SYSTEMATIC STATUS OF THOMINX PLATYRRHINORUM
BARUŠ, 1961 (NEMATODA: CAPILLARIIDAE)

F. MORAVEC and V. BARUŠ

Institute of Parasitology, Czechoslovak Academy of Sciences, Branišovská 31,
370 05, České Budějovice, Czechoslovakia and Institute of Systematic and Ecological Biology,
Czechoslovak Academy of Sciences, Brno, Czechoslovakia

Abstract. A reexamination of the type specimens of Thominx platyrrhinorum Baruš, 1961, described
from the small intestine of the monkey Cebus capucinus from a zoo in Czechoslovakia, has revealed
that it belongs to the genus Aonchotheca López-Neyra, 1947. The minute refractile formations on the
surface of the proximal part of the spicular sheath, originally described as spines in this species, are
also present in Aonchotheca annulosa parasitizing murid rodents. Since there are no substantial
morphological or biometrical differences between these two species, as indicated by the description of
A. annulosa specimens originating from Apodemus sp. from Czechoslovakia, T. platyrrhinorum
is considered to be a synonym of A. annulosa (Dujardin, 1845). Another synonym of the latter is the
species originally described as Thominx sodovskoi (sic) (= sodovskajae) Morozov in Skryabin et al.
1957. Armocapillaria Gagarin et Nazarova, 1966, earlier considered a synonym of Pterothominx
Freitas, 1959, is now reected as a subspecies of Aonchotheca López-Neyra, 1947. Armocapillaria
moschiferi and Capillaria brocchieri are transferred to Aonchotheca as A. (A.) moschiferi (Gagarin et

In 1961, Baruš described a new species of trichuroid nematodes, Thominx platyrrhinorum, from the small intestine of the monkey, Cebus capucinus L., kept in captivity in a zoo in Prague, Czechoslovakia. These nematodes have not been recorded from monkeys since and the species in question has not been even included in the survey of capillariids parasitizing simians that was recently published by Justine (1988). In view of the fact that Thominx Dujardin, 1845 is not presently considered a valid genus (see Moravec 1981) and because T. platyrrhinorum has not been assigned by Moravec (1982) to any genus of his newly proposed system of capillariid nematodes, a reexamination of the type specimens of this species was desirable. Moreover, the morphometric similarity of T. platyrrhinorum with the species Aonchotheca annulosa (Dujardin, 1845) required also a detailed study of nematodes of the latter species from rodents.

MATERIALS AND METHODS

T. platyrrhinorum: — Type specimens of this species (2 ♂♂ + 2 ♀♀ — all syntypes), mounted as
permanent preparations in glycerine-jelly, were studied; these are deposited in the collections of
the Institute of Parasitology, Czechoslovak Academy of Sciences, in České Budějovice (Helm.

A. annulosa: — Ten specimens (5 ♂♂ + 5 ♀♀) from the small intestine of Apodemus sp. collected
in Kléc (southern Bohemia), Czechoslovakia, in 1985, were studied. The nematodes were fixed
and stored in 4 % formalin and for examination they were cleared with glycerine. Now they have
been deposited in the collections of the Institute of Parasitology, Czechoslovak Academy of

All drawings were made with the aid of a camera lucida. Measurements are given in millimetres.
RESULTS

A. Reexamination of the type specimens of *T. platyrrhinorum*:

All the specimens (syntypes) of *T. platyrrhinorum* were mounted as total preparations and, therefore, it was not possible to study all features in detail. It was possible, however, to confirm that the morphology of these specimens was in full accordance with the original description and drawings of this species given by Baruš (1961). The only difference was the slightly subterminal position of the female anus (originally reported as terminal) and the proximal part of the spicular sheath was not armed with spines, but was covered by minute, slightly sclerotized refractile formations (protuberances). The structure of the male posterior end was practically identical with that described and illustrated by Baruš (1961); only the lateral caudal alae did not extend posteriorly up to the anterior margin of the genital bursa as

Fig. 1. *Thominx platyrrhinorum* Baruš, 1961 (syntypes). A — posterior end of male, ventral view; B — posterior end of male body with evaginated spicular sheath; C — posterior end of female, sub-ventral view; D — detail of proximal part of spicular sheath; E — detail of distal part of spicular sheath.

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has been shown in Fig. 5 accompanying the original description. Eggs were too cleared, not enabling the determination of any superficial sculptture. All the morphological features and measurements (see Table 1) of *T. platyrhinorum*, as has been found in the present study of the type specimens or is evident from the original species description, indicate a conspecificity of *T. platyrhinorum* with *Aonchotheca annulosa* from rodents.

