

Some Cestode Parasites from the Indian House Musk Shrew, *Suncus murinus*

ISAMU SAWADA¹⁾ AND NORIKAZU OHONO²⁾

(Accepted for publication; July 7, 1993)

Abstract

Two new and one known species of hymenolepidid cestode are described from the house musk shrew, *Suncus murinus* collected at Safdar, Jang's Enclave, Delhi, India. *Staphylocystis* (*Staphylocystis*) *magnisaccus* sp. nov. is related to, but different from *S. (S.) tiara* (Dujardin, 1845) Spassky, 1950, *S. (S.) chattoraji* Malhotra et Capoor, 1984 and *S. (S.) sanchorensis* Nama et Khichi, 1975 in the shape of rostellar hooks. *S. (S.) multihamata* sp. nov. is related to, but different from *S. (S.) toyamaensis* Sawada et Harada, 1990, *S. (S.) naganoensis* Sawada et Koyasu, 1990 and *S. (S.) trisuliensis* Sawada, Koyasu et Shrestha, 1993 in the number of rostellar hooks. *S. (S.) kathmanduensis* Sawada, Koyasu et Shrestha, 1993 is redescribed from *S. murinus*.

Key words: *Suncus murinus*, *Staphylocystis* (*S.*) *magnisaccus* sp. nov., *S. (S.) multihamata* sp. nov., India

Introduction

Nine species of hymenolepidid cestode had been described up to the 1990 from the common shrew, *Suncus murinus* and *S. striatus* from various places of India (Sawada, Koyasu and Shrestha, 1993) (Table 1 and Fig. 1). Since then, no attempts have been made to study the cestode parasites of *Suncus murinus*, although the shrew is quite common in India. The aim of this work is to gain information on the helminth fauna of the common shrew which in India has not been fully studied.

Materials and Methods

Two specimens of *S. murinus* were trapped in field and autopsied immediately. Their guts were removed and fixed in Carnoy's fluid, and brought to Japan.

On dissection, these shrews harbored a total of 79 specimens of cestode. The methods used are described in the previous paper (Sawada and Koyasu,

1991). All measurements are given in millimeters unless otherwise stated.

Staphylocystis (*Staphylocystis*)

Villot, 1877

Staphylocystis (*Staphylocystis*) *magnisaccus*

sp. nov.

(Figs. 2–8)

On November 12, 1992, two house musk shrews, *Suncus murinus*, were captured at Safdar, Jang's Enclave, Delhi, India. One of them (No. 2) was triply infected with *Staphylocystis* (*Staphylocystis*) *magnisaccus* sp. nov., *S. (S.) multihamata* sp. nov. and *S. (S.) kathmanduensis* Sawada, Koyasu et Shrestha, 1993. Of these, this new species amounted to 64 specimens (Table 2).

Description: Small-sized hymenolepidid; mature worm length 9–16 by maximum width 0.6–0.9. Metamerism distinct; margins slightly serrate. Scolex 0.161–0.189 long by 0.273–0.350 wide, demarcated from neck. Rostellum 0.035–0.056 long by 0.070–0.119 wide, armed with a single row of 32–39 chelate-shaped hooks, 0.014–0.018 long. Hook handle comparatively long; blade long and sharp at its end; guard prominent, round at its end, shorter than blade. Rostellar sac 0.091–0.147 long by 0.105–0.126 wide. Sucker round, 0.105–0.119 long by 0.098–0.105 wide.

¹⁾Biological Laboratory, Nara Sangyo University, Sango, Nara 636, Japan.

²⁾The First Department of Anatomy, School of Dentistry, Aichi-Gakuin University, 1-100 Kusumoto-cho, Chikusa-ku, Nagoya 464, Japan.

