

Short communication

EFFECT OF *TELFARIA OCCIDENTALIS* EXTRACT ON EXPERIMENTALLY INDUCED ANAEMIA IN DOMESTIC RABBITS.

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The haemopoietic properties of a local plant, *Telfaria occidentalis* (Ugu) was investigated. A total of 20 rabbits equally divided into 4 groups (A,B,C and D) were used. Group A which served as the control group was neither bled nor treated while groups B, C and D were bled to induce clinical anaemia. Group B was left untreated while groups C and D were treated respectively with Haematopan B12 (a commercially prepared haematinic) and alcohol extracts of *Telfaria occidentalis*. Post-hemorrhagic values were obtained at weekly intervals over a period of time and then compared with the pre-hemorrhagic values. The study revealed that animals in group D recovered faster than those of groups B and C thus implying that the extract has considerable haematinic properties which could be explored to the maximum since the plant is available every season of the year.

Keywords: *Telfaria occidentalis*, haematinic, anaemia.

It has been observed that in the tropical environment animals reared under extensive system of animal management seem to thrive better and are usually able to resist some of the endemic diseases to which intensively managed animals continually remain susceptible (Arowolo and Awoyele 1982). This apparent resistance has been attributed, at least in part to adequate exercise and the possibility of selective and unrestricted grazing whereby a wide variety of edible forages are available to the animals. Some of such plants have been shown to provide not only nutritional but also medicinal benefits (Brander *et al* 1982). Man is also known to consume a wide variety of local crops and vegetables which are believed to contribute significantly to the improvement of human health in terms of disease prevention and therapy (Breazile, 1971 and Burkill 1985). It is therefore noteworthy to understand that there has been a resurgence of interest in ethnoveterinary medicine, ethnobotany and ethnopharmacology.

Telfaria occidentalis, family Cucurbitaceae (local name – Ugu), is a herbal plant found along the fringes of the closed forest in Africa. It is cultivated mostly in the west African sub-region (Burkett, 1968). The leave extract of the plant is used locally in the treatment of malaria and anaemia (Gbile, 1986).

In present study, the claims that animals suffering from varying degrees of anaemia will recover within a reasonable period of time on administration of the extracts of *Telfaria occidentalis* is investigated.

MATERIALS AND METHODS:

(a) Experimental Animals.

A total of 20 local rabbits (*Oryctolagus cuniculi*) of either sex, ranging in age from weaners to adults were used for this study. The animals were housed in the experimental animal house of the Department of Veterinary Physiology and Pharmacology, University of Ibadan. The animals were stabilized and their health status properly monitored before being used for this study. The animals were fed with commercially prepared growers mash made by Guinea Feeds Nigeria Ltd. Good drinking water was provided for the animals *ad libitum*.

(b) Plant material:

Fresh samples of *Telfaria occidentalis* were obtained from Bodija market in Ibadan, Nigeria. The samples were then taken to the Extraction Laboratory of the Chemistry Department, University of Ibadan for soxhlet extraction. The samples were dried on the bench before the extraction process was embarked upon.

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(c) *Pre-hemorrhagic Sampling:*

About 1ml of blood sample was obtained from each rabbit into bijou bottle with EDTA to determine the initial blood pictures before bleeding. Blood collection was by puncturing the prominent ear veins with scalpel blade and application of Vaseline to facilitate blood flow.

(d) *Induction of Anaemia*

It is an established fact that a rabbit has between 57.7mls and 70mls of blood per kilogram body weight (Guyton 1961). Also, a loss of about one-third of the total blood volume of an animal is known to precipitate anaemia (Ibrahim *et al* 1983). Therefore based on their body weights, one-third of the total blood volume of the rabbit was collected through bleeding to induce clinical anaemia.

The bleeding was carried out through the veno-puncture using the prominent ear vein. The punctured site was rubbed with some Vaseline to prevent clotting and enhance continuous bleeding. The blood was then collected in a graduated bottle until the desired volume was obtained. To ensure that clinical anaemia has been induced the rabbits were bled again 24 hours later. Here 2mls of blood were collected from each rabbit for laboratory analysis for conformation of clinical anaemia.

(e) *Treatment of Anaemia.*

(i) Use of Haematopan B₁₂ (Rhone Merieux): This commercial haematinic was administered intramuscularly through the thigh muscles at a dose rate of 0.5-2.0 mls per rabbit depending on body weights for 4 days for rabbits in group C only. Each 100ml of this drug contains: Sodium Cacodylate Crystals: 2.0g; Ammonium Ferric Citrate 2.0g; Methionine 1.0g; Histidine Hydrochloride 0.5g; Tryptophan 0.25g; Cobaltoms acetate (crystals) 0.05g; Cyanocobalmin (Vit. B12); 0.001g; Excipient q. 5 100ml.

(ii) Use of extracts of *Telfaria occidentalis*: This extract was reconstituted with distilled water at the rate of 4 mg/100ml. It was given to the rabbits in group D for 4 days. The animals in groups A and B were not treated at all.

