

***Hexameris cathetospiculae* n. sp.**
(Mermithidae: Nematoda), a Parasite of the
Rice Stemborer, *Tryporyza incertulas* (Wlk.)
(Pyralidae: Lepidoptera) in Malaysia

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Abstract: *Hexameris cathetospiculae* n. sp. (Mermithidae: Nematoda), a parasite of the rice stemborer, *Tryporyza incertulas* (Wlk.), is described. This mermithid was observed to control the stemborer in Malaysia. It is distinguished from other members of the genus by the shape of the vagina, the nearly straight spicules, and the form of the amphids.

Key words: biological control, mermithid nematode, taxonomy.

In 1980, the junior author found some mermithids parasitizing larvae of the rice stemborer, *Tryporyza incertulas*, while splitting open rice stems at Bumborg Lima in Malaysia.

Earlier reports of mermithids attacking *T. (Schoenbius) incertulas* were made by Pagen (4), Nickel (3), and Rao (5); however, the mermithids were not identified.

Examination of nematodes from Malaysian stemborers showed that the mermithid was new to science. It is described here.

MATERIALS AND METHODS

Postparasitic juvenile nematodes that emerged from *T. incertulas* larvae were maintained in soil at 25 C for 3 weeks when they had molted to adults. The nematodes

were killed in 60 C water, fixed in TAF, and processed to glycerin for taxonomic studies.

The parasites were collected during July 1980 at Bumborg Lima, Kepala Batas, Seberang Perai in Malaysia.

SYSTEMATICS

The nematodes were discovered to be a new species of the genus *Hexameris*. In the quantitative portion of the following description, measurements are given in micrometers unless otherwise noted. The range of the character is given in parentheses following the mean value.

Hexameris cathetospiculae n. sp.
(Figs. 1-8)

Mermithidae Brauer 1883, *Hexameris* Steiner 1924 (emended by Rubtsov 1978)

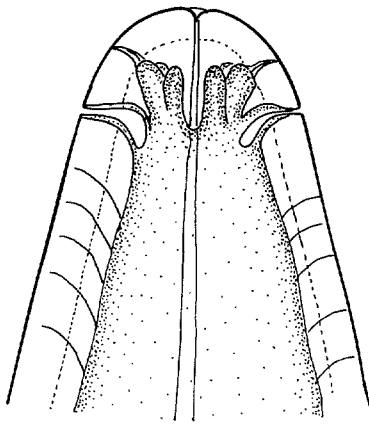
Description: Long white nematodes with an adult cuticle ranging from 17 to 24 μ m thick; adult cuticle with distinct cross fibers; head attenuated; six head papillae,

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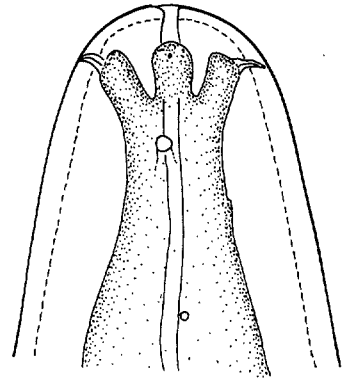
Received for publication 29 October 1984.

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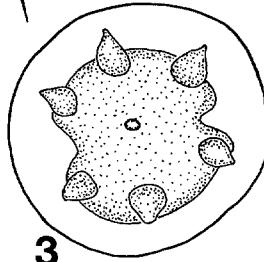
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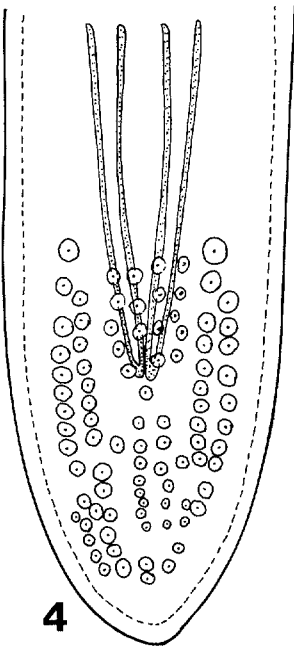
3