沢田 勇 (奈良産業大学生物学教室)

大野紀和 (愛知学院大学歯学部解剖学第一講座)

Table 1 Cestode parasites from *Suncus* spp. in India (Up to the year 1990)

Host	Locality	Cestode species
<i>Suncus murinus sindensis</i>	1) Sanchore	<i>Staphylocystis(Staphylocystis)sanchorensis</i> Nama et Khichi, 1977
<i>Suncus murinus sindensis</i>	2) Jodhpur	<i>S. (S.) sindensis</i> Nama, 1979
<i>S. murinus</i>	3) Allahabad	<i>Vampirolepis bhali</i> (Singh, 1958) Schmidt, 1986
		<i>V. molus</i> Srivastava et Capoor, 1979
		<i>V. allahabadensis</i> Srivastava et Pandey, 1982
<i>S. murinus</i>	4) Bombay	<i>S. (S.) indicus</i> Nanda et Malhotra, 1990
<i>S. murinus</i>	5) Khurhja	<i>V. jacobsoni</i> (Linstow, 1907) Schmidt, 1986
<i>S. striatus</i>	6) Lucknow	<i>Pseudhymenolepis guptai</i> Gupta et Singh, 1987
<i>S. murinus</i>	6) Lucknow	<i>P. suncusi</i> Gupta et Sinha, 1984
<i>S. murinus</i>	6) Lucknow	<i>P. lucknowensis</i> Gupta et Savita, 1989

