[Jpn. J. Parasitol., Vol. 34, No. 5, 427-430, October, 1985]

Research Note

# Nematode Fauna of Bats in Thailand

## I. On *Strongylacantha rhinolophi* from *Rhinolophus malayanus*

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(Received for publication; June 4, 1985)

**Key words:** *Strongylacantha rhinolophi*, nematoda, bat, Thailand

A trichostrongylid nematode, *Strongylacantha rhinolophi*, was found in the small intestine of 9 of 20 rhinolophid bats, *Rhinolophus malayanus*, collected in Thailand (Table 1). The nematodes were fixed in 10 % formalin and cleared in glycerin-alcohol for microscopical examination. The description of this nematode is given below.

*Strongylacantha rhinolophi* Yamaguti, 1935

*Description*: Strongylacanthinae. Based on adult thirteen males and twelve females. The slender and white colour body, 3.70–4.06×0.08–0.10 mm in the male and 4.97–6.42×0.10–0.12 mm in the female, is slightly bent toward the ventral side at the anterior extremity. The cuticle is thin and exceedingly finely cross-striated and shows numerous very fine longitudinal striations. There are no lateral alae. Mouth oval in shape. From the ventro-lateral margin of the mouth arise two brownish strongly curved teeth, characteristic of the genus: 33–39 μm long (Fig. 1 and 2). Anteriorly directed small lanceolate tooth sligthly developed on the dorsal wall of the mouth. There is a shallow mouth capsule composed of thickned cuticle, which extends downwards to form the lining of the lumen of the oesophagus. The excretory pore lies near the nerve-ring. Nerve-ring encircles an oesohagus at the position of 0.20–0.22 mm (female) and 0.19–0.20 mm (male) from the head end, but indistinct. The oesophagus (0 at Fig. 1) is club-shaped and is 0.45–0.53 mm long in the female and 0.41–0.45 mm long in the male. Its anterior half has a roughly uniform thickness, but its posterior half swells out to form a prominent club-like thickning, having a maximum thickness of 0.05–0.06 mm in the female and 0.04–0.05 mm in the male.

*Male*. The bursa (Fig. 3) is composed of two large lateral lobes and a much smaller dorsal lobe supported by the terminal branches of the dorsal ray. The ventro- and latero-ventral rays, arising from a common trunk, are closely opposed and extend to the edge of the bursa (Fig. 4). The lateral rays also arise from a common trunk. The externo-lateral ray is separated from the mediolateral ray, and is shorter than the other lateral rays, not extending to the edge of the bursa. The medio- and postero-lateral rays are stout and same size, and run parallel to each other to the edge of the bursa. Although the externo-dorsal and dorsal rays (Fig. 5) have a common trunk, the externo-dorsal ray arises separately from the base of the dorsal ray; the former is slightly slender; the dorsal ray is long and stout, and its distar end gives rise to six small branches, which may be asymmetrically arr-

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Table 1 Nematodes of Rhinolophid Bats, *Rhinolophus malayanus*, from Thailand

| No. of bats | No. of *Strongylacantha rhinolophi* | | |
|---|---|---|---|
| | male | female | total |
| 1109* | 1 | 1 | 2 |
| 1110* | | 1 | 1 (unidentified nematodes : 5) |
| 1111* | 2 | 3 | 5 |
| 1112* | 2 | 1 | 3 |
| 1115* | | 1 | 1 |
| 1116* | 2 | 1 | 3 |
| 1117* | 5 | 2 | 7 |
| 1121* | 1 | 1 | 2 |
| 1292† | | 1 | 1 |

* collected at Amphoe Bang Sapan Yai, Pracoup Kiri Khan, on January 18, 1982 ; the bats of No. 1113, 1114, 1118, 1119 and 1120 were negative for nematodes

† collected at Amphoe Samung, Chang Mai, on February 6, 1982

A bat (No. 1263) collected at Amphoe Mae Rim, Chang Mai, on February 5, 1982 was negative for nematodes

Five bats (No. 1345 to 1349) collected at Amphoe Muang, Lop Buri, on February 13, 1982 were negative for nematodes

