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Short Communication

Acute toxicity study on ethanolic extract of the leaves of *Acacia nilotica*

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ABSTRACT: The ethanolic leaves extract of *Acacia nilotica* was evaluated for acute toxicity to determine the toxicity (LD₅₀) using the method of Lorke. Twelve laboratory mice were used to conduct the first and second phase of the study. In the first phase nine mice were grouped in 3 groups each of three mice in which they were administered to three different concentrations at (1000 mg/g, 100 mg/g and 10 mg/g) for the groups (I, II & III) respectively. The mice were observed for 24 hour, then in the second phase where the remaining three mice were also grouped in to three groups each, and also administered to three different concentrations as (1,600 mg/g, 2,900 mg/g 5,000 mg/g). The results in the first phase showed no death of animal in each groups, but on the second concentrations, in which the Geometric mean which refers as LD₅₀ phase the death occurred in group (I, II & III) at (2,900 mg/g & 5,000 mg/g) was calculated as 2.15 mg/g. This showed that the plant is less toxic and is safe for consumption and use as medicinal plant. This research may serve as baseline for more research on the mode of applications and usages.

Keywords: *Acacia nilotica*; Acute toxicity, Phytomedicine.

Introduction

Acute toxicity implies the toxicity produced by a pharmaceutical agent when it is administered in one or more doses during a period of not exceeding 24 hours (Bass *et al.* 1982). The investigation of acute toxicity is the first step in the toxicological investigation of an unknown substance. Also in an effort to assess the acute toxicity of a particular medicinal plant or substances a simple means of grading acute poisonous to have a test with which it was possible to determine whether a chemical substances or medicinal plant is toxic, very toxic or less toxic, where the toxicity effects were of no significance for dealing with in practice with this objective a figure which express the toxic effect was bought, and this figure was intended to indicate the amount of the substance which is injurious after specific mode of in take. Since the term injuries always hooves as high degree of subjectivity, an objective criterion was selected, namely death. Thus means of determine the livelihood of death as exactly as possible was sought, and LD₅₀ was recognized and justified of being the best parameter by Traven (1927).

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Materials and Methods

Collection and Identification of Plant Material

The plant sample (*Acacia nilotica*) was collected from ungogo town, ungogo local govt, Kano State Nigeria. The plant materials were located by relational healers of Ungogo Town, Ungogo Local Government, Kano Taxonomic identification of the plant was confirmed at the herbarium of Biological Sciences Department, Bayero University, Kano.

Extraction Procedure

The World Health Organization (WHO, 1992) procedure of extraction was adopted for this study where 200g of the leaf pander of *Acacia nilotica* were soaked in 1000 ml of ethanol (solvent). The mixture was kept for two weeks in a tightly sealed conical flask at room temperature. It was then filtered using a Whatman number 1 filter paper.

Methodology

The method of Lorke (1981) was used where 12 laboratory mice were used. In the 1st phase 9 mice were grouped into 3 groups of 3 mice, and each group were administered with three different concentration as (1000mg/g, 100mg/g & 10 mg/g) to group (I, II & III) respectively, and animal observed for 24 hours long. In the second phase the remaining three mice were grouped into 3 groups each of one animal and administered to 3 different concentrations as (1,600 mg/g, 2,900mg/g, & 5,000mg/g). Animal were also observed for 24 hours, finally the LD₅₀ value was calculated as the Geometric mean of (2,900 mg/g + 5,000 mg/g).

Results

The results are presented in Table 1a & 1b.

Table 1a: Acute toxicity determine on ethanolic leaf extract of *Acacia Nilotica* leaves ethanolic extract in the first phase.

S/NO	CONCENTRATION (mg/g)	WEIGHT OF TEST ANIMAL (g)	DOSAGE (ml)	MOTILITY
1.	10	22	0.22	0/1
		23	0.23	0/1
		23	0.23	0/1
2.	100	21	0.21	0/1
		22	0.22	0/1
3.	1000	26	0.26	0/1
		21	0.21	0/1
		20	0.20	0/1
		23	0.23	0/1

The result in table one showed no death of animal in each concentration and at each dose of *Acacia nilotica* leaves extract.

Table 1b: Acute toxicity determined on *Acacia nilotica* leaves extract in the second phase.

S/NO	CONCENTRATION (mg/g)	WEIGHT OF TEST ANIMAL (g)	DOSAGE (ml)	MOTILITY
1.	1,600	23	0.23	0/1
2.	2,900	25	0.25	1/1
3.	5,000	24	0.24	1/1

Key = 0/1 = indicate no death; 1/1 = indicate death.

The result showed the death of animal at = 2,900mg/g & 5000mg/g but not at 1,600mg/g.

Discussion

In this acute toxicity study of *Acacia nilotica* ethanolic leaves extract it has testified that the toxicity of the plant leave extract is less toxic with the LD₅₀ value of 2,154 mg/g. But work on leucozepin for the determination of acute toxicity, the result showed no animal died which indicated that the substance is not toxic. (www.lifenhacenet/prstudy) Toxicity %20 %20 for %5 20z cu). Musa et al. (2006) reported in their work of acute toxicity study on *Ficus touring* with LD₅₀ value of 1264.9 mg/kg, which was also testified it as less toxic substance.

Conclusion

The acute toxicity of this leaves ethanolic extract of *Acacia nilotica* testified it as less toxic so it's safe for use and consumption as medicinal plant.

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