

NEW RECORDS OF FEATHER MITES (ACARI, ASTIGMATA) FROM SLOVAKIA

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Abstract: In this paper, 5 species of feather mites in Bratislava are recorded. The occurrence of three species is reported for the first time in Slovakia – *Freyana anatine oidemiae* on host *Anas platyrhynchos*, *Kramerella lunulata lunulata* on *Athene noctua* and *Pseudoallophtinus didactilus* on *Ciconia ciconia*.

Key words: Analgoidea, Pterolichoidea, feather mites, bird's commensals, first record, Slovakia.

INTRODUCTION

“Feather mites” are representatives of two superfamilies of astigmatid mites – Analgoidea and Pterolichoidea, sharing many common morphological and ecological characteristics. Species are almost exclusively associated with bodies of birds. They are adapted to live on host's feathers or skin, in feather follicles, subdermal tissues, the respiratory tract or other body cavities. They share the regression or absence of genital papillae, loss of one seta (*c*”) on tibiae I-II and loss of the deutonymph in the life cycle. Ambulacral discs on pretarsus are well developed (KRANTZ 1978; OCONNOR 2009).

The host-parasite relationship between these mites and their bird hosts is a question. In past, it was considered as parasitism, but nowadays, many authors agree that feather mites are commensals and form non-parasitic relationships with birds (OCONNOR 1982; BLANCO et al. 1999, 2001).

The group of mites is widely distributed and highly diversified, due to number of host species and many microhabitats on each of them. There are 2721 known species worldwide (SCHATZ et al. 2011). And many are apparently still waiting to be found, according to optimistic prognoses of mite diversity (WALTER & PROCTOR 1999).

In Slovakia and former Czechoslovakia, the research of feather mite fauna was neglected for a

long time and there are only several works dealing with this issue. LICHARD (1959; 1962) describes 30 species of feather mites new for our fauna, collected from passeriform birds. All hosts were trapped and examined in Jurský Šúr near Bratislava. JAMRIŠKA et al. (2011) recorded first member of family Epidermoptidae – *Promyialges uncus* (Vitzthum, 1934), from Slovakia, added new host record and some additional notes about its biology.

MATERIAL AND METHODS

Material was collected from feathers of various bird hosts. Samples were taken from molted feathers, cadavers, or living birds, temporarily placed in rescue station for wounded birds in ZOO Bratislava (N 48,094482°, E 17,041849°). In last case, mites were collected individually from host's flights, tail feathers or plumes. Using preparation needle, feather mites were transferred to Eppendorf vial filled with 70% alcohol. Before identification, the specimens were mounted into permanent microscopic slides, using the Liquido de Swan medium. Zeiss Amplitval microscope was used for identification (magnification 100x – 400x), according to keys from ČERNÝ & SAMŠIŇÁK (1971), OCONNOR (2009), ROSICKÝ (1979), SCHEUCHER (1957) and TURK & TURK (1957). Material is deposited in first author collection in the Comenius University, Bratislava.

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RESULTS

We obtained 45 specimens of feather mites, belonging to 5 species.

Family Trouessartiidae Gaud, 1957

Trouessartia corvina (Koch, 1840)

These mites are occurring mainly on proximal flight feathers of host birds, but often on dorsal side of feathers (LICHARD 1959). Hosts known from literature are *Corvus corax* Linnaeus, *Corvus corone* Linnaeus, *Corvus cornix* Linnaeus, *Corvus frugilegus* Linnaeus, *Corvus monedula* (Linnaeus), *Pica pica* (Linnaeus) and *Picus viridis* Linnaeus (DUBININ 1951; LICHARD 1959; VITZTHUM 1929).

Material examined. Slovakia, ZOO Bratislava, 21. 6. 2009, on flight feathers (primaries and secondaries) of *P. pica* (Passeriformes: Corvidae), 2 females. Slovakia, ZOO Bratislava, 14. 7. 2009, on flight feathers of *Corvus cornix* (Passeriformes: Corvidae), 2 females. Slovakia, ZOO Bratislava, 3. 8. 2009, on flight feathers of *Sturnus vulgaris* Linnaeus (Passeriformes: Sturnidae), 4 males, 6 females.

