Bull. Eur. Ass. Fish Pathol., 19(3),107, 1999.

FIRST RECORD OF *PARADEONTACYLIX* MCINTOSH, 1934 SPECIES (DIGENEA: SANGUINICOLIDAE) IN MEDITERRANEAN AMBERJACK, *SERIOLA DUMERILI* (RISSO, 1810), CULTURE

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Abstract

The presence of *Paradeontacylix* spp. specimens, parasitizing the blood system of *Seriola dumerili* in Mediterreanean waters, is reported at first time. Fishes from two different localities off Spanish coasts (Murcia and Balearic Islands) were analyzed, obtaining a high infestation prevalence .

Introduction

Amberjack culture offers great possibilities in aquaculture, because of its fast growth rate and its commercial interest (García *et al.* 1995). However, mass mortalities in Japanese amberjack culture have ocurred because of infections with blood flukes of the family Sanguinicolidae, specifically, species of the genus *Paradeontacylix* (Ogawa & Egusa 1986). In the Western Mediterranean, similar episodes have been reported in amberjack cultures in Majorca, Balearic Islands (Spain) (Crespo *et al.*, 1992, Grau, 1994). Sanguinicolidosis in fish is characterized by lessions caused by blood-fluke egg accumulation in host vascular system, particularly in the gill vessels (Grau, 1994). The adult worms seem not to make apparent damages by themselves. The aim of this study is to identify the causal agent of sanguinicolidosis in the Mediterranean amberjack.

Materials and Methods.

Monthly parasitological examination of fifty-nine 0+ amberjack from natural populations from two Spanish Mediterranean localities (Murcia and Balearic Islands) were undertaken. Fish were reared in experimental cultures in the Instituto Español de Oceanografía (IEO) facilities, in Puerto de Mazarrón, Murcia (Spain). All surviving fish were killed with benzocaine. Then, dissections were performed for gross pathology or parasite occurrence. In order to locate the flukes,

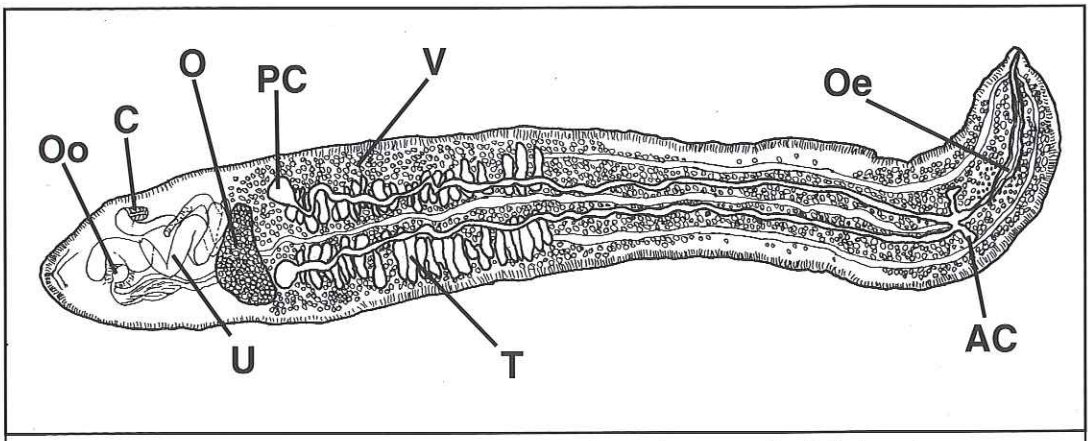

Figure 1 Ventral view of a *Paradeontacylix* sp. specimen from Murcia. AC, Anterior caecum; C, Cirrus Pouch; O, Ovary; Oe, Oesophagus; Oo, Ootype; PC, Posterior caecum; T, Testes; U, Uterus; V, Vitellaria

Table 1. Sanguinicolids presence in Murcia and Balearic Islands amberjacks. Data about eggs and adults are indicated separately. Mean abundance of adults presence appears too. N: number of individual examined

Murcia Samples				
Month	N (40)	Fish with parasite eggs Present	Fish with adult parasites oresent	Adults Mean Abundance ±S.D
December (1996)	5	0	0	0
January (1997)	5	3	0	0
February (1997)	5	5	0	0
March (1997)	5	4	0	0
April (1997)	5	5	1	0,20 ± 0,45
May (1997)	5	5	2	0,80 ±1,30
June (1997)	5	5	0	0
July (1997)	5	1	0	0
Balearic Islands Samples				
Month	N (19)	Fish with parasite eggs Present	Fish with adult parasites oresent	Adults Mean Abundance ±S.D.
November (1996)	10	1	0	0
December (1997)	9	0	1	0,11 ±1,30

large blood vessels and heart chambers were isolated with a polyester thread, and examined independently. Examination was by stereo and light microscopes. Parasites were fixed and preserved in AFA, stained with alum carmine, and mounted in Canada balsam. Prevalence has been expressed with 95% confidence interval (C.I.), according to Bush *et al.*, 1997.

Results and discussion.

Five adult blood-flukes were found in the ten fish in the April and May samplings from Murcia. The trematodes were located in the cephalic kidney or the caudal vein, measuring between 3,5 and 5,6 mm in length. Free eggs occurred in most fish gills of this group, with a prevalence (95%C.I., in brackets) of 70 % (56.0, 83.0). (Table 1). Some eggs were also observed in the heart, sinus venosus, bulbus arteriosus and kidney. About Balearic Island group, two additional adult sanguinicolids occurred in one amberjack in early December. Their body length was 1.72 mm. Only one fish from this group showed eggs in the gills (prevalence, 5.3 %(2.0, 25.0)) (Table 1). Morphological traits of adult flukes from both sets (lanceolate body, no suckers and marginal ventral spination along all the body. X-shaped intestine. Numerous testes and one ovary. Both genital pores separated, and with cirrus pouch. Uterus confined to the postovarian zone, and eggs without operculum (Fig .1)) reveal that the parasites belong to the family Sanguinicolidae and the genus *Paradeontacylix* McIntosh 1934 (Yamaguti 1971). The flukes found in the amberjacks from Murcia show two longitudinal and parallel testicle lines, and vitellaria do not extend posterorly beyond the ovary, like *P. kampachi* (Ogawa & Egusa, 1986). The trematodes from Balearic Islands exhibit only one central testis line and elongated posterior spines, diagnosis characters of *P. grandispinus* Ogawa et Egusa, 1986. In spite of this, other traits do not coincide clearly with these species.

This is the first record of a *Paradeontacylix* species in Mediterranean waters, specifically in their western coasts. This confirms the wide geographical distribution of these worms as suggested by Ogawa *et al.* (1993) and agrees with the almost circumglobal distribution of the definitive host, *S. dumerili* (Whitehead *et al.* 1984). Further studies will be carried out to collect more specimens for identifying the *Paradeontacylix* species.

Acknowledgements

This study was supported by the Generalitat Valenciana, PVCYT project No. GV-D-AG-02-138/96. We want also to thank the technical assistance given by F. de la Gándara from IEO (Murcia) and Drs. F.J. Aznar, J.A. Balbuena and M. Fernández (University of Valencia) for their collaboration. The first author holds a doctoral fellowship from the Conselleria de Cultura, Educació i Ciència of the Genaralitat Valenciana.

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