nad Hronom, N–47°49', E–18°44', *Quercetum*, 142 m, 13.10.2011, 1♀ from moss and plant rhizosphere, leg. S. Kalúz

N–Slovakia, Malá Fatra Mts., Nat. Reserve Kľačianska Magura, N–49.09.17, E–18.57.02, mountain meadow, 1342 m, 11.07.1984, 1♀ from soil samples, leg. S. Kalúz (published as Rhagidiidae indet. – KALÚZ & ŽUFFA 1988)

N–Slovakia, Malá Fatra Mts., Nat. Reserve Rozsutec, N–49.14.09, E–19.05.55, *Piceetum*, 1346 m, 05.06.1997, 1♀ from spruce litter, leg. S. Kalúz

SW–Slovakia, Myjavská pahorkatina, Skalica, N–48.51.40, E–17.12.04, *Querceto–Pinetum*, 08. 06. 1993, 1♀ from soil samples, leg. J. Lysý

SW–Slovakia, Podunajská rovina plane, Gabčíkovo env., Istragov, N–47.50.38., E–17.33.43, *Salici–Populetum*, 121 m, 20.07.1989, 1♀; 11. 09. 1989, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Hamuliakovo env., N–48.02.49, E–17.14.42, *Salicetum*, 128 m, 10.07.1989, 2♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Jurová village env., N–47.56.34, E–17.33.42, *Populetum*, 114 m, 10.07.1989, 1N from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Klúčovec, Sporná Sihoť, *Salici–Populetum*, N–47.47.12, E–17.40.37, 120 m, 14.07.1994, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Bodíky env., Kráľovská lúka, N–47.53.55, E–17.30.17, *Salici–Populetum*, 124 m, 23.11.1994, 2N from soil samples, leg. S. Kalúz

NC–Slovakia, Veľká Fatra Mts., Smrekovica env., Nat. Reserve Skalná Alpa, N–48.59.26, E–19.10.05, *Acereto–Piceetum*, 1200 m, 07.08.1985, 2♀ from litter and grass rhizosphere, leg. S. Kalúz

**Remarks:** Well known predatory mite and more data are reported on its occurrence from Central Europe (ZACHARDA 1980). In Slovakia inhabiting various habitats (litter of deciduous and pine/spruce forests, moss, grass rhizosphere of meadows or grasslands) from lowlands up to mountains (KALÚZ 2001b, 2003c, 2011; KALÚZ et al. 2013). Not abundant but common species.

### *Robustocheles (Amoveocheles) tricuspidata* Zacharda, 1980

#### **Published data:**

S–Slovakia, Cerová vrchovina Mts., Drňa, Hostice, N–48.14.46, E–20.05.52, 252 m, pasture with *Corneto–Crataegetum* and *Thymus serpyllum*, 18.06.2007, 5♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al. 2009)

S–Slovakia, Cerová vrchovina Mts., Šiatorská Bukovinka village env., Nat. Reserve Ragáč, N–48.10.24, E–19.49.25, 372 m, 03.10.2007, 5♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)

#### **Unpublished data:**

SW–Slovakia, Podunajská rovina plane, Dobrohošť, *Salici–Populetum*, N–47.59.20, E–17.20.42, 127 m, 15.07.1991, 1♀ from soil samples, leg. S. Kalúz

**Remarks:** One of the rarest representatives of the family Rhagidiidae, until recent only a few individuals have been known from Central Europe (ASTALOŠ et al. 2009; ZACHARDA, 1980). The findings in Slovakia were done in the rhizosphere of meadow and from litter of oak forest in Cerová vrchovina Mts., respectively (ASTALOŠ et al. 2009), and another one from more wet flood–plain forest in South–West Slovakia. The last reported one is the third finding of this species in Slovakia, only.