Family Freyanidae Dubinin, 1953

Freyana anatina oidemiae Dubinin, 1950

Species is divided in more subspecies because of its high polymorphy and differences in host preferences. These subspecies is, according to literature, occurring on wing flight feathers and coverts of anatid birds of the genus *Melanitta* Boie, *Clangula* Leach and *Histrionicus* Lesson (DUBININ 1953).

Material examined. Slovakia, ZOO Bratislava, 27. 5. 2009, on flight feathers (primaries and secondaries) of *Anas platyrhynchos* (Linnaeus) (Anseriformes: Anatidae), 1 female.

Family Gabuciniidae Gaud et Atyeo, 1975

Gabucinia delibata (Robin, 1877)

Species is mainly occupying distal flight feathers. These mites are frequently occurring on many species of family Corviidae (DUBININ 1951; LICHARD 1959; RADFORD 1958).

Material examined. Slovakia, ZOO Bratislava, 21. 6. 2009, on flight feathers (primaries) of *P. pica*, 2 males, 2 females, 1 nymph. Slovakia, ZOO Bratislava, 14. 7. 2009, on flight feathers of *C. cornix*, 1 male, 4 females.

Family Kramerellidae Gaud et Mouchet, 1961

Kramerella lunulata lunulata (Haller, 1878)

Mites are commonly founded on flight feathers, coverts and tail feathers (rectrices). This subspecies is occurring only on *Athene noctua* (Scopoli) (Strigiformes: Strigidae) (DUBININ 1953).

Material examined. Slovakia, ZOO Bratislava, 21. 6. 2009, on flight feathers (primaries, secondaries), coverts and contour feathers of *A. noctua*, 2 males, 5 females.

Family Pterolichidae Trouessart et Mégnin, 1884

Pseudoaloptinus didactylus (Trouessart, 1885)

Mites are living almost exclusively on middle part of host's wing flight feathers (DUBININ 1956). More information about this species is given in discussion below.

Material examined. ZOO Bratislava, 24. 10. 2009, on flight feathers (secondaries) of *Ciconia ciconia* (Linnaeus) (Ciconiiformes: Ciconiidae), 5 males, 8 females.

DISCUSSION

As apparent from results, the number of found specimens is quite small. This is due to the method used – mites were picked up one by one from host's feathers, and only for a short time, to reduce stress of examined bird. So only a very small part of mites present on host was collected. The "bottle method" according to CYPRICH et al. (1985) and CLAYTON & DROWN (2001) is more suitable to obtain a larger numbers of feather mites. On the other hand, it can be used only for smaller species of birds.

Three species of feather mites were found for the first time from Slovakia (*F. anatine*, *Kramerella lunulata* and *Pseudoaloptinus didactylus*). Other species (*T. corvina* and *G. delibata*) were previously recorded by LICHARD (1959; 1962).

Freyana anatina is a very polymorphic species occurring on variety of bird species (Anseriformes). Subspecies *F. anatina oidemiae* is known from anatid birds of the genus *Melanitta* Boie (DUBININ 1953). Our finding of this mite on feather wings of *Anas platyrhynchos* probably indicates that knowledge about its host preference is still incomplete.

Kramerella lunulata (Haller, 1878) is associated with many species of Strigiformes. Founded subspecies *K. lunulata lunulata* occurs only on *Athene noctua* according to DUBININ (1953). *Pseudoaloptinus didactylus* is known from distal shoulder and proximal hand flight feathers (secondaries) of *Ciconia ciconia* and *Ciconia nigra*. Other two species of feather mites (*Gabucinia intermedia* Megnin et Trouessart 1884 and *Freyanopterolichus pelagicus* Trouessart et Megnin 1886) are living on more distal flight feathers (DUBININ 1956).

Although there are only few sights in southwest Slovakia, where feather mites were recorded, they are probably distributed in all regions of Slovakia. That is because a specific feather mite is present

everywhere, where its host occurs (DUBININ 1951; LICHARD 1959).

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