SHORT NOTE

THELOHANIA CONTEJEANI IN THE PROVINCE OF ALAVA, SPAIN.

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ABSTRACT

This work describes the presence of the microsporidian parasite, *Thelohania contejeani* in some populations of *Austropotamobius pallipes* of the province of Alava, Spain. This paper constitutes the first report of the presence of this parasite in Spain.

Key-words : *Thelohania contejeani*, crayfish, parasite.

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RÉSUMÉ

Cette étude décrit la présence de la microsporidie *Thelohania contejeani* dans des populations d'*Austropotamobius pallipes* de la province d'Alava, Espagne. Elle constitue le premier rapport concernant la présence de ce parasite en Espagne.

Mots-clés : *Thelohania contejeani*, écrevisse, parasite.

INTRODUCTION

Thelohania contejeani Henneguy is a microsporidian parasite responsible for the porcelain disease which affects decapod crustaceans. *T. contejeani* is an intracellular parasite which is especially found in muscle fibres. However spores have been also described in supraoesophageal ganglion (COSSINS and BOWLER, 1974), developing eggs (VORONIN, 1971), and in the cells of the nervous system, the connective tissues

surrounding the gut and the envelopment of the ovary (VEY and VAGO, 1972). When this parasite infects the tissues, it replaces them with a mass of spores. These cause the muscle to turn opaque white, milky-like appearance. As a consequence, animals on advance stage of infection are easily recognized because of the whiteness of their tail.

Prevalence rates of thelohaniasis in infected populations range from 0.1 % to 50 % (ALDERMAN and POLGLASE, 1988 ; SCHÄPERCLAUS, 1954). This disease leads to death of the infected animal and the time taken to occur is from several months to one or two years (BROWN and BOWLER, 1977 ; MAZYLIS, 1978 and SKURDAL *et al.*, 1990).

This parasite has been found world-wide in an extensive range of species (ALDERMAN and POLGLASE, 1988). However, *T. contejeani* had never been reported in any Spanish population of the only native freshwater crayfish species of the Iberian Peninsula, *Austropotamobius pallipes*.

MATERIAL AND METHODS

Crayfish with signs of porcelain disease have been observed in three crayfish populations of regions of Alava. Microscopical examinations were done to confirm infections with *T. contejeani*. The shape and size of the spores were similar to those described for *T. contejeani* in the literature (COSSINS and BOWLER, 1974).

The population of a pond called pond 1 has been studied since 1992 and yearly prevalence of this disease recorded. Ponds 2 and 3 were only studied in 1994. Catchings of crayfish were always carried out within the first two weeks of July. Crayfish were caught with baited traps and numbers of crayfish infected with *T. contejeani* were recorded, basing on the whiteness of their tail. It is known that gross observation under-estimates the level of infection (SKURDAL *et al.*, 1988 and 1990). However, when comparing yearly variation in prevalence gross examination should not influence it (SKURDAL *et al.*, 1988 and 1990).

RESULTS AND DISCUSSION

Microscopical examinations confirmed the presence of *T. contejeani* in three populations of *A. pallipes* of the province of Alava. The levels of infection in pond 1 varied between unappreciated levels to 1.0 % (Table I) while in ponds 2 and 3 the level of infection was found to be 0.7 % and 0.5 % respectively (Table I). Variations within this range are normal (ALDERMAN and POLGLASE, 1988). Thus, levels of infection seem to be low and populations do not appear to be affected. Similar observations have been reported by SKURDAL *et al.* (1988 and 1990) in lake Steinsfjorden in Norway where the mean prevalence of *T. contejeani* was found to be 0.29 % and populations do not appear to be influenced by the presence of this parasite.

To our knowledge this is the first report of the presence of *T. contejeani* in Spain. Whether this microsporidian was already present or has been recently introduced remains unknown. It is possible that due to the low levels of this parasite, its presence had been difficult to detect. Populations of North American species such as *Pacifastacus leniusculus* and *Procambarus clarkii* are present in this region but no signs of this disease have been noted yet.

Finally, the detection of crayfish pathogens in natural populations is of great importance especially when they are used for restocking purposes which may serve as a way of spreading these pathogens. In the case of the native species, *A. pallipes*, this is

Table I

***Thelohania contejeani* infection levels in three ponds of the province of Alava.**

Tableau I

Niveaux d'infection par *Thelohania contejeani* dans trois étangs de la province d'Alava.

YEAR	ORIGIN	SAMPLE SIZE	INFECTION LEVEL (%)
1992	POND 1	1856	0.1
1993	POND 1	2515	1.0
1994	POND 1	1237	0.8
1995	POND 1	1217	0.5
1996	POND 1	1624	unappreciated
1997	POND 1	436	0.2
1994	POND 2	451	0.7
1994	POND 3	217	0.5

especially important since this species is considered as an endangered one (GROOMBRIDGE, 1994). At present, some local Governments of Spain have implemented several activities for the conservation of native crayfish populations (DIÉGUEZ-URIBEONDO *et al.*, 1997). Since these actions usually involve translocation of crayfish great care should be taken in selection of crayfish which have to be parasite-free.

CONCLUSIONS

1 *Thelohania contejeani* is present in at least three populations of *Austropotamobius pallipes* of Spain ;

2 levels of infection are relatively low, ranging from 0.1 % to 1 % ;

3 populations do not appear to be affected by the presence of this parasite ;

4 control of these populations should be performed and their crayfish should not be used for restocking purposes.

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