

Antidiabetic activity of the root extract of *Detarium microcarpum* (Fabaceae) Guill and Perr.

Christian Ejike Okolo¹, Peter Achunike Akah^{2,*}, Samuel Uchnna Uzodinma³

¹Department of Pharmacognosy and Environmental Medicine. University of Nigeria Nsukka, Nigeria.

²Department of Pharmacology and Toxicology. University of Nigeria Nsukka, Nigeria.

³Department of Clinical Pharmacy, Nnamdi Azikwe University of Awka, Nigeria.

*Corresponding Author: peterakah@hotmail.com

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Abstract

Diabetes mellitus is a common endocrine disorder that impairs glucose homeostasis resulting in severe diabetic complications including retinopathy, angiopathy, nephropathy, and neuropathy thus causing neurological disorder. In this study, antidiabetic activity of root extract of *Detarium microcarpum* was investigated in rat model of diabetes. A methanol root extract was prepared by soxhlet extraction and was separated into fraction using chloroform, n-hexane and methanol to yield chloroform fraction (CF), n-hexane fraction (HF) and methanol fraction (MF). The extract and its fractions were screened for phytochemicals using standard methods. The acute toxicity (LD₅₀) of the extract was determined in mice. Diabetes was induced by a single ip injection of 120 mg/kg of alloxan monohydrate and glucose level was analyzed as indices of diabetes. The acute toxicity test showed that the root bark extract was safe at doses of up to 5 g/kg. The phytochemical screening of the plant revealed the presence of proteins, carbohydrates and terpenoids in large amount while saponins, resins, glycosides and flavonoids were present in moderate amount. The results indicated that intraperitoneal injection of ME, MF, CF and HF reversed the effect of alloxan in rats by different degrees. The antidiabetic potency of the extract and fractions was in the order MF > ME > HF > CF. The results of this study justify the use of this plant roots as traditional treatment for diabetes mellitus.

Keywords: Diabetes mellitus; *Detarium microcarpum*, blood sugar, alloxan

Introduction

Diabetes mellitus (DM) is a chronic metabolic disorder resulting from insulin deficiency, characterized by hyperglycemia, altered metabolism of carbohydrates, proteins and lipids, and an increased risk of vascular complication (Barar, 2004). DM develops due to a diminished insulin production (Type 1) or resistance to its effect (Type 2) (WHO, 1999).