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BEETLES AS INTERMEDIATE HOSTS OF CESTODES OF THE FAMILY HYMENOLEPIDIDAE

During studies of beetles of the family Carabidae, assumed to be intermediate hosts of different cestode species, parasitizing terrestrial birds in southern Bohemia, several beetle species were experimentally infected with mature eggs of the species *Variolepis crenata* Goeze, 1782 and *V. farciminosa* Goeze, 1782, obtained from *Garrulus glandarus*. According to our results, only the beetle species *Pterostichus madidus* Fabr. and *Carabus hortensis* L. were positive.

15 days after the experimental invasion, the beetles were examined in post mortem. Cysticercoids of *V. crenata*, V. *farciminosa* and of another undetermined cestode species of the family Hymenolepididae were found in their body cavities. All three cysticercoid types are described and figured in the following text.

1. Cysticercoid of *Variolepis crenata* Goeze, 1782

Fig. 1

Description: Cysticercoid of oval shape, length 0.300–0.374 mm, width 0.237 mm. Width of scolex 0.195–0.202 mm, length of all four oval suckers 0.097 mm, width 0.078 mm; length of rostellum 0.095–0.105 mm, width 0.074 mm, armed with 10 hooks on one row, length 0.023 mm. Length of tail 0.84–0.89 mm, width 0.04–0.15 mm. Calcareous corpuscles distributed evenly around scolex. Location: body cavity of *Carabus hortensis L.*.

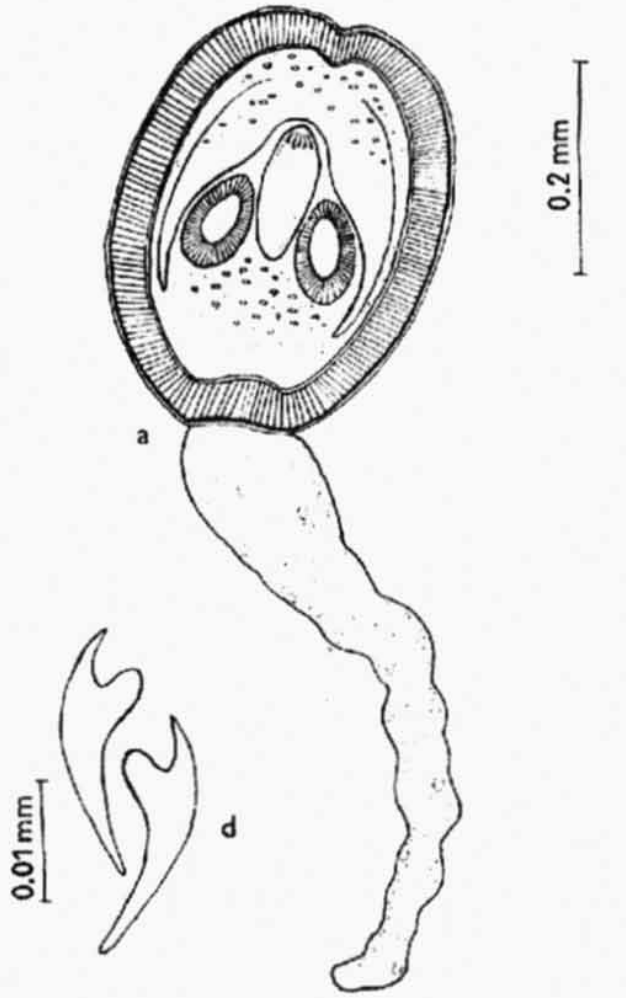

Fig. 1. *Variolepis crenata* – a – cysticercoid; b – hooks.

2. Cysticercoid of *V. farciminosa* Goeze, 1782

Fig. 2

Description: Oval cysticercoid, length 0.39 to 0.40 mm, width 0.35 mm, covered with a wall 0.038–0.042 mm thick. Scolex 0.220–0.234 mm wide, 0.210–0.218 mm long, with four oval suckers measuring 0.085–0.105 mm in diameter. Rostellum 0.140–0.150 mm long, 0.090 wide, armed with 10 hooks in one row, length of hooks

