

Notes

Nematode Parasites from Digestive Tract of Conger *Conger conger* L. from the Northwest Coast of the Iberian Peninsula

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Abstract

The preliminary studies of nematode parasites from *Conger conger* L. sampled in Northwest coast of Iberian Peninsula revealed the occurrence of *Anisakis* sp. larvae (L3), *Cucullanus hians*, *Cucullanus longispiculum* and *Cristitectus congeri*. Distinctive features of *C. hians* and *C. longispiculum* are presented. The possibility of misidentification between *Cucullanus* sp. and *Dichelyne* sp. is discussed.

Conger conger (Artedi, 1738) Linnaeus, 1758 is a benthic fish of commercial importance that occurs in eastern north Atlantic and in the Mediterranean Sea on the shelf on rocky and sandy bottoms.

The nematodes *Anisakis simplex* (L3), *Hysterothylacium aduncum* (L3, L4 and adults) *Cucullanus hians*, *Cucullanus longispiculum*, *Dichelyne* sp. and *Cristitectus congeri* have been detected in *C. conger* from Iberian Peninsula coast (Muñoz *et al.*, 1988; Oliveira Rodrigues *et al.*, 1973; Quinteiro *et al.*, 1987, 1989, 1991, 1992; Sanmartin *et al.*, 1989, 1994).

In order to contribute to a better knowledge of *C. conger* nematode parasites, a periodical survey of the digestive tract has been carried out since May 1998 in Northwest coast of Iberian Peninsula. The preliminary results are compared with the previous reports, distinctive features of *Cucullanus hians* and *Cucullanus longispiculum* are reported and the

possible misidentification of *Cucullanus* sp. and *Dichelyne* sp. is evaluated.

Conger conger was obtained in Vila Praia de Ancora (Northwest of Portugal) and Vigo (Northwest of Spain). The digestive tract of 16 specimens (body length 77.0 – 155.0 cm) were inspected. The nematodes collected were washed in physiological saline (0.9%), fixed in hot 70% ethanol and cleared in glycerine or lactophenol depending on the size and transparency of the nematode body.

Anisakis (Dujardin, 1845) larvae (probably *Anisakis simplex* (Rudolphi, 1809)) *Cristitectus congeri* Petter, 1970, *Cucullanus hians* Dujardin, 1845 and *Cucullanus longispiculum* Oliveira Rodrigues, Carvalho Varela, Sodr e Rodrigues & Crist faro, 1973 were detected.

Anisakis sp. larvae (L3) were encapsulated in the mesentery with a prevalence of 94% and a mean intensity of 12.2 (1-80).

| | <i>Cucullanus hians</i> | | <i>Cucullanus longispiculum</i> | |
|---|--------------------------|--------------------------|---------------------------------|--------------------------|
| | Males (n= 5) | Females (n=5) | Males (n=11) | Females (n=6) |
| Length of body (mm) | 8.7-16.6 (13.5±3.0) | 14.6-23.0 (19.7±3.2) | 7.1-17.0 (12.8±3.0) | 12.1-23.2 (18.5±4.7) |
| Length of oesophagus (mm) | 1.2-1.7 (1.5±0.2) | 1.5-1.8 (1.6±0.1) | 1.1-1.4 (1.2±0.1) | 1.1-1.5 (1.3±0.2) |
| Distance of nerve ring to anterior extremity (mm) | 0.44-0.58 (0.52±0.05) | 0.47-0.62 (0.55±0.05) | 0.42-0.56 (0.50±0.05) | 0.44-0.54 (0.51±0.04) |
| Distance of deirids to anterior extremity (mm) | 0.90-1.20 (1.11±0.12) | 1.10-1.28 (1.18±0.07) | 1.02-1.44 (1.22±0.17) | 1.02-1.54 (1.31±0.20) |
| Dist. excretory pore to anterior extremity (mm) | 1.16-1.60 (1.48±0.18) | 1.53-1.66 (1.61±0.06) | 1.40-1.90 (1.56±0.16) | 1.42-2.10 (1.74±0.30) |
| Length of spicules (mm) | 0.80-1.86 (1.23±0.42) | | 2.10-3.46 (2.82±0.54) | |
| Dist. vulva to posterior extremity (mm) | | 4.5-9.6 (7.2±2.2) | | 4.0-8.5 (6.5±2.0) |
| Length of tail (mm) | 0.30-0.38 (0.34±0.03) | 0.52-0.56 (0.54±0.02) | 0.12-0.28 (0.20±0.04) | 0.26-0.44 (0.35±0.08) |
| Relative length of oesophagus (a)(%) | 10.2-13.3 (11.1±1.3) | 7.0-12.3 (8.5±2.2) | 7.1-12.2 (9.1±1.6) | 5.6-9.4 (7.5±1.3) |
| Relative length of spicules (b) (%) | 7.3-12.7 (9.1±2.2) | | 18.1-29.6 (22.5±3.3) | |

