

Coinfection of *Lactococcus garvieae* and *Streptococcus agalactiae* in Nile Tilapia (*Oreochromis niloticus*) farmed in Burkina Faso

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INTRODUCTION

The aquaculture sector for Nile tilapia (*Oreochromis niloticus*) has seen unprecedented growth in Africa, and especially in Burkina Faso, over the last fifteen years.

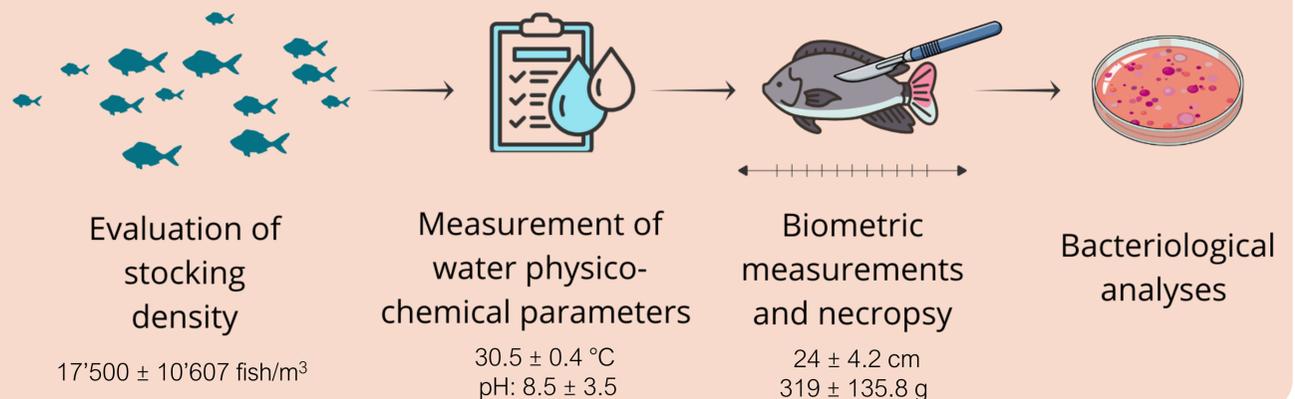
- **Burkina Faso:** Production rose from 400 to 697 tons ($\approx 74\%$ increase).
- **Africa-wide:** Production climbed from 424,982 to 1,297,415 tons ($\approx 205\%$ increase).

Despite these gains, the industry faces escalating **biological and environmental pressures**. The intensification of farming practices has introduced significant challenges, notably high-density stocking and environmental instability, which have paved the way for **emerging bacterial diseases** that threaten total production.



MATERIALS AND METHODS

To assess the health status of *O. niloticus* in West Africa, three production sites in Burkina Faso (Samadeni, Loumbila, and Tanghin) were monitored in June 2025



RESULTS AND DISCUSSION



- **Clinical Presentation:** Gross pathological examination of 51 fish identified unilateral exophthalmos (7.8%) and splenomegaly (7.8%) as the dominant clinical signs.
- **Pathogen Profile:** *Streptococcus agalactiae* was the primary isolate (33.3%), followed by *Lactococcus garvieae* (19.6%). Identification was achieved through MALDI-TOF MS and 16S-23S rRNA ITS sequencing.
- **Antimicrobial Resistance (AMR):** Disk diffusion testing revealed a high prevalence of multidrug-resistant (MDR) strains.
- **High Resistance:** Amoxicillin (AX), Enrofloxacin (ENR), Gentamicin (CN), and Kanamycin (K).
- **Intermediate Susceptibility:** Erythromycin (E) and Oxytetracycline (T).



The **widespread resistance to Amoxicillin** is particularly alarming, as it remains a frontline treatment for aquaculture in sub-Saharan Africa, suggesting that current therapeutic strategies may be failing.

The results confirm the circulation of *Streptococcus agalactiae* and *Lactococcus garvieae* in Burkina Faso tilapia farms, identifying **multidrug-resistant strains** as a significant threat to regional food security and public health. While comprehensive **biosecurity** and **environmental monitoring** are ideal, **economic barriers** make full implementation challenging. Consequently, targeted **operator training** in antimicrobial stewardship and early disease detection represents the most viable first step toward sustainable aquaculture management and the mitigation of resistance spread.