

A NEW GENUS OF CAPILLARIIDS FROM BIRDS, ORNITHOCAPILLARIA GEN. N. (NEMATODA: CAPILLARIIDAE)

V. BARUŠ and T. P. SERGEEVA

Institute of Systematical and Ecological Biology, Czechoslovak Academy of Sciences, Brno, Czechoslovakia, and Helminthological Laboratory, Academy of Sciences of the USSR, Moscow, USSR

Abstract. A new genus, *Ornithocapillaria* gen. n., belonging to the family Capillariidae and subfamily Baruscapillariinae is described and its diagnosis is given. The type species of the genus is *Ornithocapillaria ovopunctata* (Linstow, 1873) comb. n., other species are *O. cylindrica* (Eberth, 1863) comb. n., *O. quiscali* (Read, 1949) comb. n., and *O. picorum* (Rudolphi, 1819) comb. n. The new genus is characterized by a relatively large membranous pseudobursa, shape of processes supporting pseudobursa, and presence of a vulval appendage in female. It includes only species parasitic in the intestine of birds of the orders Passeriformes, Falconiformes, Strigiformes, and Piciformes.

In a new system of the family Capillariidae, Moravec (1982) advanced a right and reasonable generic differentiation basing mainly on the structure of caudal end in male. In the author's concept the capillariids were arranged in 16 genera, those of birds in seven genera. Until 1988, the number of genera of the family Capillariidae increased to 22 (cf. Moravec et al. 1987), but no one of the established genera involved species parasitic in birds. During a revision of capillariids parasitizing birds of the Palaearctic region and literary sources on a world scale it was found that four species were very closely related and possessed morphological characteristics differentiating them from the remaining species of this family. Therefore a new genus, *Tridentocapillaria*, with the type species *T. tridens* (Dujardin, 1845) was established for this group (Baruš and Sergeeva 1990) in the subfamily Capillariinae. Our opinion on the species spectrum of capillariids parasitizing birds in the Palaearctic region and evidently belonging to the genera *Capillaria* Zeder, 1800, *Eucoleus* Dujardin, 1845, and *Echinocoleus* López-Neyra, 1947 was published in two revising papers (Baruš and Sergeeva 1989a, b).

Our studies of a large collection of nematodes belonging after Moravec (1982) to the genus *Baruscapillaria* (including only parasites of birds and mammals) showed that the species *B. ovopunctata* (Linstow, 1873) Moravec, 1982 and at least three other species morphologically did not conform to the diagnosis of this genus. The four species are very closely related and possess morphological characters separating them from all remaining species of Capillariidae. Also in the present system of 23 genera of this family their characters are so different that we find it suitable to establish for them a new systematic category at the generic level — *Ornithocapillaria* gen. n.

I. DIAGNOSIS OF THE GENUS ORNITHOCAPILLARIA GEN. N.

Capillariidae — Baruscapillariinae: Caudal lateral alae in male absent; wide and long membranous pseudobursa developed. Tail end of male protruding laterally into a process divided into a blunt dorsal branch and ventral branch with papilla. One well sclerotized spicule present, its proximal part being attached to the inner wall of cloaca. Spicule sheath unarmed, without spines, situated inside cloaca. Stichosome consisting

of one row of stichocytes. Four bacillary bands present: dorsal, ventral and two lateral. Vulva of female always with a rather long tubular vulval appendage. Outer egg envelope having a characteristic structure.

Parasites of the digestive tract (intestine) of birds of the orders Passeriformes, Falconiformes, Strigiformes, and Piciformes.

Type species: *Ornithocapillaria ovopunctata* (Linstow, 1873) comb. n.

Typical host: *Sturnus vulgaris* L.

Terra typica: Europe (ex López-Neyra 1947).

Other species: *Ornithocapillaria cylindrica* (Eberth, 1863) comb. n., *O. quiscalis* (Read, 1949) comb. n., *O. picorum* (Rudolphi, 1819) comb. n.

II. SYSTEMATICAL NOTES AND DIFFERENTIATION OF THE NEW GENUS *ORNITHOCAPILLARIA*

According to Moravec (1982) the known species of capillariids parasitic in birds were divided into 7 genera recently supplemented by a new genus *Tridentocapillaria* Baruš et Sergeeva, 1990 (see Baruš and Sergeeva 1990). The differentiation of the new genus *Ornithocapillaria* is based on the system of Capillariidae, in which three subfamilies, Capillariinae Railliet, 1915, Baruscapillariinae Lomakin et Romashov, 1987, and Skrjabinocapillariinae Lomakin et Romashov, 1987 were established by Lomakin and Romashov (1987). In addition to other characters, the main differentiating feature of these subfamilies is the localization of the spicule (inside the so-called pseudocloacal canal or localization of its proximal part behind the pseudocloacal canal in the spicule tube, the lining of which is formed by the spicule sheath). An exceptional case is the subfamily Skrjabinocapillariinae, which is without spicule. Our opinion about the composition of genera in the subfamily Capillariinae was expressed in a previous paper (Baruš and Sergeeva 1989a). According to our concept, this subfamily consists of nine genera and five of them include species parasitic in birds — *Capillaria*, *Eucoleus*, *Echinocoleus*, *Pterothominx*, and *Tridentocapillaria*.

