

FIRST REPORT OF *ANGUILLICOLA CRASSUS* IN THE EUROPEAN EEL IN PORTUGAL

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In April 1992 we detected the parasite *Anguillicola crassus* Kuwahara, Niimi and Itagaki, 1974, in eels from Ria de Aveiro (Portugal) for the first time in that country. The presence of nematodes belonging to the genus *Anguillicola*, parasitising the swim bladder of eels was first reported in eels by Yamsguti, 1935. In the early 1980's (van Banning, 1991) a major dispersion of these parasites occurred in many European countries, principally as a result of the transport of live infected eels for the restocking of commercial eel farms.

The object of the present investigation was principally research into the presence of ecto- and endoparasites in eels and the associated pathological effects.

During our study a large proportion of the eels sampled did not survive the stress of transport to the laboratory (± 200 km). The surviving 142 eels were killed with phenoxyethanol in water before examination. On gross examination, the eels showed some haemorrhagic ulcers in the abdominal region. In some we observed inflammation and thickening of the swimbladder wall with the lumen of the organ being filled with a cloudy fluid containing larvae and adult stages of the nematode (Figs 1 and 2).

The viability of each isolated nematode was checked mechanically. Parasites remained alive for more than six weeks at 5 C and three weeks at room temperature. Measurements were made from worms fixed in ethanol and glycerine using a measuring binocular microscope. The morphology and measurements of the adult parasites agreed with those reported by Taraschewski *et al.* (1987).

Samples of all eel internal organs were collected and fixed in phosphate buffered formalin for histological examination. Histological sections of 5 μ m were stained with Mayer's Haemalum-Putt's Eosin.

We found a prevalence of 42% parasitised eels. We also observed that 53% of the eels were infected with *Myxidium giardi* in the gills and skin and the same Myxosporidan was found in kidney in 29% of the eels. In 8% of swimbladders infected with *Anguillicola crassus* we observed spores of *Myxidium* sp. in the lumen.

In histological examination, some larval stages were found in the intestine, but in the swimbladder only inflammation was evident. No inflammation or other signs indicating pathological changes were noted in other organs.

A general bacterial infection caused by *Aeromonas hydrophila*, *Pseudomonas fluorescens* and *P. putrefaciens*, was observed in the eels.

We suggest that eels infected with *Anguillicola* may be less tolerant to stress conditions such as handling, transport, etc. and may also be more vulnerable to bacterial and other parasitic infections. Therefore, further studies into this parasite, its epidemiology, biology, pathology, as well as prophylactic and therapeutic measures are planned.

Summary

We report the presence of the parasite *Anguillicola crassus* in *Anguilla anguilla* for the first time in Portuguese waters. The percentage of infected eels was 42%.

Acknowledgements

We thank Teresa Albuquerque for bacteriological examination.

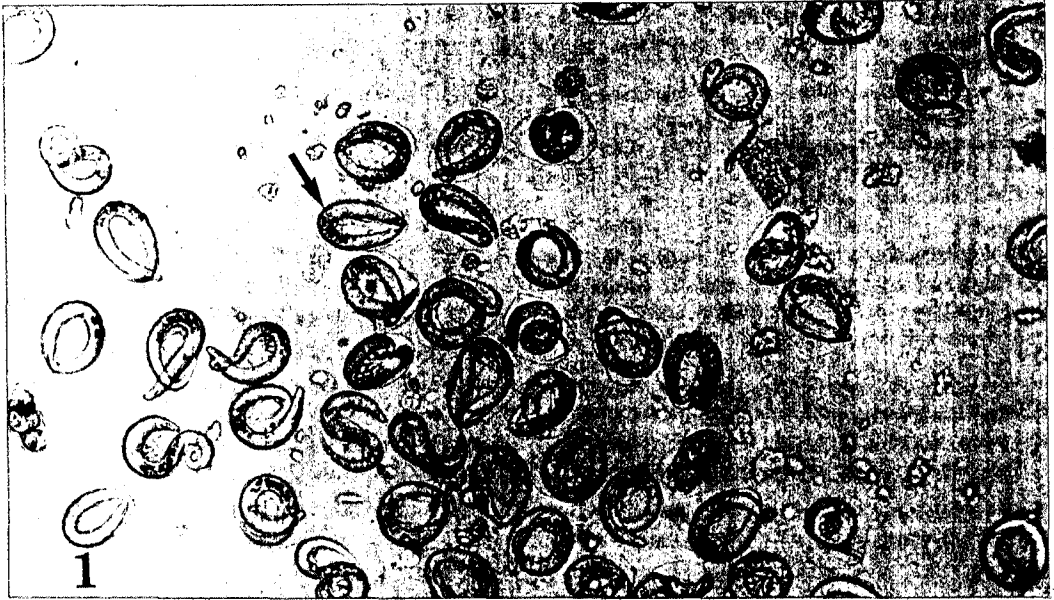


Fig. 1 Pre-adult stages of *Anguillicola crassus*



Fig. 2 Anterior part of *Anguillicola crassus*

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