



THIRD QUARTERLY NISEB NEWSLETTER/BULLETIN

MAY, 2019

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HOW HAS IT BEEN?

On behalf of NISEB NEC and BOT I welcome everyone to this edition of the bulletin. The question on my mind this time that I want to ask you is "how has it been?". How has it been with you so far in your research? How has it been with you in your teaching? How has it been with you in your community service? How are your finances too? What about your family and friends? We should be good and well all around. As NISEB members we have to be fine in all aspects of our life. That's what will bring happiness and joy to us. As we aim to do well in our research and science, let's work on other areas of our lives too. What's your response to the question "how has it been?"

FROM THE PRESIDENT

HAPPY NEW YEAR! THE NEW APPROACH

It's obvious to many older members of NISEB that our usual "NISEB cultures" are fast going extinct! This has to do with the general activities at local chapters such as: > Regular monthly meetings > Seminars > Workshops > Scientific talks, etc. NEC is worried about the lack of these activities at the local chapters, as typified by the lack of reports from the chapters despite the repeated call by NEC for such reports to be sent for publication in our quarterly bulletins. The new approach is to awaken these old NISEB cultures to make our presence felt across all the tertiary institution campuses in the country; instead of everyone looking forward to annual national conferences only! In fact, I will be right to say that it is only through annual conferences that nonmembers now hear about NISEB! To give this drive the impetus to succeed, NEC has initiated a National President Award (NPA), to be given to the chapter who send in the best report for publication in the next three quarterly bulletin (June, September and December 2019 editions). One of the criteria to be used to get the winning chapter is the number of new members attracted by your local activities. The winner of "NPA" will be announced in the last quarter bulletin (December) for 2019. Let's join hands to make NISEB greater by doing that "Everybody's job"!

Prof. A. Taiga: president@niseb.org,
akpotaiga@yahoo.com

CALL FOR ABSTRACT NISEB 2019 CONFERENCE AT JALINGO: JUNE 2-5 (REQUEST FOR SUPPORT FOR THE 19TH ANNUAL SCIENTIFIC CONFERENCE AND GENERAL MEETING – JALINGO, 2019)

We appreciate you for your previous supports for NISEB Conferences. The 19th Annual Scientific Conference and General Meeting of the Society for Experimental Biology of Nigeria (NISEB) will hold from June 2 to June 5, 2019 at the Main Auditorium of Taraba State University, Jalingo, Taraba State (Attached is a copy of the flier).

We request for your usual assistance in terms of publicizing the conference within your faculty and encouraging your faculty members to participate in the conference. Abstracts are still being accepted. We shall also be grateful for your assistance towards the transport arrangement of members from your school/area.

GENERAL INSTRUCTION FOR ABSTRACT SUBMISSION

Abstract are invited from all aspects of experimental biology for their oral or poster presentations (clearly indicate the preferred type of presentation).

- All abstract submission must not be more than 450 words.
- Authors should indicate the NUMBER of the area of their papers in bracket as shown in **SUB-THEMES**, for example: Artificial Intelligence in Food, Nutrition and Dietetics (AIFND04)
- Abstract should have a concise title in **UPPERCASE** and centralized.
- This should be followed by author's (s) name, affiliation (department and institution), email address, phone number.
- The corresponding author's(s) address should be indicated with an asterisk (*)
- Abstract should be written in English Language and Latin words in italics.
- Abstract should be submitted in Microsoft Word Document with the following formatings: double line-spaced at font size 12 using Times New Roman.
- Abstract must have maximum of 5 keywords, introduction, materials and methods, results and discussion, conclusion and recommendation.

CONFERENCE REGISTRATION FEE AND NISEB MEMBERSHIP DUES

S/N	Category	Early Registration February 1 st 2019 to April 30 th 2019	Normal Registration May 1 st 2019 to June 1 st 2019
1	Registered Members (Annual Dues)	₦15,000	₦17,000
2	Non-members/ Government	₦17,500	₦20,000
3	Agencies/ Corporate Bodies	₦28,000	₦32,000
4	Farmers/ Agripreneurs	₦17,000	₦20,000
5	Post Graduate Student (Above Staff)	₦5,000	₦6,000
6	Undergraduate Student (with I.C)	₦2,000	₦2,000
7	Fellows of the Society	₦20,000	₦20,000