The new genus *Ornithocapillaria* established by us evidently belongs to the subfamily Baruscapillariinae, which according to Lomakin and Romashov (1987) comprised the following 10 genera: *Baruscapillaria* Moravec, 1982 (type genus); *Paracapillaria* Mendonça, 1963; *Pseudocapillaria* Freitas, 1959; *Liniscus* Dujardin, 1845; *Pearsonema* Freitas et Mendonça, 1960; *Aonchotheca* López-Neyra, 1947; *Calodium* Dujardin, 1845; *Capillostrongyloides* Freitas et Lent, 1935; *Gessyella* Freitas, 1959, and *Pseudocapillaroides* Moravec et Cosgrove, 1982. In our concept, this subfamily consists of 11 genera. The differentiation of the new genus *Ornithocapillaria* from the other genera of Baruscapillariinae is unambiguous and simple. It differs from the genera *Aonchotheca*, *Calodium*, and *Gessyella* in the absence of lateral cuticular alae, from *Pseudocapillaria*, *Paracapillaria*, *Liniscus*, *Pearsonema*, *Capillostrongyloides*, and *Pseudocapillaroides* (which have a very small pseudobursa) in markedly larger cuticular pseudobursa and shape of caudal processes in males, from *Paracapillaria*, *Pseudocapillaria*, and *Capillostrongyloides* in the presence of vulval appendage in females (it is absent in these three genera). The differentiation of *Ornithocapillaria* from *Baruscapillaria* deserves a special attention. The genus *Baruscapillaria* correctly includes a comprehensive group of species (in our opinion, these are 18 valid taxons parasitic in birds) with a marked uniform morphology of male pseudobursa and without the vulval appendage in females. The principle differentiating character between *Ornithocapillaria* and *Baruscapillaria* is the shape of processes on the posterior end of male body. They are distinctly rounded and more caudally orientated in *Baruscapillaria* species, while in the species of the genus *Ornithocapillaria*, they are conical and more laterally orientated. Also the relative size of membranous pseudobursa in males

is larger in *Ornithocapillaria* (width 0.058—0.072, length 0.038—0.050) than in *Baruscapillaria* (width 0.022—0.050, length 0.015—0.033). Compared to the above-mentioned genera of the subfamily Baruscapillariinae, the genus *Ornithocapillaria* is characterized also by the fact that it includes only species parasitizing in the digestive tract of birds. The other species parasitize coldblooded vertebrates (*Paracapillaria*, *Capillostrongyloides*, *Gessyella*, *Pseudocapillaroides*), mammals (*Calodium*, *Pearsonema*, *Liniscus*), and only in three genera (*Baruscapillaria*, *Pseudocapillaria* and *Aonchotheca*) the range of definitive hosts, according to Moravec (1982), is wider (including more classes of coldblooded and warmblooded vertebrates). These reasons led us to the conclusion that the genus *Ornithocapillaria* should be established as a new systematical category in the subfamily Baruscapillariinae.

III. REDESCRIPTION OF THE TYPE SPECIES OF THE GENUS *ORNITHOCAPILLARIA*

Ornithocapillaria ovopunctata (Linstow, 1873) comb. n.

Fig. 1

The redescription is based on original materials (3 males and 4 females) from *Sturnus vulgaris* (from the Soviet Baltic territory) and *Pastor roseus* (from Tadzhikistan) and reexamination of materials from our collection described in previous papers by Baruš and Garrido (1968) from *Catharus minimus minimus* (Cuba) and by Baruš and Daniel (1979) from *Prunella collaris nipalensis* and *Chaimarrornis leucocephalus* (Nepal).

Localization in the host: small intestine.

Synonymy: *Trichosoma ovopunctata* Linstow, 1873; *Capillaria ovopunctata* (Linstow, 1873) Travassos, 1915; *Baruscapillaria ovopunctata* (Linstow, 1873) Moravec, 1982; *Capillaria columbae* var. *sturni* Cannon, 1939; *Capillaria inflexa* (Rudolphi, 1819) in López-Neyra (1947); *Baruscapillaria inflexa* (Rudolphi, 1819) in Moravec (1982); *Capillaria copyschi* Gupta, 1960.

Distribution: Holarctic species, recorded also in the northern part of the Neotropic region (Cuba). Biology: The embryonal development of eggs of *Ornithocapillaria ovopunctata* was described by Shlikas and Kasparson (1979). The eggs with uncleaved contents are excreted with the host faeces. The larva develops inside the egg at the temperature of 27.5 °C within 13—14 days, at the room temperature (about 20 °C) within 34 days.

Description (measurements in mm): Four bacillary bands (two side lateral and narrow dorsal and ventral) present in both male and female. Lateral 0.007—0.010 wide bacillary bands situated on ventral part of male body near posterior extremity (body width 0.025). Ventral and dorsal bacillary bands, 0.0037 and 0.0025 wide, on 0.057 wide part of male body. Bacillary bands composed of globular cells and opening on body surface by cylindrical orifice. Bacillary bands appearing like sparse rounded pores on cuticle surface. Diameter (or length) of hypodermal cells forming lateral bacillary bands near tail end of male body 0.0045, length of opening 0.0003.

Male body length 6.0—9.5, width 0.020—0.027 at level of oesophagus and 0.057 to 0.060 at level of stichosome end. Head end rounded and narrowed, 0.006—0.008 wide. Stichosome 2.7—4.5 long, consisting of 27—35 rectangular stichocytes arranged in one longitudinal row. Stichocytes of different sizes in different parts of stichosome, but always longer than wide. Stichocytes at stichosome end 0.087—0.105 long and 0.040 to 0.050 wide. First stichocyte situated 0.39—0.45 from anterior end of body. Stichosome terminated by two oval cells measuring 0.022—0.027 × 0.017—0.020.

