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Abstract

Glucose Lowering Effects and In Vitro α-Amylase and α-Glucosidase Inhibitory Potential from Aqueous Extract of *Adansonia digitata* (Baobab) Seed †

Khalifa Umar Bashir [1] and Habibu Tijjani [1,2,*]

[1] Natural Product Research Laboratory, Department of Biochemistry, Bauchi State University, Gadau PMB 65, Bauchi State, Nigeria
[2] Department of Science Laboratory Technology, Bauchi State University, Gadau PMB 65, Bauchi State, Nigeria
* Correspondence: haatscific@gmail.com
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Abstract: *Adansonia digitata* L. (*Malvaceae*, Baobab) is a medicinal tree with antimicrobial, antiviral, anti-inflammatory, and antioxidant properties. The leaves, fruit pulp, stem bark, and roots have been extensively studied. The aim of this study was to evaluate the glucose-lowering and in vitro antidiabetic potentials of the aqueous extract of *A. digitata* seed. The aqueous extract of *A. digitata* seed was prepared by dissolving 50 g of powder seed in 500 mL of distilled water for 24 h, filtered using Whatman filter paper, and concentrated using a rotary evaporator at 40 °C. Following an oral administration of glucose (2 g/kg body weight), distilled water, metformin (14.2 mg/kg body weight), and *A. digitata* seed extracts at 500 and 1000 mg/kg body weight, respectively. The results show that the untreated mice had an average 11.09% increase in plasma glucose concentration, while metformin, aqueous seed extract of *A. digitata* had average decreases of 17.05%, 0.99%, and 19.21% in plasma glucose concentration, respectively. The aqueous seed extract of A. digitata inhibited α amylase in a concentration-dependent manner with an IC50 of 24.27 ± 2.14 mg/mL compared with acarbose with IC_{50} of 22.61 ± 1.05 mg/mL. However, the α-glucosidase inhibitory activities of the extract (IC_{50} 34.37 ± 1.67 mg/mL) were significantly lower compared to acarbose (IC_{50} 53.46 ± 2.06). The study concludes that aqueous seed extract of *A. digitata* possesses glucose-lowering properties, in vitro α-amylase and α-glucosidase inhibitory potentials. Further studies will required a bioguided fractionation of aqueous seed extract of *A. digitata*, to identify its phytochemical constituents using fingerprint chromatography among other techniques.

Keywords: *Adansonia digitata*; seed; baobab; α-amylase; α-glucosidase; in vitro; antihyperglycemia

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