

Zeitschrift: Acta Tropica
Herausgeber: Schweizerisches Tropeninstitut (Basel)
Band: 44 (1987)
Heft: 1

Artikel: "Trypanosoma (Schizotrypanum)" sp. indet. from a Maltese bat : short communication
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DOI: <https://doi.org/10.5169/seals-313824>

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Trypanosoma (Schizotrypanum) sp. indet. from a Maltese bat

Short communication

J. R. BAKER, G. E. MEWIS

In the summer of 1979 a male lesser mouse-eared bat, *Myotis blythi oxygnathus* Monticelli, was obtained from a cave in southeast Malta, about 2.4 km south of Zejtun (14° 33'E, 35° 51'N). The blood of this bat contained numerous trypanosomes belonging to the subgenus *Schizotrypanum* (Fig. 1). Pieces of heart, skeletal muscle, spleen, liver, lung, kidney and small intestine were fixed with formalin, embedded in wax, sectioned and examined after various staining procedures.

Aggregations of amastigotes were found in cardiac muscle and skeletal muscle cells (Figs. 2 and 3), and in the outer longitudinal smooth muscle fibres surrounding the gut (Fig. 4). There was no obvious wall other than the host cell wall surrounding these pseudocysts.

Two species of *Schizotrypanum* have been reported from blood of bats in Europe – *T. dionisii* (with two known subspecies) and *T. vespertilionis* (see Taylor et al., 1982). The haematozoic trypomastigotes of these species are indistinguishable, but they can be differentiated morphologically in vitro culture and biochemically. Reports of fixed tissue stages of these parasites are rare.

Chatton and Courrier (1921a, b) described large "cysts", up to 200 µm in diameter, surrounded by a thin fibrous capsule and containing epimastigotes and structures identified as hypertrophied host cell nuclei, in connective tissue of *Pipistrellus pipistrellus* from Alsace. Rodhain and Henry (1942) recorded similar "cysts" (mainly in gastric mucosa) from *P. pipistrellus* and *Eptesicus serotinus* from Belgium. Molyneux and Bafort (1971) saw "cysts" containing amastigotes in cardiac and skeletal muscle, and gut wall, of a *P. pipistrellus* from England; the cysts were of 2 types, one spherical with a thick wall and containing hypertrophied host cell nuclei, and the other, irregularly elongated, without wall or nuclei. Gardner (1986) observed structures, resembling the walled cysts described by Molyneux and Bafort (1971), in skeletal and diaphragmatic muscle of 2 *P. pipistrellus* from England. The trypanosomes infecting the bats studied by Rodhain and Henry (1942) were ascribed to *P. "pipistrelli"*, a synonym of *T. dionisii*, and can be definitely identified as this species by their morphology in vitro. The parasites in at least one of the bats in which Gardner (1986) saw tissue stages were also *T. dionisii* (on the basis of morphology in culture and buoyant density of deoxyribonucleic acid). The pseudocysts described by us resemble the irregular, elongate forms seen by Molyneux and Bafort (1971), and can perhaps be ascribed to *T. vespertilionis*, assuming that Molyneux's and Bafort's (1971) bat was infected with both species. Our material could not be specifically identified with certainty in the absence of living trypanosomes.

Pseudocysts, without a thick wall, have been described by Bower and Woo (1981) from heart muscle of a bat experimentally infected with *T. hedricki*, and from cardiac and gut muscle of another experimentally infected with *T. myotis*; their illustration of the intestinal pseudocyst of the latter species closely resembles our material. However, *T. hedricki* and *T. myotis* have been recorded from bats in Canada only.