GUIDE AND TIMELINE

- Abstract should be submitted electronically as an email attachment to: nisebtsu2019@tsuuniversity.edu.ng before 12 midnight of April 1st 2019
- Each submitted manuscript should be accompanied with evidence of payment (scanned bank teller) of a processing fee ₦2,000 only.
- All conference charges, annual dues, endowments, exhibition and advert payments are payable at any branch of:

Bank: **FIRST BANK**

Account Name: **ESTHER UMAHI**

Account Number: **3129949308**

CONFERENCE PROGRAMME

Sunday, 2nd June, 2019

Arrival /Registration

Monday, 3rd June, 2019
Opening Ceremony, Keynote Address
and Plenary Lectures

Tuesday, 4th June, 2019
Oral and Poster Presentation/ Annual
General Meeting

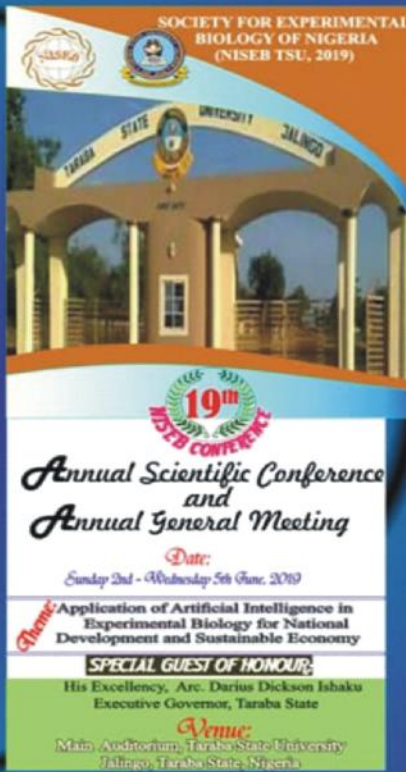
Wednesday, 5th June, 2019
Departure

HOST

Prof. Vincent Ado Tenebe
Vice Chancellor, Taraba State University Jalingo

CO-HOST

Prof. (Mrs.) Delphine Leila David
Dean, Faculty of Science, Taraba State University, Jalingo



**SOCIETY FOR EXPERIMENTAL
BIOLOGY OF NIGERIA
(NISEB TSU, 2019)**

**19th
ANNUAL SCIENTIFIC CONFERENCE
AND
ANNUAL GENERAL MEETING**

Date:
Sunday 2nd - Wednesday 5th June, 2019

Theme: Application of Artificial Intelligence in
Experimental Biology for National
Development and Sustainable Economy

SPECIAL GUEST OF HONOUR:
His Excellency, Arc. Darius Dickson Isaku
Executive Governor, Taraba State

Venue:
Main Auditorium, Taraba State University
Jalingo, Taraba State, Nigeria

ACCOMMODATION AND HOTEL INFORMATION

Hotels/ Guest Houses in Jalingo metropolis, their rates and phone numbers on booking are captured below

Star Exclusive Hotel: 07062356481

Opposite Taraba State University 4th Gate

- Single room - ₦5,500
- Studio room - ₦8,500
- Deluxe room - ₦10,500
- Master Suite - ₦18,500

Mobile Links: 08067867844

Abuja Phase 1 Adjacent State Secretariat, Jalingo

Single Rooms - ₦4,000

Studio rooms - ₦6,000

De Bas Suites: 09038752887

Hammanruwa Way Jalingo

- Standard room - ₦5,750
- VIP - ₦6,900
- Executive - ₦7,475
- Ex. VIP - ₦9,200
- Monarch - ₦10,350
- Royal - ₦11,500

Mid Land Hotels Ltd: 08060520001

- Studio room - ₦4,000
- Standard room - ₦5,000
- Suite - ₦6,000

Heritage Hotel: 081400113523

Mallum Road, Opp. Taraba Vegetable Farm, AIC, Jalingo.

Studio Room - ₦1,500 - 2,500

Additional Contact on Accommodation

Dr. Bako Ali - Chairman Logistics Committee
(+2348032692652).

Dr. Apang R. Shinkom - Member, Logistics
Committee (+2347035563584).

For further information or contact

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LOC Treasurer
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ADVERTS AND PRODUCT EXHIBITION

Adverts and goodwill messages are invited from friends, partners, individuals, other professional bodies/ societies, companies and universities for the book of abstracts.