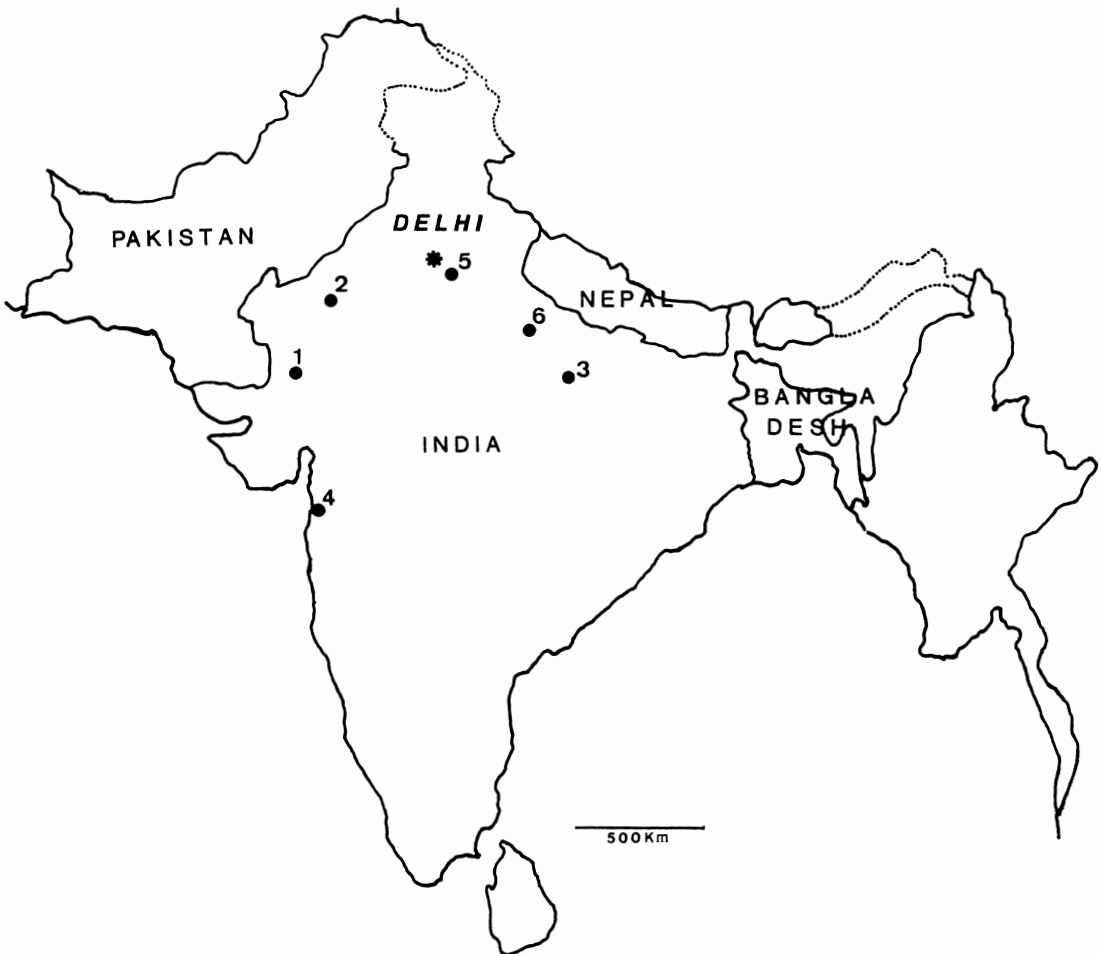


Fig. 1 A map showing the collection sites of shrews in India. For the locality number, see Table 1.

Table 2 *Suncus murinus* examined and its cestode parasites at Delhi, India in 1992

No. of host	Cestode found	
	Species	No. infected
1	non-determined (no scolex)	8
2	<i>Staphylocystis</i> (<i>Staphylocystis</i>) <i>magnisaccus</i> sp. nov.	64
	<i>S. (S.) multihamata</i> sp. nov.	3
	<i>S. (S.) kathmanduensis</i>	4

Genital pores unilateral, located at middle or little anterior to middle of segment margins. Testes three in number, 0.037–0.084 long by 0.042–0.049 wide, arranged in a form of triangle, one poral and two aporal. Cirrus sac large, 0.126–0.154 long by 0.035–0.042 wide, extending beyond longitudinal excretory canals. Internal seminal vesicle 0.084–0.105 long by 0.032–0.042 wide, occupying almost whole of cirrus sac. External seminal vesicle 0.070–0.084 long by 0.049 wide. Ovary irregularly lobate, transversely elongate, 0.140–0.147 broad. Vagina initially posterior to cirrus sac, passing beneath cirrus sac just prior to crossing osmoregulatory canals, gradually expanding into voluminous seminal receptacle measuring 0.189–0.196 long by 0.077–0.084 wide. Vitelline gland compact, 0.091 by 0.049, located posterior to ovary. Eggs elliptical, 0.042–0.046 in major axis by 0.028–0.032 in minor axis. Onchospheres spherical, 0.028–0.032 in diameter; embryonic hook 0.014 long.

Host: Suncus murinus (Insectivora: Soricidae)

Site of infection: Small intestine.

Locality and date: Safdar, Jang's Enclave, Delhi, India; Nov. 12, 1992.