Caudal end of male slightly widened and surrounded by a well developed membranous pseudobursa, 0.058—0.072 wide and 0.038—0.050 long in dorsoventral position. Pseudobursa supported by two processes (one on each side) divided into blunt dorsal branch and ventral branch with conical process (orientated laterally). Dorsal process measuring 0.017—0.020 × 0.012—0.015, ventral process 0.015—0.017 × 0.007 to 0.009. Spicule sheath unarmed, with distinct transverse undulation and situated

inside cloaca. Muscular sphincter situated between cloaca and seminal canal. Intestine opening into cloaca below the junction of cloaca and seminal canal. Cloacal opening in form of transverse slit situated on ventral side of body at level of upper margin of supporting processes of pseudobursa.

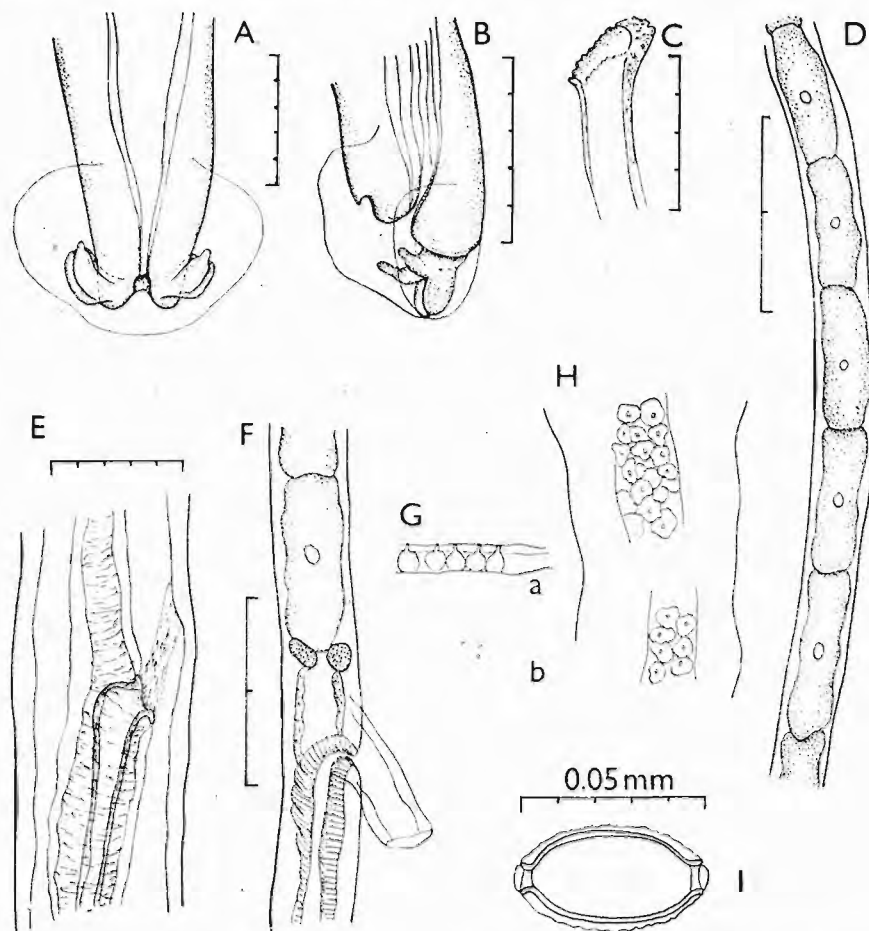


Fig. 1. *Ornithocapillaria ovopunctata* (Linstow, 1873) comb. n. from the host *Sturnus vulgaris* L. A — pseudobursa (ventral view); B — pseudobursa (lateral view); C — proximal end of spicule; D — distribution and shape of stichocytes; E — region of proximal end of spicule; F — vulva region (lateral view); G — cells of bacillary band (a — lateral view; b — apical view); H — bacillary bands (general view); I — egg. Original.

Spicule tubular, spherical in section, sclerotized, 0.56–1.18 long and of identical width along its whole length except 0.023–0.030 wide proximal end. Distal end bent in form of hook. Distal end of spicule 0.006–0.007 wide, proximal end attached to inner wall of cloaca. Long muscle — retractor running from the inner wall of cloaca and attached to body wall above the junction of seminal canal and cloaca.

Note: The shape of the spicule distal end has been discussed in several papers. Unfortunately, it is not known whether the presence of a hook on the end of spicule was mentioned in the original

description by Linstow (1873). However, López-Neyra (1947) recorded the presence of this character already in his redescription of *C. inflexa* (= *C. ovopunctata*). The hook-like termination of the spicule was also observed by Boyd (1951), Baruš and Garrido (1968), and Acosta et al. (1981). In Wakelin's opinion the spicule is less sclerotized on one side of its distal end which gives it the appearance of a hook (Wakelin 1966). Of the same opinion were also Baruš and Daniel (1976). We have therefore examined in detail the males from the type host *Sturnus vulgaris* and always found a distinct hook on the distal end of spicule (Fig. 2) on the lateral side of posterior end of male body (see also Baruš and Garrido 1968, p. 158, Fig. 4 C). In the dorsoventral position, the hook blends with the remaining part of the spicule and makes the appearance of a widened rounded distal end. In our opinion the presence of the hook-like ending of the distal part of spicule should be considered a characteristic feature of *Ornithocapillaria ovopunctata*.

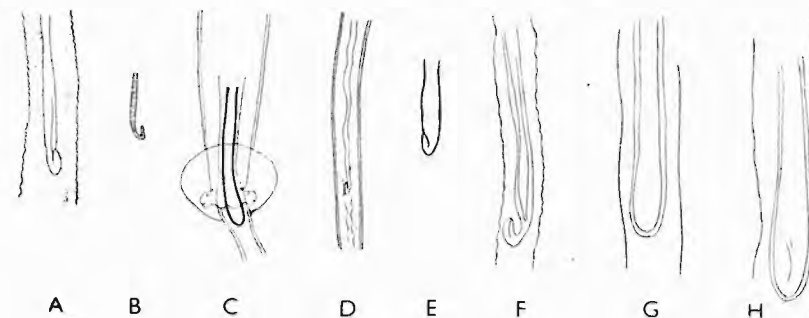


Fig. 2. *Ornithocapillaria ovopunctata* (Linstow, 1873) comb. n. — distal end of spicule after different authors and our material. A — after Boyd (1951); B — after Baruš and Garrido (1968); C — after Wakelin (1966); D, E — after Acosta et al. (1981); F, G, H — original (lateral, dorsal and ventral views).

