

## THE CHIGGER *NEOTROMBICULA ELEGANS* (ACARI: TROMBICULIDAE) IN SLOVAKIA

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**Abstract:** A new chigger mite for Slovak acarofauna – *Neotrombicula elegans* Schluger, 1966 (Acari: Trombiculidae) is reported and figured with a details of it's taxonomy and morphology. The larvae of this species were collected from soil litter in oak forest (South-West Slovakia) during the winter.

**Key words:** chigger, larvae, mites, new member, Slovakia.

### INTRODUCTION

The genus *Neotrombicula* Hirst belongs to the richest in species genera in the family Trombiculidae. Recently, about 150 species have been known in the world parasitizing mainly mammals and inhabiting various habitats. KUDRYASHOVA (1998) stated more than 40 species in the genus *Neotrombicula sensu stricto* occurring in Palaearctic region. Until recent 9 *Neotrombicula* species were reported from Slovak territory: *Neotrombicula austriaca* (Kepka, 1964), *N. autumnalis* (Shaw, 1781), *N. earis* Kepka, 1964, *N. inopinata* (Oudemans, 1909), *N. japonica* (Tanaka, Kaiwa, Teramura et Kagawa, 1930), *N. nagayoi* (Sasa, Hayashi, Sato, Miura et Asahima, 1950), *N. talmiensis* Schluger, 1955, *N. vernalis* Willmann, 1942 and *N. vulgaris* (Schluger, 1948). DANIEL (1957) and KALÚZ et al. (1996) studied chiggers of the genus *Neotrombicula* in lowland areas of Danubian plain. Trombiculidae in sandy area of Záhorská nížina lowland were studied by KOVÁČIK (1983b) at the same time with the *Neotrombicula* chiggers of Malé Karpaty Mts. (KOVÁČIK 1984, 1985). MAŠÁN et al. (1994) also reported the occurrence of *Neotrombicula* larvae from the winter nest of the common mole in Malé Karpaty Mts. The information on *Neotrombicula* species in Slovak mountain areas appeared in the papers of KOVÁČIK (1983a) from Vihorlat, from Veľká Fatra (KOVÁČIK 1983c), Malá Fatra (KALÚZ & ŽUFFA 1985) and Slovenský kras

(DUDICH 1995). This paper brings the information on a new chigger of this genus occurring in Slovakia – *Neotrombicula elegans* Schluger, 1966.

### MATERIAL AND METHODS

Material examined: Slovakia – Southwest, Malé Karpaty Mts, Kamzík, N 48°10'38", E 17°4'19", altitude 218 m, oak forest, 10 larvae from litter, 4. 1. 2012, the same locality, 18. 1. 2007, 1 larva from litter; Slovakia – Southwest, Bratislava, Čunovo, N 48°2'25", E 17°10'46", altitude 133 m, oak forest, 12. 1. 2012, 6 larvae from litter; Bratislava, Čunovo, the same locality, oak forest, 18. 1. 2007, 10 larvae from litter. Collected by S. Kalúz. The mites were isolated by Tullgren funnels, then preserved in ethylalcohol. All chiggers were mounted onto slides using Swann's medium, then microscopically identified and described. The drawings were produced using standard light microscopy and then enhanced with computer software (Gimp2). All measurements in the paper (stated in micrometers –  $\mu\text{m}$ ) were made with a standardized microscopy ocular micrometer. Abbreviation of the leg segments: Cx – coxa, Tr – trochanter, Bf – basifemur, Tf – telofemur, G – genu, Ti – tibia, Ta – tarsus, MTa – nude mastitarsala. The measurements, terminology, other symbols and abbreviations were used following the papers of VERCAMMEN-GRANDJEAN (1960) and KUDRYASHOVA (1998). The scale in each figure is 100  $\mu\text{m}$ .



