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Title: Genotoxic and Histopathological Effects of Water Pollution on *Clarias gariepinus* Fish at Fayoum Governorate, Egypt

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ABSTRACT

Increasing land reclamation in El-Fayoum governorate has led to increase the amount of drainage water that discharged without prior treatments to two main drains, El-Wadi and El-Bats drainages loaded by salts and heavy metals. So, the present investigation aims to evaluate quality of water samples collected from a branch of the river Nile (El-Lahon canal) and the main drains (El-Bats and El-Wadi) at Fayoum governorate on some biomarkers of the Nile catfish; *Clarias gariepinus* inhabiting the studied degradable aquatic habitats. Water and nighty fish samples collected from the different studied sites of collection by the help of fishermen for physicochemical analyses of water and fish biochemical analyses and histopathological alteration. Results revealed highly significant differences at $P \leq 0.01$ with the highest water ammonia, nitrite, heavy metals (Cu, Zn, Pb and Cd) and lowest dissolved oxygen content accompanied by metals bioaccumulation in vital organs of fish collected from the main drains (El-Bats and El-Wadi) in comparision with that collected from the studied branch of the river Nile. Higher bioaccumulation of the studied heavy metals in gills, liver, kidney and muscles of *Clarias gariepinus* collected from the main drains significant increase in serum glucose, liver and kidney functions, disturbance in protein profile of fish collected from the studied main drains than that of fish collected from the river Nile branch, El-Lahon that showed more or less normal values. Moreover, histopathological alterations in gills, liver, kidneys and clear DNA strand breaks in fish liver cells increased statistically in *Clarias gariepinus* collected from El-Fayoum drainage canals. Generally, the results highlights on the importance of taking action through the responsible authorities towards quality of the drainage water that fed fish farms by law that could play a role as a main source of protein for human beings.

Keywords: Drainage Water, Catfish, Genotoxicity, Histopathology, Biochemical Changes