Female body length 12.6–15.2, width 0.017–0.027 at level of oesophagus end, 0.060–0.072 at level of stichosome end, and 0.070–0.087 at level of vulva. Head end narrowed and rounded, 0.006–0.008 wide. Stichosome 5.2–6.4 long, consisting of 36–43 stichocytes of the same shape as in male, arranged in one row. Stichosome terminated by two oval cells measuring 0.025–0.036 × 0.036–0.042. First stichocyte 0.38–0.50 from anterior end of body. Size of stichocytes 0.090–0.150 × 0.050–0.058 at the end of stichosome. Tail end rounded, body width at its level 0.037–0.050. Vagina straight, short, with muscular walls. Vulva situated behind stichosome end and forming a distinct, almost tubular process, 0.10–0.15 long and 0.038–0.055 wide. Eggs oval, with low plugs and poles. Plugs 0.002–0.003 high. Eggs measuring 0.050–0.065 × 0.029–0.032, with markedly punctate or grooved surface.

Taxonomical notes to *O. ovopunctata*: Rudolphi (1819) described the taxon under the name *Trichosoma inflexum*. The description is only fragmentary and was included in the monograph on bird capillariids by Madsen (1945). Wakelin (1966) pointed out that the taxon cannot be identified on the basis of the original description, that already Bremser (1824) published illustrations of males and females, and that Diesing (1851) synonymized *T. inflexum* with *T. turdi* Rudolphi, 1819. It should be noted that Travassos (1915) transferred *T. inflexa* to the genus *Capillaria* and López-Neyra (1947) redescribed *C. inflexa* on the basis of material from *Monticola solitarius* and *Turdus philomelos* from the vicinity of Granada. He synonymized with the taxon the species *Calodium ornatum* Dujardin, 1845 (= *Capillaria ornata*) from the host *Anthus pratensis* and *Trichosoma turdi* Rudolphi, 1819. The validity of *C. inflexa* was recognized also by Skrjabin et al. (1957). We agree with the opinion of Wakelin (1966) that the validity of this taxon cannot be confirmed on the basis

of the original description by Rudolphi (1819) and redescription by López-Neyra (1947). In agreement with Wakelin (1966), who made a detailed analysis of capillariids parasitizing *Passeriformes* in England, we assume that the taxon *C. inflexa*, according to the redescription by López-Neyra (1947), is identical with and therefore a synonym of *C. ovopunctata* (Linstow, 1873). In our opinion, the name *Trichosomum inflexum* (used by Rudolphi 1819) is the nomen nudum.

We also agree with Wakelin (1966) that the nematodes from hosts of the genera *Turdus* and *Sturnus* from England determined by Mettrick (1959) under the name *C. ovopunctata* (Linstow, 1873) belong to *Trichosoma exile* Dujardin, 1845. According to the new concept of the genera of *Capillariidae*, their correct nomenclature is *Aonchotheca exile* (Dujardin, 1845) Moravec, 1982. Undoubtedly this concerns the description of male by Mettrick (1959), because the presence of praebursal lateral alae is evident both from the illustration and description. This character conforms to the diagnosis of the genus *Aonchotheca*. On the other hand, the presence of the vulval appendage in female (as it follows from the illustration and description) indicates that *C. ovopunctata* (= *Ornithocapillaria ovopunctata*) is concerned in case of the females. In the original description by Dujardin (1845) the absence of the vulval appendage in *T. exile* is stressed. It is probable that Mettrick (1959) mistook these two species because they often parasitize the same hosts.

We fully agree with Wakelin (1966) who regards *Capillaria copyschi* Gupta, 1960 described from the host *Copyschus copyschus saularis* from Pakistan as a synonym of *C. ovopunctata* (in our concept *Ornithocapillaria ovopunctata*). The possible synonymy of *C. columbae* var. *sturni* Cannon, 1939 with *O. ovopunctata* was mentioned already by Boyd (1951) and Mawson (1956). We consider this presumption to be correct. On the other hand, we disagree with Mawson (1956) and Wakelin (1966) who regard the taxon *Capillaria quiscali* Read, 1949 as a synonym of *C. ovopunctata*. In our opinion, *C. quiscali* is a valid taxon belonging to the newly established genus *Ornithocapillaria*.

IV. OTHER SPECIES OF THE GENUS *ORNITHOCAPILLARIA*

In addition to the type species *O. ovopunctata* we assign to this genus another three previously described species conforming to the generic diagnosis.

1. *Ornithocapillaria cylindrica* (Eberth, 1863) comb. n.

Fig. 3

This species was originally described by Eberth (1864) under the name *Trichosomum cylindricum* on the basis of females recovered from *Buteo buteo*. Travassos (1915) placed it to the genus *Capillaria*. Moravec (1982) did not include it to any of the *Capillariidae* genera. It is necessary to stress, however, that for a long time this species has been known only after the original description and mentioned only in monographs and lists (Travassos 1915, Yorke and Maplestone 1926, López-Neyra 1947, Skrjabin et al. 1957). Eberth's description (ex Freitas and Almeida 1935) contained only data on its location (oesophagus), its host (*Buteo vulgaris* = *B. buteo*), on the length of the female (6 mm), the width of the body (0.054 mm), the location of the anus (terminal), the presence of bacillary bands and a vulval bell-shaped appendage (pictured). The males of this species are not known and the author did not mention the locality of this finding.

