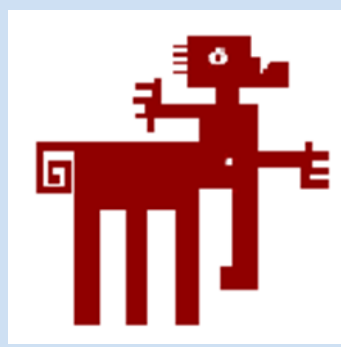


# Study of trichinosis in wild species in Catalonia



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## INTRODUCTION:

Trichinosis is a worldwide zoonotic disease caused by nematodes of the genus *Trichinella* (1). In Spain, *Trichinella spiralis* and *Trichinella britovi* are highly prevalent in wildlife but seldom encountered in domestic pigs. In the epidemiology, wild and domestic cycles are identified. Humans acquire the infection by the consumption of raw or semi-raw meat and meat derived products from domestic and wild swine, carnivores and horses (2). Recent reports suggest that human infections from hunted animals are on the rise worldwide, in particular caused by *T. spiralis* and *T. britovi*. In 2014, *T. pseudospiralis* larvae were isolated from a wild boar in Girona (Catalonia)(3). The aim of this study is to analyze the presence of *Trichinella* spp. in wild boar and other wild mammals from Catalonia.

## MATERIALS AND METHODS:

Muscle samples of 142 wild boars from two different geographical regions, Collserola Natural Park (CNP, Barcelona) (n=126) and Girona (n=16) were collected. Additional 90 samples of wild carnivores from different geographical regions of Catalonia were also analyzed. The 16 samples from Girona were previously analyzed in an official laboratory, and remitted to the Veterinary School in order to confirm and quantify the presence of *Trichinella* sp. Artificial digestion for *Trichinella* spp. analysis was used as described in the Annexes I and III of the EU Regulation N°. 2015/1375 (Ref) (4). Positive were also analyzed by trichinoscopy, and both methods were compared.

Table 1: Data about positive wild boars.

ID	DATE SAMPLE	TOWN	REGION	SEX	AGE	DIGESTION RESULT. (quantitative)	COMPRES. RESULT. (qualitative/quantitative)
TR1503	13/11/15	La Bauma	La Selva	M	>24m	>100 larvae/20g	+ (>200 lpg)
TR1504	27/11/15	Tovernols	Osona	M	>24m	>100 larvae/20g	+ (>200 lpg)
TR1505	04/12/15	Taradell	Osona	M	>24m	>100 larvae/20g	+ (>200 lpg)
TR1543	18/12/15	St. Feliu Pallerols	Garrotxa	M	>12m	11 larvae/20g	- (0 lpg)
TR1544	15/01/16	Tavertet	Osona	F	>12m	3 larvae/20g	+ (8 lpg)
TR1545	18/01/16	Granera	Bages	M	6m	1 larva/20g	- (0 lpg)
TR1546	27/01/16	Tavernoles	Osona	F	>12m	>100 larvae/20g	+ (460 lpg)
TR1547	09/02/16	Viladrau	Osona	/	/	1 larva/20g	- (0 lpg)
TR1562	04/02/16	Rupit	Osona	/	/	2 larvae/20g	- (0 lpg)
TR15135	21/03/16	Tavertet	Osona	/	/	2 larvae/50g	- (0 lpg)
TR15136	27/02/16	Rupit	Osona	F	/	1 larva/20g	- (0 lpg)
TR15139	21/03/16	Folgueroles	Osona	/	/	>100 larvae/20g	+ (380 lpg)

## RESULTS:

*Trichinella* larvae were isolated from 12 of 16 samples of wild boars (Figure 1) from Girona (Table 1). Two positive wild carnivores, one marten (*Martes foina*) and one badger (*Meles meles*), coming from two different groups were also identified (Figure 1). Otherwise, the 126 samples from PNC yield to negative result.

Positive wild boars from Girona were also analyzed by trichinoscopy: 6 samples were positive and 6 samples were negative (Table 1). High parasitic load in artificial digestion (>100 larvae/20g) is associated with positive result in trichinoscopy, whereas low parasitic load yields to negative results in trichinoscopy (false negative).

