Toxicological Evaluation of the Median Lethal Concentration (LC 50) of Aqueous Extract of *Adenium obesum* Stem Bark in African Catfish, *Clarias gariepinus* (Burchell 1822) Juveniles

Muyiwa BO[1*], Sambo JS[1] and Oniye SO[2]

[1] Department of Veterinary Pathology, Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria, Nigeria

[2] Department of Biological Sciences, Faculty of Natural Sciences, Ahmadu Bello University, Zaria, Nigeria

[*]**Corresponding author:** Muyiwa BO, Department of Veterinary Pathology, Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria, Nigeria, Tel:

honghelin) and an active avonol (3, 3-bis [o-methyl] quercetin) from the ethanol extract of *A. obesum.* Ethanol extract of *A. obesum* have been reported to contain an inactive triterpene (dihydroi aionic acid) and an inactive avonol 38 (3-0-methylkaempferol). e methanol extract of *A. obesum* stem bark has been reported to contain some alkaloids, avonoids, saponins, tanins, glycosides, anthroquinones and steroids [11]. However, only saponins, tannins, steroids and glycosides were reported from the petroleum spirit extract of *Adenium obesum* stem bark [12]. Similarly, a triterpenoid named botulin (Lup-20 (29)-ene-3, 28-diol) was reportedly isolated from the stem bark of the plant [12]. Studies has shown the potential of *Adenium obesum* as a biological reducing agent and capping agent for the synthesis of Silver Nano particles

Adult *Clarias gariepinus* showed various signs of toxicity ranging from uncoordinated movements, repeated attempts to jump out of reconstituted extracts and excessive mucous secretions to increased opercula movements, exposed snouts, adoption of di erent postures and sudden darts when exposed to the ethanolic extract of *Adenium obesum* stem bark [13].

is study investigates the toxic e ect of aqueous extract of *Adenium obesum* stem bark on *Clarias gariepinus* juveniles by determination of 96-hour LC 50 value using probit analysis in SPSS version 20.

Materials and Methods

Plant collection

e *Adenium obesum* stem bark was collected from Bassawa area within Zaria, Kaduna State Nigeria around November-December, 2016, and authenticated at the Herbarium section of the Department of Biological Sciences, A.B.U, Zaria, where a specimen was deposited and a voucher number 01386 was assigned. e leaves was picked and dried under shade until constant weight was obtained. e dried leaves were crushed into coarse powder using a pestle and mortar and stored for the extraction process.

Plant extraction

e stem bark of *Adenium obesum* was dried under shade until constant weight is obtained, stem bark were crushed into coarse powder using a pestle and mortar and stored for the extraction process. e ne powder was added into distilled water and shaken gently for ten minutes using a shaker to make a homogenous mixture. e mixture was le for 24 hours and then ltered. e ltrate was

Tanins	Ferric chloride test	+
Flavonoids	Shinoda test	+
Alkaloids	Dragendorff test	+
Keys: +=present, -=absent		

Table 1: Phytochemical constituents of aqueous extract of *Adenium obesum* stem bark.

e physico-chemical parameters across the groups was nonsigni cant ($p>0.05$) for oxygen and temperature, while there was a nonsigni cant ($p>0.05$) increase between the control and the other groups for pH, there was a signi cant ($p<0.05$) increase in the total dissolved solids (TDS) and electric conductivity (µs/cm) is presented in Table 2. e behavioral display of the exposed sh is presented in

Sudden dart	G1	-	-	-	-
	G2	-	+	+	+
	G3	-	+	+	++
	G4	-	+	++	+++
	G5	-	+		

LC1	5.355	1.183

methanol, petroleum spirit and the petroleum ether extracts of *A. obesum* stem bark. e di erences noticed in the phytochemical constituents of *Adenium obesum* extract extract among these authors, especially as it relates to the presence/absence of resins, botulin and anthraquinones may be due to the extraction methods used, the age and parts of the plants used, genetic variability between species, climatic conditions and the nature of the soil pro le upon which the