Baruš (1969) studied numerous specimens of capillariids from *Falco sparverius sparverioides* from Cuba. The typical tubular to bell-shaped vulval appendage was found in all females. The males distinctly differed in their morphology and measurements from all known members of the genus *Capillaria* (in the wide concept of this

genus valid at that time). In spite of the differences in the situation of anus in females and localization in the definitive host, Baruš (1969) identified these nematodes as a taxon *C. cylindrica* (Eberth, 1863) and made its detailed redescription. He analyzed all capillariid species parasitizing hosts of the order *Falconiformes* (see Baruš 1964, 1966b) taking the presence of the vulval appendage in females and the morphological dissimilarity of this taxon for the main characters justifying its validity. He compared with this species also his previous finding of capillariid females from the intestine of the same host and identified them as *Capillaria* sp. (see Baruš 1966a).

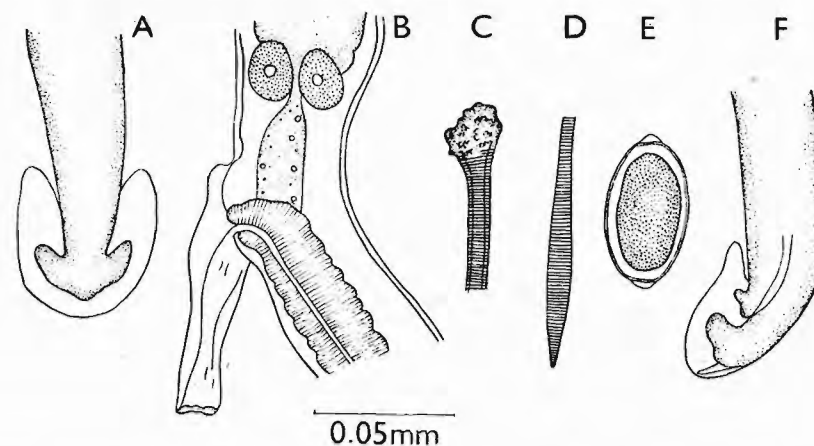


Fig. 3. *Ornithocapillaria cylindrica* (Eberth, 1863) comb. n. from the host *Falco sparverius sparverioides* Vigors. A — pseudobursa (dorsal view); B — vulva region (lateral view); C — proximal end of spicule; D — distal end of spicule; E — egg; F — pseudobursa (lateral view). After Baruš (1969).

We assign to this species also the females possessing the vulval appendage which were recovered from *Strix aluco* (Strigiformes) in Czechoslovakia (see Baruš 1966b). On the basis of a detailed knowledge of the morphology of this taxon (see Baruš 1969) we arrived at the conclusion that it belongs to the new genus described by us. The male has a wide and long membranous pseudobursa supported by two papillae on each side, which fully conforms to the generic diagnosis. The same concerns the presence of the vulval appendage in female, absence of praebursal lateral alae in male, unarmed spicule sheath, and sclerotized spicule. Consequently, this taxon can be included in *Ornithocapillaria* as *O. cylindrica* (Eberth, 1863) comb. n. with the following synonyms: *Trichosoma cylindricum* Eberth, 1863; *Capillaria cylindrica* (Eberth, 1863) Travassos, 1915; *Capillaria cylindrica* (Eberth, 1863) sensu Baruš (1969); *Capillaria* sp. Baruš (1966a); *Capillaria* sp. Baruš (1966b).

2. *Ornithocapillaria quiscali* (Read, 1949) comb. n.

Fig. 4

This species was originally described by Read (1949) on the basis of specimens recovered from the small intestine of *Quiscalus quiscala aeneus* (Passeriformes) from the USA. Skrjabin et al. (1957) left it in the original genus *Capillaria*, but Moravec (1982) transferred it to the newly established genus *Baruscapillaria*. Mawson (1956) and Wakelin (1966) regarded *C. quiscali* as a synonym of *C. ovopunctata*. In our opinion, these two taxons are relative, but fully valid. The original description by Read (1949) enables an easy differentiation of the two species. *C. quiscali* (= *O.*

quiscali) markedly differs from *O. ovopunctata* in the form of processes supporting the large membranous pseudobursa of males, in the shape of the distal end of spicule (not hook-like), shape of vulval appendage, and structure of egg surface. These and other characters enabled us to evaluate this taxon as valid. Its morphology fully conforms to the diagnosis of *Ornithocapillaria* and it is therefore assigned to this genus. In our concept, the species *Capillaria quiscali* Read, 1949 = *Baruscapillaria quiscali* (Read, 1949) Moravec, 1982 is the synonym of *Ornithocapillaria quiscali* (Read, 1949) comb. n.

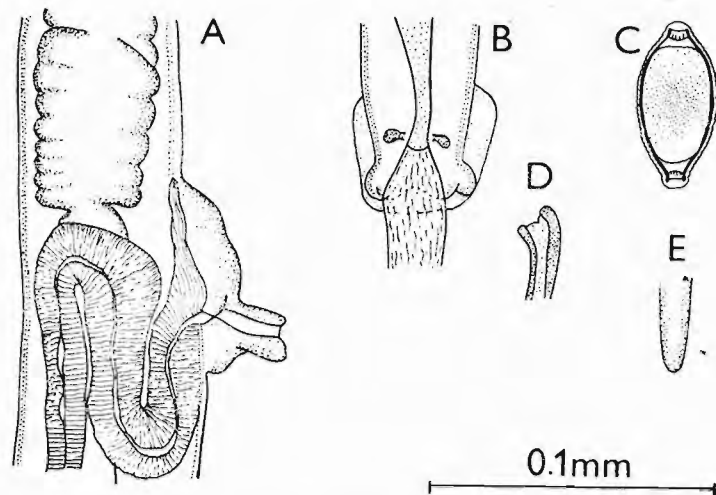


Fig. 4. *Ornithocapillaria quiscali* (Read, 1949) comb. n. from the host *Quiscalus quiscala aeneus* (Linnaeus, 1758). A — vulva region (lateral view); B — pseudobursa (ventral view); C — egg; D — proximal end of spicule; E — distal end of spicule. After Read (1949).

