

Nigerian Veterinary Journal

Vol. 24 (3)

2003

Special Edition

(Proceedings, 40th Annual Congress)



**Published by:
The Nigerian Veterinary Medical Association**

Nigerian Veterinary Journal

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ACUTE TOXICITY STUDIES OF EXTRACT OF *CUSSONIA BARTERI* IN RATS.

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Key words: *Cussonia barteri*, toxicity, rats.

SUMMARY

Acute toxicity studies of the aqueous extract of *Cussonia barteri* (c.b) which was reported to be of therapeutic value in the management of many diseases including trypanosomosis was evaluated in rats. Animals treated with doses of 1,000-5,000 mg/kg showed such symptoms of toxicity as pilo-erection, scratching of the mouth and dyspnoea. Gross pathological lesions observed include slightly congested lungs and liver and gastric impaction. The median lethal dose (LD50) of the *C. barteri* aq. extract was calculated to be 2,500 mg/kg body weight and this study has confirmed that the plant extract is slightly toxic.

INTRODUCTION

Cussonia (arborea) *barteri* is a wild growing tree of up to 10m height that are commonly found in the savannah vegetational zone of West and East Africa (Burkill, 1985). The tree usually defoliate in the dry season giving a stumpy appearance resembling amputated limb, hence the local names *Bumariahi* (Fulani) and *Gwabsa* (Hausa) meaning 'lepers hand'. A slightly irritant gum exudes from the bark when slashed (Dalziel, 1937). The main chemical constituents of the bark extract are, alkaloids, cardiac glycosides, tanins, saponins (frothing) and reducing sugars (Shamaki *et al*, 2002).

The leaves, bark and root of the plant are used for medicinal purposes in various parts of West Africa. The stem bark is used as

lotion to treat leprosy sores. The leafy wigs are used with 'margical rites' to treat yellow fever, oedema, paralysis and trypanosomosis in Ivory Coast (Kerharo and Bouquet, 1950). Other uses of this plant include vapour baths of the roots for treatment of epileptic condition, fever, constipation, diuretic, conjunctivitis, painful menstruation in women, gonorrhoea, and as aphrodisiacs (Burkill, 1985). Likewise, ink, indigo dyes and soap are equally manufactured from parts of this plant in Togo, Ghana and Guinea (Burkill, 1985).

The underlying importance of this tree in traditional medicine both as prophylactic and therapeutic agents in many disease conditions is worth investigating. The present studies is to evaluate the safety margin of the aq stem-bark extract of *Cussonia barteri* in rats. ⁴¹

MATERIALS AND METHODS

The stem-bark of *Cussonia* (arborea) *barteri* was collected from Kaltungo in Gombe State and allowed to dry under ambient temperature.

Twenty one adult albino rats were divided into 7 groups of 3 each. The rats were weighed at the start and at the end of the experiment. They were fed and supplied with portable water *ad libitum*. Six experimental groups of rats were administered orally with graded doses of the aqueous stem-bark extract while the seventh group (control) received no medication.

Symptoms of toxicity observed over 24 hours period were documented. Parameters for acute toxicity were determined according to Lorke (1983). The experiment was terminated after 14 days. Dead animals were taken for post-mortem examination. All surviving animals were thereafter sacrificed and examined for gross pathological changes.

RESULTS AND DISCUSSION

Clinical symptoms of toxicity observed

Rats that were given 1,000-5,000mg/kg of aq extract of stem bark of *Cussonia* (arborea) *barteri* manifested scratching of the mouth due to oral irritation, transient pilo-erection and dyspnoea between 10 and 30 minutes of administration. Animals that were administered with up to 2,500 mg/kg survived and gained weight as seen in Table I. In contrast, all the rats in group six that received 5,000mg/kg died.

TABLE I: Results of evaluation of toxicity of aq extract of stem back of *Cussonia* (arborea) *barteri* stem in rats.

GP	Body wt	Dose	Body wt	Mortality
	(g) on day 1	(mg/kg)	gain (g) on day 14.	(%)
1	26.5	10	51.0	0
2	29.7	100	43.0	0
3	30.3	1000	20.3	0
4	29.5	1500	20.1	0
5	32.4	2500	22.0	0
6	28.2	5000	0	100
7	76.4	0	64.0	100

Observations at post mortem

There was no discernible gross pathological lesion seen in animals dosed with 10-100mg/kg of the aq. extract while those with 1,000-5,000mg/kg had slightly congested lungs and liver, and gastric impaction. The dose at which symptoms of toxicity were seen agreed with that of Burkill, (1985). The median lethal dose (LD₅₀) which was calculated at 2,500mg/kg, showed the slight toxicity of aq extract of *Cussonia* (arborea) *barteri* stem back in rats (Van Celder *et al* (1976).

ACKNOWLEDGEMENT

The authors wish to acknowledge the contribution of Mal. Ibrahim Naibi who supplied the plant and Malam Garba Mohammed of the Department of Biological Sciences, ABU, Zaria for identifying them.

REFERENCES

BRANDER, G.C. and PUGH, D.M. (1977): *Veterinary Applied Pharmacology and Therapeutics*, 3rd ed. Pg 7.

SHAMAKI *et al.*: TOXICITY STUDIES OF EXTRACT OF *CUSSONIA BARTERI* IN RATS

- BURKIL, H.M. (1985): The Useful Plants of West Tropical Africa. 2nd ed. Vol. 1, Pg 212.
- DALZIEL, J.M. (1955): Useful plant of West Tropical Africa Pg. 346.
- KERHARO, and BOUGUET (1950): As *C. djalonensis* A. Chev. 172. Reported in Useful plant of West Tropical Africa Vol. 1 by H.M. Burkill (1985).
- LORKE, D. (1983): A new approach to practical toxicity testing. *Arch. Toxicol.* 54:275-287.
- SHAMAKI, B.U. (2002): Effects of an extract of stem bark of *Cussonia barteri* on experimental *T. congolense* infection in rats-Preliminary studies. *J. of Sci and Tech, Res.* (In press,).
- VAN GELDER, G.A. and BUCK, W.B. (1976): Concepts and basic toxicology in clinical and diagnostic veterinary toxicology (Van Gelder G.A. eds) Kenda/Hint. USA pp5.