A new genus of syringophilid mites (Acari: Cheyletoidea: Syringophilidae) from cuculiform birds (Aves: Cuculiformes)

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Abstract. *Cuculisyringophilus crotophaginus* gen. n. et sp. n. is described from the guira cuckoo *Guira guira* (Gmelin) from Paraguay and also was collected from the groove-billed ani *Crotophaga sulcirostris* Swainson from Colombia and Mexico. This new genus is closely related to *Neoaulobia* Fain, Bochkov et Mironov, 2000 but is distinguished by the following characters: propodosomal setae *sce* are situated distinctly anterior to level of setae *d1*, leg setae *vs'II* are absent, apodemes I are divergent.

Members of the family Syringophilidae (Acari: Cheyletoidea) are obligatory ectoparasites of birds, inhabiting quills of the flight and covert feathers. In these unique habitats they feed on the soft tissue by piercing the quill wall with their styletiform chelicerae. Reproduction and development also takes place inside the quills (Kethley 1970, Casto 1974).

Our knowledge of syringophilid fauna is still fragmentary. To date, this family includes about 140 named species belonging to 35 genera and grouped into two subfamilies: Syringophilinae Lavoipierre, 1953 (33 genera) and Picobiinae Johnston et Kethley, 1973 (2 genera) (Bochkov et al. 2004, Skoracki and Sikora 2004, 2005, Skoracki 2005). Likewise, the quill mites parasitizing cuculiform birds are poorly investigated. Only two species were reported from these birds: *Calamincola lobatus* (Casto, 1978) from the groove-billed ani *Crotophaga sulcirostris* Swainson from the USA, and *Niglarobia chirovi* Bochkov et Mironov, 1998 from the common cuckoo *Cuculus canorus* Linnaeus from Russia.

In this paper, a new genus *Cuculisyringophilus* is proposed to accommodate a new syringophilid species collected from the guira cuckoo *Guira guira* (Gmelin) from Paraguay and the groove-billed ani *Crotophaga sulcirostris* Swainson from Colombia and Mexico.

MATERIALS AND METHODS

The syringophilids were acquired from bird specimens (dry skins) housed in the Zoologische Staatssammlung, München (Germany). Initially, mites were placed in lactic acid (10%) for three days. Later, they were mounted on slides in Faure medium and examined using an Olympus BH2 microscope with differential interference contrast (Nomarski) optics.

The nomenclature of idiosomal setae is based on that of Fain (1979) in the version adapted for the family Syringophilidae (Bochkov and Mironov 1998) and the chaetotaxy for the legs is that of Grandjean (1944). Bird taxonomy follows Howard and Moore (1991). All measurements are given in

micrometres (μm). Abbreviations for institutions where the materials are deposited: AMU – Department of Animal Morphology, A. Mickiewicz University, Poznań, Poland; ZIN – Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia; ZSM – Zoologische Staatssammlung München, Germany.

RESULTS

Family: Syringophilidae Lavoipierre, 1953

Subfamily: Syringophilinae Lavoipierre, 1953

Genus: *Cuculisyringophilus* gen. n.

Diagnosis. Female. Small-sized mites, total length approximately 500–600. *Gnathosoma*. Hypostomal apex smooth, without protuberances, hypostomal lips with 2 pairs of small protuberances. Chelicerae edentate. Peritremes M-shaped. Lateral hypostomal teeth absent. Stylophore slightly constricted posteriorly. *Idiosoma*. All idiosomal setae smooth. Propodosomal shield well developed, not divided, rectangular. Propodonotal region with 6 pairs of setae, bases of setae *d1* situated posterior to level of bases of setae *sce*. Hysterosomal shield absent, pygidial shield present. Setae *d4* and *d5* short, more than 10 times shorter than whip-like setae *l5*. Genital and anal series with 2 pairs of setae each, paragenital series with 3 pairs of setae. *Legs*. All legs subequal in size. Apodemes I divergent, not fused to apodemes II. Setae *dTIII*, *dTIV* and *vs'II* absent. Ant-axial and paraxial members of claw pair small and similar in shape, without basal angle.

Male. Characters as in female except for propodosomal shield weakly sclerotized, hysterosomal shield present, fused with pygidial shield. Setae *l5* more than 2 times longer than *d5*.

Type and only species: *Cuculisyringophilus crotophaginus* sp. n. Host order: Cuculiformes.

E t y m o l o g y : This generic name is derived from the name of the bird order Cuculiformes, hosting mites of this genus.

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Figs. 1, 2. *Cuculisyringophilus crotophaginus* sp. n., female. **Fig. 1.** Dorsal view. **Fig. 2.** Ventral view. Scale bar in μm .

Remarks. *Cuculisyringophilus* is closely related to *Neoaulobia* Fain, Bochkov et Mironov, 2000 associated with psittaciform birds (Fain et al. 2000). In both genera the chelicerae are edentate, the setal pattern of the propodonotal region is with 6 pairs of setae, the genital and anal series are with 2 pairs of setae each, 3 pairs of the paragenital setae are present, leg setae *dTIII* and *dTIV* are absent. The new genus is distinguished by the following characters: in females of *Cuculisyringophilus*, propodonotal setae *sce* are situated distinctly anterior to the level of setae *d1*; in both sexes, leg setae *vs'II* are absent, apodemes I are divergent. In females of *Neoau-*

lobia, propodosomal setae *d1* and *sce* are situated at the same transverse level; in both sexes, leg setae *vs'II* are present, apodemes I are parallel.

