

463nd INAUGURAL LECTURE, “COMBATING THE RESISTING INVISIBLES AND INVINCIBLES - a running battle”.

by

**PROFESSOR OLUFEMI EZEKIEL ADELEKE
DEPARTMENT OF PHARMACEUTICAL MICROBIOLOGY**

ABSTRACT

My Inaugural Lecture today 8 August, the month of my birthday, the 462nd in this University, the third in the academic discipline of Pharmaceutical Microbiology, is titled, “Combating the Resisting Invisibles and Invincibles – a running battle”.

I earned my Ph.D degree (Pharmaceutical Microbiology) in 1998 from University of Ibadan. For my research, I focused on bacterial drug resistance and antimicrobial agents.

Resistance by microorganisms to antibiotics could be conceptualized as a survival strategy of microorganisms in the presence of unfavourable environment. This constitutes a trait offered by deoxyribo-nucleic acid (DNA), the hereditary factor. Broadly, antibiotic resistance could be due to microbial factors (chromosomal or plasmid mediated) and non-microbial factors.

Bacteria that constitute the subject of my research, like others, are ubiquitous and naturally invisible to human naked eyes, except with the aid of microscope. Though bacteria are beneficial to man to a very large extent, most of them are agents of various forms of infection in respect of which most bacteria are known to be resistant to a good number of antibiotics. The inability of unaided eyes to see microbes, yet, functioning as agents of infections coupled with their resistance characteristic against antibiotics explain the task of combating the invisibles and invincibles.

My research efforts have utilized both the conventional and modern molecular methods to detect antibiotic resistance and the associated resistance genes in such bacteria as *Staphylococcus spp.*, *Salmonella enterica* serovar Typhimurium and *Pseudomonas aeruginosa*. Notably, all of them were detected with multiple drug resistance (MDR) especially against the first line drugs of different classes. Efforts at combating the resistance episode identified more potent standard antibiotics as alternatives and some natural products with antimicrobial activity, as well as formulation of Elixir with antimicrobial activity against some throat bacterial isolates using methanolic extract concentrates of *Garcinia kola*, *Kola ntida* and *Kola acuminata*. Brands of different standard antibiotics and non-alcoholic beverages were investigated for the risk of public health hazards in their consumption.

This effort produced suggestions on the need for antimicrobial assay on the brands of every particular antibiotic, and moderate consumption of honey and non-alcoholic beverages analysed including Kunnu-zaki and soy-products.

In the area of community service, a remarkable natural water sample was discovered with health promoting property; it was detected with antimicrobial activity against *Helicobacter pylori* (that causes peptic ulcer) and some fungi associated with mycotoxins.

In conclusion, both the conventional and academic approaches as well as adequate funding of research are needed to be able to cope with the running battle of combating the resisting invisibles and invincibles - the microbes, especially bacteria. Akin to the recommendation of the Pharmacists Council of Nigeria (PCN) the present Department of Pharmaceutical Microbiology should be changed to Department of Pharmaceutical Microbiology and Biotechnology which has been adopted in some other Universities.