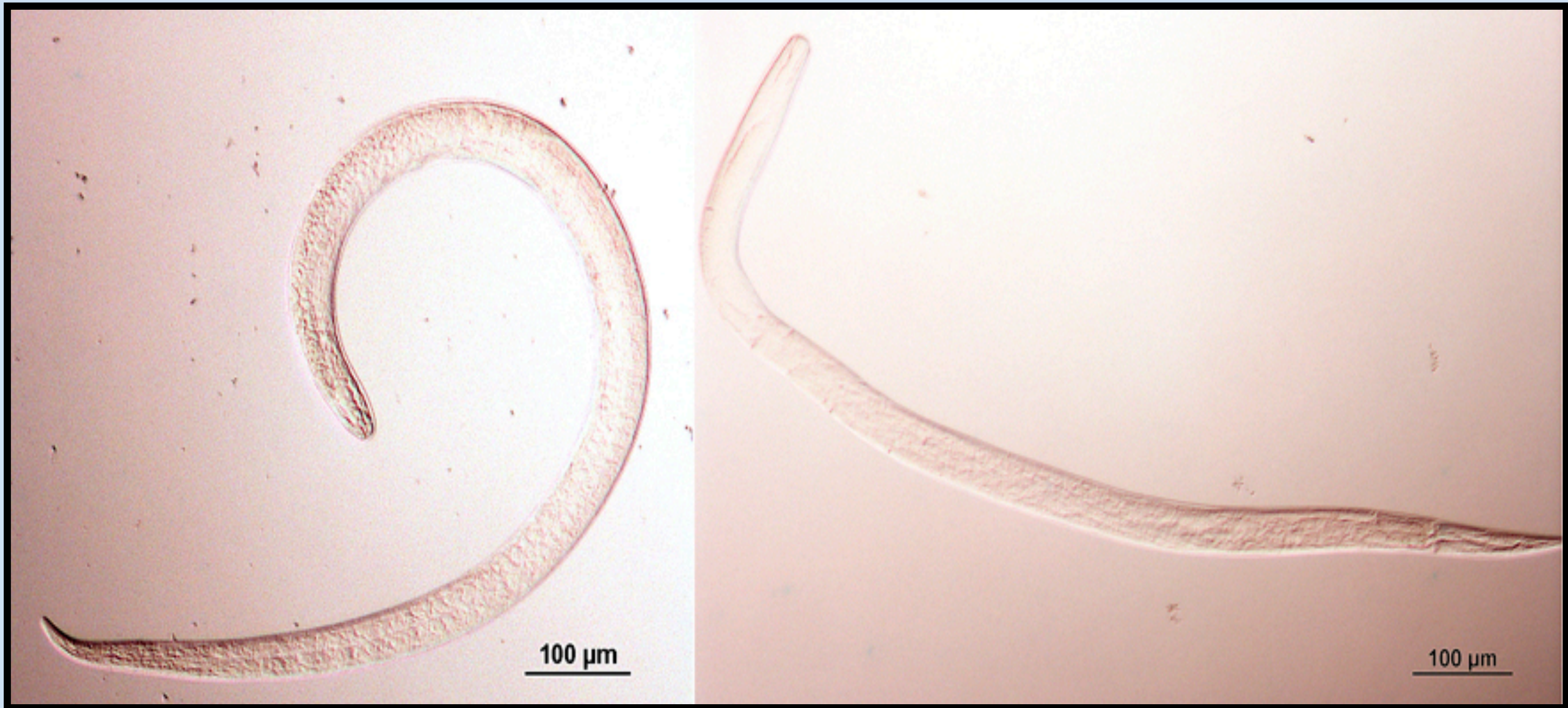


Figure 1 : Photographs of isolated larvae from wild boar (*Sus scrofa*) on left, and from badger (*Meles meles*) on right.

## CONCLUSIONS:

The current study showed that nematodes of genus *Trichinella* are present in wild animals of Catalonia, especially wild boar (*Sus scrofa*), hence the wild cycle of *Trichinella* spp. occurs in this country. The increment in prevalence of trichinosis can be probably attributed to the increase in numbers of wild boar population (3).

We confirmed that artificial digestion is the more sensitive method to detect the parasite, compared with trichinoscopy. Only those cases characterized by a high parasitic burden in artificial digestion were positive in trichinoscopy whereas low parasites load led to negative results (false negative). This finding can be related, in part, by the amount of muscle used in each technique, which is higher in artificial digestion (20g) than trichinoscopy (1g). Furthermore, it has been proved that larvae are resistant to freezing, as they have been isolated from samples preserved at -20°C.

## REFERENCES:

[1] Pozio E, Zarlenga DS. 2013. New pieces of the *Trichinella* puzzle. *International Journal for Parasitology*.  
[2] Zamora MJ, Álvarez M, Olmedo J, Blanco MC, Pozio E. 2015. *Trichinella pseudospiralis* in the Iberian Peninsula. *Veterinary Parasitology*.  
[3] Pozio E, Hoberg E, La Rosa G, Zarlenga DS. 2009. Molecular taxonomy, phylogeny and biogeography of nematodes belonging to the *Trichinella* genus. *Infection, Genetics and Evolution*.  
(4) Reglamento de ejecución (UE) 2015/1375 de la comisión de 10 de agosto de 2015.