

Department of Entomological Sciences, University of California, Berkeley, U.S.A.
and Istituto di Entomologia Agraria, Bari, Italy

ORYCTONEMA PENTODONIS SP. N. (RHABDITIDAE) FROM THE
GENITAL SYSTEM OF *PENTODON PUNCTATUS* VILL.
(SCARABAEIDAE: COLEOPTERA) IN ITALY

by

G. O. POINAR Jr. and O. TRIGGIANI

The genus *Oryctonema* was erected for the rather unusual species *genitalis* Poinar (1970) which lives in the bursa copulatrix and aedaegus of tropical dynostid beetles. A closely related nematode was discovered in the genital system of the beetle, *Pentodon punctatus* in Italy. Both species of nematodes resemble each other in general morphology and habitat, however there are several basic morphological characters that separate them. The nematode from *P. punctatus* is described in the present study as a new species in the genus *Oryctonema*. In so doing, the original description of the genus has been revised.

The larvae of the host, *P. punctatus* often cause damage while feeding on the roots of young grape plants. It has not been determined whether the nematode has a detrimental effect on its host.

MATERIAL AND METHODS

Nematodes were removed from the bursa copulatrix and aedaegus of adult *Pentodon punctatus* collected in the following localities in Italy: Pollino (Potenza)-June, 1977; Bari-May, 1977; Lavello (Potenza)-June, 1976, and Bradano (Matera)-July, 1977.

After being killed in hot saline, the nematodes were fixed in 3% formalin and processed to glycerin for taxonomic studies.

RESULTS

Nematodes removed from the bursa copulatrix of *P. punctatus* were found to be closely related to *Oryctonema genitalis* and are described below as a new species in this genus.

