TRICHOSTRONGYLUS CRAMAE N. SP. (NEMATODA), A PARASITE OF BOB-WHITE QUAIL (COLinus VIRGINIANUS)

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Summary

Cram (1925, 1927) incorrectly identified as T. pergracilis (now a synonym of T. tenuis) what was in reality an undescribed species in Colinus virginianus.

Trichostrongylus cramae n. sp. is proposed for T. pergracilis sensu Cram, 1927 nec Cobbold, 1873 from C. virginianus from USA. It differs from T. tenuis (Mehlis in Creplin, 1846) as regards the cuticular striation, the relative distances between the second, third and fourth bursal papillae and the configuration of the dorsal ray. Red grouse (Lagopus scoticus), the type host of T. pergracilis, was in fact found to be parasitized by T. tenuis, confirming the synonymy of T. pergracilis and T. tenuis.

Résumé : Trichostrongylus cramae n. sp. (Nematoda) parasite de Colinus virginianus.

Cram (1925, 1927) a identifié par erreur comme étant T. pergracilis, maintenant considéré comme un synonyme de T. tenuis, ce qui était en réalité une espèce non décrite parasite de Colinus virginianus.

T. cramae n. sp. est proposé pour T. pergracilis sensu Cram, 1927 nec Cobbold, 1873, parasite de C. virginianus aux États-Unis.

Cram (1925) recorded Trichostrongylus pergracilis (Cobbold, 1873) from Colinus virginianus. Subsequently, in her monograph on the nematodes of birds, Cram (1927) recog-gnized 2 species, namely Trichostrongylus tenuis (Mehlis in Creplin, 1846) from numerous birds and T. pergracilis from both C. virginianus and Lagopus scoticus. However, after having studied material from many different birds, including Phasianus colchicus, the type host of T. tenuis (as it had been settled by Stiles and Hassal, 1920), as well as material from L. scoticus, the type host of T. pergracilis, Cram and Wehr (1934) synonymized these 2 nematode species. This has been accepted widely by all subsequent authors and the difference between the trichostrongylid from C. virginianus and T. tenuis has been overlooked.

Material from C. virginianus that we studied corresponds to T. pergracilis sensu Cram (1927), and is different from T. tenuis that we examined from various European birds. In this paper a morphological comparison between them are made and a new species is proposed.

Materials and Methods

Trichostrongylus tenuis from L. scoticus British Museum of Natural History (BMNH), n° 1914 1 7 55 74, Perdix perdix (BMNH), n° 1921, 7 19 19 33, and P. colchicus Commonwealth...
Agricultural Bureaux St Albans (CAB), n° 1459, all from England and from Pavo cristatus collected in France by Neveu-Lemaire in 1936, Museum National d'Histoire Naturelle de Paris (MNHN), n° 4 MD, were studied. Trichostrongylus cramae n. sp. from C. virginianus Florida, is described.

Nomenclature of the rays is according to Chabaud et al. (1970). Measurements are in micrometers unless stated otherwise.

DESCRIPTION

Trichostrongylus tenuis (Mehlis in Creplin, 1846)

Worms from P. cristatus, P. perdix, P. colchicus and L. scoticus were consistent with the description of Cram (1927), Nagaty (1932) or Petrova (1991).

Fig. 1. — T. tenuis (A-D: from Lagopus scoticus E. from Pavo cristatus. A. Female, anterior end, lateral view showing cuticular striaation behind excretory pore. B. Ovejector, lateral view. C. Female, tail, lateral view. D. Caudal bursa, ventral view. E. Gubernaculum, ventral and lateral views.
Characteristic transverse striation starting behind the excretory pore of both sexes, and covering three- to four-fifths of the body surface; it may give the worm a crenulated appearance in that region (Fig. 1A). A ventral view of the caudal bursa, the gubernaculum, the ovejector and the female posterior extremity are illustrated in Figure 1.

Position of the second, third and fourth bursal papillae (Fig. 1, D) are different to that seen in T. cramæ (Fig. 2, E). Ratio of distance between bursal papillae 3 and 4 to that between papillae 2 and 3 are 1:2.7 (range 1:2.2-1:3.5) in 5 specimens of T. tenuis from L. scoticus (Fig. 3, A-C), 1:3.1 (range 1:2.3-1:3.8) in 5 specimens from P. perdit (Fig. 3, D-F) and 1:2.9 (range 1:2.2-1:3.9) in 6 specimens from P. cristatus (Fig. 3, G-I).