Companies/ industries, research institutes, NGO's, universities and individuals, entrepreneurs, friends of the university and government wishing to exhibit and possibly market their products, operations, talents or inventions shall apply to the LOC Secretary and copy the LOC Treasurer.

Space	Early Booking	Late Booking
Back Page (Full)/ Back Cover (Full)	₦15,000	₦20,000
Inside Front Cover (Full)/ Inner Front Page	₦18,000	₦23,000
Inside Pages (Half)/ Inner Pages (Half)	₦8,500	₦13,000
Goodwill Message	₦11,000 Per 50 words	₦15,000 Per 50 words

INVITATION

The Local Organizing Committee (LOC) of NISEB Taraba State University, 2019 Conference on behalf of the Nigeria Society for Experimental Biology invites members of NISEB and life scientists, researchers, agripreneurs and entrepreneurs in the government, non-governmental, education, industrial, agricultural, private and public sectors to the 19th Annual Scientific Conference and General Meeting of the Nigerian Society for Experimental Biology (NISEB) scheduled for 2nd - 5th June, 2019 at the Main Auditorium, Taraba State University Jalingo, Taraba State (Nature's gift to the nation). The conference shall feature awards, exhibitions, keynote speech, plenary, poster and oral presentations in all aspects of experimental biology and Book of Abstract made available for interested participants.

- The Role of Artificial Intelligence in Biodiversity, Conservation and National Development - AIBND01.
- Artificial Intelligence in Ethnomedicine, Therapeutic Drugs and Toxicology - AIETT02
- The Role of Artificial Intelligence in Plant Protection and Control of Plant Diseases for Sustainable Economy- AIPCS03
- Artificial Intelligence in Food, Nutrition and Dietetics- AIFND04
- The Role of Artificial Intelligence in Bioremediation and Parasitic Diseases - AIBPD05
- The Role of Artificial Intelligence in Molecular Biology, Biochemistry and Biotechnology for National Development - AIMBN06.
- Artificial Intelligence in Crop Production for Sustainable Development - AICPS07.

THE FULBRIGHT AFRICAN RESEARCH SCHOLAR PROGRAM

Call for Application: February 1st

Deadline for submitting online application and all supplementary documents: June 1st

Program Information

The Fulbright African Research Scholar Program (ARSP) also known as the Fulbright Visiting Scholar Program is a research fellowship award grants to foreign academics or professionals to conduct advanced research at U.S. institutions. Two categories of grants are offered under The Fulbright Visiting Scholar Program: Research Grants and Program and Curriculum Development Grants.

Research Grants:

Awards of 3 to 9 months are offered for senior faculty to conduct post-doctoral research in any academic discipline at a U.S. academic or research institution. Applicants must hold a doctorate or equivalent terminal degree in their fields. Preference will be given to individuals who have at least three years of university teaching experience and a productive scholarly record.

Program and Curriculum Development Grants:

Awards of 3 to 5 months are offered for senior faculty or administrators to conduct research in any academic discipline

at a U.S. academic or research institution. Proposals should be linked to professional duties and demonstrate how the candidate will use the knowledge gained to develop new courses, curricula, or other academic programs at the home institution. These grants are designed for university faculty or administrators with less experience and who may not have had recent access to research or instructional developments in their disciplines. A doctorate degree is not required, but applicants must hold a minimum of a master's or equivalent graduate degree

ELIGIBILITY REQUIREMENTS:

An intended applicant must be a citizen of Nigeria or a permanent resident, and should hold a valid Nigerian passport. Preference will be given to candidates who have not previously received a Fulbright scholar grant and without experience or limited experience in the U.S.

The Fulbright program takes the issue of academic dishonesty (plagiarism) very seriously and will disqualify applications that violate academic integrity.

Application and Instructions

Applications must be completed online at <https://apply.iie.org/fvsp2020>

You are welcome to email CulturalAbuja@state.gov; NigeriaFulbright@state.gov with any questions.

NISEB MEMBER RECORDS SCIENTIFIC BREAKTHROUGH



The Achiever: Prof. O. M. Kolawole

A NISEB member from the Department of Microbiology, University of Ilorin has recorded some scientific breakthroughs. He and other researchers in his team isolated novel microorganisms and have deposited them in the NCBI database. The management of the University of Ilorin said that it's Biotechnology Centre has so far contributed 19 novel bacteria strains to the World Genomic Bank. Prof. Matthew Kolawole, Director, Institute of Molecular Science and Biotechnology (IMSB), made this known in the 2018 Annual Report of Scientific Breakthroughs of the university made available to newsmen in Ilorin.

