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Research Article

A New Species of Nasal Mite of the Genus *Sternostoma* (Rhinonyssidae) from *Serinus canaria* (Passeriformes) from Saint Petersburg, Russia

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ABSTRACT

A new species of nasal mite Sternostoma marchae n. sp. is described from the domestic race of Island Canary Serinus canaria (Linnaeus, 1758) (Passeriformes, Fringillidae) from Saint Petersburg, Russia. The full description is presented.

Key Words: Rhinonyssidae, Sternostoma, nasal mites, Passeriformes

ÖZET

SAINT PETERSBURG, RUSYA'DA KANARYADAN (PASSERIFORMES) STERNOSTOMA (RHINONYSSIDAE) CİNSİNE AİT YENİ BİR NAZAL MAYT TÜRÜ

Saint Petersburg, Rusya'da yerli bir kanarya ırkından (Linnaeus, 1758) (Passeriformes, Fringillidae), yeni bir nazal mayt türü *Sternostoma marchae n*. sp. tanımlanmaktadır. Tam bir tanımlama aşağıda verilmiştir.

Anahtar Kelimeler: Rhinonyssidae, Sternostoma, nazal mayt, Passeriformes

Introduction

Mites of the family Rhinonyssidae are slow-moving mites, permanent parasites of birds, living in their respiratory tract (Fain, 1994; George, 1961; Knee and Proctor, 2010). Most species live in nasal turbinates, a cavity of vascularized epithelial tissue. However, some species occupy the lungs, tracheal tissues and body cavity of their host (Krantz and Walter, 2009; Porter and Strandtmann, 1952). Rhinonyssid mites disperse by the oral route when infested adult birds regurgitate food to their nestlings or during courtship behavior. Indirect transmission has been detected through water, perches, or other contaminated surfaces (Bell, 1996). It is thought that they are descendents of ectoparasitic predecessors which were probably related to the Macronyssidae (Strandtmann, 1948). Most likely that they originated as parasites of bats and later turned into parasites of reptiles, birds, and other mammals (Radovsky, 1985). The level of host

specificity is variable across rhinonyssid genera, in that some genera are restricted to one host family, while others occur on hosts from several avian orders (Butenko, 1984; Fain, 1957; Pence, 1975).

The genus Sternostoma -Berlese and Trouessart, 1889- is one of the most species-rich genera of rhinonyssids, with at least 60 described species (Butenko, 1984; Fain, 1957; Knee, 2008). Sternostoma species have been collected from birds belonging to 18 orders from all over the world (Domrow, 1969).

In the present work a new species of the genus Sternostoma is described from a passerine host from Saint Petersburg, Russia.

Materials and Methods

Mite specimens were collected from deceased Island Canaries provided by amateur ornithologists from Saint Petersburg. Bird heads were placed into a dish with 80% ethanol, dissected and examined under a dissecting stereomicroscope. Detected mite specimens were removed with needles and preserved in 70% ethanol. Further, mites were mounted in Hoyer's medium following the technique of Bregetova (1956).

Descriptions of new species are given in a standard format for Rhinonyssid mites (Knee, 2008; Pence, 1975).The following designations for particular structures are adapted from Knee (2008): LB- length of body including palps; WID – width of idiosoma; LPS – length of podosomal shield; WPS – width of podosomal shield; LOS – length of opisthosomal shield; WOS – width of opisthosomal shield; LSS – length of sternal shield; WSS – width of sternal shield; LGS – length of genital shield; WGS – width of genital shield; LG – length of gnathosoma, ventral view, including palps; WG – width of gnathosoma; LCH – length of helicerae; WCH - width of helicerae; Lleg I to Lleg IV - length of leg, including coxa, excluding ambulacrum. All measuremenst are in micrometers.

Names of the setae on the body of the Rhinonyssid mites: j3, 5, 6, z2-4; J1, J2; Z2, Z3; st 1,2,3; Jv1-2; Zv1

Holotypes and paratypes are deposited in the collections of Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia.

Results and Discussion

Family Rhinonyssidae (Trouessart, 1895)

Genus Sternostoma Berlese and Trouessart, 1889

The genus Sternostoma -Berlese and Trouessart, 1889- is species-rich genus, with at least 60 described species (Butenko, 1984; Fain, 1957; Knee, 2008). I recognize here one new species and I give its full description.

***Sternostoma marchae* sp. nov.**

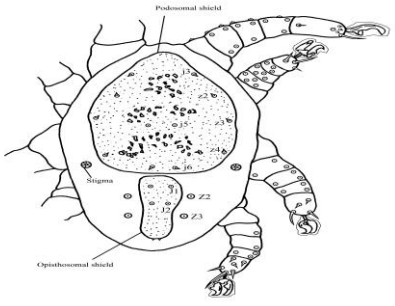

Figure 1. Sternostoma marchae, female dorsum.

Şekil 1. Sternostoma marchae, dişi üstten görünüm.