Dorsal ray branching near the apex (fig. 4, A-I), posterior to the origin of papilla 9. Configuration of the externodorsal and dorsal rays of 3 males from 3 different hosts is illustrated in Figure 4.

**Trichostrongylus cramæ n. sp.**

Syn. T. pergracilis (Cobbold, 1873) sensu Cram, 1927 pro parte. About 35-55 of cephalic region in front of excretory pore in the females bearing characteristic transverse striations (Fig. 2, A).

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Fig. 2. — T. cramæ A. Female, anterior end, lateral view showing cuticular striation in front of excretory pore. B. Female, anterior end, ventral view, excretory pore and deirids. C. Ovejector, ventral view. D. Female, tail, lateral view. E. Caudal bursa, ventral view. F. Gubernaculum, ventral and lateral views. G. Right spicule, ventral view.
Ratio of distance between bursal papillae 3 and 4 to that between papillae 2 and 3 are 1:1.5 (range 1:1.3-1:1.7) (Fig. 3, J-O).

Dorsal ray branching before origin of papilla 9 (Fig. 4, J-N).

**Holotype male:** Body 4.4 mm long; width gradually increasing from 10 at the anterior end to 50 in front of the caudal bursa. Pronounced transverse striation. Nerve ring, excretory pore and deirids 112, 130 and 135 from the anterior end of the body, respectively; esophagus 680 long. Caudal bursa illustrated in Figure 2. Spicules thick, with smooth tips, 110 long. Gubernaculum 60 long and 15 wide. Genital cone with rodlike papillae 7 and rounded papilla 0.

**Allotype female:** Body 7 mm long; width increasing from 10 at the anterior end to 50 in front of vulva. Pronounced transverse striation commencing 25 from anterior end and extending caudally for 45. Nerve ring, excretory pore and deirids 125, 145 and 155 from anterior end of body, respectively. Esophagus 680 long. Vulva as a simple transverse slit, situated in posterior fifth of body, 5.7 mm from anterior end. Didelphic. *Vagina vera* separating vestibule into 2 parts of about equal length; anterior branch 130 long and posterior branch 120 long. Anterior sphincter 28 × 40;

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**Fig. 3.** — Positions of the ray papillae. A-C. *T. tenuis* in *Lagopus scoticus.*

[Images of ray papillae]
TRICHOSTRONGYLUS CRAMAE N. SP.


anterior infundibulum 70 long; anterior uterus 750 long, containing 19 eggs. Posterior sphincter 30 × 40; posterior infundibulum 65 long; posterior uterus 750 long containing 18 eggs. Eggs ellipsoidal, thin-shelled and 70 × 30. Eggs near vulva containing morula-stage embryos. Tail 70 long and 22 wide at level of anus, and with a blunt tip (Fig. 2).

Taxonomic summary

Specimens deposited: Holotype male and allotype female (USNM) no. 82395; paratypes, 4 males and 6 females (MNHN) no. 3 MD.

Type host: Colinus virginianus (Linné, 1758).

Habitat: Cecum.

Locality: Florida, Leon County, Tail Timbers Research Station.

Remarks

Morphometric characters are the same in the 2 species and they cannot be used for discrimination. From the above descriptions, it is apparent that at least 3 characteristics can be used to distinguish T. tenuis from T. cramae: the portion of body surface covered by the transverse striations, the ratio of the distance between bursal papillae 3 and 4 to that between papillae 2 and 3, and the configuration of dorsal ray.

The last characteristic was used in the dichotomous key proposed by Cram (1927); she illustrated the differences in the position of the bursal papillae, and named the specimens from Colinus and Lagopus: pergracilis and the specimens from others birds: tenuis. It is thus certain that she distinguished the 2 species. However the name T. pergracilis cannot be adopted again, because the type host, L. scoticus, is in fact parasitized by T. tenuis. Similarly, the name Strongylus serratus used by von Linstow (1876), is inappropriate because the type host, Anser domesticus, is also parasitized by T. tenuis (see Railliet, 1893). We therefore propose the name Trichostrongylus cramae n. sp. for the parasite from Colinus virginianus.

The present work was done and written independently of the experimental work, which will be published elsewhere.

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**LITERATURE CITED:**


