



Abstract

Exploring Parasitic Load in European Sardine: Applying Two Methodological Approaches along the Catalan Coast [†]

Marta Caballero-Huertas ^{1,‡} , Xènia Frigola-Tepe ^{1,‡}, Marta Muñoz ¹ , Simonetta Mattiucci ² and Jordi Viñas ^{3,*}

¹ Department of Environmental Sciences, Institute of Aquatic Ecology (IEA), Universitat de Girona (UdG), Campus Montilivi, 17003 Girona, Spain; marta.caballero@udg.edu (M.C.-H.); xenia.frigola@udg.edu (X.F.-T.); marta.munoz@udg.edu (M.M.)

² Department of Public Health and Infectious Diseases, Section of Parasitology, Sapienza-University of Rome, 00185 Rome, Italy; simonetta.mattiucci@uniroma1.it

³ Genetic Ichthyology Laboratory (LIG), Department of Biology, Universitat de Girona (UdG), Campus Montilivi, 17003 Girona, Spain

* Correspondence: jordi.vinas@udg.edu

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[‡] Presenting author (oral communication), they participated equally in this study.

Abstract: The European sardine, *Sardina pilchardus* (Walbaum, 1792), is a cold-temperate water species from the Clupeid family. This small pelagic has a key functional role in the marine ecosystem along its distributional range in the northeast of the Atlantic Ocean, the Sea of Marmara, the Black Sea and the Mediterranean Sea. Furthermore, sardine is one of the most important commercial fishery resources caught by the purse seine fleet in the Mediterranean Sea. There is reported a decline in annual sardine catches in the Northwestern Mediterranean Sea, as well as smaller mean total length and sexual maturation size of the individuals, mainly attributed to increased water temperature and overfishing, which have a negative impact on energetic body condition, growth and reproduction. However, little is known about the impact of parasitism on sardine health status. In this work we analyzed the incidence of parasites in sardines from the Catalan Coast of the Northwestern Iberian Peninsula, using two approaches: visual inspection by stereo microscope and the UV-press method, based on the autofluorescence of certain parasites, along a complete reproductive cycle. The main parasite found was the nematode *Hysterothylacium* sp., although other species were identified by visual inspection (i.e., *Contracaecum* sp., digenea trematodes). No *Anisakis* spp. were observed under either of the methodologies. Using the former method, we detected 35.3 % of individuals infected by, at least, one nematode parasite with a mean intensity of 1.68 %. With the UV-press technique, we quantified a prevalence of 16.5 %. In both cases, the Southern Catalan Coast presented a larger number of parasitized sardines, which was remarkably higher in spring. Combined methodologies are suggested to more precisely detect parasites, since visual inspection allows a more detailed study of the viscera, but UV-press also allows the study of parasites that may be present in the musculature. Furthermore, genetic validation should be performed in order to accurately determine the parasite species found.

Keywords: *Hysterothylacium* sp.; nematode; *Sardina pilchardus*; UV-press



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