



Page 296

**NIGERIAN SOCIETY OF BIOCHEMISTRY  
AND MOLECULAR BIOLOGY**

**BOOK OF ABSTRACTS**

**37<sup>th</sup>  
ANNUAL  
SCIENTIFIC CONFERENCE  
KATSINA 2019**

**THEME:**

**BIOCHEMISTRY & MOLECULAR BIOLOGY:  
OPTIMISING THE VALUE OF LOCAL RESOURCES  
FOR DIRECT FOREIGN INVESTMENT AND YOUTH EMPOWERMENT**



**DATE:** 4th – 8th November, 2019

**TIME:** 10:00am Daily

**VENUE:** Umaru Musa Yaradua University, Katsina, Katsina State



**NIGERIAN SOCIETY OF BIOCHEMISTRY AND MOLECULAR BIOLOGY**  
**37<sup>th</sup> Annual National Scientific Conference**  
**Umaru Musa Yar'adua University, Katsina**



Dr. Nasiruddeen Umar Matazu  
Chairman Local Organizing Committee  
Head, Department of Biochemistry  
Umaru Musa Yar'adua University, Katsina  
[nasiruddeen.umar@umyu.edu.ng](mailto:nasiruddeen.umar@umyu.edu.ng)  
+2348036446433

Dr. Ibrahim Hamza Kankia  
Secretary Local Organizing Committee  
Department of Biochemistry  
Umaru Musa Yar'adua University, Katsina  
[ibrahim.hamza@umyu.edu.ng](mailto:ibrahim.hamza@umyu.edu.ng)  
+2348066225056

Date: 27<sup>th</sup>/09/2018

**ACCEPTANCE LETTER**

**Title:** *In vitro* alpha amylase inhibitory activities of crude ethanol extracts of selected medicinal plants

**Author(s):** 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)

Dear Author(s),

I write to inform you that your abstract with the title indicated above has been accepted for oral presentation at the 37<sup>th</sup> Annual National Conference of the Nigerian Society of Biochemistry and Molecular Biology (NSBMB) holding November 12-15, 2018 at Umaru Musa Yar'adua University, Katsina.

We thank you for the submission and urge you to register soon and confirm your participation.

Congratulations.

Dr. Ibrahim Hamza Kankia  
Secretary, Local Organising Committee

---

**PRESIDENT:** Prof. S. O Malomo, University of Ilorin, **VICE-PRESIDENT:** Prof. O. A. T. Ebuehi, University of Lagos, **SECRETARY GENERAL:** Prof. M.T. Yakubu, University of Ilorin, **ASST. SEC. GEN.:** Prof. E. C. Egwim FUT, Minna, **TREASURER:** Prof. E. S. Omorege, University of Benin, **P.R.O:** Dr. M. Dickson, Ibrahim Badamasi Babangida Univ., Lapai, **FINANCIAL SECRETARY:** Prof. Y. Sa'idu, UDU, Sokoto, **IMMEDIATE PAST PRESIDENT:** Prof. O. U. Njoku, UNN, Nsukka

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: [mairuna.umar@futminna.edu.ng](mailto:mairuna.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

ET 023

## CARBONIC ANHYDRASE: ANCIENT BUT RELIABLE BIOMARKER FOR DIFFERENT DISEASES

Awoniran Deborah\* and Egwim Evans

Department of Biochemistry, Federal University of Technology, PMB 65, Minna, Niger State, Nigeria

\*Corresponding Author: Email: [awoniran.deborah@yahoo.com](mailto:awoniran.deborah@yahoo.com); Mobile: 08181367163

### Abstract

Carbonic anhydrases (CAs) are zinc metalloenzymes that primarily catalyze the reversible hydration of carbon dioxide to form bicarbonate and protons, with a  $k_{cat}$  of about  $19.74 \text{ min}^{-1}$ . They comprise a family of evolutionarily ancient enzymes found ubiquitously in nature. They play important roles in facilitating transport of carbon dioxide and protons in the intracellular space, across biological membranes and in the unstirred layers of the extracellular space. They act as biomarkers for relatively different kinds of diseases such as cancer and diabetes. Recent studies showed that carbonic anhydrase inhibitors may provide a novel therapy for obesity, cancer, infection and Alzheimer's disease. This is due to their existence in different isomeric forms as CA I, CA II, CA III, CA IV, CA VII, CA XIII, CA IX, CA XII, CA XIV, CA XV, CA VA, CA VB. The acatalytic forms are also known, the CA related proteins (CARP), CARP VIII, CARP X and CARP XI. The presence of these enzymes in so many tissues and in so different isoforms, represents an attractive goal for the design of inhibitors with biomedical applications. The tumour-associated isoenzymes, CAIX and CAXII, which expressed in a wide variety of malignancies and appear to be tightly regulated by micro environmental hypoxia, which may be a reliable biomarker in early, later stage and post-operative stages of malignant tumours. The present review discusses the mechanism of action of these enzymes and proposes different...