

Biomimetic Nanotechnology for Biomedical Applications: Lessons from and for Nigeria

Agbaje Lateef, *FCEnt*

Head, LAUTECH Nanotechnology Research Group (*NANO*⁺), Department of Pure and Applied Biology, Ladoke Akintola University of Technology, PMB 4000, Ogbomoso, Nigeria.

agbaje72@yahoo.com; alateef@lautech.edu.ng

+234 8037400520

Abstract

Nanotechnology as described as the technology of the future of materials has succeeded at converging several diverse disciplines in response to inputs for the fabrication of nanomaterials and their cosmopolitan applications. The expanding applications of nanotechnology in biological systems coupled with advances in biotechnology and information and communication technology would define future industrial revolutions. Amidst tools of fabrication of nanomaterials, biological resources that include animals, plants and microorganisms have been explored in the sub-discipline of nanobiotechnology with success stories. The exploitation of biological materials in producing nanoscale substances in ‘biomimetic nanotechnology’ has witnessed unprecedented advances in the last decade owing to some advantages as being green, simple, cost-effective and eco-friendly process with improved biocompatibility for biomedical applications. In this lecture, advances made by Nigerian scholars in ‘biomimetic nanotechnology’ that cover green synthesis of bioactive nanoparticles for biomedical uses will be highlighted and personal experiences will be shared. Challenges facing biomimetic nanotechnology R & D and future trends of research will also be discussed.

Biography of Prof. Agbaje LATEEF

Prof. Lateef read Pure and Applied Biology at first degree (Second Class, Upper Division, 1997), Biotechnology at master level (Distinction, 2001) and obtained PhD in Microbiology (2005) at Ladoké Akintola University of Technology, Ogbomoso, Nigeria. He joined the services of LAUTECH as a graduate assistant in 1998 and rose to Professor of Microbiology in 2013. In 2013, he won the maiden prize of the Prof. Oyewale Tomori Young Scientist in Microbiology in Nigeria, which was awarded by the Nigerian Young Academy (NYA).

He has extensive administrative and research experiences in the University system as Head of Departments, Director of Research Laboratory and membership of the Governing Council of LAUTECH, Ogbomoso, Nigeria at various times.

He has served as external examiner to several Universities in Nigeria, South Africa and India, and as member of NUC accreditation teams to some Universities in Nigeria. He consults for academic bodies in Nigeria, South Africa, Italy and Ireland.

Prof. Lateef is the Head of LAUTECH Nanotechnology Research Group (*NANO*⁺), a multidisciplinary research group that was founded in 2014. He has published widely in Microbiology, Biotechnology and Nanobiotechnology culminating in more than 125 research articles; more than 60 of which are in nanobiotechnology. Early this year, he rallied scientists from seven countries in four continents of the World to produce the pioneering textbook '*Microbial Nanobiotechnology: Principles and Applications*' which was published by Springer-Nature Pte Ltd. (Singapore).

He has publicized Nanotechnology Research through the organization of workshops/conferences by his research group in 2017, 2018, 2019 and 2020 and release of more than 30 news items in several national and international electronic and print media.

Prof. Lateef collaborates with a lot of researchers. His network of research extends to India, Egypt, South Africa, Saudi Arabia and Sweden. In most recent time, he has received collaborative gestures from researchers in Tunisia and Turkey. Some of his researches have received funding from CSIR (India), TWAS (Italy) and TETFund (Nigeria). His citation count on Google Scholar is in excess of 3400 with *h*-index of 37. He was listed among the top 2% scholars in the World, being one of the 71 Nigerian scholars that made the list in a joint study by Elsevier BV and Stanford University, USA as published in October, 2020. He is a fellow of the Institute of Classic Entrepreneurship, Nigeria (ICENT).