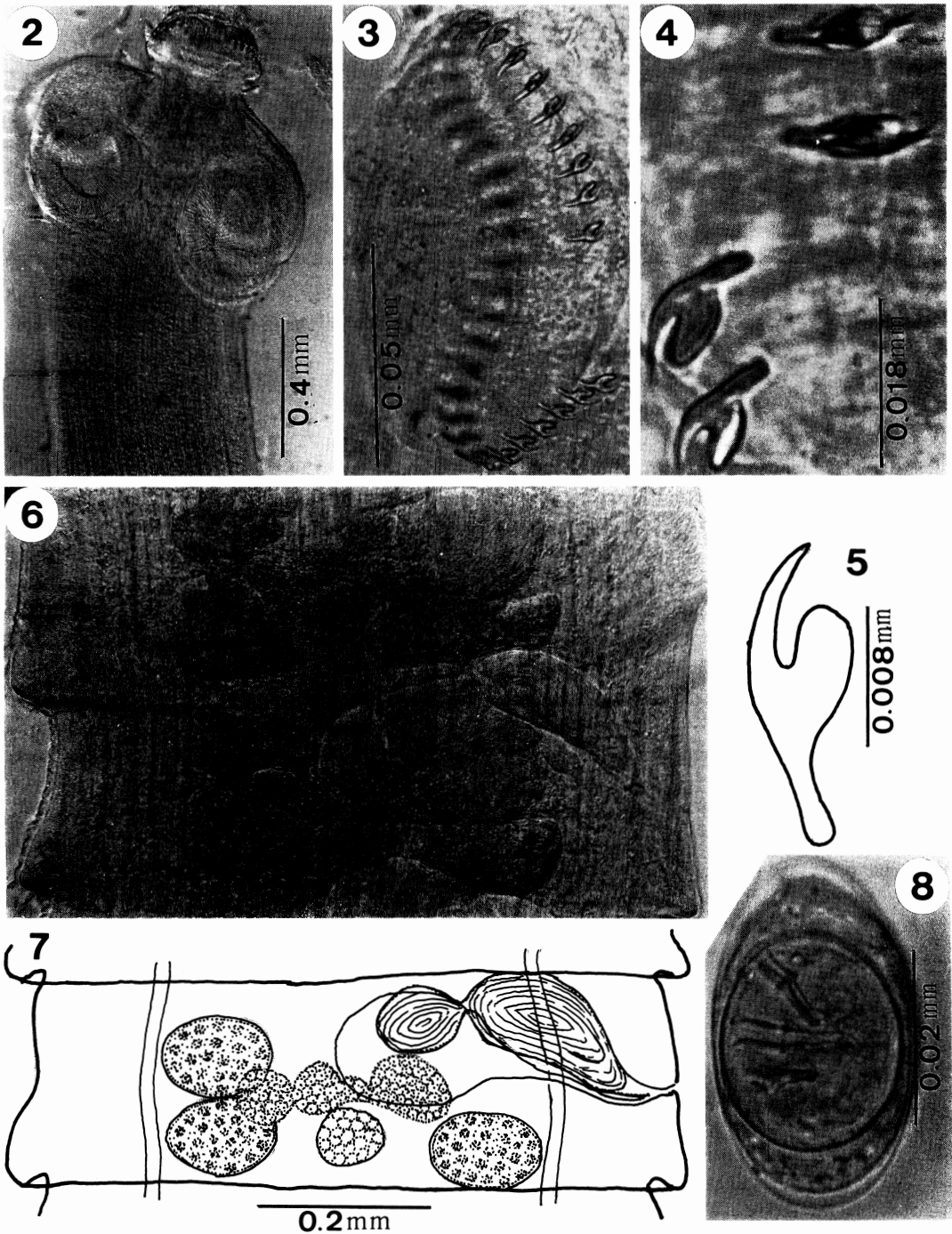
Type specimens: Holotype, Nara Sangyo University Lab. Coll. No. 9313; five paratypes, Nos. 9314–9318.

Remarks: About 24 species of *Staphylocystis* (*Staphylocystis*) are described from the soricines. Of these, the present new species most closely resembles *S. (S.) tiara* (Dujardin, 1845) Spassky, 1954, *S. (S.) chattoraji* Malhotra et Capoor, 1984 and *S. (S.) sanchorensis* Nama et Khichi, 1975, armed with 30–38 rostellar hooks ranging in length from 0.012–0.020. However, the shape of rostellar hooks separates the present new species from the aforesaid three species (Fig. 9).

Staphylocystis (Staphylocystis) multihamata
sp. nov.
(Figs. 10–14)

Description: Small-sized hymenolepidid; worm length 4.8–5.6 by maximum width 0.3–0.4. Metamerism distinct; margin slightly serrate. Segments wider than long. Scolex 0.280–0.385 long by 0.350–0.392 wide at cross of suckers, not sharply demarcated from neck. Rostellum mushroom-shaped, 0.063–0.070 long by 0.084–0.105 wide, armed with a single row of 60–67 wrench-like shaped hooks, 0.014 long. Hook handle long; blade slightly long and sharp at its end; guard prominent, round at its end, shorter than blade. Rostellar sac, 0.140–0.210 long by 0.077–0.140 wide. Suckers oval or round, 0.119–0.126 long by 0.098–0.105 wide. Neck 0.7–0.8 long by 0.2 wide.

