REDESCRIPTION AND SYNONYMY OF THE SPECIES
PARACUARIA TRIDENTATA (LINSTOW, 1877) — NEMATODA,
ACUARIIDAE

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Abstract. The species Filaria tridentata Linstow, 1877 was redescribed after the original material of Linstow. We confirmed exactly that Paracuaria macdonaldi Rao, 1951 is in synonymy to this species. The genus Paracuaria Rao, 1951 is a good systematic category, determined by the typical species P. tridentata (Linstow, 1877). In Cuba, this species was first recorded from the host Larus argentatus. A survey of the dimensions of the female worm and a list of its definitive host has been added.

While studying the helminth fauna of birds of the order Lariformes in Cuba, we found a total of 14 specimens of nematodes (two male and 12 female worms) of the family Acuariidae, genus Paracuaria Rao, 1951 in the host Larus argentatus. Rao (1951) described from this host — L. argentatus — in Canada a new nematode species (he erected for it also a new genus) Paracuaria macdonaldi. Findings of nematodes in birds of the order Lariformes and recorded under this designation were published by Leonov (1958), Chabaud and Czaplinski (1961), Shigin (1961), Kurochkin and Zaoblotskiy (1961) a.o. The marked morphological and metric conformity between P. macdonaldi and the species S. tridentata (Linstow, 1877) = syn. Filaria tridentata Linstow, 1877 = Spiroptera tridentata (Linstow, 1877), which at that time was listed to the genus Streptocara Railliet, Henry et Sisoff, 1912, was first pointed out by Kurochkin and Zaoblotskiy (1961) and Dubinin (1961). Later, Leonov, Tsimbalyuk and Belogurov (1963) and also Kurochkin and Ryzhikov (1964) arrived independently at the same conclusion and consider P. macdonaldi Rao, 1951 synonomic to the species S. tridentata (Linstow, 1877), listing, therefore, this species to the genus Paracuaria. The second species relisted by these authors from the genus Streptocara to the genus Paracuaria was the species P. somateriae (Ryjikov, 1960) = syn. Streptocara somateriae Ryjikov, 1960. In their monograph on nematodes of the superfamily Acuaroidea, Skrjabin, Sobolev and Ivashev (1965) are again dealing with the problem of synonymy of both species (P. tridentata and P. macdonaldi). Although in agreement with the deductions of Kurochkin and Ryzhikov (1964), they do not accept the designation P. tridentata (Linstow, 1877) as a valid species designation, but list it in synonymy with the name P. macdonaldi Rao, 1951, basing on the assumption that Linstow's original material of the species F. tridentata has not been preserved.

The revision of the original material of Linstow has definitively solved this nomenclatoric and systematic problem, to which our present study has been dedicated.
MATERIAL

We confronted our nematode material of the genus Paracuaria from the host Larus argentatus with the original material of Linstow, which Skrjabin, Sobolev and Ivashkin (1965) had considered lost, but which had been preserved in the collections of the Humboldt Museum in Berlin. Our thanks are due to Dr. G. Hartwich for making this material available. The material consisted of a whole-mount preparation of a complete female nematode (mounted in glycerin jelly and framed in Noyer lacquer). The label of the preparation, probably written by Linstow himself, reads: No. Q 3925, Filaria tridentata aus Colymbus arcticus. There are no data on the location in the host and the locality, in which the host was found. The material itself is well preserved. In the following text we give its redescription, adding also the synonymy of this species.

Paracuaria tridentata (Linstow, 1877)

Synonyma: Filaria tridentata Linstow, 1877; Spiroptera tridentata (Linstow, 1877); Streptocara tridentata (Linstow, 1877); Paracuaria macdonaldi Rao, 1951.

Host: Colymbus arcticus.