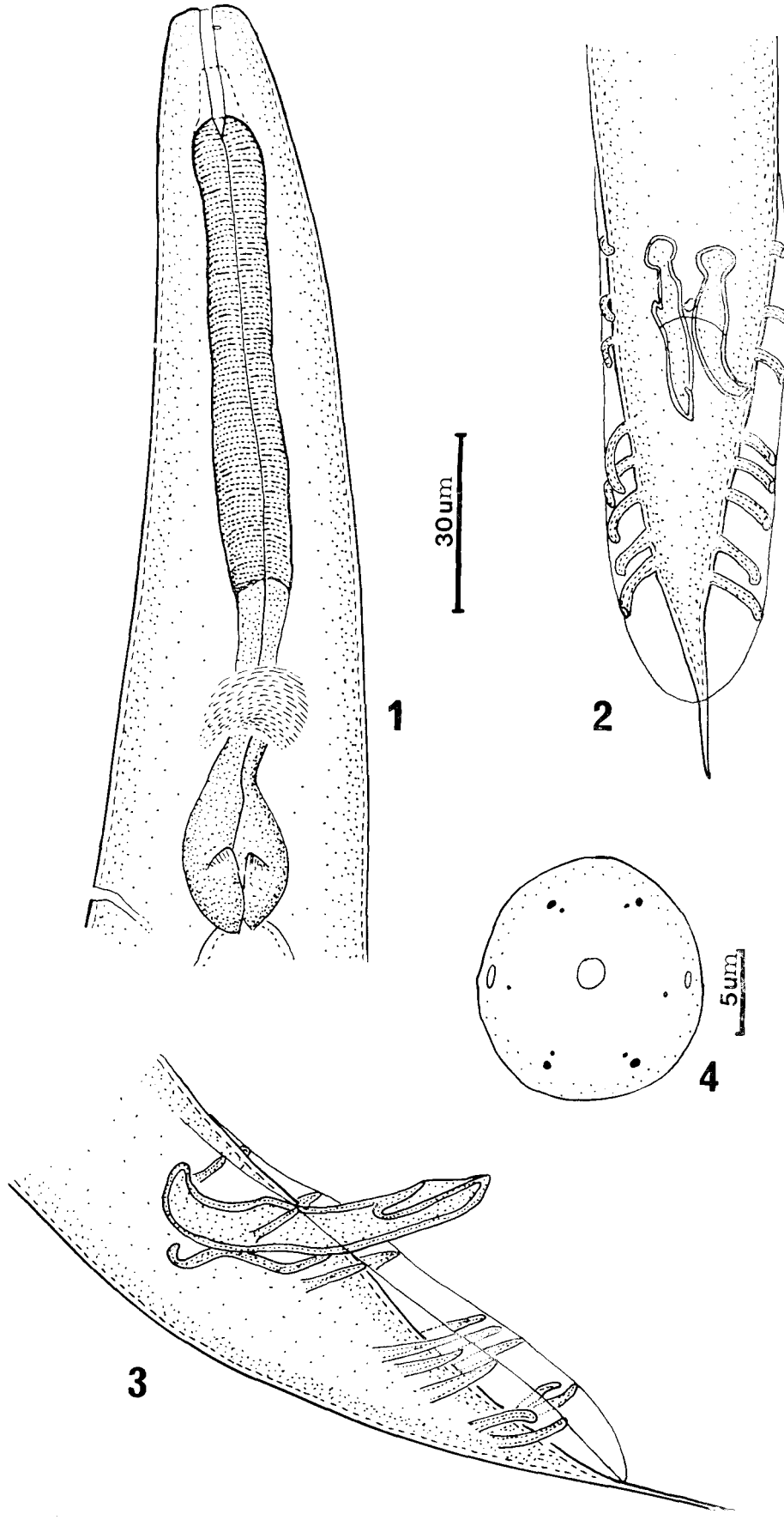
Oryctonema Poinar 1970 (revised). Rhabditidae Oerley, Rhabditoidea (Oerley) Travassos. Cuticle with faint striae; lips fused; stoma variable, cylindrical to funnel-shaped; glottoid apparatus lacking, pharyngeal collar present; pharynx lacking a median bulb but containing a basal bulb with valves; isthmus present or absent. Female didelphic, with median vulva. Male with a single reflexed testes and paired spicules; gubernaculum present; bursa peloderan or leptoderan, open, with bursal papillae.

DESCRIPTION

Oryctonema pentodonis sp. n. (Figs. 1-4). Subdorsal and subventral lip regions each with a pair of papillae; lateral lip regions each with a single papilla and an amphid. Stoma cylindrical, very narrow; cheilorhabdions forming a faint ring in the anterior portion of the stoma just under the mouth opening, pro- and mesorhabdions forming the walls of the stoma; pharynx divided into an anterior muscular portion, a narrow, glandular isthmus and a glandular basal bulb with large centrally located bulb flaps; nerve ring encircles isthmus portion of pharynx. Excretory pore variable in position, usually in region of basal bulb. Phasmides inconspicuous.

In the following quantitative description, all figures are given in μm unless otherwise specified. The first number following the character is the average value and the numbers in parenthesis represent the range.

Female (N = 10). Length, 1.7 (1.4-1.7) mm; greatest width, 51 (41-63); diameter of stoma, 1.4 (0.9-1.8); length of stoma, 17 (14-20); length of pharyngeal collar, 7.6 (6.8-9.1); length from head to base of pharynx, 169 (140-190); length from head to nerve ring, 123 (110-145); length from head to excretory pore, 174 (158-195); vulva at 43 (41-45)% from the head; ovaries paired, opposite and usually outstretched; tail pointed, 302 (254-348) long.



Figs. 1-4 - *Oryctone-ma pentodonis* sp. n. 1. Anterior region of male. 2. Ventral view of male tail. 3. Lateral view of male tail. 4. « En face » view of female.

