ISSN: 2320-5407
ISSN NO. 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR-52867 Date: 17-07-2025

Title: Qualité spermatique des mâles de deux populations de tilapia du Nil, Oreochromis 2 niloticus du Burkina Faso

Recommendation:
Accept as it

Rating	Excel.	Good	Fair	Poor
Originality	√			
Techn. Quality			√	
Clarity		√		
Significance		√		

Reviewer Name: Dr. Manju M **Date:** 17-07-2025

Reviewer's Comment for Publication.

1. The manuscript should clearly detail the statistical methods used, including tests applied, p-values, and assumptions checked, to validate the interpretation of non-significant differences.
2. Standardize unit presentation and scientific notation throughout the manuscript; consider adding a comparative table summarizing key sperm parameters for better readability.
3. Enhance the discussion by interpreting how sperm quality traits (e.g., motility duration vs. volume) may influence reproductive success and hatchery performance in practical settings.
4. Provide more context on environmental or genetic differences between the populations and outline how findings support selective breeding or cryopreservation efforts in aquaculture programs.
5. The discussion should better explain the biological implications of motility duration and sperm volume differences. Relating these findings to fertilization success would add value.

ISSN: 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

REVIEWER'S REPORT

s

Detailed Reviewer's Report

1. **Objective of the Study**: The primary goal was to evaluate and compare the sperm quality of Nile tilapia males from Kou Valley and Tengrela lakes to identify high-performance brood stock for genetic selection and aquaculture improvement in Burkina Faso.
2. **Sampling and Methodology:**
   - A total of 20 males (10 from each population) were evaluated.
   - Sperm characteristics were analyzed using a computer-assisted sperm analysis system (CASA).
   - Parameters were observed during the first minute post sperm activation, in three microscopic fields per sample.
3. **Sperm Concentration:**
   - The average sperm concentration ranged from **$4.42 \pm 1.51 \times 10^9$ to $4.28 \pm 1.35 \times 10^9$** spermatozoa/mL.
   - No statistically significant difference was found between the two populations in terms of sperm concentration.
4. **Motility Parameters:**
   - **Total motility percentages** ranged from 96.63 ± 2.32% to 86.23 ± 11.69%.
   - **Curvilinear velocity (VCL)**: 44.88 ± 10.51 µm/s to 19.89 ± 6.90 µm/s.
   - **Straight line velocity (VSL)**: 27.09 ± 8.46 µm/s to 10.99 ± 6.19 µm/s.
   - **Average path velocity (VAP)**: 29.70 ± 9.75 µm/s to 11.28 ± 4.60 µm/s.
   - These motility-related parameters declined at 45 seconds post-activation but showed no significant differences between the two populations.
5. **Total Sperm Count:**
   - The Tengrela population had a significantly lower total sperm count ($0.28 \pm 0.12 \times 10^9$ spermatozoa), primarily due to smaller milt volumes produced.
6. **Motility Duration:**
   - Males from the Tengrela population had a longer sperm motility duration (**3.54 ± 1.14 minutes**), potentially compensating for the lower sperm volume and enhancing chances of fertilization.
7. **pH of Milt and Seminal Fluid Production:**
   - While not detailed in values, the pH of the milt and quantity of seminal fluid were analyzed, showing similarities between the populations.
   - The findings suggest a possible link between seminal fluid production and genetic strain.

ISSN: 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

REVIEWER'S REPORT

8. **Overall Sperm Quality:**
   - Both populations showed good overall sperm quality across all measured parameters, supporting their suitability for use in reproductive programs.
9. **Implications for Breeding and Conservation:**
   - These results support the integration of both populations into selective breeding, cryopreservation, and genetic conservation programs in Burkina Faso's aquaculture industry.
10. **Recommendations for Further Research:**

The study recommends additional investigations involving:

- Other local Nile tilapia populations.
- Genotypic analysis of brood stock.
- Broader evaluation of reproductive traits to expand the genetic base for national breeding programs.

11. **Significances of the Work:** This study provides essential baseline data on the sperm quality of local Nile tilapia populations in Burkina Faso, enabling effective selective breeding programs to improve fish production and support sustainable aquaculture development.