Prof. Kolawole explained that 19 additional novel bioflocculating bacterial strains, which were isolated, had been submitted to the world genomic bank, otherwise known as the National Centre for Biotechnology Information, (NCBI), USA. He said the development led to the issuance of the NCBI's unique ascension

numbers to the institute which was reported for the first time across the world. He said the importance of this discovery might not be fully appreciated until it was juxtaposed with the water needs of Nigeria. The Professor of Microbiology quoted the United Nations International Children's Emergency Fund, (UNICEF), as saying that over 70 million Nigerians are without potable water. He said Nigeria requires \$8 billion per annum to provide potable water for its citizens.

"The discovery of these strains and local production of water treatment composite materials which IMSB has been pioneering in the last one year moves us closer to solving the massive shortage of potable water. "This outstanding feat has further cemented the institute's goal of contributing to the genomic bank," he said. Kolawole said that the institution also recorded a significant breakthrough in biotechnological innovation, with the development of a "Two-way Trans-illuminator Viewing Documentation System." According to him, the instrument has been tested and confirmed to be very functional and effective in providing wider surface area for larger genetic material (DNA/RNA) samples with significant qualities that would address multifarious human needs in the field of medical biotechnology. He noted that the discovery would facilitate the much-needed "portability, affordability, low voltage consumption, on-site view of standard DNA marker and two sources of illumination."

He said it would further ensure better result presentation and recording with a third battery operated LED light that would help in improving health-care delivery. Kolawole said that the serendipity had since been filed for patent at the National Office of NOTAPS through the University's Centre for Laboratory to Product (LABTOP). Other scientific breakthroughs attained by the university in 2018, according to Kolawole, are the isolation of Molecular Identification and Evaluation of Bioflocculant-producing Bacteria from Oyun, Asa and Agba Rivers in Ilorin. He said the discovery would proffer a wide range of indigenous bacteria with flocculants producing potentials and explore ways of improving bio-flocculating activities and corona virus OC43 and OC229 E/NL63, discovered for the first time in Nigeria as a cause of respiratory tract illness in children. (Culled from: <https://www.thenewsnigeria.com.ng>)

HIGHLIGHTS ON MICROBIAL ECOLOGY

Dr. D. O. Adetun

Microbial ecology is also called **environmental microbiology**. It deals with the ecology of microorganisms: their relationship with one another and with their environment. It concerns all classes of microorganisms, such as fungi, algae, protozoa, archaea, bacteria and viruses.

Microorganisms are found everywhere (ubiquitous). They have effects on the whole biosphere. Microbial life plays a primary role in regulating biogeochemical systems in the environment. They do so even in some of the most extreme places. These extreme environments range from frozen environments and acidic lakes to hydrothermal vents at the bottom of the deepest oceans and some of the well-known, such as the human small intestine. Microorganisms, as a result of their biomass alone constitute a significant carbon sink. Aside from carbon fixation, microorganisms' key collective metabolic processes (including nitrogen fixation, methane metabolism, and sulfur metabolism) control global biogeochemical cycling. The immensity of microorganisms' production is such that, even in the total absence of eukaryotic life, these processes would likely continue unaltered.

Louis Pasteur and his co-scientists were interested in the problem of microbial distribution both on land and in the ocean. Martinus Beijerinck invented the enrichment culture, a fundamental method of studying microorganisms from the environment. He is often incorrectly credited with framing the microbial biogeographic idea that "everything is everywhere, but, the environment selects", which was stated by Lourens Baas Becking. Sergei Winogradsky was one of the first

researchers to attempt to understand microorganisms outside of the medical sphere. This made him among the first students of microbial ecology and environmental microbiology. He discovered chemosynthesis and developed the Winogradsky column also.

Beijerinck and Winogradsky, nonetheless, were both interested in the physiology of microorganisms, not the microbial habitat or their ecological interactions particularly. Modern microbial ecology was launched by Robert Hungate and coworkers, who investigated the rumen ecosystem. The study of the rumen made Hungate to develop techniques for culturing anaerobic microorganisms. He pioneered a quantitative approach to the study of microbes and their ecological activities that differentiated the relative contributions of species and catabolic pathways.

