

ET 022

**IN VITRO ALPHA AMYLASE INHIBITORY ACTIVITIES OF CRUDE ETHANOL EXTRACTS OF SELECTED MEDICINAL PLANTS**

**Umar, M. B.<sup>1</sup>, Ogbadoyi E. O.<sup>1</sup>, Kabiru, A. Y.<sup>1</sup>, Mann, A.<sup>2</sup>, Adamu, Z.<sup>1</sup> and Usman, M. O.<sup>1</sup>**

<sup>1</sup> Department of Biochemistry, School of Life Sciences, Federal University of Technology, Minna

<sup>2</sup> Department of Chemistry, School of Physical Sciences, Federal University of Technology, Minna.

Corresponding author's e-mail: [maimuna.umar@futminna.edu.ng](mailto:maimuna.umar@futminna.edu.ng)

**Abstract**

Diabetes mellitus is a public health problem. Its rate has spiraled globally in the last two decades, usually resulting in serious complications and culminating in death in some cases and no satisfactory effective therapy is still available to cure it. Ethnobotanical information reports about 800 plants that may possess anti-diabetic potential, however, it is necessary to provide scientific proof to justify the use of some of these plants or their active principles. Alpha amylase is an enzyme that breaks starch into sugars and its inhibition plays a significant role in the management/treatment of diabetes disease. This study was carried out to evaluate the alpha amylase inhibitory activity of the crude ethanol extracts of some medicinal plants used locally for diabetes therapy. The plants used were *Ageratum conyzoides*, *Anogeissus leocarpus*, *Balanites aegyptiaca*, *Cassytha filiformis*, *Daniella oliveri* and *Khaya senegalensis*. It was observed that, the alpha amylase inhibitory activity of all the Plant extracts and standard drug (Acarbose) was dose dependent, but the alpha amylase inhibitory activity of the standard drug was significantly higher than all the plant extracts for all the concentrations (1.25, 2.5, 5.0, 10.0 and 20.0mg/mL) used, except for two plant extracts (*Daniella oliveri* and *Khaya senegalensis*) whose alpha amylase inhibitory activities were found to be significantly ( $p < 0.5$ ) higher than that of the standard drug at concentrations of 10 and 20mg/mL. The percentage inhibition of alpha amylase was calculated to be 75.76% and 85.45, 78.71% and 89.67%, 66.29% and 76.60%, for ethanol extracts of *Daniella oliveri*, *Khaya senegalensis* and the standard drug (acarbose) at concentrations of 10 and 20mg/mL respectively. From the result obtained from this study, it could be concluded that ethanol extracts of *Daniella oliveri* and *Khaya senegalensis* contains active compounds responsible for the inhibition of alpha amylase enzyme as the extracts were found to perform better than the standard drug at higher concentrations, which further justifies their use traditionally for the management of Diabetes mellitus. The active principles contained in these extracts, if properly harnessed, could be channeled into the drug development pipeline for the treatment of Diabetes mellitus.

**Key words:** Diabetes mellitus, alpha amylase, inhibitory, Acarbose, ethnobotanical