

## ***PSEUDHYMENOLEPIS TURKESTANICA* SP. N. (CESTODA: HYMENOLEPIDIDAE), A NEW CESTODE FROM SHREWS**

V. V. TKACH\*, V. P. VELIKANOV\*\*

### SUMMARY

An illustrated description of the *Pseudhymenolepis turkestanica* sp. n., a new cestode from piebald shrew (*Diplomesodon pulchellum*) from Middle Asia is given. *P. turkestanica* differs from the most similar species *P. papillosa* Hunkeler, 1970 by the mea-

asures of the scolex and rostellum, the number of rostellar hooks and the size of embryonic hooks. *P. turkestanica* is considered as a specific parasite of *D. pulchellum*.

### RÉSUMÉ : *Pseudhymenolepis turkestanica* sp. n. (Cestoda, Hymenolepididae), un nouveau cestode de musaraigne.

L'article contient la description illustrée d'un nouveau cestode. *Pseudhymenolepis turkestanica* sp. n. chez les musaraignes *Diplomesodon pulchellum* d'Asie Centrale. *P. turkestanica* diffère de l'espèce la plus proche, *P. papillosa*, par les dimensions du scolex

et du rostre, par le nombre des crochets du rostre ainsi que par les dimensions des crochets de l'oncosphère. *P. turkestanica* est considéré comme un parasite spécifique de *D. pulchellum*.

Cestodes of the genus *Pseudhymenolepis* Joyeux and Baer, 1935 were unknown from the territory of the USSR until recently. In the course of investigation of shrews helminths in Middle Asia a new species of *Pseudhymenolepis* was recovered from piebald shrew (*Diplomesodon pulchellum*). Morphological structure of cestodes was studied on total preparations stained with lactocarmine or iron acetocarmine (Georgiev *et al.*, 1986) and mounted permanently in Canada balsam. Some of the scolices were embedded in the Berlese medium which facilitated a precise study of the hook shape and size.

*Pseudhymenolepis turkestanica* sp. n. (Fig. 1).

Host: *Diplomesodon pulchellum* Lichtenstein, 1823 (Insectivora: Soricidae).

Localization: intestine.

Localities: shores of lake Sarykhamysh (type territory), southern part of Central Karakum desert, Sundukli sands (all places in Turkmenia); desert south to lake Balkhash (in Kazakhstan).

Material: 19 specimens, 16 specimens of cestodes were recovered from 6 of 26 studied hosts in Turkmenia and

3 specimens from 1 of 5 hosts in Kazakhstan. Holotype: preparation no. 288, *Diplomesodon pulchellum*, Sarykhamysh, 4.05.80; paratypes on the same glass (type material is preserved in the helminths collection of Dept. of Parasitology, Ukr. Acad. Sci. Institute of zoology).

The species is named according to the region where it was found.

Description (measurements of holotype are given, data about other specimens are in brackets). All measurements in micrometres.

Small hymenolepidids. Strobila length is unmeasurable because the strobila falls into separate proglottids in host intestine. Only few of younger proglottids are usually connected with scolex. Scolex 75 × 105 (70-75 × 80-105). The round suckers 37-40 (35-44) in diameter. The rostellum is pear-shaped, 45 × 35 (31-38 × 28-32), its anterior surface is flattened and posterior part is conical. Rostellar sac 72 × 47 (62-67 × 38-45), its bottom extends below the suckers level. Rostellum bears a simple crown of 17 hooks. Hook length 18 (18-20). Handle thin, nearly straight, 9-10 (9-11) in length. Blade curved, 9 in length. Guard 6 in length, with somewhat thickened lower edge.

Neck 63 (58-75) in width, not distinctly demarcated from scolex. Proglottids are not numerous. Excretory ducts are very thin.

Hermaphroditic proglottids measurements 32 × 14 (31-38 × 12-17). Three round testes are arranged in a

\* Institute of Zoology of Ukr., Acad. Sci., Lenin st., 15, Kiev-30, 252601 USSR.

\*\* Turkmenian antiplague station, Ostrovsky st., 18, Ashkhabad, 744020 USSR.

Accepted le : 6 juin 1991.