Genital pores unilateral, located a little anterior to middle of segments. Testes three in number, 0.070–0.077 in length by 0.049–0.056 in width, arranged in a form of triangle, one poral and two aporal. Cirrus sac large, 0.112–0.140 long by 0.028–0.035 wide, extending beyond longitudinal excretory canals. Internal seminal vesicle 0.077 long by 0.028 wide, occupying almost whole of cirrus sac. External seminal vesicle 0.049 long by 0.028–0.042 wide. Ovary transversely elongate, bilobed, 0.105–0.147 broad, in mature segment. Vagina initially posterior to cirrus sac, passing beneath cirrus sac just prior to crossing osmoregulatory canals, gradually expanding into voluminous seminal receptacle measuring 0.098–0.105 in length by 0.046–0.053 in width. Vitelline gland compact, irregularly lobated, 0.056 in length by 0.021–0.028 in width, located posterior to ovary. Gravid and senile segments undeveloped.



Figs. 2-8 *Staphylocystis*(*Staphylocystis*)*magnisaccus* sp. nov.
 2: Scolex. 3-4: Rostellar hooks. 5: Rostellar hook magnified. 6: Mature segments. 7: Mature segment drawn from a projected microphotographic negative. 8: Egg.

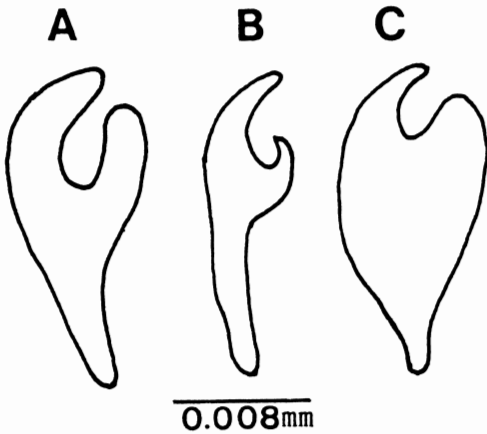


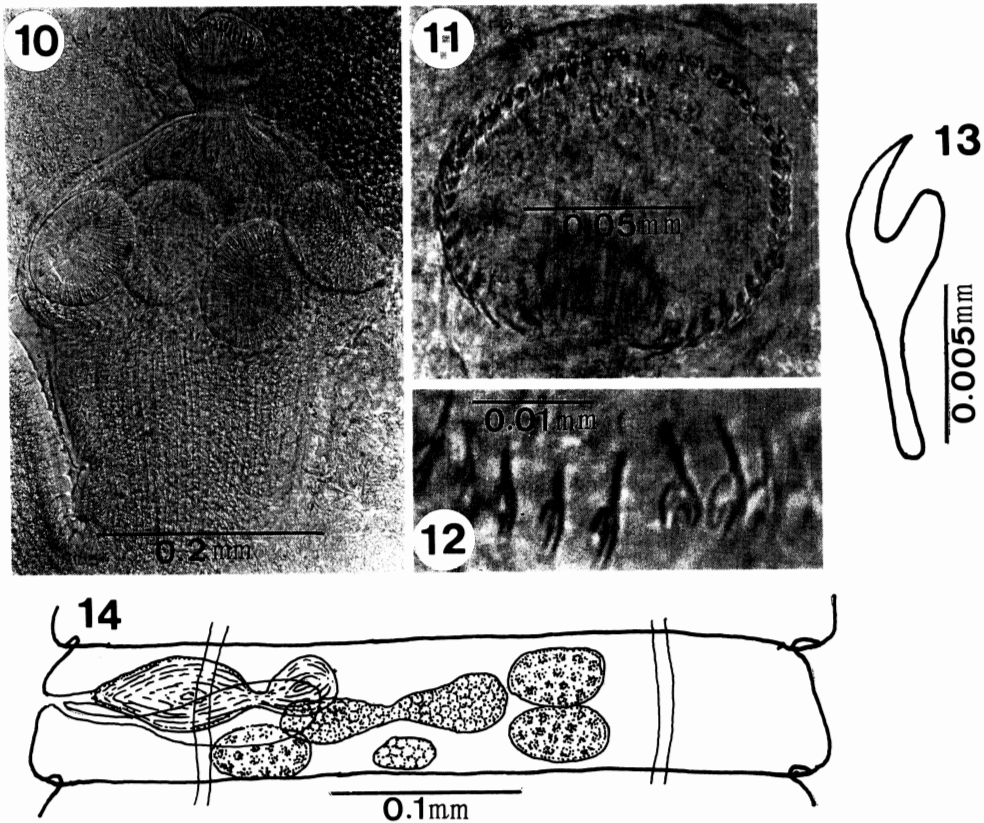
Fig. 9 Comparison of rostellar hook shapes among three related species of the subgenus *Staphylocystis*.