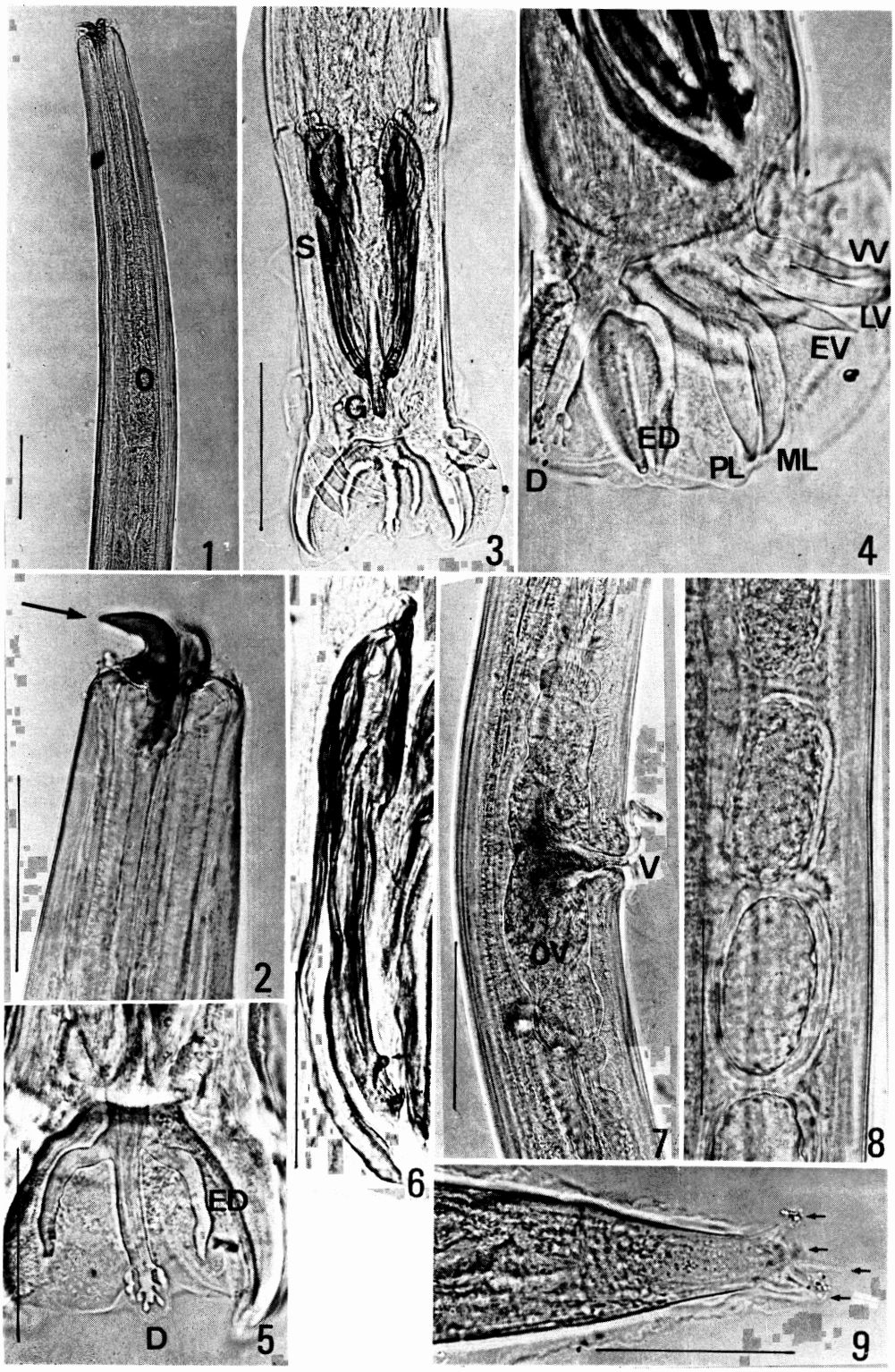
anged around its axis.

The two spicules (Fig. 3 and 6), fairly thick, brown, nearly equal, 143–155 μm long and 27 μm wide, each bifurcated for its half, and ventral branch having two ventral barbs near the posterior end which its tip was very blunt and ventralwards, and a dorsal branch a little shorter than themselves and terminating in a spine-like tip. The gubernaculum with pointed ends (G at Fig. 3) is boomerang-shaped in side view and is 65–71 μm long, and has a postero-dorsally directed muscular band attached to its slender anterior end.

*Female.* Tail (Fig. 9) conical, 0.07–0.09 mm long and terminated in a delicated terminal point surrounded by four projections (little large dorsal point, a ventral acute slender spike and two indiscernible small subventral). Vulva (V at Fig. 7) situated at 3.03–4.03 mm (59.6–63.3 per cent) from the anterior end. The shape of amphidelphic ovejector is characteristic of this genus with spematheca as shown Figure 7. There are 26–55 and 12–40 eggs into anterior and posterior uterus respecively. The elongated oval thin-shelled eggs in the uterus of adult worm (Fig. 8) are 56 (51–64) μm long by 31 (28–34) μm broad under a cover glass pressure.

