

Research Note

Larval Anisakine Nematode, *Sulcascaris sulcata*, from Japanese Marine Mollusc

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Two larval nematodes were detected in a marine gastropod, *Hemifusus ternatanus* (about 10 cm in height), the meat of which was being prepared as *sashimi* (sliced raw meat), but the location of the worms in the mollusc could not be confirmed. The mollusc

probably was caught in the Yatsushiro Sea, southern Japan, in August, 1983. The worms were 34.3 mm and 41.5 mm long, respectively, and were characterized by having three lips and three interlabia, excretory pore at the base of ventral interlabium, ventriculus

Table 1 Measurements of fourth stage larval *Sulcascaris sulcata* from marine molluscs

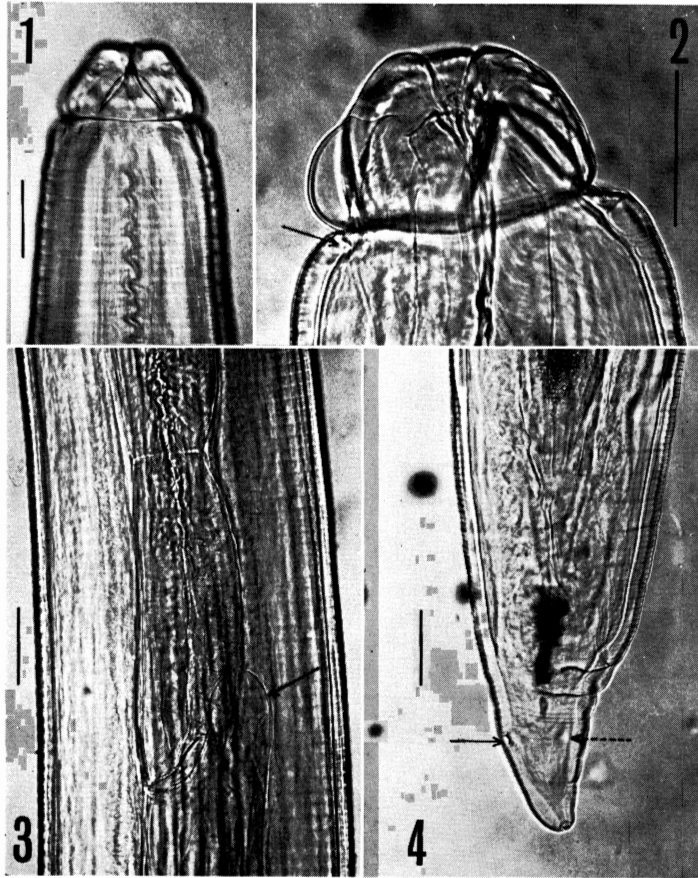
Host	<i>Hemifusus ternatanus</i>		<i>Amusium balloti</i>	<i>Spisula solidissima</i>	<i>Argopecten gibbus</i>
Locality	Japan		Australia	Atlantic	
Body length	34.3mm	41.5mm	15-44mm	8.31-45.0mm	11.6-23.7mm
Body diameter (middle)	520	620	260-750	168-752	294-390
Lip length	107	128	80-190	50-126	46-71
Interlabia length	77	87	50-110	29-84	28-46
Nerve ring to anterior end	286	342	340-670	248-660	227-382
Esophagus length	2.2mm	2.6mm	1.9-4.0mm	1.03-3.58mm	1.52-2.38mm
Esophagus diameter (posterior end)	130	140	—	82-231	96-147
Ventriculus length	420	450	340-700	218-580	252-403
Ventriculus diameter (middle)	130	150	—	101-300	130-227
Intestinal caecum length	110	150	50-140	21-147	42-97
Rectum length	215	235	—	101-323	176-201
Tail length	240	270	120-300	127-222	126-206
Phasmid to tail tip	120	148	80-170	76-147	97-122
Author	Present authors		Sprent (1977)	Lichtenfels <i>et al.</i> (1978)	

All measurements are in micrometers unless otherwise indicated.

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without appendage, intestine with small caecum, and tail with a pair of phasmids and terminating in a mucronate tip.