226 μ 6,7

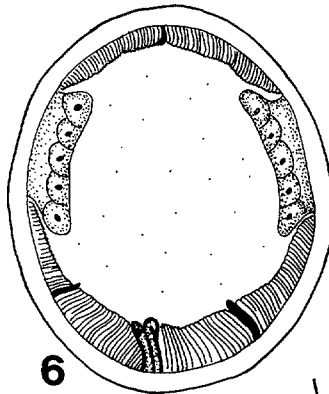
158 μ 5

128 μ 4,8

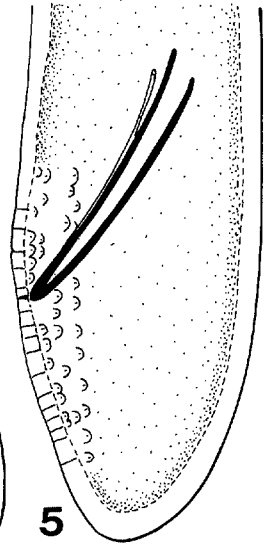
45 μ 1,2



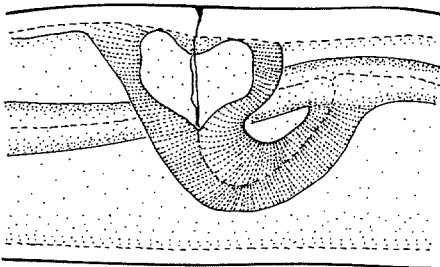
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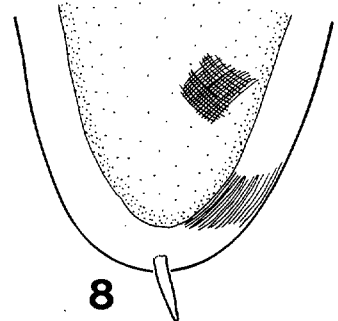
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distinct; mouth terminal; amphids urn shaped, opening behind the lateral cephalic papillae and separated from them; amphidial opening circular to triangular; six hypodermal cords; lateral cords large, containing 4–5 rows of nuclei in cross section; ventral cord containing a double row of nuclei, whereas nuclei not visible in the dorsal and subventral cords.

Females ($n = 10$): Length 8.3 (3.0–12.8) cm; greatest width 458 (320–544); distance from head to nerve ring 468 (441–504); vulva 55% (45–65); vagina V or J shaped, containing a heart-shaped, cuticular lined chamber just inside the vulvar opening, vulvar lips absent; vulvar opening circular; vagina length 345 (289–441), diameter of amphidial openings 1.6–3.2; a vestigial anal opening located 315 (226–536) from the tail tip; trophosome terminating 386 (327–409) from the tail tip.

Males ($n = 4$): Length 3.3 (3.0–3.7) cm; greatest width 288 (256–320); distance from head to nerve ring 411 (396–428); spicules paired, separate, nearly straight, pointed at tips; spicule length 312 (289–334); tail length 227 (208–252); tail width at cloacal opening 236 (220–252); amphidial openings diameter 4–5; genital papillae in three broken (double) rows; lateral double rows containing 20–32 papillae each, extending anteriorly past the cloacal opening but only half the length of the spicules; median double row of 20–25 papillae extending anteriorly almost to the lateral papillae; tail bluntly rounded.

Postparasitic juveniles ($n = 20$): Cuticle thick, measuring 17–26 micrometers, with distinct cross-striations; tail terminus with a small spike-like appendage; sheds two cuticles simultaneously to become an adult.

Type host: *Tryporyza* (= *Schoenobius*) *incertulus* (= *incertellus*) (Pyralidae: Lepidoptera).

Type locality: Bumborg Lima, Malaysia.

Type specimens: Holotype (male) and allotype (female) deposited at the Department of Nematology, University of California, Davis, California. Paratypes deposited in the collection of the senior author.

Diagnosis: The present species is placed in the genus *Hexameris* as characterized by Rubtsov (1978). His classification restricts the genus to forms that possess a horn-shaped, rather than an S-shaped, va-

gina (as found in *Oesophagomermis* Artyukhovsky) and have the amphids separated from the lateral cephalic papillae (as found in *Ovomermis* Rubtsov). The postparasitic juveniles of *Hexameris* possess a distinct pointed tail appendage (in contrast to the rounded tail of *Agameris* Cobb, Steiner and Christie). Characters separating *H. cathetospiculae* from previously described members of the genus are the curved V-shaped or J-shaped vagina, the nearly straight spicules, and the shape of the amphids.

Hexameris microamphidis Steiner (6), described from the tea bug in Java, is similar to the present species. However, the spicules of *H. microamphidis* are shorter than the body width at the cloaca, whereas in *H. cathetospiculae* they are longer.

The most similar of the described *Hexameris* species to *H. cathetospiculae* is the European *H. brevis* Hagmeier (1). The shape and location of the amphids are almost identical, and the shape of the spicules is similar. However, the spicules of *H. cathetospiculae* are longer than those of *H. brevis* and are greater than the body width at the cloaca. Also, the preanal genital papillae of *H. brevis* extend anteriorly along the entire length of the spicules, whereas in *H. cathetospiculae*, the preanal genital papillae extend less than half the length of the spicules.

The present species differs from European species, *H. incisura* Kaiser (2), *H. elongata* Kaiser (2), and *H. lineata* Kaiser (2) by the shape and position of the amphids and spicules.

DISCUSSION

The parasites were readily recovered from host larvae collected in July after the rice harvest. Most host larvae contained a single parasite, but some contained several. The insect larvae died soon after the nematodes emerged.

The parasites molted in 2–3 weeks, but mating and oviposition was not observed.

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