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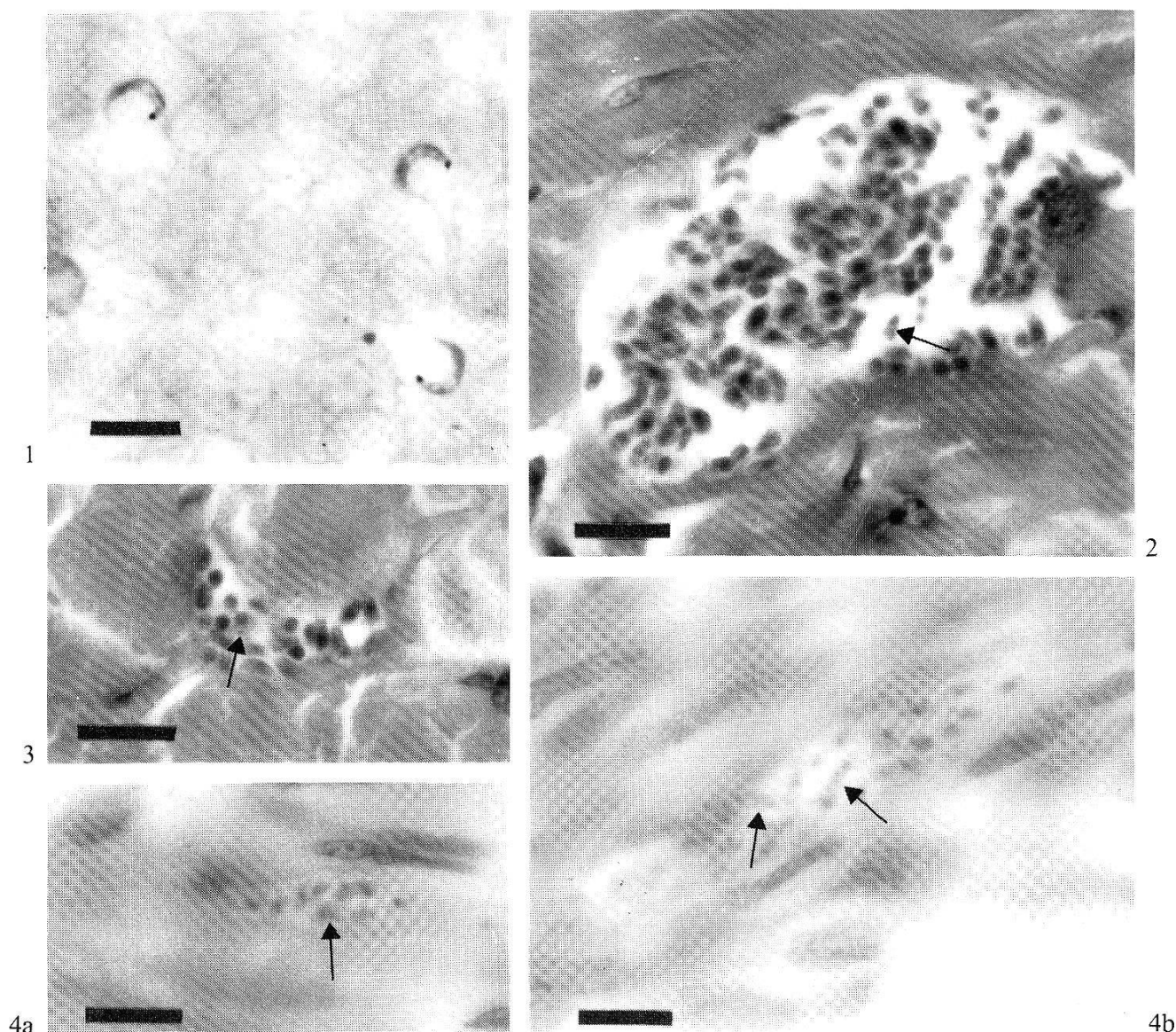


Fig. 1. *Trypanosoma* (*Schizotrypanum*) sp. indet. in thick blood film from *Myotis blythi oxygnathus* (Giemsa's stain; scale = 10 μ m).

Figs. 2–4. Pseudocysts of *T.* (*Schizotrypanum*) sp. indet., containing amastigotes, in sections of organs of the same *M. b. oxygnathus* (formalin fixation, haematoxylin and eosin staining; scale = 10 μ m). Organisms with visible kinetoplasts are indicated by arrows.

Fig. 2. Cardiac muscle. Fig. 3. Skeletal muscle. Figs. 4a and b. Small intestine.

Acknowledgments. We thank Miss S. Ryall for staining sections, and Mr. P. G. Ainsworth for printing photomicrographs.

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