

## 491<sup>st</sup> PROFESSORIAL INAUGURAL LECTURE

### TITLE: “THAT I MAY LIVE IN HEALTH: CHECKMATING THE SILENT KILLER”

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#### ABSTRACT:

Inflammation is the body's local response to cellular injury marked by capillary dilatation, leukocyte infiltration, redness, heat, and pain and that serves as a mechanism initiating the elimination of foreign agents and of damaged tissue. Natural foods and herbal medicine has sparked up so many interests being potential sources of phytopharmaceuticals. This inaugural lecture will show some light into common factors of inflammation and the role of phytomedicines and natural foods in suppressing it.

My contribution to knowledge using Natural Foods and Phytomedicines to checkmate the menace of Silent Killer called chronic inflammation in the following areas:

**(1). Infectious diseases in malaria, bacteria and trichomonads :** The natural medicinal plants I have worked with to show either suppression of the symptoms and inhibition of experimental malaria parasites, bacteria, and trichomonads includes: *Azadirachta indica* (Dongoyaro), *Cassia (Senna) occidentalis*, *Guiera senegalensis* leaves, *Dorstenia barteri* and *Dorstenia convexa*, *Alchornea cordifolia*, *Murraya koenigii*, *Gongronema latifolium*, different essential oils and *Harungana madagascariensis* stem bark. *Harungana madagascariensis* stem bark was studied in detailed to bring out its antimalarial, antibacterial, anti trichomonal, anti-fungi, anti-oxidant anti- anemic, analgesic and anti-inflammatory properties. The extracts and isolated compounds obtained from *Harungana madagascariensis* stem bark (HM) were used as test agents against malaria parasites, bacteria, fungi, trichomonads, oxidative stress markers, anaemia assay, analgesic effects on pain and finally electrophoresis of protein in blood plasma of malaria infected RBC. Results obtained showed that HM exhibited reversal of anaemic conditions, analgesic effects, and reverse oxidative stress markers as a mark of reversing chronic inflammatory conditions.

**(2). Metabolic disorders in Diabetes:** There are other phytomedicines from foods and medicinal plants examined to checkmate the some mediators that enhances the devastating effects of cytokines in diabetes. Some of the spices, foods materials and medicinal plants includes: *Zingiber officinale* rhizomes, (Ginger), *Murraya koenigii*, *Clausena lansium*, *Jatropha tanjorensis* leaves, *Bryophyllum pinnatum*, *Peristophe bicucalyrata* leaves, Turmeric (*Curcuma longa* L.) and *Capsicum chinensis* (“Ata rodo”).

Among the recipes we studied in detail, the antidiabetic and antihyperglyceamic, antilipidaemic properties of *Peristophe bicucalyrata* leaves in three models of chemical induction of animal diabetes in Types 1 and 2 diabetes. Results showed a significant increase in blood glucose level of diabetic control rats (from 0 to 180 hours) compared to the normal control rats. Pre-treatment with *P. bicalyculata* extract and glibenclamide significantly reduced the blood glucose at 168hours.

Another food specie that lowers blood glucose with its mechanism is curcumin. Curcumin shows anti-glycemic effects in animals. Curcumin was shown to –induce the release of glucagon-like peptide 1 (GLP-1) from mouse STC-1 cells.

Diabetes can cause neuropathy which is exhibited as neuropathic pain, hence the evaluation of the analgesic property of *Capsicum chinensis*, (Ata-rodó). The result obtained showed that *Capsicum chinensis* extract showed better antihyperalgesic effect in diabetes neuropathic pain in mice model.

**(3). Cardiovascular system disorders:** The following three plants materials were examined for cardiovascular disease (CVD) chronic inflammatory disorders: *Solanum macrocarpon*, *Strophanthus sarmmentosus* seeds and *Corchorus olitorius* leaf extract against isoproterenol-induced myocardial injury.

*Corchorus olitorius* (CO) leaf ("Ewedu") was chosen for this study to assess its cardio-protective effects against ischemia-induced myocardial injury. The fractions of *Corchorus olitorius* leaf (COLF) were evaluated against oxidative stress, inflammation and apoptosis in isoproterenol (ISO) - induced myocardial injury (MI) Wistar rats. The results showed that pretreatment with COLF extract and fraction and enalapril significantly increased the blood pressure and p-interval, QRS-interval were significantly reduced. The significant increase in tissue MDA, serum myeloperoxidase, CKMB and LDH in the infarction control rats was reduced in pre-treatment rats. Pre-treatment also increased glutathione-s-transferase, reduced GSH and non-protein thiol level significantly. There was an increased tissue GSH and p65NFkB levels and significantly reduced serum CRP, AOPP, LDH and CKMB.

**(4) Central Nervous System :** The following plant materials (*Tetrapleura tetraptera* fruit, *Spondias mombin* leaves, *Alchornea cordifolia* leaves, *Terminalia ivorensis* stem bark and *Pycnanthus angolensis* Stem bark, were examined on CNS neuro inflammatory conditions as anxiety, schizophrenia-like, depressions, memory loss and other psychotic disorders

In the study, we evaluated the effects of Aridanin isolated from *Tetrapleura tetraptera* fruit and *Spondias mombin* leaves extracted with aqueous, methanol and ethanol solvents on CNS induced behaviours in mice and rats. The results suggest that the leaves extracts of *Spondias mombin* possess sedation and aridanin could be acting as a Central Nervous System (CNS) depressant and that its anticonvulsant property is mediated through the membrane stabilizing.

**(5). Experimental Inflammation and Oxidative Stress:** It has been shown that consumption of fruits and vegetables is associated with reduced risk of chronic inflammation.

In this study, nine common vegetables were selected on the basis of consumption in Nigeria. We investigated the in vitro antioxidant and cytoprotective effects of boiled, cold, and methanol extracts using the 1,1-diphenyl-2-picrylhydrazyl (DPPH) free radical assay and the cytoprotective activity in the HA assay in fixed bovine erythrocytes. The results showed that *Crassocephalum rubens* (Ebolo) showed the highest antioxidant activity, *Solanum americanum* (Odu) and *Vernonia amygdalina* (Ewuro) exhibited moderate antioxidant activity, *Solanum macrocarpon*, (Garden Egg- Igbagba) *Telfaria occidentalis*, (Ugwu) *Amaranthus hybridus* (Tete), and *Jatropha tanjorensis* (Iyana-Ipaja) produced weak activity, while *Celosia argentea* (Soko) and *Talinum triangulare* (Gbure) were pro-oxidants.

**CONCLUSION:** Through my presentation of the 491st inaugural lecture, I have shown some spices, vegetables, medicinal plants and food materials found in our environment which can checkmate the silent killer called chronic Inflammation. These are found to exhibit analgesics, antioxidants, anti anaemia, anti-bacterial, anti-fungi, anti-trichomonas, antimalarial, antidiabetics, anti-psychotics, anxiolytics, cardio-protectives and anti-inflammatory effects.