A: *S. (S.) suncusensis*. B: *S. (S.) tiara*. C: *S. (S.) chattoraji*.

Host: Suncus murinus (Insectivora: Soricidae)
Site of infection: Small intestine.
Locality and date: Safdar, Jang's Enclave, Delhi, India; Nov. 12, 1992.

Type specimens: Holotype, Nara Sangyo University Lab. Coll. No. 9319; two paratypes, Nos. 9320–9321.





Remarks: About 24 species of *Staphylocystis* (*Staphylocystis*) are described from the soricines. Of these, the species armed with the rostellar hooks ranging in length from 0.010–0.018 and similar in shape are: *S. (S.) toyamaensis* Sawada et Harada, 1990, *S. (S.) naganoensis* Sawada et Koyasu, 1990 and *S. (S.) trisuliensis* Sawada, Koyasu et Shrestha, 1993. However, the present new species differs from them in having a greater number of rostellar hooks (60–67 against 14–22) (Table 3).

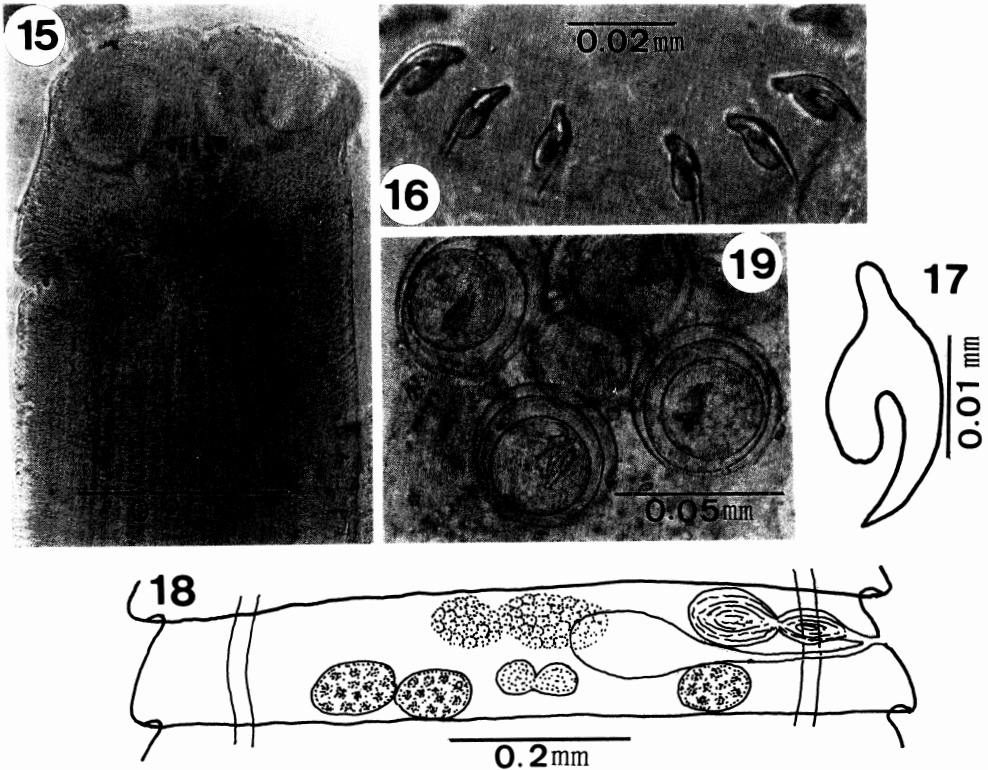


Figs. 10–14 *Staphylocystis (Staphylocystis) multihamata* sp. nov.

10: Scolex. 11–12: Rostellar hooks. 13: Rostellar hook magnified. 14: Mature segment drawn from a projected microphotographic negative.

Table 3 A comparison of *Staphylocystis(Staphylocystis)multihamata* sp. nov. with its related species armed with rostellar hooks ranging in length from 0.010–0.018 mm and similar in shape from the soricines

Species	Rostellar hooks		
	number	length (mm)	Shape
<i>S. (S.) toyamaensis</i>	16	0.014	
<i>S. (S.) naganoensis</i>	14	0.018	
<i>S. (S.) trisuliensis</i>	21–22	0.018	
<i>Staphylocystis(S.) multihamata</i> sp. nov.	60–67	0.014	



Figs. 15–19 *Staphylocystis(Staphylocystis)kathmanduensis*.
 15: Scolex. 16: Rostellar hooks. 17: Rostellar hook magnified. 18: Mature segment drawn from a projected microphotographic negative. 19: Egg.

