Fish Mycobacteriosis: An Emerging Disease in Italy

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Abstract

Mycobacteriosis is a severe chronic disease that affects a wide range of species globally both in culture and wild settings and is zoonotic also. The pathology is caused by Mycobacterium. Recently in Italy this the disease becoming emerging, in fact outbreaks of disease have been reported in both marine and freshwater fish. Therapy is rather difficult, so it is important try to prevent the disease through the development of vaccines.

Keywords: Mycobacteriosis; Marine fish; Freshwater fish; Aquaculture

Introduction

Mycobacteriosis is a severe chronic disease that affect a wide range of species globally both in culture and wild settings [1-3]. Mycobacterium species have been recognized as a significant source of morbidity and mortality in farmed and wild fish [4,5]. The pathology is caused by several species of acid-resistant bacteria belonging to the genus Mycobacterium. These microorganisms determine diseases in fish with a long course usually chronic, with a systemic granulomatous character, representing agents of zoonoses and thus could cause serious problems for operators in the fishing industry [7]. Among the various species are M. fortuitum, M. chelonae and M. marinum, that is isolated from fish with nodules macroscopically visible or detectable only histologically and by individuals with no injuries [1]. The symptoms of the disease appear late and are non-specific; they include slow growth, lethargy, anorexia and starvation. Lesions in the skin and typical whitish nodules in the viscera may be detected at necropsy [8]. Therapy is rather difficult, both for the fact that early diagnosis is seldom achieved and for the lack of effective drugs [1]. Although these bacteria are more widespread in freshwater species than in seawater species, lately there has been a sharp increase of the disease in farmed and wild seawater species [9,10]. Recently in Italy the disease is becoming emerging, in fact there are more and more cases of outbreaks of Mycobacteriosis among marine fish such as: wild mullets (Mugil sp.) in Ligurian Sea [11], in wild grey mullets (Mugil cephalus) in Sicily [6], in farmed Seabasses (Dicentrarchus labrax) in Sicily (Mancuso M. Personal Communication) and in freshwater fish also [12-14]. To prevent the disease is important try to develop an effective vaccine. Kato et al. [15] proposed the use of the two new vaccines Bacillus Calmette and Guérin (BCG), an attenuated strain of Mycobacterium bovis conferred a great immunity to Mycobacterium sp. infection.

References