3. *Ornithocapillaria picorum* (Rudolphi, 1819) comb. n.

Fig. 5

This species was originally described by Rudolphi (1819) under the name *Trichosoma picorum* on the basis of incomplete male specimens recovered from the intestine of *Picus canus*, *Picus viridis*, and *Dendrocopos major* (from Europe). Travassos (1915) placed it in the genus *Capillaria*. López-Neyra (1947) and Skrjabin et al. (1957) left it in this genus and added a short description of the male fragments after Rudolphi (1819). Moravec (1982) transferred it to the genus *Pseudocapillaria*. Dujardin (1845) expressed some doubts about the validity of this species and supposed that on the basis of the female morphology it could be regarded as a synonym of *Trichosomum resectum* (= *Baruscapillaria corvorum*) or *Trichosoma fringillae* = *Trichosomum angustum* (nomen nudum in Travassos opinion). López-Neyra (1947) supported the validity of *C. picorum* with regard to its host (Piciformes).

Baruš (1966b) found nematode females which he identified as *C. picorum* (from *Picus viridis*, *Dendrocopos major* and *Dryocopus martius* from Czechoslovakia). He described in detail this material and similarly as López-Neyra (1947) came to the conclusion that *C. picorum* cannot be regarded as a synonym of the species mentioned by Dujardin (1845). In his concept it is most probably a valid taxon whose females always possess the characteristic vulval appendage. He assigned to this species also the material determined by Ryšavý (1957) as *Capillaria caudinflata* from *Dryocopus*

martius from Czechoslovakia. There was another record of this species in Europe: Chiriac et al. (1975) found *C. picorum* in hosts of the order Piciformes in Rumania, but they did not give its description and illustration. Outside the Palaearctic region this species was found and described by Leidy (1856) under the name *Trichosoma picorum* from the host Mexican Flicker (= *Colaptes mexicanus*). Stossich (1890) supposed that it was identical with "Rudolphi's species". It should be stressed that Travassos (1915) divided it into two forms, European and American, according to their geographic records. He left the name *C. picorum* for the taxon described by Rudolphi (1819) (after transfer to the genus *Capillaria*), but proposed a new name,

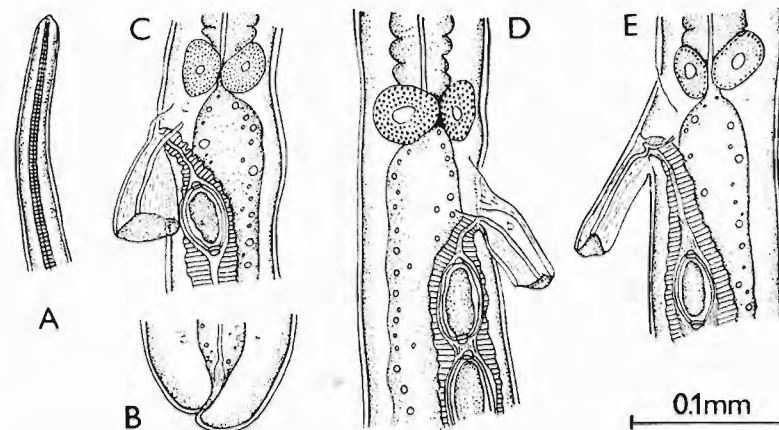


Fig. 5. *Ornithocapillaria picorum* (Rudolphi, 1819) comb. n. from the host *Picus viridis* L., *Dryocopus martius* L. and *Dendrocopos major* L. A. — anterior end of body; B — posterior end of female body (lateral view); C, D, E — vulva region (lateral view). After Baruš (1966b).

Capillaria leidyella Travassos, 1915, for the taxon described by Leidy (1856). As to the problem of validity of the two species, we are of the same opinion as Walton (1923) who considered them identical and recognized the only taxon *C. picorum* (Rudolphi, 1819) Travassos, 1915. It should be noted that the species *Capillaria longistriata*, originally described by Walton (1923) from *Colaptes auratus luteus* (USA — Illinois) evidently morphologically differs from *C. picorum* (praebursal alae in male are present and vulval appendage in female is absent) and is therefore not discussed in the present paper (it belongs to another genus). However, we consider it important to stress these differences, since López-Neyra (1947) expressed the presumption about the possible synonymy of *C. leidyella* and *C. longistriata*. We do not find significant the zoogeographical difference stressed by López-Neyra (1947) in case of these two species (*C. picorum* versus *C. leidyella*).

As to the generic classification of "*C. picorum*", which Moravec (1982) assigned to the genus *Pseudocapillaria*, it requires further evaluation. Sergeeva (1986) pointed out that the morphology of capillariids parasitic in birds does not conform to the diagnosis of *Pseudocapillaria* in which they were included. This concerns also "*C. picorum*". However, a detailed morphology of male pseudobursa is still unknown, and this makes it impossible to decide exactly whether this species belongs to the genus *Baruscapillaria* or to the new genus *Ornithocapillaria*. Due to the presence of a large tubular vulval appendage in all females in our material (which is a marked

morphological character) it can be supposed that this taxon belongs to *Ornithocapillaria*. Females of the genus *Baruscapillaria* parasitizing birds do not possess this vulval appendage.