Male (N = 4). Length 1.48 (1.45-1.5) mm; greatest width, 54 (49-54); diameter of stoma, 1.4; length of stoma, 18; length of pharyngeal collar, 9 (8-9); length from head to base of pharynx, 170 (150-177); length from head to nerve ring, 128 (112-136); length from head to excretory pore, 155 (145-163); length of tail, 89 (72-108); body width at cloaca, 33 (30-35); spicules paired, separate, 61 (55-64) long; gubernaculum with hook shaped proximal portion, 27 (28-30) long; bursa leptoderan, open, generally with 8 pairs of caudal papillae (1 pair preanal, 2 pair adanal and 5 pair postanal) and a single median preanal papillae. In one specimen, there was an additional pair of postanal papillae, making a total of 9, but this condition was considered abnormal.

Type host: *Pentodon punctatus* Villers (Scarabaeidae: Coleoptera)

Type locality: Lavello (Potenza), Italy

Type specimens: Holotype (female) and allotype (male) deposited in the Nematology Collection, University of California, Davis, California.

Diagnosis: Although both *genitalis* and *pentodonis* are long, robust nematodes that are similar in general morphology and habitat, they can easily be separated from each other with aid of the following key.

1. Stoma funnel-shaped; pharynx with an isthmus; valve in posterior portion of basal bulb; bursa peloderan - *genitalis* Poinar.
1. Stoma cylindrical; pharynx without a distinct isthmus; valve in middle portion of basal bulb; bursa leptoderan - *pentodonis* sp. n.

DISCUSSIONS

Oryctonema pentodonis was recovered from the genital system of *P. punctatus* collected from different regions of Italy. In one sample containing two male and eleven female hosts, all except one female was infected with nematodes. All stages of *O. pentodonis* were observed in the bursa copulatrix of female beetles and it is assumed that the

complete developmental cycle occurs in this habitat. The nematodes are probably transmitted from host to host during copulation since they have recovered from the genital system of both sexes of beetles. It is also probable that *O. pentodonis* feeds on the secretions of the glandular cells lining the bursa copulatrix, as well as on sperm and male accessory fluid, similar to *O. genitalis* (Poinar, 1970).

Since *O. pentodonis* possesses a cylindrical shaped stoma and a pharynx with a well developed isthmus, it might be considered less specialized and thus closer to the free-living rhabditids than *O. genitalis*. It is surprising that two nematodes that live in such similar habitats have such different types of stoma.

S U M M A R Y

Oryctonema pentodonis sp. n. (Rhabditidae: Rhabditoidea) is described from the bursa copulatrix of the beetle, *Pentodon punctatus* (Scarabaeidae: Coleoptera) in Italy. This nematode lives in the genital system of its host and is transmitted from beetle to beetle during copulation. Its cylindrical stoma, and leptoderan bursa separate it from *O. genitalis* Poinar which has a similar development in tropical *Oryctes* beetles.

R I A S S U N T O

Presenza dell'Oryctonema pentodonis sp. n. (Rhabditidae) nell'apparato genitale del *Pentodon punctatus* Vill. (Scarabaeidae: Coleoptera), in Italia.

Viene descritto il nematode *Oryctonema pentodonis* sp. n. (Rhabditidae: Rhabditoidea) presente nella borsa copulatrice del *Pentodon punctatus* (Scarabaeidae: Coleoptera), in Italia. Questo nematode vive nell'apparato genitale dell'ospite e si trasmette da un ospite all'altro tramite copulazione. Questa specie si differenzia da *O. genitalis* Poinar, il quale ha uno sviluppo simile nell'apparato genitale dello scarabeide tropicale *Oryctes monoceros* Ol., nello stoma cilindrico e nelle ali caudali.

L I T E R A T U R E C I T E D

- POINAR JR. G.O., 1970 - *Oryctonema genitalis* gen. et sp. nov., (Rhabditidae; Nematoda) from the genital system of *Oryctes monoceros* Ol. (Scarabaeidae: Coleoptera) in West Africa. *J. Helminthology*, 44: 1-10.

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