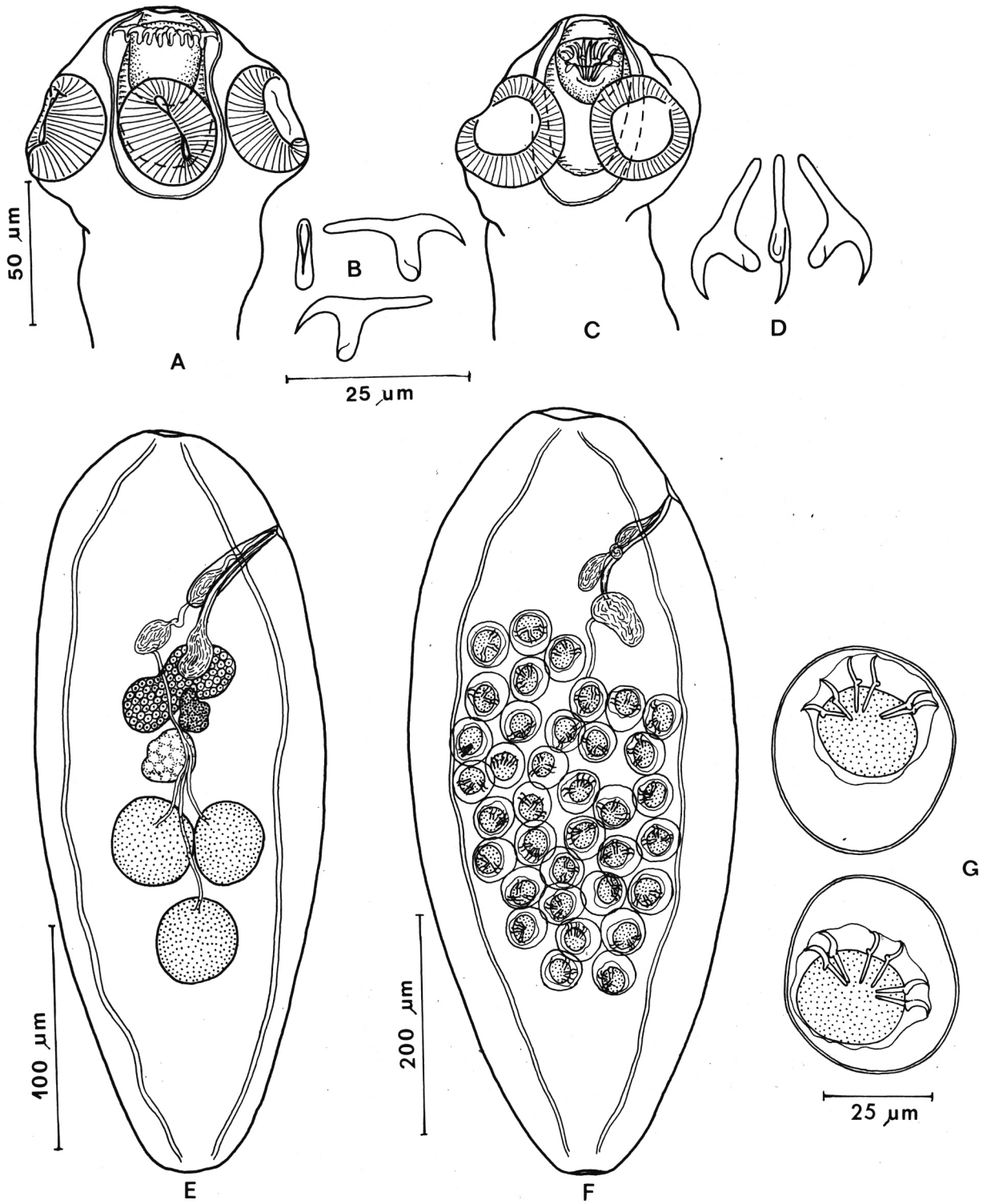


FIG. 1. — *Pseudhymenolepis turkestanica* sp. n. from *Diplomesodon pulchellum*.