(f) *Post-treatment Blood Sample Analysis:*

The first set of blood samples of all the animals in the 4 groups were collected 3 days after the completion of treatment. Subsequently blood samples were collected at 7 days intervals. The blood samples collected were analyzed at the clinical Pathology Laboratory of the Faculty of Veterinary Medicine, University of Ibadan.

Packed cell Volume (PCV) estimation was carried out by the use of haematocrit reader while cyanomethaemoglobin method was used to determine hemoglobin concentration. The red blood cell (RBC) count and total white blood (WBC) count were carried out by the use of the Neubauer haemocytometer.

RESULTS

The results of this study are as shown in figure 1. The normal values of PCV, RBC count, WBC count as well as haemoglobin concentration in the animals before induction of anaemia were 21.6

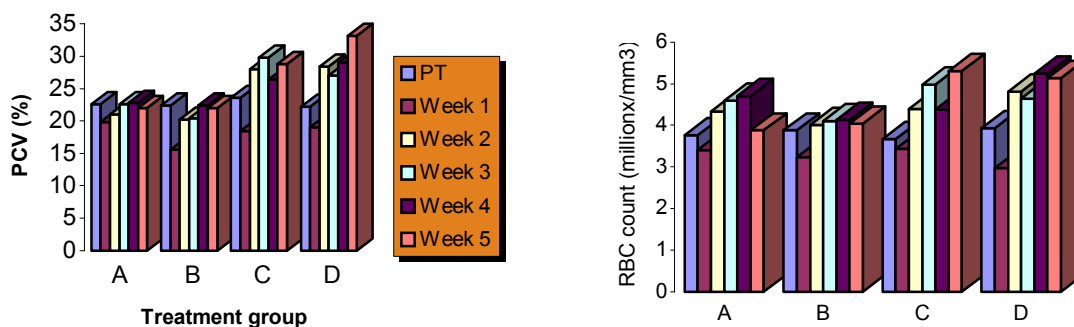


Figure 1a
Packed cell volume and Total red cell count of control (A), untreated (B) Haematophan B₁₂ treated (C) and *Telfaria* treated (D) rabbits before and after induction of experimental anaemia

$\pm 1.6\%$, $2.7 \times 10^3/\text{mm}^3 \pm 0.34$, $4.5 \pm 0.5 \times 10^6/\text{mm}^3$ and $9.43 \pm 0.4\text{g}\%$ respectively. Three days after induction of anaemia, significant decreases in PCV, RBC and Hb. Were observed in all the animal groups. Treatment of animals in group D with *Telfaria occidentalis* extract significantly increased the levels of these parameters even above the pre-anaemia level. Similar observation was recorded in all the animals treated with the standard haematinic, Haematophan B₁₂ (group D)

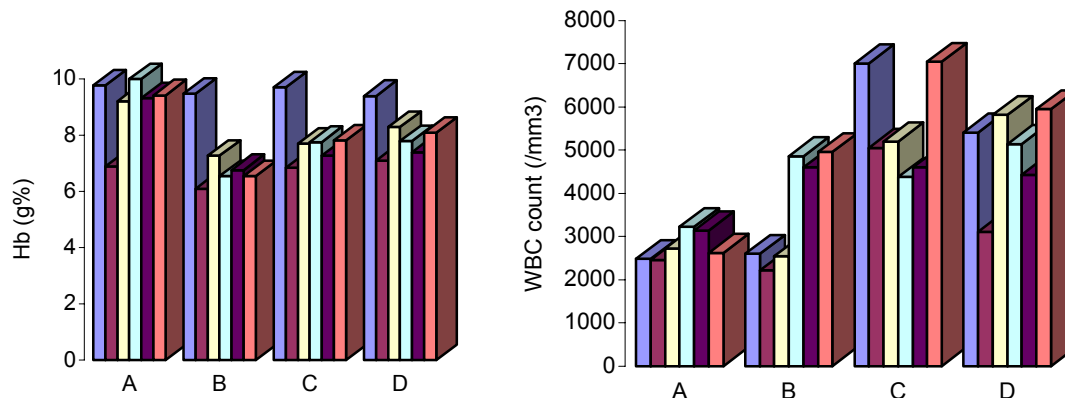


Figure 1b

Haemoglobin concentration (Hb) and Total leucocyte count in control (A), untreated (B), Haematophan B₁₂ treated (C) and *Telfaria* treated (D) rabbits before and after induction of experimental anaemia

DISCUSSION

In the present study, the haematinic effect of the extract of *T. occidentalis* was investigated. The results corroborates the anecdotal use of the plant in the management of anaemia. The study shows that the activity of of the crude extract compares favourably with the standard haematinic used. Although the active priciples responsible for the actions of *T. occidentalis* were not investigated, its activities may not be unconnected with its reported content of haemopoeitic factors such as iron, vitamin B₆ and B₁₂ (Tindal, 1968)

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