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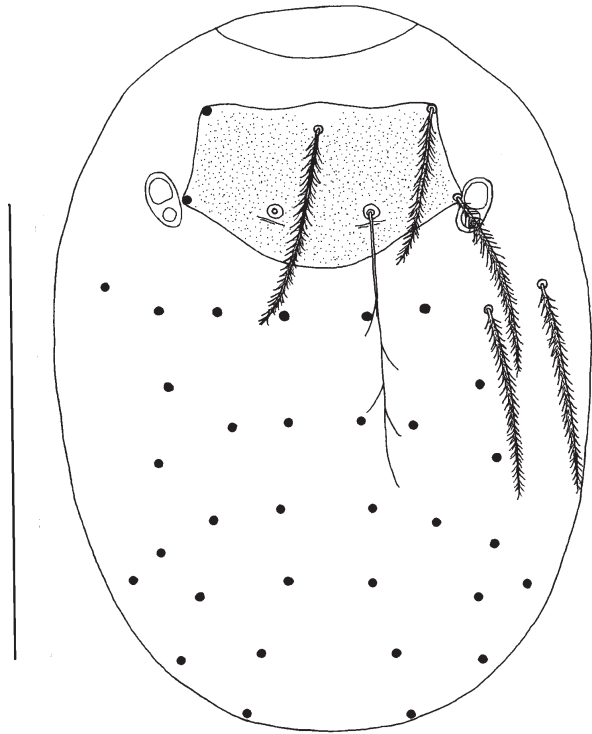
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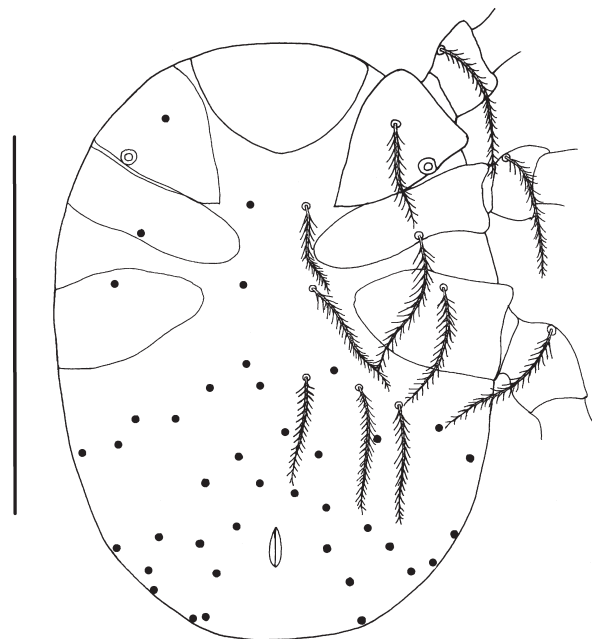
**RESULTS**

*Neotrombicula elegans* Schluger, 1966 – Taxonomy and morphology of Slovak specimens:

SIF=7BS-B-3-3111.1000; fsp=7.7.7; fPp=B.B.NNB; Ga=B; fCx=1.1.1; fSt=2-2; DS=38(34-42); VS=34(30-38); NDV=72(64-80); fDS=2H-6.2.6.6.2.6.4.2(4).2(2)=36-42;

