# Genotoxicity detection following exposure to silver nanoparticles in African catfish (Clarias gariepinus)

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## Abstract:

The aim of the present study is to evaluate the cytotoxic and genotoxic effects of silver nanoparticles (Ag-NPs) towards African catfish (Clarias gariepinus). Adult male catfish was exposed to 0, 25, 50, and 75 mgl□1 Ag-NPs for two weeks. Exposure to Ag-NPs exerted an increase in mortality rate and behavioural changes compared to control. A fluorescent microscopy examination was used to assess the cytotoxic effect. There was a 15-fold greater extent of apoptosis in erythrocytes of exposed fish to 75 mgl□1 compared to control fish. No significant differences in the extent of apoptosis were detected in 25 mgl□1 and 50 mgl□1 exposed fish. Also, the genotoxic effect of the tested compound was evaluated via micronucleus and DNA fragmentation assays. The micronucleated erythrocytes were observed as well as, DNA damage was recorded in the liver, kidney, gill, and muscles in all exposed groups and percentage elevated with the increase of Ag-NPs concentration. Overall, our results indicate that, Ag-NPs exhibited the both genotoxic and cytotoxic effects in African catfish.

## Keywords:

Ag-NPs; apoptosis; micronuclus; DNA; Clarias gariepinus

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