



**THE NIGERIAN SOCIETY OF BIOCHEMISTRY
AND MOLECULAR BIOLOGY (NSBMB)**

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VENUE | University of Ilorin Auditorium

THEME:

**RE-ENGINEERING BIOCHEMISTRY AND MOLECULAR BIOLOGY
FOR POVERTY ALLEVIATION AND DISEASE CONTROL**



**PROGRAMME
& BOOK OF ABSTRACTS**

Abstract: Anticancer potential of fractions (in hexane, dichloromethane, ethyl acetate and chloroform) of *Vernonia amygdalina* on Prostate Cancer (PC) cells, Benign Prostate Hyperplasia (BPH) and normal prostate epithelial cells (NPEC) was investigated. Treatment of PC cells with various concentrations (0.1, 0.25, 0.5 and 1mg/ml) of fractionated *V. amygdalina* extract for 48h, showed a concentration dependent fashion of cell viability, reducing significantly (p<0.05) solvent and concentration dependent inhibition. Treatment of both PC cells to 90±0.25% by the ethyl acetate fraction of *V. amygdalina*, compared to normal control. The cells also revealed a significant (p<0.05) cell proliferation inhibition. Treatment of both PC cells were compared to NPEC, and this revealed a lesser growth abrogation for the normal cells suggesting a selective mechanism of action of *V. amygdalina* (cell cytotoxicity was determined by Lactate dehydrogenase (LDH) Assay. LDH activity was significantly (p<0.05) reduced by various fractions especially the ethyl acetate and Dichloromethane fractions. Gas chromatography-mass spectroscopy (GC-MS) carried out on the ethyl acetate fraction of *V. amygdalina* revealed the presence of 9-hexadecenoic acid having the highest Peak area (50.73%) with retention time of 30.76 followed by octadecenoic acid (10.31.01) and pentadecadien-1-ol (1p=31.6), alongside other constituents. This result suggest that solvent fractionated extract of *V. amygdalina* cell anticancer effects on Prostate Cancer and Benign Prostate Hyperplasia cells with little/no effect on normal prostate epithelial cells

Keywords: Cancer, Prostate, Benign Hyperplasia, Fractions, Cytotoxicity

AMDD 29 GREEN SYNTHESIS AND CHARACTERIZATION OF GOLD NANOPARTICLES FROM AQUEOUS LEAVE EXTRACT OF *Calotropis procera* AND ITS CYTOTOXICITY ON MCF-7 CELL LINE.

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The process for the development of reliable and eco-friendly metallic Nanoparticles, is an important step in the field of Nanotechnology for biomedical application. To achieve this, use of natural sources like biological systems becomes essential. In this work, extracellular biosynthesis of gold Nanoparticles using aqueous leave extracts of *Calotropis procera* was attempted. The produced Nanoparticles (AuNPs) were characterized using High Resolution Scanning Electron microscopy, Ultra Violet-Visible spectroscopy, zeta-size Nano, Energy Dispersive X-ray (EDX) Spectroscopy and Fourier Transmission Infrared (FTIR) Spectroscopy. The cytotoxicity of the synthesized gold nanoparticles on MCF-7 cell line was also evaluated using MTT assay. The work showed a rapid development of Nano size and shaped particles within 3 minutes of reaction with Surface Plasmon Resonance at 540nm. An average particle size of 45nm was confirmed as the amount of extract increases and it causes the shift of Surface Plasmon Resonance band. FTIR confirms the presence of biomolecules serving as reducing and capping agent on the synthesized gold nanoparticles. The MTT assay shows a significant effect of gold nanoparticles which is concentration dependent. This environment-friendly method of biological Nanoparticle synthesis has the potential and can be directly applied in cancer therapy.

Keywords: biosynthesis, gold nanoparticles, characterization, *calotropis procera*, cytotoxicity