***Cuculisyringophilus crotophaginus* sp. n.** Figs. 1–9

Description. Female. Total body length of holotype 650 (605–660 in 10 paratypes). *Gnathosoma*. Hypostomal apex rounded, with 2 pairs of short and finger-like hypostomal lips (Fig. 5). Cheliceral digit 180 (170–180), long. Stylophore slightly constricted or rounded posteriorly, 215 (210–220) long. Each transverse branch

Figs. 3, 4. *Cuculisyringophilus crotophaginus* sp. n., male. **Fig. 3.** Dorsal view. **Fig. 4.** Ventral view. Scale bar in μm .

of peritremes with 3–4 chambers, each longitudinal branch with 11–12 chambers (Fig. 6). *Idiosoma*. Propodosomal shield well sclerotized, rectangular, bearing bases of setae *vi*, *ve*, *sci*, *sce* and *d1*. Length ratio of setae *vi:ve:sci* 1:1.2:2–3. Setae *sce*, *h*, and *d1* subequal in length. Hysterosomal shield absent. Pygidial shield present, well sclerotized, bearing bases of setae *d4*, *d5*, *l4* and *l5*. Bases of setae *d2* situated equidistant to bases of setae *l1* and *l2*. Setae *d4* and *d5* subequal in length. Genital setae (*g1* and *g2*) twice longer than anal setae (*a1* and *a2*). Paragenital setae *pg1* and *pg3* about 1.5 times longer than *pg2*. Cuticular striations as in Figs. 1 and 2. *Legs*. All coxal fields well sclerotized. Fan-like setae *p'* and *p''* of legs III and IV with 7 tines. Setae *tc'''III–IV* 1.5 times longer than *tc'''III–IV*. Coxal setae *cxIII2* about 1.5 times longer than *cxIII1*. *Length of setae*. *vi* (25–30); *ve* 35 (35–40); *sci* (50–70); *h* 250 (250–290); *sce* (270–290); *d1* 290 (275–300); *l1* 270 (250–270); *d2* 235 (215–245); *l2* (175–215); *d4* 50 (45–50); *d5* 50 (40–50); *l4* (100); *l5* (305–340); *a1* and *a2* 25 (20–25); *g1* 50 (40–50); *g2* 45 (40–50); *pg1* 170 (170–175); *pg2* 115 (105–125); *pg3* 200 (170–225); *sc1* and *sc2* 15 (15); *sc3* 50 (30–50); *sc4* 35 (30–40); *cxIII1* 40 (35–40); *cxIII2* 75 (75–80); *tc'''III–IV* 50 (45–50); *tc'''III–IV* 75 (65–75).

Male. Total body length 460–475 in 3 paratypes. *Gnathosoma*. Stylophore rounded posteriorly, 180 long.

Each transverse branch of peritremes with 3–4 chambers, each longitudinal branch with 11–12 chambers (Fig. 8). *Idiosoma*. Propodosomal shield weakly sclerotized, lateral and posterior margins indistinct. Setae *vi* and *ve* subequal in length. Hysterosomal shield weakly sclerotized, with indistinct margins, bearing bases of setae *d2*. Pygidial shield present, variable in shape, bearing bases of setae *d5* and *l5*. Bases of setae *d2* situated equidistant to bases of setae *l1* and *l2*. Setae *d4* and *d5* subequal in length. Setae *l5* variable in length, subequal or 2 times longer than setae *d5*. Paragenital setae *pg2* about 3 times shorter than *pg1* and 1.5 times shorter than *pg3*. Cuticular striations as in Figs. 3 and 4. *Legs*. All coxae weakly sclerotized. Fan-like setae *p'* and *p''* of legs III and IV with 7 tines. Setae *tc'''III–IV* 1.5 times longer than *tc'''III–IV*. Coxal setae *cxIII2* about 1.5–2 times longer than *cxIII1*. *Length of setae*. *vi* 40–45; *ve* 40–45; *sci* 55–65; *h* 215–220; *d1* 195–230; *l1* more than 65; *d2* 25–30; *l2* 25–30; *d5* 40–45; *l5* 30–90; *pg1* 125–145; *pg2* 40–50; *pg3* 70–85; *sc3* and *sc4* 25–35; *cxIII1* 20–30; *cxIII2* 55–65.

Type host: *Guira guira* (Gmelin, 1788) (Cuculidae: Crotophaginae).

Site: Quills of secondary feathers.

Type locality: Paraguay, Cambyrila; 18 June 1937; coll. A. Neunteufel.

Figs. 5–9. *Cuculisyringophilus crotophaginus* sp. n., female (Figs. 5–7) and male (Figs. 8, 9). **Fig. 5.** Hypostomal apex. **Fig. 6.** Peritremes. **Fig. 7.** Fan-like seta *p'* of leg III. **Fig. 8.** Peritremes. **Fig. 9.** Fan-like seta *p'* of leg III. Scale bar in μm .

Type specimens: Female holotype, 35 female and 3 male paratypes (No. Syr. 151).

Specimens deposited: Holotype and most of the paratypes are deposited at AMU; 5 female and 1 male paratypes at ZIN and 5 female paratypes at ZSM.

Etymology: The name *crotophaginus* refers to the subfamily name of the host – Crotophaginae.

Additional material: 32 females, 5 males, 9 nymphs (No. Syr.155) from quills of secondary feather of the groove-billed ani *Crotophaga sulcirostris* Swainson,

1827 (Cuculidae: Crotophaginae); Colombia, Bogota, no other data. This material is deposited at AMU.

Eight females (No. Syr.155a) from the same host and site; Mexico, Jalisco; 10 October 1912; coll. Gluckert. This material is deposited at AMU except for 2 females at ZSM and 2 females and 1 male at ZIN.

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