*Discussion* : According to the reports (Ortlepp, 1932 ; Yamaguti, 1935 ; Yamaguti,1961 ; Skrjabin, 1961 ; Meszaros, 1973), only 4 nematode species have been assigend to this genus ; *Strongylacantha* van Beneden, 1873 (*S. glycirrhiza* van Beneden, 1783, *S. pertoriensis* Ortlepp, 1932, *S. rhinolophi* Yamaguti, 1935 and *S. longicaudata* Meszaros, 1973). Although all species are specific parasites of hosts of the genus *Rhinolophus* (Rhinolophidae, Chiroptera), only *S. glycirrhiza* and *S. rhinolophi* has occasionally been found in *Miniopterus schreibersi* (Vesperitilionidae) (Skrjabin, 1961 ; Yamaguti, 1961 ; Mituch, 1965 ; Kagei and Sawada, 1977). Such infrequent transition seems to be associated with the ecology and area of distribution of bats of the family Rhinolophidae and Vespertilionidae.

Fig. 1 Anterior part of *Strongylacantha rhinolophi* (O : oesophagus ; Scale : 10 μm)
Fig. 2 Brownish strongly curved teeth (arrow) of anterior end (Scale : 50 μm)
Fig. 3 Posterior part with bursa of male (S : spicules ; G : gubernaculum ; Scale : 100 μm)
Fig. 4 Lateral view of bursa(VV : ventro-ventral ray ; LV : latero-ventral ray ; EV : externoventralray ; ML : medio-lateral ray ; PL : postero-lateral ray ; D : dorsal ray ; ED : externodorsal ray ; Scale ; 50 μm)
Fig. 5 Ventral view of dorsal ray (D : dorsal ray ; ED : externo-dorsal ray ; Scale : 50 μm)
Fig. 6 Spicule (arrows are barbs ; Scale : 50 μm)
Fig. 7 Vulva (V) and ovejector (OV) of female (Scale : 100 μm)
Fig. 8 Eggs in the uterus of female (Scale : 50 μm)
Fig. 9 Tail with four projections (arrows) of female (Scale : 50 μm)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This species chiefly differs from *S. glycirrhiza* in the smaller body size, in the tip of female tail with only two sharp points, and from *S. pretoriensis*, in the body size, in the shape and size of ventral oral hooks, in the length of the spicules and egg size (Kagei and Sawada, 1977). Although the excretory pore in these two species is situated just behind the mouth-opening, in this species the excretory pore is situated at half length of the oesophagus. The excretory pore of *S. rhinolophi* and *S. longicaudata* is situated near the nerve ring, at the half length of the oesophagus. And then the spicules, gubernaculum and tail of female of *S. longicaudata* is longer as compared to those of this species, and this species differs from *S. longicaudata* in the shape of the hook-like teeth without the conspicuous bulge at the base of teeth (Meszaros, 1973). Although the eggs in this species are smaller than the size of eggs (86–95 $\mu$m×53–59 $\mu$m and 88.6–92.9 $\mu$m×53.6–58.6 $\mu$m, respectively) by Yamaguti (1935) and Kagei and Sawada (1973), the size and shapes of other organs closely resemble to *S. rhinolophi*. Accordingly, they should be identified with *S. rhinolophi* Yamaguti, 1935.

Barus and Rysavy (1971) reported that the geographical distribution of the nematode genus *Strongylacanhta* is very wide (covering three regions: the Palearctic, Ethiopian and Indo-Malayan region), because their typical hosts, which are members of the families Rhinolophidae and Vespertilionidae of the Old World, are also widely distributed. This is the new host record and the first record of the species in Thailand.

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短　報

## タイ産コウモリ類の寄生虫相
## I. *Rhinolophus malayanus* の線虫類について


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タイ産コウモリ類の寄生虫相は殆んど報告されていないので，その寄生虫相の分析を行った．本論文ではタイ産コウモリ *Rhinolophus malayanus* の線虫について報告した．未同定種と *Strongylacantha rhinolophi* が45%のコウモリに見出されたが，*S. rhinolophi* はタイにおける始めての記録であり，また，*R. malayanus* は *S. rhinolophi* の新しい宿主として加えられた．