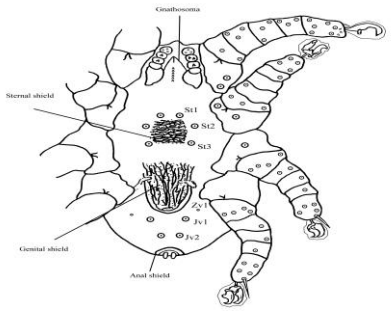

Figure 2. Sternostoma marchae, female ventrum.

Şekil 2. Sternostoma marchae, dişi alttan görünüm.

Description

Female (holotype and 9 paratypes): LB-330-351; WID –187-198; LPS –155-170; WPS – 132-147; LOS – 98-104; WOS – 33-40; LSS – 45-48; WSS – 47-49; LGS – 62-67; WGS – 45-50; LG – 64-72; WG – 63-67; LCH – 89-98; WCH - 23-28; Lleg I – 210-239; Lleg II – 137-161; LlegIII – 162-190; Lleg IV – 181-210.

Dorsum: (Figure 1) Podosomal shield lightly sclerotized, anterior margin of the shield attenuate and rounded lateral margins strongly convex, posterior margin straight. Six pairs of short setae along margin of podosomal shield (j3, 5, 6, z2-4). Stigmata dorsolateral, situated at level podosomal shield posterior margin. Opisthosomal shield elongate and narrow, with a pair of small setae on the posterior margin (J1, J2). Four or 5 setae on opisthosomal shield. The fifth may be on the left or on the right posterior part of the shield. Two pairs of setae on lateral margin of opisthosomal shield (Z2, Z3).

Venter: (Figure 2) Sternal shield with transverse wave ornamentation, sternal shield heavily sclerotized throughout and weakly sclerotized along peripheral margins. Two pairs of setae (st2,3) situated lateral to the sternal shield, and one pair (st1) near the sternal shield anterior margin. Genital shield broad, poorly sclerotized, and without setae. Ventral opisthosoma with two pairs of relatively large setae (Jv1-2) and one pair of little sharply–tipped setae (Zv1). Anal shield situated terminaly on the posterior of the idiosoma. Gnathosoma inserted ventrally. Six deutosternal teeth present. No hypostomal and subcapitular setae present.

Legs: All legs six-segmented. Chaetotaxy of legs: 2-2-1-0. Trochanter 3-3-4-4. Femur 9-5-5-2. Genu 8-4-4-2. Tibia 7-4-4-4. Tarsus 16-7-9-11 Tarsus III – IV apical ventral have also 1 long (10 μm) seta. Tarsus I-IV with long setae (9-11 μm). All tarsi with caruncle and claws.

Male, nymphs, larva: Unknown.

Type material: Female holotype with two female paratypes (ZISP 4714) and 7 female paratypes (ZISP 4715, 4716) from *Serinus canaria* (Linnaeus, 1758) (Fringillidae), Russia, Saint Petersburg, (59° 56' N, 30° 18' W), 02 July 2010; coll. I. Dimov.

Figure 3. Sternostoma marchae, dişi dorsum.

Şekil 3. Sternostoma marchae, dişi üstten görünüm.

Figure 4. Sternostoma marchae, dişi ventrum.

Şekil 4. Sternostoma marchae, dişi alttan görünüm.

Etymology: The species is named after my daughter, Maria I. Dimova.

Differential diagnosis: *Sternostoma marchae* n. sp. is similar to *St. tracheacolum* - Lawrence, 1948- by form of the podosomal and opisthosomal shields. The features discriminating between *St. marchae* and *St. tracheacolum* are reviewed in Table 1. The clearest feature differentiating between these two species is the chaetotaxy of coxae and on the sternal shield. In *St. marchae,* coxa III bears one seta and coxa IV lacking any setae. In *St tracheocolum,* coxa III has two setae and coxa IV has one seta. In *St. marchae* setae on the sternal shield absent, but in *St tracheocolum* 3 pairs of setae on the sternal shield present.

Table 1. Characters differentiating *St. marchae* n.sp. and *St. tracheacolum.*

Tablo 1. *St. marchae* n.sp. ve *St. tracheacolum*'un ayırıcı özellikleri.

Character	***St. marchae* n.sp.**	***St. tracheacolum***
Opisthosomal shield form and ratio length/width)	Narrow, 3:1	Wide, 2:1
Setae on opisthosomal shield	4 (rarely 5)	6
Sternal shield form	Square-shaped	Rectangular-shaped
Setae on sternal shield	Absent	3 pairs
Setae near sternal shield	3 pairs	No setae
Setae on ventral opisthosoma	2 pairs of big, 1 pair of small setae	2 pairs big setae
Hypostomal and subcapitular setae	Absent	Present
Deutosternal dents	6	Absent
Coxal setae formula	2-2-1-0	2-2-2-1

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