### *Shibaia* Zacharda, 1980

#### *Shibaia longisensilla* (Shiba, 1969)

#### **Published data:**

SW–Slovakia, Borská nížina lowland, Veľké Leváre, Nat. Reserve Abrod, N–48.32.01, E–17.00.20, meadow, 152 m, 07.04.1999, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2000, 2006; KALÚZ & ČARNOGURSKÝ 2000)

SW–Slovakia, Bratislava, Nat. Reserve Fialkové údolie, *Quercus delechampii*, N–48.10.00, E–17.00.17, 162 m, 31.10.2000, 1♀; 15.05.2001, 7♀, 2N; 02 07.2001, 3♀, 3N; 02.08.2001, 2♀; 22.08.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

SW–Slovakia, Bratislava, Malé Karpaty Mts., Kamzík, N–48.10.57, E–17.06.05, *Quercetum*, meadow, 350 m, 10.08.2009, 4♀; 21.09.2009, 1♀; 18.11.2009, 1♀ from soil samples, leg. M. Vrabec (VRABEC et al. 2012)

SW–Slovakia, Bratislava, Nat. Reserve Devínska Kobyla, N–48.11.30, E–16.59.04, *Querceto–Crataegetum*, meadow, 276 m, 22.08.2001, 1♀ from grass rhizosphere, leg. S. Kalúz (KALÚZ 2005b, 2007a)

SW–Slovakia, Bratislava, Ostrov Kopáč, *Quercus delechampii*, N–48.05.43, E–17.09.44, 126 m, 10.08.2006, 1♀ from soil samples, leg. S. Kalúz, (KALÚZ 2007b)

SW–Slovakia, Bratislava, Petržalka, Ovsište, N–48.07.01, E–17.08.20, meadow, 135 m, 21.10.2009, 2♀ from plant rhizosphere, leg. M. Vrabec (VRABEC et al. 2012)

SE–Slovakia, Slovenský kras, Turňa village, Turniansky hradný vrch, N–48.36.37, E–20.52.24, xerotherm, 321 m, 14.10.1988, 1♀ from soil samples, leg. S. Kalúz (KALÚZ 2001b)

N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 24.08.2010, 5♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Nová Polianka, Danielov dom, N–49.07.96, E–20.09.47, meadow, 1120 m, 24.08.2010, 2♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

N–Slovakia, Vysoké Tatry Mts., Vyšné Hágy, Smrekovec, N–49.07.19, E–20.06.19, *Piceetum*, 1146 m, 26.05.2010, 2♀ from litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

#### **Unpublished data:**

SW–Slovakia, Borská nížina lowland, Plavecký Štvrtok, Bezedné, N–48.22.46, E–17.00.40, *Alneto–Pinetum*, 167 m, 11.05.1992, 1♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Borská nížina lowland, Vysoká pri Morave, N–48.18.40, E–16.54.10, *Salici–Populetum*, 143 m, 27.03.1996, 3♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Dobrohošť, *Salici–Populetum*, N–47.59.20, E–17.20.42, 127 m, 30.11.1994, 2♀ from soil samples, leg. S. Kalúz

SW–Slovakia, Podunajská rovina plane, Gabčíkovo env., Istragov, N–47.50.38., E–17.33.43, *Salici–Populetum*, 121 m, 20.06.1989, 1♀ from soil samples, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Hačava, Grečov vrch, N–48.40.06, E–20.49.23, pasture, 794 m, 08.06.1988, 1♀ from rhizosphere of grass, leg. S. Kalúz

SE–Slovakia, Slovenský kras, Silica, Nat. Reserve Pod Fabiankou, N–48.32.51, E–20.31.48, pasture, 495 m, 21.10.1987, 1♀ from soil samples, leg. S. Kalúz

**Remarks:** Probably the species distributed all over the Holarctic region and one of the locally abundant representatives of the family Rhagidiidae in Central Europe (ZACHARDA1980). Occuring in various habitats, mainly in grass rhizosphere, moss, soil and litter from lowlands up to mountains. Inhabiting not only wet habitats, but occuring also in moss and grass rhizosphere of thermophilous rocky steppe localities.

*Shibaia tatrica* Zacharda, 1980

**Published data:**

S–Slovakia, Cerová vrchovina Mts., Drňa, Hostice, N–48.14.46, E–20.05.52, 252 m, pasture with *Corneto–Crataegetum* and *Thymus serpyllum*, 18.06.2007, 1♀ from soil samples, leg. S. Kalúz (ASTALOŠ et al., 2009)

S–Slovakia, Cerová vrchovina Mts, Stará bašta, Pohanský hrad, N–48.12.03, E–19.55.25, *Quercetum*, meadow, 573 m, 03.10.2007, 1♀ from grass rhizosphere, leg. S. Kalúz (ASTALOŠ et al. 2009)

