



# Ultraviolet radiation-A (366 nm) induced morphological and histological malformations during embryogenesis of *Clarias gariepinus* (Burchell, 1822)

Usama M. Mahmoud, Imman A.A. Mekkawy, Alaa El-Din H. Sayed \*

## Abstract:

Exposure to ultraviolet radiation has been associated with variety effects in many organisms ranging from molecular and tissue damage to population level effects. The exposure of embryos of the catfish, *Clarias gariepinus* (Burchell, 1822) to 366 nm UVA at different doses 15, 30 and 60 min resulted in the hatching time delayed to 29 h-post-fertilization stage (29 h-PFS) in comparison with normal hatching time of 22 h-PFS at 29 °C. In embryos exposed to 15 min/UVA, 30 min/UVA and 60 min/UVA the total percentage of hatched embryos/fertilized eggs were 90%, 89% and 85%, respectively, while in control was 95% at 29 h- PFS. The total percentage of mortality/ hatched embryos were (114)%, (222)%, (223)% and (340)% for control, 15 min, 30 min and 60 min groups, respectively, at 40 h-PFS. Also as a result some morphological malformations; (yolk sac oedema, body curvature, fin blistering, and dwarfism) were revealed. These destructive effects were also confirmed by histopathological changes in gills, eyes, intestinal tract, spinal cord, notochord, liver, skin and kidney. The results confirm that exposure to UVA caused an exposure time-dependent delay in hatching rate and reduced the percentage of the hatched embryos but the mortality rate increased with increase of the exposure time to UVA.

## Keywords:

Ultraviolet radiation Morphological malformations Histopathological changes African catfish *Clarias gariepinus*

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