

***PSEUDODACTYLOGYRUS ANGUILLAE* (YIN & SPROSTON, 1948) GUSSEV, 1965 AND *P. BINI* (KIKUCHI, 1929) GUSSEV, 1965 (MONOGENEA: MONOPISTHOCOTYLEA) IN PORTUGAL**

BY A. SARAIVA

Introduction

Studies on the parasitofauna of the European eel *Anguilla anguilla* L. from north Portugal have been made in the last few years.

Saraiva & Chubb (1989) reported for the first time the occurrence of the monogenean *Pseudodactylogyrus anguilla* in Portugal. The continuation of this research provided the opportunity to detect the presence of *Pseudodactylogyrus bini*, an unreported parasite for portuguese eels and, as far as we know, of Iberian Peninsula so far.

Morphometric features of both species, histopathological effects observed in the gills of the host and data on the prevalence and intensity of infection are described in this note.

Materials and Methods

The data were obtained from 290 specimens of *A. anguilla* caught by electric fishing between January 1988 and December 1989 in river Este, last downstream tributary of the river Ave, north Portugal.

Searching of parasites were made in the left gill arches only. Measurements of specimens (n = 25) were made according Ogawa & Egusa (1976). For histology some gills were fixed in 4% neutral buffered formalin, and paraffin-wax sections were stained with haematoxylin and eosin.

Results

Measurements of the two parasite species are given in Table 1.

The more usual histopathological effect of *Pseudodactylogyrus* spp. infections is hyperplasia of the gill tissue that causes ex-

tensive secondary lamellae fusion. Hyperemia was observed in some cases. Haptor embedment in the host tissue was noticed in some *P. bini* infections.

During the two years study period specimens of *Pseudodactylogyrus* spp. were observed every months. Prevalence changed between 6.7 % (April 1988) and 85.7 % (November 1988). The higher prevalences occurred in Autumn months in both years. Intensity of infection (left gill arches only) varied between 1 and 265 specimens, and mean intensity between 1 ± 0 (January 1988) and 58.9 ± 98.3 (August 1989). A detailed study of the seasonality and the influence of some ecological factors upon the occurrence and intensity of infections of several eel parasites, including *Pseudodactylogyrus* spp. shall be reported somewhere else.

Discussion

To distinguish between the two species the size and shape of the anchor is the more important feature. Anchor measurements, in the present study, agree with those obtained by several authors (Ogawa & Egusa, 1976; Imada & Muroga, 1977; Le Brun *et al.*, 1986; Sanchez *et al.*, 1992), but it is interesting to note that *P. anguillae* from Spain (Sanchez *et al.*, 1992) and from Portugal have a bigger length of the point.

As Gussev (1965) and Ogawa & Egusa (1976) we noticed that *P. bini* anchor is smaller and stouter than *P. anguillae* one. According to Ogawa *et al.*, (1985) one of the differential features of the two species is the anchor length without the reflexed part of the internal process. According to those authors this value is smaller than 70 μm , in *P. bini*, and bigger than 80 μm , in *P.*

Table 1. Measurements (μm) of *P. anguillae* and *P. bini*. Mean (min. - max.) a: overall length of the anchor b: anchor length without the reflexed part of the internal process c: length of the base d: length of external process e: length of the internal process f: length of the point g: length of the reflexed part of the internal process

Species:	<i>P. anguillae</i>	<i>P. bini</i>
Body length	899 (368-1400)	1212 (768-1600)
width	183 (115-235)	197 (153-230)
cirrus accessory length	36 (30-40)	45 (35-51)
Testis:		
length	36 (15-61)	180 (112-281)
width	42 (23-63)	104 (86-141)
Prostatic reservoir	19 (13-30)	22 (16-26)
Ovary:		
length	69 (40-118)	89 (80-96)
width	68 (30-108)	74 (64-80)
Pharynx:		
length	48 (30-70)	73 (54-96)
width	46 (30-63)	71 (58-86)
Haptor:		
length	99 (63-130)	86 (77-106)
width	119 (78-190)	108 (86-134)
Anchor:		
a	105 (100-122)	60 (50-68)
b	96 (88-102)	53 (45-56)
c	74 (73-80)	41 (38-44)
d	12 (10-16)	12 (10-14)
e	63 (55-74)	38 (31-41)
f	42 (38-48)	24 (19-28)
g	45 (43-48)	25 (23-28)
Bar length	50 (48-58)	40 (36-44)
Marginal hook length	16 (15-18)	17 (15-20)

anguillae. This feature was also observed in our specimens.

The histopathological effects described by several authors (Baozan & Baowa, 1984; Buchmann *et al.*, 1987; Buchmann, 1988) are similar to that ones observed in the present study. *A. anguilla* is highly susceptible to *Pseudodactylogyrus* spp. infections and have been reported to cause severe problems in eel farms (Buchmann *et al.*, 1987).

This parasites could damage the gill tissue in such as extend that respiratory impairment might occur. Therefore it seems possible that mortality in wild eels infected with this parasites and under stress conditions, especially oxygen deficiency and occurrence of other gill parasites, might eventually occur.

Summary

Morphometric features of *Pseudodactylogyrus anguillae* and *P. bini* detected in the European eel *Anguilla anguilla* from the river Este, north Portugal, are presented. The species *P. bini* is reported for the first time in Portugal. Histopathological effects of this parasites in gill tissue are referred.

Author's address

Instituto de Zoologia, Faculdade de Ciências, Universidade do Porto, 4050 Porto, Portugal.

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