Description (after Linstow's material): A yellow-brownish nematode (probably under the influence of the fixation and preparation medium). Cuticle with distinct transverse striation. Anterior part (on the preparation in dorso-ventral position) round the mouth with two lateral pseudolabia with projecting peaks. Length of body 16.55 mm, maximum width 0.249 mm. Width of anterior part at the level of the pseudolabia 0.035 mm. At the base of the pseudolabia two pairs of slender cuticular formations, length 0.011 mm, maximum width 0.005 mm. Pharynx long, cylindrical, 0.163 mm long. Oesophagus divided into anterior muscular part, length 0.78 mm and posterior glandular part, length 1.87 mm. Nerve ring encircles the beginning of the glandular oesophagus, its distance from the anterior part of the body is 0.175 mm. Tridenate cervical papillae situated at a distance of 0.195 mm from anterior part. The situation of the vulva and excretory pore could not be exactly determined. Posterior end of body gradually attenuated, ending in a rounded, slightly dorsally directed peak. On the preparation the posterior extremity situated laterally, slightly damaged from the ventral side. Anus situated at a distance of 0.156 mm from the tip of the tail. Eggs contain a coiled larva, size of eggs 0.035–0.039 mm by 0.015 by 0.019 mm.

On the grounds of Linstow's preserved type of the species Filaria tridentata Linstow, 1877 = Paracuaria tridentata (Linstow, 1877) we were able to identify with precision this species and also its synonymy. We are, therefore, placing the name P. macdonaldi Rao, 1951 to the name P. tridentata (Linstow, 1877) as a younger synonym. P. tridentata (Linstow, 1877) becomes thus the name of the typical species of the genus Paracuaria. To retain the name P. macdonaldi for designating the typical species of this genus, as used by Skrjabin, Sobolev and Ivashkin (1965) is against the rules of the International Code of Zoological Nomenclature (chapt. VI, art. 23 and chapt. XV, art. 67).
Fig. 1. *Paracuaria tridentata* (Linstow, 1877). A, B — after the original material by Linstow (1877) from the host *Colymbus arcticus*; C—G — after our own material from the host *Larus argentatus*. A, D — anterior portion (ventral view); B, C — posterior portion (lateral view); E — anterior

While studying the morphology of *P. tridentata* we observed on the anterior extremity of this nematode small epaulet-shaped formations (after Chabaud and Czaplinski 1961—homologous bases of the cuticular cordons of nematodes of the family *Acuariidae*), which are characteristic for the genus *Paracuaria* Rao, 1951
Table 1. The most important metric data of the female nematodes *Paracuaria tridentata* (Linstow, 1877) after our own measurements in comparison with the data by **Rao (1951)** and **Chabaud and Czaplinski (1961)** — dimensions in mm.