Table 1. Morphometrical features of *Cucullanus hians* and *Cucullanus longispiculum*. Range (average ± standard deviation). (a) Calculated as length of oesophagus/ length of body x 100. (b) Calculated as length of spicules/ length of body x 100

C. congeri were usually found in stomach, rarely in the intestine, with a prevalence of 50% and a mean intensity of 4.5 (1-10).

C. hians and *C. longispiculum* were found in the intestine. These two species were very similar (Table 1) and during the collection of the parasites they were not distinguished. The prevalence of both species was 100% and the mean intensity 10.1 (2-28). After detailed examination 61.5% of the specimens were identified as *C. hians* and 38.5% as *C. longispiculum*. The distinctive features between these two species are presented in Table 2. It must be

stressed that the most important distinctive characteristic is the length of male spicules. Distinctive features of females are very few and not relevant from a taxonomic point of view.

All the nematode species found in the present work were previously reported in Iberian Peninsula. However *H. aduncum* and *Dichelyne* sp. were not detected in our samples.

H. aduncum was detected by Quinteiro *et al.* (1987, 1991) and Sanmartin *et al.* (1989, 1994) in two localities of Northwest Spain (Ria de

| <i>Cucullanus hians</i> | <i>Cucullanus longispiculum</i> |
|--|--|
| Nerve ring encircling oesophagus approximately at 1/3 of its length from anterior extremity. | Nerve ring encircling oesophagus between 1/3 and 1/2 of its length from anterior extremity. |
| Deirids located at posterior third of oesophagus. | Deirids located somewhat anteriorly to or, more usually, behind junction of oesophagus and intestine. |
| Excretory pore posterior to deirids and near junction of oesophagus and intestine. | Excretory pore posterior to deirids below junction of oesophagus and intestine. |
| Male with elevated cloacal lips. | Male with prominent precloacal elevation with unpaired ventral papilla. |
| Male with spicules with membranous alae beginning, when not extruded, near precloacal sucker level and not longer than 13% of total body length. | Male with spicules beginning, when not extruded, much more anteriorly than precloacal sucker and longer than 18% of total body length. |
| Male with well sclerotic gubernaculum | Male with weakly sclerotic gubernaculum (sometimes difficult to see). |
| Male tail longer than 0.30 mm and female tail longer than 0.50 mm. | Male tail not longer than 0.30 mm and female not longer than 0.50 mm. |

Table 2. Distinctive features of *Cucullanus hians* and *Cucullanus longispiculum*

Muros and Ria Arosa) not far from our sampling places. The prevalence values reported to Ria de Muros and Ria Arosa were quite different. In Ria de Muros these authors detected a prevalence of 4.5% (1.8% of L3 and L4 and 2.7% of adults) and a mean intensity of 1.6 (1 of L3 and L4, and 3 of adults), in a sample size of 110 *C. conger*. In Ria Arosa the prevalence was 24% (L3 and adults) and the mean intensity 4.7 (L3 and adults), in a sample size of 25 *C. conger*. Our sample is too small to detect parasites present in low prevalence, so the detection of *H. aduncum* in future samples is a strong possibility.

Dichelyne sp. was observed by Nuñez *et al.* (1988) in Valencia (Spanish Mediterranean coast) with prevalence of 17% and a mean intensity of 2, in a sample size of 68 *C. conger*.

However this parasite was not detected by Quinteiro *et al.* (1987, 1991) and Sanmartin *et al.* (1989, 1994) in 110 specimens of *C. conger* captured in Northwest Spain (Atlantic coast), which is in accordance to the observations in the present study. These results may suggest a different occurrence of the parasite in the Mediterranean and Atlantic coast.

Some *Cucullanus* specimens observed in the present study showed an invagination of the oesophagus in the intestine, which gave a false idea of the presence of one or two intestinal caeca. Once the most important distinctive feature between *Cucullanus* and *Dichelyne* is the presence of an anteriorly directed intestinal caecum in *Dichelyne*, a misidentification of *Cucullanus* specimens as *Dichelyne* sp. is a strong possibility.

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