In our concept, the synonymy of *Ornithocapillaria picorum* (Rudolphi, 1819) comb. nov. is as follows: *Trichosoma picorum* Rudolphi, 1819; *Capillaria picorum* (Rudolphi, 1819) Travassos, 1915; *Pseudocapillaria picorum* (Rudolphi, 1819) Moravec, 1982; *Capillaria caudinflata* sensu Ryšavý (1957); *Trichosoma picorum* Leidy, 1986; *Capillaria leidyella* Travassos, 1915; *Trichosoma picorum* Leidy, 1856, nec Rudolphi, 1819.

KEY TO THE DETERMINATION OF SPECIES OF THE GENUS *ORNITHOCAPILLARIA*

1. Spicule up to 1.2 mm long, with hook-like distal end. Parasites of birds of the — Spicule up to 1 mm long or longer; order Passeriformes... *O. ovopunctata* distal end of spicule straight, markedly rounded or pointed. Parasites of birds of the orders Piciformes, Falconiformes, and Strigiformes (in Nearctic region also Passeriformes) 2
2. Vulval appendage of female markedly tubular to slightly bell-shaped, of approximately the same width along its whole length, always longer than wide. Parasites of birds of the orders Piciformes, Falconiformes, and Strigiformes 3
- Vulval appendage of female with a wide cuticular base, in form of a narrowed tube. Cuticular swelling in the vulva vicinity longer than the tubular appendage proper. Parasites of birds of the order Passeriformes *O. quiscalis*
3. Parasites of birds of the order Piciformes. Spicule more than 1 mm (1.0—1.6 mm) long *O. picorum*
- Parasites of birds of the orders Falconiformes and Strigiformes. Spicule less than 1 mm (0.8—0.9 mm) long *O. cylindrica*

НОВЫЙ РОД КАПИЛЛЯРИИД ОТ ПТИЦ, *ORNITHOCAPILLARIA* GEN. N. (NEMATODA: CAPILLARIIDAE)

В. Баруш и Т. П. Сергеева

Резюме. Описан новый род капилляриид, относящийся к семейству Capillariidae и подсемейству Baruscapillariinae и дан его диагноз. Типичным видом рода является *Ornithocapillaria ovopunctata* (Linstow, 1893) comb. n. В состав нового рода входят также виды *O. cylindrica* (Eberth, 1863) comb. n., *O. quiscalis* (Read, 1949) comb. n. и *O. picorum* (Rudolphi, 1819) comb. n. Род характеризован сравнительно большой мембрановидной псевдобурсой, формой подпирания псевдобуры отростков и вульвальным отростком у самок. Род включает только виды, паразитирующие в кишечнике птиц отрядов Passeriformes, Falconiformes, Strigiformes и Piciformes.

REFERENCES

- ACOSTA J., HIDALGO DE TRUCIOS S., MARTINEZ GOMEZ F., 1981: Primera cita en España de *Capillaria ovopunctata* (Nematoda: Trichuriidae). *Revista Iber. Parasitol.* 41: 391—395.
- BARUŠ V., 1964: The species of *Capillaria* Zeder, 1800 and *Thominx* Dujardin, 1845 (Nematoda, Trichocephaloidea) in Strigiformes and Falconiformes (Aves) in Czechoslovakia. *Čs. Parasitol.* 11: 51—64.
- , 1966a: Nematodos parásitos de aves en Cuba. Parte I. Poeyana (La Habana), serie A, 22: 1—37.
- , 1966b: Parasitic nematodes of birds in Czechoslovakia. I. Hosts: Columbiformes, Piciformes and Strigiformes. *Folia parasitol.* 13: 7—27.