B. Redescription of *A. annulosa* from *Apodemus* sp.:

*Aonchotheca* (*Armocapillaria*) *annulosa* (Dujardin, 1845)  
Figs. 1—3

Syn.: *Calodium annulosum* Dujardin, 1845; *Thominia sadovskoi (= sadoekajae)* Morozov in Skryabin, Shkhobalova et Orlov, 1957; *T. platyrhinorum* Baruš, 1961.

**Description**: Medium sized nematodes with smooth cuticle. Lateral bacillary bands present, well visible. Head end narrow, rounded, oral papillae indistinct. Muscular oesophagus comparatively long and narrow. Stichosome consisting of single row of 34–47 medium sized, lightly coloured stichocytes; stichocytes subdivided into some 7–10 transverse annuli; nuclei of stichocytes considerably large, their nucleoli usually containing several corpuscles. Pair of small wing-like cells present at junction of oesophagus and intestine.

**Male** (5 specimens): Length of body 21.69–23.46, maximum width 0.054. Width of lateral bacillary bands 0.024–0.030. Length of entire oesophagus 6.73–8.34 (31–36% of body length), of muscular oesophagus 0.585–0.612, and of stichosome 6.15–7.73, stichocytes 37–47 in number. Distance of nerve ring from anterior extremity 0.111–0.117. Spicule long, slender, well sclerotized, with smooth surface; its proximal end slightly expanded, distal end narrow, rounded, length of spicule 1.11–1.27 (representing 4.8–5.4% of body length), its maximum width 0.006. Spicular sheath nonspinose, narrow, very long; its proximal part (approximately one fifth of its length) appearing to be densely covered by minute, slightly sclerotized refractile formations (protuberances) of irregular shape, remaining part of sheath with dense transversely striation, serrated at both sides; length of evacuated sheath 1.10–1.92, its width 0.009–0.018. Posterior end of body rounded, provided with well developed membranous bursa; bursa supported by two large subventral caudal lobes, each of them bearing one pedunculate, anteriorly directed papilla; bursa 0.018–0.021 long and 0.042 wide in ventral view. Cloacal opening subterminal. Caudal alae subventral, well developed, very long, distinctly separated from caudal bursa; length of alae 2.72–4.55, their maximum width 0.012–0.015.

**Female** (5 specimens): Length of body of gravid females 19.75–29.54, maximum width 0.082. Width of lateral bacillary bands 0.030–0.039. Length of entire oesophagus 7.25–8.30 (27–37% of body length), of muscular oesophagus 0.449–0.625, and of stichosome 7.25–8.30; stichocytes 34–46 in number. Distance of nerve ring from anterior extremity 0.084–0.129. Vulva situated 0.066–0.099 below level of end of oesophagus; anterior lip of vulva sometimes slightly elevated, vulvar appendage absent. Eggs near vulva in single row, more distant eggs in two rows. Mature eggs oval, with distinctly protruding polar plugs; egg shell two-layered, outer layer with dense, fine longitudinal and oblique wrinkles on surface; content of eggs in uterus uncleaved. Lenght of mature eggs including polar plugs 0.060–0.066, their width 0.027–0.030, and thickness of their wall 0.002–0.003. Height of whole polar plug 0.006–0.009, of its protruding part 0.003, width of plug 0.006–0.007. Anus subterminal, length of tail 0.012–0.018, tail bluntly rounded. Posterior end of ovary approximately at mid-length of rectum; rectum 0.090–0.105 long.
Fig. 2. *Aonchotheca annulosa* (Dujardin, 1845) from *Apodemus* sp. from Czechoslovakia. A — anterior end of body; B — stichosome region; C — region of vulva; D — posterior end of female; E — tail of female; F — H — eggs; I, J — posterior end of male, lateral and ventral views.
Fig. 3. Aonchotheca annulosa (Dujardin, 1845) from Apodemus sp. from Czechoslovakia. A — posterior end of male with evaginated spicular sheath; B, C — tail of male, lateral and ventral views; D, E, F — proximal, central and distal parts of spicule; G, H — anterior and posterior regions of evaginated spicular sheath.
Table 1. Comparison of measurements of *T. platyrrhinorum* and *A. annulosa*

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<tr>
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<td>No. of stichocytes</td>
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<td>Length of spicule</td>
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<td>Length of spicular sheath</td>
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<td>Length of lateral alae</td>
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<td>2.72 — 4.55</td>
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<td>Length of female tail</td>
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<td>Length of eggs</td>
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<td>0.044 — 0.064</td>
<td>—</td>
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<tr>
<td>Width of eggs</td>
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<td><em>Apodemus sylvaticus</em></td>
<td><em>Apodemus sp.</em></td>
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<td>Occurrence</td>
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<td>Israel</td>
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DISCUSSION

It has already been mentioned above that the morphology and measurements (Table 1) of Thominx platyrhinorum Baruš, 1961 as well as its localization (small intestine) in the host are identical with those in Aonchotheca annulosa, a parasite of murid rodents, and consequently we consider them conspecific. Therefore, *T. platyrhinorum* becomes a junior synonym of *A. annulosa* (Dujardin, 1845). Another synonym of the latter species is, in our opinion, *Thominx sadovskoi* (sic) (= *sadovskajae*) Morozov in Skryabin et al., 1957, which was listed in *Armocapillaria* by Gagarin and Nazarova (1966) and in *Pterothominx* by Moravec (1982).