<table>
<thead>
<tr>
<th>Species</th>
<th>Authors After Linstow's material</th>
<th>Our material</th>
<th>Authors After Rao (1951)</th>
<th>Authors After Chabaud and Czaplinski (1961)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Columbus arcticus</em></td>
<td><em>Larus argentatus</em></td>
<td><em>Larus argentatus</em></td>
<td></td>
</tr>
<tr>
<td>Length of body</td>
<td>16.55</td>
<td>15.66—17.62</td>
<td>7.0—20.0</td>
<td>16.4</td>
</tr>
<tr>
<td>Max. width of body</td>
<td>0.249</td>
<td>0.234—0.288</td>
<td>0.08—0.17</td>
<td>0.175</td>
</tr>
<tr>
<td>Length of pharynx</td>
<td>0.163</td>
<td>0.152—0.163</td>
<td>0.15—0.180</td>
<td>0.162</td>
</tr>
<tr>
<td>Length of muscular oesophagus</td>
<td>0.780</td>
<td>1.01</td>
<td>0.70—1.14</td>
<td>0.750</td>
</tr>
<tr>
<td>Length of glandular oesophagus</td>
<td>1.87</td>
<td>2.06—2.84</td>
<td>1.45—2.20</td>
<td>2.136</td>
</tr>
<tr>
<td>Distance of vulva from anterior extremity</td>
<td>—</td>
<td>9.15—10.68</td>
<td>4.93—11.30</td>
<td>6.5</td>
</tr>
<tr>
<td>Distance of nerve ring from anterior extremity</td>
<td>0.175</td>
<td>0.195—0.206</td>
<td>0.05</td>
<td>0.2</td>
</tr>
<tr>
<td>Distance of cervical papillae from anterior extremity</td>
<td>0.195</td>
<td>0.195—0.241</td>
<td>0.08</td>
<td>0.218</td>
</tr>
<tr>
<td>Length of rudimental cuticular cordons</td>
<td>0.011</td>
<td>0.011—0.015</td>
<td>0.015—0.020</td>
<td>—</td>
</tr>
<tr>
<td>Width of rudimental cuticular cordons</td>
<td>0.005</td>
<td>0.004—0.006</td>
<td>0.002—0.004</td>
<td>—</td>
</tr>
<tr>
<td>Distance of anus from posterior extremity</td>
<td>0.156</td>
<td>0.148—0.195</td>
<td>0.12—0.14</td>
<td>0.175</td>
</tr>
<tr>
<td>Dimension of eggs</td>
<td>0.035—0.039 × 0.015—0.019</td>
<td>0.038—0.041 × 0.016—0.020</td>
<td>0.035—0.040 × 0.018—0.021</td>
<td>0.040 × 0.019</td>
</tr>
</tbody>
</table>
and which we consider in conformity with other authors a valid systematic category. Linstow (1877) probably did not attach any systematical significance to these small cuticular formations on the anterior portion of the nematode’s body and, therefore, did not mention them in his description.

Our finding confirms that Leonov, Tsimbalyuk and Belogurov (1963) and Krochkin and Ryzhikov (1964) were correct in their assumption on the synonymy of Streptocara tridentata (Linstow, 1877) and Paracuaria macdonaldi Rao, 1951. Krochkin and Ryzhikov (1964) confronted the material, collected by various authors and deposited in the collections of the Helminthological Laboratory of the Academy of Sciences of the U.S.S.R., with the material from the collections of the Helminthological Institute in Moscow, designated Streptocara tridentata (Linstow, 1877) or Paracuaria macdonaldi Rao, 1951, finding it concordant in all instances.

Our material of nematodes of the genus Paracuaria Rao, 1951 from the host Larus argentatus, locality Isabella de Sagua (Cuba, province Las Villas), is morphologically (see Fig. 1C—G) and metrically (Tab. 1) in full conformity with the original material of Linstow’s P. tridentata and also with the redescriptions of this species by other authors, regardless to the designation Streptocara tridentata (Linstow, 1877) or Paracuaria macdonaldi Rao, 1951. All the data concerning the location in the organism of the definitive hosts are conform in all descriptions. The nematode P. tridentata parasitizes under the cuticle of the muscular stomach and only in solitary instances also in the oesophagus. The geographical distribution is very wide, depending on the distribution of the definitive hosts, principally birds of the order Colymbiformes, Lariformes and rarely also Anseriformes. The typical host is Colymbus arcticus.

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**LIST OF UP TO DATE KNOWN DEFINITIVE HOSTS OF P. TRIDENTATA (LINSTOW, 1877) — LITERARY REVIEW**

**Colymbiformes**

1. *Colymbus arcticus* — Linstow (1877); Kontrimavichus and Bakhmeteva (1960).

2. *C. stellatus* — Belopolskaja (1952); Kontrimavichus and Bakhmeteva (1960).

**Lariformes**

1. *Larus canus* — Belopolskaja (1952); Shigin (1954); Leonov (1958); Dubinin (1961); Krochkin (1964).

2. *L. argentatus* — Rao (1951); Belopolskaia (1952); Leonov (1958); Chabaud and Czaplinski (1961); Dubinin (1961); Turemuratov (1962) and our findings.


9. *L. ridibundus* — Linstow (1877); Shigin (1954); Dubinin (1961); Turemuratov (1962); Guidal (1964).


REFERENCES


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