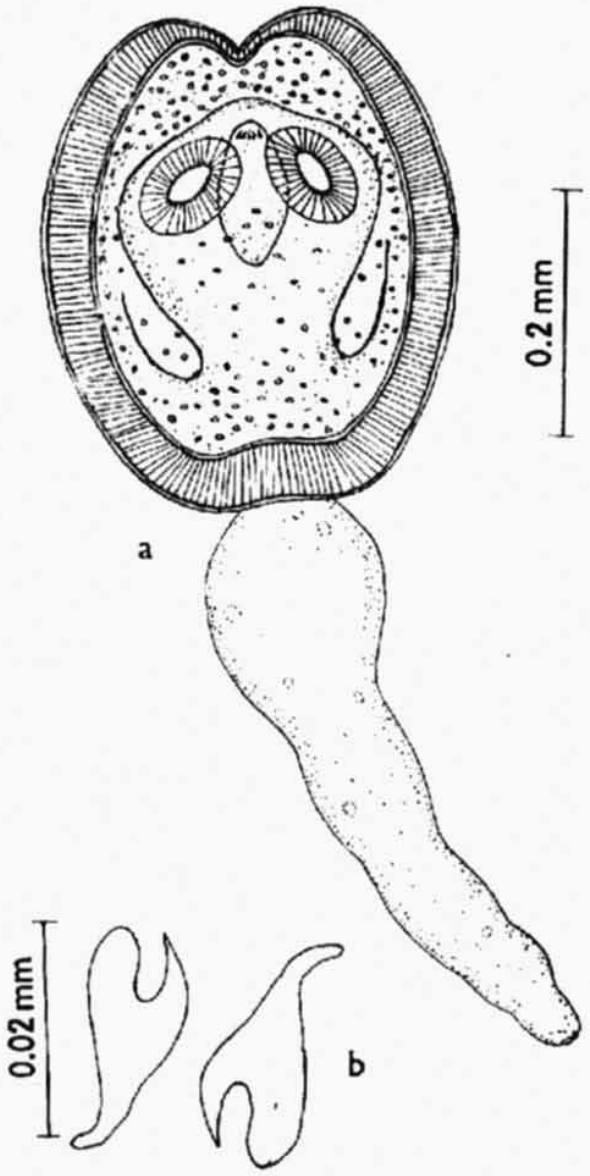

Fig. 2. *Variolepis farciminosa* — a—cysticercoid; b — hooks.

0.019—0.023 mm; tail 0.390—0.420 mm long, 0.117—0.155 mm wide. Calcareous corpuscles concentrated mostly in anterior extremity. Location: body cavity of *Pterostichus madidus* Fabr.

3. Cysticercoid sp. Fig. 3

Description: Cysticercoid oval, length 0.390 mm, width 0.360 mm, surrounded by a wall 0.052 mm thick. Length of scolex 0.220—0.234 mm, width 0.250—0.253 mm, bearing 4 oval suckers, length 0.130 mm, width 0.082 mm. Rostellum 0.136 mm long, 0.085 mm wide, armed with 10 hooks in one row, length of hooks 0.023 mm. Tail 0.620—0.660 mm long, 0.136—0.058 mm wide. Calcareous corpuscles distributed almost evenly around scolex. Location: body cavity of *Carabus hortensis* L. This cysticercoid may have possibly been present in the host before the experimental invasion. All characteristic signs

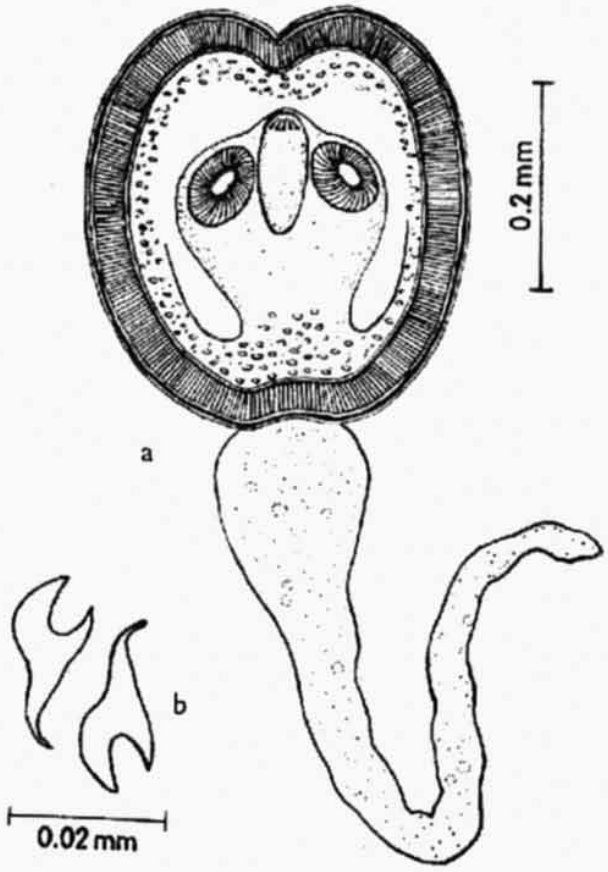

Fig. 3. *Cysticercoid* sp. — a — cysticercoid; b — hooks.

indicate that the cysticercoid belongs to the family Hymenolepididae, but the species could not be determined precisely.

Discussion. Cysticercoids of *Variolepis crenata* were first recorded from *Geotrupes sylvaticus* by Linstow, (Arch. Mikroscop. Anat. 42: 442—443 1893). Dutt and Mehra (Parasitol. 52: 387—400, 1962) found cysticercoids of *V. farciminosa* in Orthoptera, grasshoppers (*Acrotylus humbertianus* Sauss., *Acrida exaltata* Walk., *Oedaleus abruptus* Thunb., *Crotogonus* sp. and *Aiolopus* sp.) but, judging from the drawing of the hooks and from the descriptions, this cysticercoid seems to belong to *Variolepis crenata* and not to *V. farciminosa*.

Kisielewska (Acta parasit. Polon. 9: 331—369, 1961) noticed a cysticercoid resembling that of *Variolepis farciminosa* in *Silpha sinuata*, but did not describe it.

Our findings of cysticercoids of *Variolepis crenata* and *V. farciminosa* in beetles (Carabidae) suggest the wide range of intermediate hosts of these cestodes and also the possibility of other insect groups participating in the life cycle of the cestodes.

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