Microorganisms are the building blocks of all ecosystems. This is even more observable in the zones where photosynthesis is unable to take place because of the absence of light. In such zones, chemosynthetic microbes provide energy and carbon to the other organisms.

Other microorganisms are decomposers. They have the ability to recycle nutrients from other organisms' waste products. These microbes play a vital role in biogeochemical cycles. The nitrogen cycle, the phosphorus cycle, the sulphur cycle and the carbon cycle all depend on microorganisms in one way or another. For example, the nitrogen gas which makes up 78% of the earth's atmosphere is unavailable to most organisms, until it is converted to a biologically available form by the microbial process of nitrogen fixation. Microbial ecology is important to studies of evolution due to the high level of horizontal gene transfer among microbial communities.

ENVIRONMENTAL AND OCCUPATIONAL DISEASES

Prof. A. Taiga

Environmental and Occupational Diseases are illnesses caused by exposure to disease causing agents in the environment, as opposed to illnesses related primarily to an individual's genetic makeup or to immunological malfunctions. In everyday use, the term environmental disease has been confined to non-infectious diseases and to diseases caused largely by exposures beyond the immediate control of the individual; the latter restriction eliminates diseases related to personal habits such as smoking or to the use or abuse of medications or drugs such as alcohol. Occupational disease, a major category of environmental disease, refers to illness resulting from job-related exposures. Historically, awareness of environmental diseases began with

the recognition of occupational illnesses, because exposures are usually more intense in work settings than in the general environment and therefore can more readily produce overt illnesses. Examples include silicosis, a lung disease of miners, industrial workers, and potters exposed to silica dust; scrotal skin cancer in chimney sweeps exposed to soot; neurological disease in potters exposed to lead glazes; and bone disease in workers exposed to phosphorus in the manufacture of matches.

Environmental diseases are caused by chemical agents, radiation, and physical hazards. The effects of exposure, in both natural and work settings, are greatly influenced by the exposure routes: primarily air pollution and water pollution,

contaminated food, and direct contact with toxins. Synergistic effects—two or more toxic exposures acting together - are also important, as illustrated by the greatly increased risk of lung cancer in asbestos workers who smoke cigarettes. The potential interaction of multiple hazardous chemicals at toxic waste dumps poses a current public health problem that is of unknown dimensions. The full toxic potential of most environmental chemicals has not been completely tested. The extent and frequency of an illness are related to the dose of toxin, in degrees depending on the toxin. For chronic or delayed effects such as cancer or adverse reproductive effects, no "safe" dose threshold may exist below which disease is not produced. Thus, the cancer-producing potential of ubiquitous environmental contaminants such as DDT or the PCBs remains undefined. Ionizing and nonionizing radiation can produce both acute and chronic health effects, depending on dose levels.

The effects of nonionizing radiation at lower dose levels are uncertain at present. Ionizing radiation at high doses causes both acute disease and delayed effects such as cancer. Major physical hazards include traumatic injuries and noise. Trauma arising from unsafe environments accounts for a large proportion of preventable human illness, and noise in the workplace is responsible for the most prevalent occupational impairment: hearing loss or permanent deafness. All three forms of environmental diseases can affect any organ system of the body. How the diseases are expressed depends on how the particular environmental agent enters the body, how it is metabolized, and by what route it is excreted. The skin, lungs, liver, kidneys, and nervous system are commonly affected by different agents in different settings. Of particular concern is the capacity of many environmental agents to cause various cancers, birth defects or spontaneous abortions (through fetal exposure), and mutations in germ cells, the last-named raising possibilities of environmentally caused genetic diseases in later generations. Environmental illnesses can be mild or severe and can range from transient to chronic, depending on the doses of toxin received.

Some diseases occur abruptly after a toxic exposure, whereas the time of onset of other diseases varies after exposure. Environmentally induced cancers, for example, commonly involve latency periods of 15 to 30 years or more. Those illnesses that occur directly after a distinct toxic exposure are usually easily identified as being environmentally or occupationally caused. If the exposure is not clear-cut or

illness is delayed, however, the cause is difficult to identify, as clinical features alone are usually nonspecific. In addition, many different causes, environmental or otherwise, may produce identical illnesses. In such instances, epidemiological studies of exposed populations can help relate exposures to the illnesses they cause. Total frequencies of environmental illness are difficult to measure because of the reasons just described. When causes can be identified, however, scientists observe that frequencies of occurrence of a particular illness vary directly with the severity and extent of exposure. Particularly frequent in the workplace are skin lesions from many different causes and pulmonary diseases related to the inhalation of various dusts, such as coal dust (black lung), cotton dust (brown lung), asbestos fibres (asbestosis), and silica dust (silicosis).