- , 1969: Nematodes parasitic in birds of Cuba. *Acta Soc. zool. bohemoslov.* 33: 193—210.
- , DANIEL M., 1976: Capillariids (Nematoda: Capillariidae) from passeriform birds of Nepal. *Folia parasitol.* 23: 105—110.
- , GARRIDO O. H., 1968: Nematodes parasitic in birds of the order Passeriformes in Cuba. *Folia parasitol.* 15: 147—160.
- , SERGEEVA T. P., 1989a: Capillariids parasitic in birds in the Palearctic region (1) Genus *Capillaria*. *Acta Sci. Nat. Brno* 23 (3): 1—50.
- , —, 1989b: Capillariids parasitic in birds in the Palearctic region (2) Genera *Eucoleus* and *Echinocoleus*. *Acta Sci. Nat. Brno* 23 (6): 1—47.
- , —, 1990: A new genus of capillariids from birds, *Tridentocapillaria* gen. n. (Nematoda: Capillariidae). *Folia parasitol.* 37: 67—75.
- BOYD E., 1951: A survey of parasitism of the starling *Sturnus vulgaris* L., in North America. *J. Parasitol.* 37: 56—84.
- CANNON D. G., 1939: On the parasites of the small intestine of the European starling, *Sturnus vulgaris*, in Quebec. *Can. Field Naturalist* 53: 40—42.
- CHIRIAC E., RANG C., RANG V., MIRON V., OPRISAN R., 1975: Ian Moriana contributii la cunoasterea helmintilor pasarilor salbatice din Romania. *Stud. si comun. Mus. Sti. natur. Bucur. biol. anim.* 8: 17—29.
- DUJARDIN F., 1845: Histoire naturelle des helminthes ou vers intestinaux. Paris, XVI + 654 + 15 pp.
- EBERTH C. J., 1863: Untersuchungen über Nematoden. Leipzig, 77 pp.
- FREITAS J. F. T., 1959: Esboço de novo arranjo sistemático para os nematódeos capillariíneos (Trichuroidea). *Atas Soc. Biol. Rio de Janeiro*, 3 (No. 5): 4—6.
- , ALMEIDA J., 1935: Sobre os nematoda Capillariinae parasitas de esophago e papo de aves. *Mem. Inst. Osw. Cruz* 30: 123—156.
- , LENT H., 1935: Capillariinae de animais de sangue frio (Nematoda: Trichuroidea). *Mem. Inst. Osw. Cruz* 30: 241—284.
- , MENDONÇA J. M., 1960: Novo nematódeo parasito de *Procyon cancrivorus* Cuv.: *Pearsonema pearsoni* gen. nov., sp. nov. (Trichuroidea, Capillariidae). *Atas Soc. Biol. Rio de Janeiro*, 4 (No. 5): 63—66.
- GUPTA S. P., 1960: Nematode parasites of vertebrates of East Pakistan VII. *Capillaria copyschi* sp. nov. *Can. J. Zool.* 38: 879—881.
- LEIDY J., 1856: A synopsis of Entozoa and some of their Ecto-congeners. *Proc. Acad. Nat. Sci. Philadelphia* 8: 42—58.
- LINSTOW O., 1873: Einige neue Nematoden nebst Bemerkungen über bekannte Arten. *Arch. Naturgesch.* 39: 293—306.
- LOMAKIN V. V., ROMASHOV V. V., 1987: Morphological and taxonomic analysis and phylogenetic relationships of nematodes of family Capillariidae Railliet, 1915. *Trudy GELAN* 35: 87—95. (In Russian.)
- LÓPEZ-NEYRA C. R., 1947: Generos y especies nuevas o mal conocidas de Capillariidae. *Revista Iber. Parasitol.* 7: 191—238.
- MADSEN H., 1945: The species of *Capillaria* (Nematodes, Trichinelloidea) parasitic in the digestive tract of Danish gallinaceous and anatine game birds, with a revised list of *Capillaria* in birds. *Danish Rev. Game Biol.* 1: 1—112.
- MAWSON P. M., 1956: Capillariid worms from Canadian birds. *Can. J. Zool.* 34: 163—164.
- MENDONÇA J. M., 1963: Sobre dois capillariíneos parasitos de peixes (Nematoda, Trichuroidea). *Mem. Inst. Osw. Cruz* 61: 321—327.
- METTRICK D. F., 1959: On the nematode genus *Capillaria* in British birds. *Ann. Mag. nat. Hist. (Series 13)* 2: 65—84.
- MORAVEC F., 1982: Proposal of a new systematic arrangement of nematodes of the family Capillariidae. *Folia parasitol.* 29: 119—132.
- , COSGROVE G. E., 1982: *Pseudocalliparoides xenopi* gen. et sp. nov. from the skin of the South African clawed frog, *Xenopus laevis* Daud. (Nematoda: Capillariidae). *Rev. Zool. afr.* 96: 129—137.
- , PROKOPIĆ J., SHLIKAS A. V., 1987: The biology of nematodes of the family Capillariidae Neveu-Lemaire, 1936. *Folia parasitol.* 34: 39—56.
- READ C. P., 1949: Studies of North American helminths of the genus *Capillaria* Zeder, 1800 (Nematoda). III. Capillariids from the lower digestive tract of North American birds. *J. Parasitol.* 35: 240—249.
- RUDOLPHI C. A., 1819: Entozoorum synopsis cui accedunt mantissa duplex et indices locupletissimi. Berolini, 811 pp.
- RYŠAVÝ B., 1957: New findings on helminth fauna of birds in Czechoslovakia. *Čs. Parasitol.* 4: 299—329. (In Czech.)
- SERGEEVA T. P., 1986: Systematic and taxonomy of capillariids (Nematoda: Capillariidae) in birds of the Palearctic region (recent opinions). In: *Int. Helminthol. Symp. (Helminths, Helminthoses, Environment)*, Czechoslovakia, Oct. 1986, p. 33.
- SHLIKAS A. V., KASPARSONE Z. V., 1979: Studies on the biology of the nematode *Capillaria ovopunctata*. In: *Teoreticheskie i prakticheskie voprosy parazitologii. Mat. VIII nauch. koord. konf. po probl. parazitologii v Pribaltike, Tartu 1979*, pp. 124—125. (In Russian.)
- SKRYABIN K. I., SHIKHOLOVA N. P., ORLOV I. V., 1957: Trichocephalids and capillariids of animals and man and the diseases caused by them. *Osnovy nematodo-*

- dologii 6, Izd. AN SSSR, Moscow, 587 pp. (In Russian.)
- STOSSICH M., 1890: Il genere *Trichosoma* Rudolphi. Lavoro monografico — Trieste, 38 pp.
- TRAVASSOS L., 1915: Contribucoes para o conhecimento da fauna helmintologica brasileira. Sobre as especies brasileiras de genero *Capillaria* Zeder, 1800. Mem. Inst. Osw. Cruz 7: 146—172.
- WAKELIN D., 1966: The genus *Capillaria* Zeder, 1800 (Nematoda) in British passerine birds. Parasitology 56: 161—170.
- WALTON A. C., 1923: Some new and little known nematodes. J. Parasitol. 10: 59—70.
- YORKE W., MAPLESTONE P. A., 1926: The nematode parasites of vertebrates. J. and A. Churchill, London, 307 pp.

Received 14 July 1989.

V. B., Ústav systematické a ekologické biologie ČSAV,
Květná 8, 603 65 Brno, ČSFR