Staphylocystis (Staphylocystis) kathmanduensis
Sawada, Koyasu et Shrestha, 1993
(Figs. 15–19)

Staphylocystis (Staphylocystis) kathmanduensis Sawada,
Koyasu et Shrestha, 1993, pp. 147–154, figs. 2–6.

Host: Suncus murinus (Insectivora; Soricidae).

Site of infection: Small intestine.

Locality and date: Safdar, Jang's Enclave, Delhi,
India; Nov. 12, 1992.

Remarks: This is the first record from India.

References

- 1) Dujardin, F. (1845): Histoire Naturelle des Helminthes ou Vers Intestinaux, Paris, xvi+654+15 pp.
- 2) Gupta, V. and Parmar, S. (1988) [1989]: On two new species of cestodes of the families Hymenolepididae and Dilepididae from mammals of India. Ind. J. Helmitol., 44, 165–171.
- 3) Malhotra, S. K. and Capoor, V. N. (1984): Linear regression as a parameter in taxonometry of *Staphylocystis (S.) chattoraji* n. sp. from *Sorex carulescens* in Garhwal Himalaya. Riv. Parasitol., 1, 465–469.
- 4) Nama, H. S. and Khichi, P. S. (1975): A new cestode *Staphylocystis sanchoensis* sp. n. (Hymenolepididae) from the shrew, *Suncus murinus sindensis*. Folia Parasitol., 22, 93–95.
- 5) Sawada, I. and Harada, M. (1990): Cestodes of field micromammals (Insectivora) from Central Honshu, Japan. Zool. Sci., 7, 467–475.
- 6) Sawada, I. and Koyasu, K. (1990): Further studies on cestodes from Japanese shrews. Bull. Nara Sangyo Univ., 6, 187–212.
- 7) Sawada, I. and Koyasu, K. (1991): *Pseudhymenolepis nepalensis* sp. nov. (Cestoda: Hymenolepididae) parasitic on the house shrew, *Suncus murinus* (Soricidae), from Nepal. Zool. Sci., 8, 575–578.
- 8) Sawada, I., Koyasu, K. and Shrestha, K. C. (1993): Two new species of the genus *Staphylocystis* (Cestoda: Hymenolepididae) from the house shrew, *Suncus murinus*, in Nepal. Zool. Sci., 10, 147–154.