

THE LESSER-SPOTTED DOGFISH (*SCYLIORHINUS CANICULA*): PARASITES AND SCAVENGER HABITS

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Abstract

The occurrence of parasites in the digestive tract of the lesser-spotted dogfish (*Scyliorhinus canicula*) caught in the north western Mediterranean was analysed and the results compared with infestation levels in samples of the same species caught in the Atlantic (off the south west coast of Ireland). The relationships between parasite levels and the scavenger habits of the lesser-spotted dogfish are reviewed. The importance of adapting sanitary controls when working with lesser-spotted dogfish on board commercial fishing vessels is emphasised. It is suggested that protocols be adopted so as to prevent increased parasite loading in the lesser-spotted dogfish.

Keywords: Parasitism, Fisheries, Diseases

The lesser-spotted dogfish *Scyliorhinus canicula* (Linnaeus, 1758), a small demersal shark (Carcharhiniformes: Scyliorhinidae), is a broad generalist in its diet and habitat requirements. It is an opportunistic feeder and cannibalism is frequently recorded [1] [2]. While not being a targeted commercial species, it is caught as by-catch, and has a moderate commercial value in the NW Mediterranean traditional fish markets. The lesser-spotted dogfish are primarily a by-catch species of the Irish demersal fishery and are normally discarded in Irish waters [3]. A study of metazoan parasites of the lesser-spotted dogfish [4] from Isle of Man waters, in the Irish Sea, showed some 10 different species of parasites. Three of them were nematodes: *Anisakis simplex*, *Proleptus obtusus* and *Pseudoterranova decipiens*. Henderson and Dunne [5] observed a prevalence of 94% of *Proleptus obtusus* in *Scyliorhinus canicula* from the Galway area on the west coast of Ireland. A previous study in the NW Spain [6] also reported a 91.2% prevalence of *Proleptus obtusus* in *S.canicula*. Also recorded was *Anisakis simplex* (3.5%). To date, no work on nematode parasitism of *S.canicula* in the Mediterranean Sea or off the SW coast of Ireland has been published. In 2008, a total of 130 lesser-spotted dogfish were caught from the NW Mediterranean coast (Blanes, Costa Brava) and 28 individuals from the SW coast of Ireland. Samples were sexed, weighed (gr) and length taken (cm). The stomach contents were weighed and the nematodes were counted, weighed, and preserved in 70% alcohol. Prevalence was calculated as the percentage number of hosts infected with one or more individuals of a particular parasite species, divided by the number of hosts examined; mean abundance as the number of individuals of a particular parasite species in a sample of a particular host species divided by the total number of hosts examined; and mean intensity as the total number of parasites / number of hosts infected by the same parasite. Nearly all (97%) the Mediterranean individuals and all (100%) the Atlantic specimens analysed contained the parasite *Proleptus obtusus* (Physalopteridae, Proleptinae). Individuals of *P. obtusus* found in the stomach were always adults, and some of them were ovigerous females. *S.canicula* would therefore appear be an important host and also a possible infection agent for this parasite. One individual from the Mediterranean area was infested by the larval stage of a parasite clearly belonging to the Fm. Anisakidae, which suggests that *S.canicula* may be an intermediate host for this parasite. In the Mediterranean sample, one stomach also contained an Isopod parasite, *Ceratothoa oestroides*, of the Fm. Anilocridae. Anisakiasis is a zoonotic disease with a dramatic increase in its reported prevalence throughout the world in the last two decades [7]. In the NW Mediterranean coast, fishermen either discard the captured lesser-spotted dogfish (due to the low commercial value) or eviscerate on board, in order to sell the cleaned fillets in the market. McClelland *et al.* [8] and Abollo *et al.* [9] have reported that the lesser-spotted dogfish eat discarded viscera of their own species, leading to increased prevalence of *Anisakis* in fish products. The practice in the Mediterranean of disposing of infected viscera at sea may therefore lead to increased parasite loading on the lesser-spotted dogfish. A change in viscera disposal practices could alleviate this. It is suggested that sanitary controls/protocols be increased for those areas in the Mediterranean implementing such practices. Such protocols should also be extended to include Atlantic waters in the future.

Tab. 1. Nematodes founded on the stomach contents of *S.canicula* individuals, sampled from Mediterranean and Atlantic coasts

<i>Scyliorhinus canicula</i> Nematods	<i>P.obtusius</i> Mediterranean	<i>P.obtusius</i> Atlantic	F Anisakidae Mediterranean
% Prevalence	96.9	100	0.8
Mean Abundance	20.7± 27.27	30.25± 32.75	0.008
Mean Intensity	21.64	30.25	1
<i>S.canicula</i> with that sp. of parasite	126	28	1

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