Histopathology of Clarias gariepinus juveniles exposed to aqueous and ethanolic extracts of Parkia biglobosa pod.

Ojutiku, R.O., E.P.Avbarefe, R. J. Kolo and F. P. Asuwaju*

Department of Water Resources, Aquaculture and Fisheries Technology, Federal University of Technology, Minna, Niger State, Nigeria.

*Federal College of Freshwater Fisheries Technology, Baga Maiduguri, Borno State.

Abstract

The toxicity of aqueous and ethanol extracts of Parkia biglobosa pods (95mg/l, 85mg/l, 75mg/l, 65mg/l and 55mg/l) on Clarias gariepinus was investigated under laboratory condition over a 96h exposure period. The effect of aqueous and ethanolic extracts of Parkia biglobosa pod on the histopathology of liver of the fresh water Cat fish (Clarias gariepinus) was investigated. The differential acute toxicity of aqueous and ethanolic extracts of Parkia biglobosa pod on Clarias gariepinus were carried out under laboratory conditions. The LC50 after 96 h of exposure for aqueous and ethanolic extracts of Parkia biglobosa were 2.95 and 2.23 g/L, respectively. These values showed that ethanolic extract of Parkia biglobosa pod was more toxic than its aqueous extract. Signs of agitated behaviours, respiratory distress and abnormal nervous behaviours including eventual deaths were observed in exposed fish. Control fish neither died nor exhibited any unusual behaviour. Histopathological changes of liver was noticed when Clarias gariepinus was exposed to aqueous extract of Parkia biglobosa for 96 h. Liver from exposed fish showed congestion, perivascular cuffing, vacuolation, dilated sinusoidal spaces, necrosis, pyknosis and mononuclear cell infiltration. Fish from the control group showed no histopathological changes. However clinical signs and death were more in fish exposed to the ethanol extracts. This investigation revealed that extract from pod of Parkia biglobosa has piscicidal property and can be put into use in the control and management of fish ponds by farmers. Therefore, this plant can actually be use as a biological control in eradicating predators and unwanted organisms in the ponds by farmer instead of using agrochemicals.

Key words: Histopathology, Parkia biglobosa, Clarias gariepinus.

Email: rasheedojutiku@yahoo.com

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