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Department of Biochemistry
Usmanu Danfodiyo University, Sokoto

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ED083

Hypoglycaemic Properties and Effects on Serum Enzymes of *Casuarina Equisetifolia* Leaf Extracts in Alloxan -Induced Diabetic Rats

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ABSTRACT

Diabetes is a chronic metabolic disorder which is currently recognized as a major contributor to global disease burden in both developed and developing nations. Phytochemical screening of *Casuarina equisetifolia* leaf was carried out using standard methods. 100 mg/kg bodyweight of alloxan monohydrate was administered intraperitoneally to rats in groups A-E, and rats with blood glucose above 120 mg/dl were considered diabetic. 150 mg/kg bodyweight of extracts were orally administered to rats in the respective groups for a period of 9 days, and 15 mg/kg standard drug (metformin) was administered to rats in the positive control group. Serum glutamate oxaloacetate transaminase (SGOT), serum glutamate pyruvate transaminase (SGPT) and alkaline phosphatase (ALP) were assayed by standard laboratory techniques at the end of the treatment. Blood glucose of rats in the treated groups decreased significantly ($p < 0.05$) in descending order during the period of treatments with the ethanol extract having the most significant reduction of 64.00 ± 3.46 mg/dl when compared to diabetic control (206.00 ± 4.45 mg/dl). The most significant differences were observed for ALP (52.60 ± 2.80 IU/L), SGOT (33.18 ± 3.48 IU/L) in the aqueous extract and SGPT (4.90 ± 0.91 IU/L) in the methanol extract when compared to the diabetic control group having 84.82 ± 4.69 IU/L, 41.80 ± 3.20 IU/L and 20.05 ± 2.13 IU/L respectively. Tannin, flavonoid, phenol and reducing sugar were present in all the extracts. Alkaline phosphatase level was significantly high ($p < 0.05$) in group treated with methanol extract. The extracts though, have hypoglycaemic property, may be hepatotoxic, which will limit or preclude its use.

Keywords: Hypoglycaemia, Phytochemicals, Blood Glucose, Alloxan

ED084

In vitro Antimalarial and Antibacterial Activities of *Boswellia dalzielii* Stem Bark and *Hibiscus cannabinus* Leaves Extract

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ABSTRACT

Plasmodium falciparum parasite and pathogenic bacteria contribute to globally significant diseases in human. The search for new remedies from medicinal plant species used as an alternative choice for the treatment of malaria and bacterial infections depends on the accurate and specific pharmacological information obtained from researchers. This research investigated the anti-malarial and antibacterial activities of methanol extract of *Boswellia dalzielii* and *Hibiscus cannabinus* on *Plasmodium falciparum* parasite and against five clinically significant bacteria. The *in vitro* antimalarial activity test was conducted by determining the parasitemia for each sample concentration by manual counting on thin Giemsa smears after 24-hour incubation with the extracts in order to determine the IC_{50} values. The antibacterial study was done using a modified agar well diffusion technique. The result revealed that methanol stem bark extract of *Boswellia dalzielii* and *Hibiscus cannabinus* exhibited good and potent (very good) antimalarial activities against *P. falciparum* with IC_{50} values of $1.25 \mu\text{g/mL}$ and $0.16 \mu\text{g/mL}$, respectively. They also show good inhibitory activities against *E. coli* but slight inhibitory activities against the other pathogens tested (*S. aureus*, *P. aeruginosa*, *S. typhi* and *S. dysentery*). The current study indicates that extracts of these plants exhibited anti-malarial and antibacterial activities and may serve as useful sources of drugs for treatment of malaria caused by *P. falciparum* parasite as well as bacterial infections caused by the tested bacteria.

Keywords: Antimalaria, *Boswellia dalzielii*, *Hibiscus cannabinus*, *P. falciparum*, *E. coli*, IC_{50}