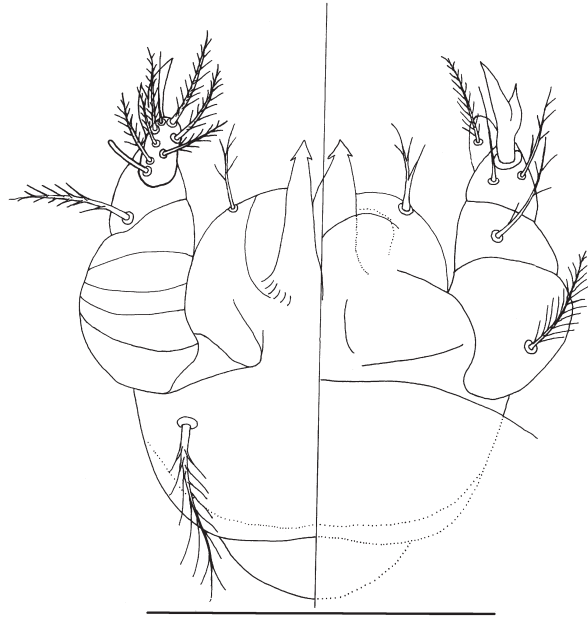


**Figure 1.** *Neotrombicula elegans* – idiosoma dorsal (scale = 100 μm).

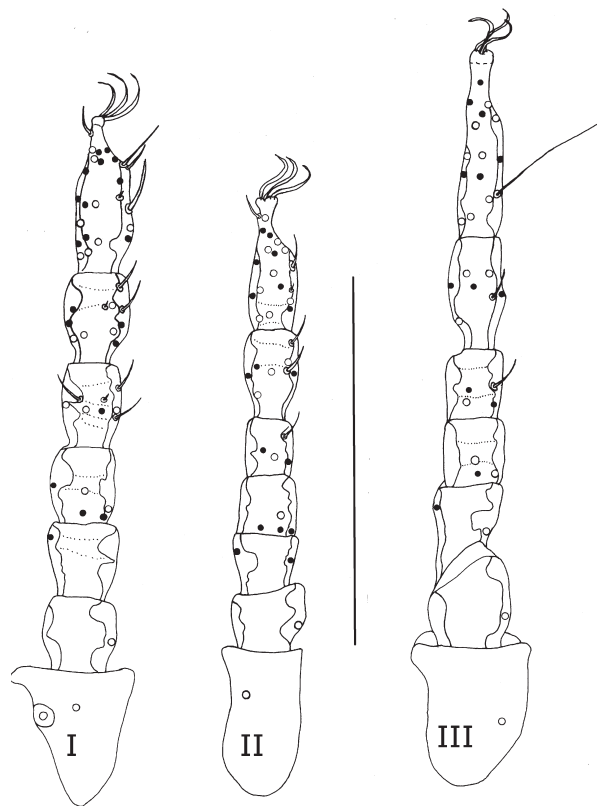


**Figure 2.** *Neotrombicula elegans* – idiosoma ventral (scale = 100 μm).

*Dorsum* (Fig. 1). Scutum anteriorly and laterally nearly pentagonal, posteriorly semi-rounded, wider than long, with AL, AM, PL setae and two sensilla. Small scutal puncta cover prevailing part of scutum. Sensilla ciliated 90(86-101) long, with 2-4



**Figure 3.** *Neotrombicula elegans* – gnathosoma (left - ventral, right - dorsal) (scale = 100 μm).



**Figure 4.** *Neotrombicula elegans* – legs I-III; Dots – bases of setae; full dots – upper side; empty dots – bottom side (scale = 100 μm).

lateral cilia situated in apical two thirds of sensilla. Oval eyes (2+2) in ocular plates, eyes laterally at the level of PL. Humeral setae 68(62–71) [mean (minimal–maximal)] long, dorsal setae 55(51–66) long, thickly ciliated, dorsal setae arranged in regular rows.

*Scutum*. AM=61(55–67), AL=48(45–57), PL=65(62–69), PL>AM>AL, SB=33(31–36), ASB=34(31–36), PSB=25(23–29), SD=58(57–62), AW=73(69–77), PW=88(83–91), SD<AW<PW; SB situated slightly posteriorly to the level of PL.

*Venter* (Fig. 2). Two pairs of sternal setae (fSt=2–2), fCx=1.1.1. Coxal setae I long and reaching to posterior margin of coxa II. Ventral side with 34(30–38) irregularly arranged thickly ciliated setae. Anterior setae shorter than posterior. Lengths of ventral setae vary (30–36) and increase from anterior to posterior setae.

*Gnathosoma* (Fig. 3). Galeala barbed. Palps 46 long, slender palpotibial claw 15 long, with 3 deeply indented prongs. Chelicera anteriorly with tricuspid cap.

*Legs* (Fig. 4). With pretarsus, claws and normal empodia. Setae on legs ciliated, slender. Specialized setae on leg segments: Leg I – S<sub>1</sub>, f<sub>1</sub>, (PT', ST, pST) = N, 2 tibialae, microtibiala, 3 genualae, microgenuala; Leg II – S<sub>2</sub>, f<sub>2</sub>, PT'' = N, 2 tibialae, genuala; Leg III – MTa, tibiala, genuala. Number of plumose setae on leg segments (leg formula): Leg I: Cx (1) – Tr (1) – Bf (1) – Tf (5) – G (4) – Ti (8) – Ta (19); Leg II: Cx (1) – Tr (1) – Bf (2) – Tf (4) – G (3) – Ti (6) – Ta (16); Leg III: Cx (1) – Tr (1) – Bf (2) – Tf (3) – G (3) – Ti (6) – Ta (14). Leg lengths: I=258(251–270), II=236(224–247), III=266(255–278), Ip=760(735–783).

Host – unknown.

## DISCUSSION

The species *Neotrombicula elegans* was described from Ukraine (SCHLUGER, 1966) and its geographic distribution included area of Zakarpatsko only, no other areas of the occurrence of this species are known. According KUDRYASHOVA (1998) the species parasitizes small mammals, mainly *Apodemus agrarius* (Pallas, 1771), *A. sylvaticus* (Linnaeus, 1758), *A. flavicollis* (Melchior, 1934), *Myodes glareolus* (Schreber, 1780) and *Microtus arvalis* (Pallas, 1779). Seasonal occurrence of larvae in Ukraine was not reported – the larvae from small mammals were according KUDRYASHOVA (1998) collected in April. The medical or veterinary importance of this chigger species is not known. The specimens from Ukraine differ from Slovak specimens mainly by longer legs (Ip = 935), shorter AM seta reaching to caudal margin of scutum and two-pronged palptibial claw, while Slovak specimens have shorter legs (Ip = 771–850), longer AM seta reaching well

beyond the caudal margin of scutum and by three-pronged palptibial claw. Other features are also a little different e.g. some measurements on scutum, but we consider these differences within the species morphological variability. The occurrence of *N. elegans* in SW Slovakia enlarges the geographic distribution of the species noticeably to the west.

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