These anisakine nematodes were fourth



Figs. 1-4 Fourth stage larva of *Sulcascaris sulcata* from *Hemifusus ternatanus*. 1. Head, showing ventral interlabium. 2. Head, showing excretory pore (arrow) at base of ventral interlabium. 3. Ventriculus and intestinal caecum (arrow). 4. Tail, showing two phasmids (arrows). Bars 0.1 mm.

stage larvae indistinguishable from *Sulcascaris sulcata* (Rudolphi, 1819) which utilizes marine molluscs as intermediate hosts and marine turtles as definitive hosts. Detailed measurements are shown in Table 1 comparing these specimens with those from Australian (Sprent, 1977) and Atlantic molluscs (Lichtenfels *et al.*, 1978). Our specimens are relatively larger than the others. The larval *S. sulcata* has been reported previously from various marine bivalves and gastropods: *Amusium balloti*, *Chlamys* sp., *Pinna menkei*, *Spondylus ducalis* (Bivalvia) and *Cypraea tigris* (Gastropoda) of the Queensland coast of Australia (Sprent, 1977; Cannon, 1978) and *Argopecten gibbus*, *A. irradians*, *Spisula solidissima* (Bi-

valvia), *Busycon canaliculata*, *Fasciolaris lilium hunteria*, *Lunatia heros* and *Pleuroploca gigantea* (Gastropoda) of the Atlantic coast of North America (Lichtenfels *et al.*, 1978, 1980, etc.). *Paranisakis pectinis* Cobb, 1930 from pecten of North Carolina may be a fourth stage larva of *S. sulcata*.

According to Berry and Cannon (1981), the life history of *S. sulcata* is summarized as follows: Two moults occur in the egg to produce a third stage larva which spontaneously hatches. Third stage larvae develop in marine bivalves and gastropods and moult to fourth stage larvae after 3-4 months, when about 5 mm long. Larvae are found in the adductor muscle, and later, in digestive gland

and gonads of the bivalves and in the gonads and digestive gland of the gastropods. Fourth stage larvae in molluscs ingested by marine turtles attach at the esophago-gastric junction and moult to adult in 7-21 days. Subsequent growth to mature takes 5 months. It is interesting that during the development from third to fourth stage larvae the excretory pore moves anteriorly from midway between the anterior end and the nerve ring to the base of the lips. Sprent (1977) described the adult measuring 29-63 mm long in males and 33-61 mm long in females from the stomach of turtle of the western Pacific.

At present, *Sulcascaaris sulcata* is the only species in the genus, and the adult has been known from the green turtle, *Chelonia mydas*, and the loggerhead turtle, *Caretta caretta*, in the coastal waters in Mediterranean, Caribbean, southern Atlantic, western Atlantic and western Pacific (Sprent, 1977). The green turtle is omnivorous, but feeds chiefly on seaweeds whereas the loggerhead turtle is carnivorous, feeding especially on gastropods and bivalves. Taking the food habits into consideration, the latter seems to play more important role than the former for dissemination of *S. sulcata*. In Japan, it is found in the waters of central Honshu southward.

Observation that the fourth stage larvae did

not invade chickens and cats (Berry and Cannon, 1981) may indicate *S. sulcata* to be infectious only for poikilotherms. As pointed out by Berry and Cannon (1981), further examination is needed to determine whether this nematode would be a human pathogen or not.

References

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短 報

テングニシから得られた幼線虫 *Sulcascaris sulcata* について町田昌昭¹⁾ 吉田好一郎²⁾

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八代海(?)産のテングニシを刺身として食用に供する際、2匹の幼線虫が見出された。体長はそれぞれ34.3 mmと41.5mmで、頭端には3個の口唇と3個の間唇があり、排泄口は腹側間唇の基部に位置し、腸の起始部には非常に短い腸盲嚢があり、尾端は1個の微小突起におわる。本虫はアニサキス亜科の *Sulcascaris sulcata* の第4期幼虫で、海産二枚貝や腹足類を中間宿主、肉食性のオオアカウミガメなどの海亀を終宿主

とし、オーストラリア東岸やアメリカ合衆国大西洋岸などから知られていた。わが国でもオオアカウミガメは関東以南の黒潮域に回遊するので、今後も本虫がみつかるとの可能性がある。これまでの実験によれば、本幼虫は恒温動物に感染しないとされるので、人に対して病害性はないと思われるが、さらに実験を追加して確認する必要がある。