A, C: scolices; B, D: rostellar hooks; E: mature proglottid; F: gravid proglottid; G: eggs (A, B, E, F: holotype; C, D: material from Kazakhstan).

triangle, their diameter 38-43 (41-50). Cirrus sac  $60 \times 13$  ( $62-70 \times 14-17$ ). Cirrus sac crosses the poral excretory ducts and opens into the genital atrium located approximately at 1/6 of the right edge of proglottid. Genital pores are one-sided. External seminal vesicle  $23 \times 15$  ( $24-30 \times 15-20$ ), crossed the medial line of the proglottid. Internal seminal vesicle fills the proximal part of cirrus sac. Cirrus thin, unspined. There were no proglottids with fully evaginated cirrus in the material.

Ovary is  $60 \times 28$  ( $50-53 \times 30-32$ ), bilobed. It situated in the upper part of the proglottid. Vitelline gland is under the ovary,  $18 \times 15$  in size. Comparatively small seminal receptacle  $25 \times 17$  ( $26-28 \times 18-22$ ) in size. Vagina 68 ( $50-55$ ) in length, opens into the genital atrium ventral to male genital pore. Both the cirrus sac and the vagina are located dorsal to the longitudinal excretory ducts. Sac-like uterus is between the ovary and testes. Its development was not elucidated in detail because of somewhat insufficient material (not all the stages of uterus development are presented out collection).

Gravid proglottids measurements  $69 \times 31$  ( $56-84 \times 27-35$ ). Each proglottid contains 30-40 eggs occupying space between excretory ducts. Eggs are round, 41-45 (38-43) in diameter. Medial and lateral embryonic hooks measurements are 15 and 16-17 respectively. Medial hooks are distinctly thinner than lateral ones.

In gravid proglottids of *P. turkestanica* as well as in the same ones of another species *P. redonica* (from the territory of Ukraine) we have not found egg capsules like those described by Joyeux and Baer (1936) and some other authors for *Pseudhymenolepis*. On the basis of this feature the subfamily Pseudhymenolepidinae was separated. We suppose that the well-developed embryophore of *Pseudhymenolepis* could be taken for the egg outer shell whereas the true egg outer shell could be taken for the egg capsule membrane. The fact that the egg measurements of *P. redonica* in our material are corresponding to the

measurements of uterine egg capsules given by Joyeux and Baer (1936) is in favour of this assumption. Detail study of the fine structure of pregravid and gravid proglottids is necessary in order to solve this important question finally.

Differential diagnosis. There are 5 species of *Pseudhymenolepis* (*P. redonica* Joyeux and Baer, 1935; *P. eburnea* Hunkeler, 1970; *P. papillosa* Hunkeler, 1970; *P. solitaria* (Meggit, 1927); *P. graeca* Vaucher, 1984) were known until now. They are very similar in morphology and development of the proglottids, but differ one from another primarily by the number and size of rostellar hooks. In this respect *P. turkestanica* is closely resembling to *P. papillosa*, described from *Crocidura flavescens spurelli* in Ivory Coast (Hunkeler, 1970). These two specimens are distinctly distinguishable by the measures of scolex (147-160 in *P. papillosa*) and rostellum ( $43-47 \times 47-54$  in *P. papillosa*), the number of rostellar hooks (19-22 in *P. papillosa*) and the size of lateral embryonic hooks (only 12 in *P. papillosa*).

Besides that, the areas of two species are extraordinarily distant one from another. Finally, *P. turkestanica* parasitizes the piebald shrew—the only living representative of the genus *Diplomesodon*—endemic for the Middle Asia. Presumably, *P. turkestanica* is a specific parasite of this host because it was not found in any other shrew species from the same region.

#### REFERENCES

- Georgiev B., Biserkov V., Genov T. : *In toto* staining method for cestodes with iron acetocarmine. *Helminthologia*, 1986, 62, 235-240.
- Hunkeler P. : Deux *Pseudhymenolepis* nouveaux (Cestoda, Hymenolepididae) chez les Musaraignes de Côte-d'Ivoire (Note préliminaire). *Zool. Anz.*, 1970, 184, 125-129.
- Joyeux C., Baer J. : Cestodes. *In*: Faune de France, Paris, 1936, 613 p.