Histological Changes in the Gills of Marine Cultured Tilapia (*Oreochromis spilurus*) at Larvae Stage Treated by Phenanthrene

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Authors’ contributions

This work was carried out in collaboration between both authors. Author WMF initiated the work, the initial draft, literature review and data analysis; also carried out the laboratory procedures. Author MOA made the necessary corrections over the entire manuscript and overhauled the overall manuscript to give it the present outlook. Both authors read and approved the final manuscript.

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ABSTRACT

**Background and Objective:** Phenanthrene (PHE) is a constituent of polycyclic aromatic hydrocarbon (PAH), considered as one of the most abundant marine pollutants. It is mainly derived from pyrogenic and petrogenic sources. The aim of this study was to investigate the histological changes in gill’s structure of marine cultured tilapia fish larvae (*Oreochromis spilurus*).

**Methodology:** The larvae of the tilapia were fed phenanthrene contaminated feed twice a day for 14 days; the experiment was terminated on Day 14. The effect of phenanthrene on the gill’s structure was noticed and compared to the control group.

**Results:** There were noticeable histological changes on gills after treatment including; hypertrophy and fusion of the secondary lamellae. The mucus cell numbers in gill’s sections increased in the
group treated with 100 mg L$^{-1}$ of phenanthrene until the termination of the experiment. **Conclusion:** The deleterious effect of phenanthrene on gills histology was evident at 100 mg L$^{-1}$ and further studies are recommended on the histological effects of phenanthrene on other tissues of the tilapia fish.