In 1981, Moravec pointed out the invalidity of the genus *Thominx* Dujardin, 1845 which he had synonymized with *Capillaria* Zeder, 1800. Some species listed in *Thominx* e.g. by Skryabin et al. (1957) were transferred by Moravec (1982) to several other genera, but the generic appurtenance of *T. platyrhinorum* remained elucidated.

In 1966, Gagarin and Nazarova created a new genus *Armocapillaria* to accommodate their new species *A. moschiferi*. They included in it also the species *Thominx sadovskoi* (= *sadovskajae*) Morozov in Skryabin et al., 1957 (incorrectly reported as *T. sadovskoi* Morozov, 1956). The genus was characterized mainly by the presence of small sclerotized protuberances (instead of spines) on the surface of the male spicular sheath. In his new system of capillariids, Moravec (1982) tentatively assigned *Armocapillaria* as a synonym of *Pterothominx* Freitas, 1959; he remarks, however, that subsequent studies might lead to separation of *Armocapillaria* as an independent genus (all other *Pterothominx* species possess a spinose spicular sheath).

We did not study the type species of *Armocapillaria*, *A. moschiferi*, but the examination of *A. sadovskajae* (= *A. annulosa*) indicates that the minute protuberances on the spicular sheath are much less distinct formations than spines and, apparently, they have been frequently overlooked in this species. Accordingly, in our opinion, the presence of these impressive little formations can hardly be considered a generic feature. In view of the general resemblance of *A. annulosa* (syn. *A. sadovskajae*) to other species of *Aonchotheca* López-Neyra, 1947, we propose to re-rect *Armocapillaria*, to separate it from *Pterothominx*, and to consider *Armocapillaria* as a subgenus within the genus *Aonchotheca*. Accordingly, also the species *A. moschiferi* should be transferred to *Aonchotheca* as *Aonchotheca* (*Armocapillaria*) *moschiferi* (Gagarin et Nazarova, 1966) comb. n.

*A. annulosa* is a widely distributed intestinal parasite of murid rodents. It has been reported from *Rattus norvegicus* and *R. ratus* from Europe and the USSR (see Campbell 1984), but later it was frequently reported as well from *Apodemus flavicollis*, *A. sylvaticus* and *Clethrionomys glareolus* (e.g., Skryabin et al. 1957, Erhardová 1964, Tenora and Zavádil 1967, Bain and Wertheim 1981, Genov 1984, Mészáros and Stollmann 1984, Murai and Mészáros 1984) and from *Cricetus cricetus* (Mészáros 1977); Mas-Coma and Feliú (1977) reported it even from the hedgehog *Erinaceus algirus* from Spain. The record of this species (as *T. platyrhinorum*) by Baruš (1961) in monkeys confirms the ability of this parasite to occur occasionally in other mammals than rodents, also. In this connection, the possibility of its transmission to humans cannot be excluded.

Since many helminth parasites of simians are transmissible to man (and vice versa), they are of special interest to parasitologists (see e.g. Brack 1987). The same is true for several species of capillariid nematodes recorded from simians, which have recently been surveyed by Justine (1988). His list of capillariids from Primates contains *Calodium hepaticum* (Bancroft, 1893) (as *Capillaria hepatica*), *Eucoleus aerophilus*
(Creplin, 1839) (as C. aerophila), Aonchotheca philippinensis (Chitwood, Velasquez et Salazar, 1968) (as C. philippinensis), and Aonchotheca brochieri (Justine, 1988) comb. n. (as C. brochieri); he also records findings of undetermined capillariids from monkeys (Macaca spp.). Unfortunately, Justine (1988) omitted T. platyrrhinorum Barúš, 1961 as well as the record of Capillaria sp. females from the small intestine of Macacus rhesus (= Macaca mulatta) reported by Zajíček and Valenta (1958). Of the species listed by Justine (1988), A. annulosa (syn. T. platyrrhinorum) resembles only A. brochieri (Justine, 1988), a species recently described from the intestine of the chimpanzee (Pan paniscus) from Zaire. However, A. brochieri differs markedly from A. annulosa in the shape and structure of the genital bursa and papillae in male, presence of a conspicuous vulvar appendix in female, and in some other features.

We suppose that the infection with A. annulosa was acquired by monkeys in the zoo and that it was made possible due to contacts between monkeys and wild murid rodents (rats or mice) there.

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