Environmental agents can also cause biological effects without overt clinical illness (for example, chromosome damage from irradiation). The regulation of workplace practices and of potential environmental pollution has evolved as the use of chemicals and human exposure to potential toxins have grown more widespread and complex in modern society. Federal agencies responsible for enforcing such environmental and occupational health laws consist principally of the Environmental Protection Agency and the Occupational Safety and Health Administration (OSHA) within the Department of Labour. The Food and Drug Administration, within the Department of Health and Human Services (HHS), and the Department of Agriculture have regulatory responsibility for preventing the contamination of food supplies. Federal field investigations of potential environmental and occupational hazards are handled through the Centre for Environmental Health and the National Institute for Occupational Safety and Health, which are components of the Centres for Disease Control, within HHS. General environmental health research and toxicological testing are directed through the National Institutes of Health and the National Toxicology Program, also within HHS. Comparable regulations and agencies at state and local levels, working with their federal counterparts, play a crucial role as well. International coordination of environmental and occupational control activities in many countries is guided through the World Health Organization. In the developing parts of the world such as Nigeria, such activities are of critical importance as modern industrialization proceeds in the face of poverty and growing populations.

YOU NEED TO BE A REGISTERED **NISEB** MEMBER

NEC at our last meeting suggest that inactive or members that are yet to registered are to be encouraged to do so by filling the membership form online at www.niseb.org only. Such prospective members can contact the National Assistant Secretary at atadetitun.do@gmail.com or 08036910988 and the National Secretariat, cobewaji@gmail.com; 08033576937, for proper registration. The entrance or membership fees should be paid directly into NISEB secretariat account and evidence of payment sent to the secretariat by text or e mail. Another reason we need to get properly registered is that, subsequently, only registered members on National Secretariat's Directory can go for electoral positions in NISEB during Electoral year AGMs.



HISTORY OF NISEB

HISTORY OF NISEB

NISEB was formed (as Bioscience Study Group) at a meeting held on Monday, April 3, 1989, in the Department of Biochemistry, University of Ilorin. There were three founding members: Dr. C. O. Bewaji, Dr. O. B. Oloyede and Dr. M. A. Akanji. It was resolved at that meeting that there would be a monthly meeting of the group on the first Monday of every month. We met again on Monday, May 1, 1989 (an unusual day for a meeting, being a public holiday) and subsequently at two weeks' interval in order to beat the deadline we had set for the publication of Bioscience Research Communications by June 30, 1989. The group was expanded on June 5, 1989 when Dr. F. A. Oladele, Dr. T. S. Emudianughe and Dr. A. O. Olukoga joined. It was further expanded to 19 members at an extraordinary meeting held on December 12, 1994.

The metamorphosis to NISEB, like that of chordates (but in this case not iodothyronine-induced) took place on June 6, 2000, when the first step to make the society a truly national body was made. That was when Professor Clement Bewaji became the President by an interim type of arrangement which was later ratified at the first biennial meeting of the Society held at Kwara Hotel, Ilorin, in September 2000.

From the blueprint, NISEB has been designed to be a six-storey building, each floor representing 1,000 members. The technological development of a nation is in the hands of its scientists and scientific societies. There is the Royal Society of Great Britain and there was a Linnean Society before it. There are several such societies on the scientific landscape of Great Britain. The United States of America also has its own American Society for the Advancement of Science (AAAS), Federation of American Societies for Experimental Biology (FASEB), the National Academy of Sciences, the New York Academy of Sciences, to mention just a few. There are also several societies on the Nigerian scientific landscape. The strength and commitment of these societies and its membership will determine how technologically strong Nigeria will be.

MEMBERSHIP CERTIFICATE

Efforts are yet ongoing on the part of Prof. C. O. Bewaji and NEC to ensure that all members receive their membership certificates in due time. The certificates will now bear specific annual dates. The certificate usually spans one calendar year. This exact information from the date of payment is now being included on the certificates