

ISOLATION OF *MYCOBACTERIUM CHELONAE* FROM AN ORNAMENTAL AXOLOTL *AMBYSTOMA MEXICANUM*

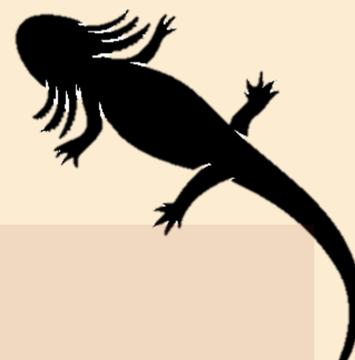
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Introduction

Mycobacterium chelonae is a nontuberculous mycobacterium (NTM) belonging to the group of rapidly growing mycobacteria (RGM). It is an opportunistic pathogen ubiquitous in the environment, commonly isolated from soil, natural and artificial water systems, and aquatic organisms. In fish and other aquatic animals, *M. chelonae* has been associated with chronic granulomatous infections that can lead to mortality.

The axolotl (*Ambystoma mexicanum*), a neotenic amphibian native to Mexico, has become an important model organism in biomedical research due to its regenerative abilities and is also increasingly popular in ornamental aquaculture. Despite the growing interest in this species, reports of mycobacterial infections in axolotls are scarce.

This study presents the **first confirmed identification of *M. chelonae* infection in an ornamental axolotl** from an aquarium in Italy, expanding the known host range of this pathogen.



Specimen and clinical presentation:

- The axolotl showed lethargy and cutaneous nodules.
- Necropsy was performed.



Bacteriological exams:

- Kidney and spleen were inoculated onto Stonebrink medium.
- Cultures were incubated at 30 ± 2 °C.



Molecular identification:

- DNA was extracted using the freeze-boiling method.
- The 16S rRNA gene was amplified by PCR and sequenced.



Microscopy:

Ziehl-Neelsen staining revealed acid-fast bacilli, consistent with *Mycobacterium* spp.

Results And Discussion

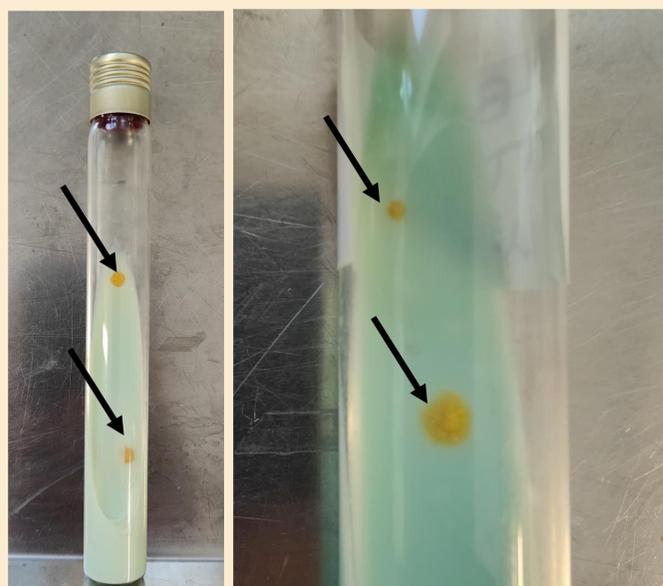


Figure 1. Bacterial growth (arrows) on Stonebrink medium.

After 15 days of incubation, small yellow colonies were observed on Stonebrink medium (**Figure 1**). Ziehl-Neelsen staining confirmed the presence of acid-fast bacilli. Molecular analysis of the 16S rRNA gene identified the isolate as *Mycobacterium chelonae*.

The finding underscores the importance of including mycobacteriosis in the differential diagnosis of axolotl diseases. From a broader perspective, this result has implications for animal welfare and colony management.

Furthermore, the study emphasizes the zoonotic potential of non-tuberculous mycobacteria (NTM) and the need for strict biosecurity and routine monitoring in both research facilities and ornamental breeding environments.

