



UVA-Induced DNA Damage and Apoptosis in Red Blood Cells of the African Catfish *Clarias gariepinus*

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Abstract:

Ultraviolet-A light (UVA)-induced DNA damage and repair in red blood cells to investigate the sensitivity of African catfish to UVA exposure is reported. Fishes were irradiated with various doses of UVA light (15, 30, and 60 min day⁻¹ for 3 days). Morphological and nuclear abnormalities in red blood cells were observed in the fish exposed to UVA compared with controls. Morphological alterations such as acanthocytes, crenated cells, swollen cells, teardrop-like cells, hemolyzed cells, and sickle cells were observed. Those alterations were increased after 24 h exposure to UVA light and decreased at 14 days after exposure. The percentage of apoptosis was higher in red blood cells exposed to higher doses of UVA light. No micronuclei were detected, but small nuclear abnormalities such as deformed and eccentric nuclei were observed in some groups. We concluded that exposure to UVA light induced DNA damage, apoptosis, and morphological alterations in red blood cells in catfish; however, catfish were found to be less sensitive to UVA light than wild-type medaka.

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