N–Slovakia, Vysoké Tatry Mts., Mlynická dolina valley, 1450 m., 01.09.1974, 1♀ from moss in spruce forest, leg. V. Bukva (ZACHARDA 1980)

N–Slovakia, Vysoké Tatry Mts., Tatranská Lomnica–Jamy, N–49.09.47, E–20.15.56, *Piceetum*, 976 m, 24.08.2010, 3♀ from soil and litter, leg. S. Kalúz (KALÚZ 2011; KALÚZ et al. 2013)

**Remarks:** Probably the rarest representative of the family Rhagidiidae described on the base of one individual collected from moss in High Tatras (ZACHARDA 1980). From Slovakia only 6 individuals are known from three localities. The bionomy of the species is unknown. The same is concerned its recent distribution in our territory. Resulting from body morphology the species would be probably edaphic. *S. tatrica* would not prefer the mountain altitudes only, because two findings were done in lower and thermophilous habitats in Cerová vrchovina Mts. (ASTALOŠ et al. 2009). There is a presumption of wider both distribution and ecological plasticity of this species.

## DISCUSSION

The predatory mite family Rhagidiidae comprises the mites chasing on prey in the various layers of soil or on its surface (ZACHARDA 1980). The majority of taxons are considered semi–edaphic or edaphic, but exist there also a surface dwelling species. Among the species found in Slovakia, the majority are scarce or rare, occurring in the soil sporadically and not in higher quantities (ASTALOŠ et al. 2009; KALÚZ 2011; KALÚZ et al. 2013). But three species – *Poecilophysis (D.) pratensis*, *Robustocheles (R.) mucronata* and *Coccorhagidia clavifrons* belong to widely distributed and abundant species. The distribution of these species includes various areas from lowlands up to higher altitudes in mountains (KALÚZ 2007a, 2007b, 2011). Other scarce or rare species occur also from lowlands up to mountains, but in a low abundance and a few information exists on its ecology and distribution. Among preferable habitats for the mites of the family Rhagidiidae mainly moss, grass rhizosphere, forest litter and other wet microhabitats are known (KALÚZ 2005b, 2006). From this point of view these representatives can be found in mesohygrophilous meadows, in moss of rocky thermophilous grasslands and in moist forest litter from lowlands through various hills up to high mountains (see References). Taking into account missing

knowledge on this group, we can expect, that more microhabitats would be suitable for the life of Rhagidiidae, mainly depending on moisture and available food sources. A special group of rhagidiids are the species inhabiting the caves. From the Slovak territory the species *Robustocheles (L.) hilli*, *Poecilophysis (P.) spelaea* and *Foveacheles (S.) troglodyta* were reported found in Slovakian cave systems (KOŠEL 1994; KOVÁČ et al. 2005) mainly from the caves of Slovenský kras, Demänovské jaskyne caves of Nízke Tatry Mts. (KOVÁČ et al. 2001) and from Stratenská cave (ZACHARDA 1988). These species belong into the surface dwellings and the two last mentioned ones are considered a troglobionts (JUBERTHIE et. al. 2001; KOVÁČ et al. 2005). Despite of numerous data on majority species of the family Rhagidiidae found in Slovakia, the geographic distribution and ecology of more species is practically unknown because of lacking of specialists on this group.

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## SUMMARY

This paper brings the knowledge on predatory mite family Rhagidiidae from Slovakia that were collected during the last decades. Altogether 11 genera involving 33 species of rhagidiid mites identified into the species level are known from Slovakia until recent. One species of them – *Robustocheles (A.) dentata* is a new for Slovak acarofauna. Four taxons are still unidentified and some rare or scarce species were observed in a few localities, only. Three species – *Poecilophysis (D.) pratensis*, *Robustocheles (R.) mucronata* and *Coccorhagidia clavifrons* belong to widely distributed and abundant species, however the majority of other rhagidiid mites are scarce or rare. From the Slovak territory the species *Robustocheles (L.) hilli*, *Poecilophysis (P.) spelaea* and *Foveacheles (S.) troglodyta* were found in Slovakian cave systems and are considered a troglodytes. The known distribution of mites of this family covers a large part of Slovak territory. The majority of species inhabit various habitats and different localities from lowlands up to mountains.

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