

## EVALUATION AND ACCREDITATION DOCUMENTS

Ph.D. Biotechnology

Africa Center of Excellence in Neglected  
Tropical Diseases and Forensic Biotechnology  
(ACENTDFB)

Ahmadu Bello University  
Zaria

Nigeria

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**September 2019**

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## EVALUATION REPORT

### Ph.D. Biotechnology

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Zaria, Nigeria

**JUNE - 2019**

Ahmadu Bello University has mandated Hcéres to perform its Biotechnology doctoral program evaluation. The evaluation is based on the "External Evaluation Standards for doctorates out of France", adopted by the Hcéres Board on March 26, 2018. These standards are available on the Hcéres website ([hceres.fr](http://hceres.fr)).

**For the Hcéres<sup>1</sup> :**

Michel Cosnard, President

**On behalf of the experts committee<sup>2</sup> :**

Dominique Laurain-Mattar, President of the committee

In accordance with the decree n°2014-1365, November 14th, 2014,

<sup>1</sup> LThe president of Hcéres "contresigne les rapports d'évaluation établis par les comités d'experts et signés par leur président." (Article 8, alinéa 5) – « countersigns the assessment reports made by the experts'committees and signed by their president »(article8, alinéa 5)

<sup>2</sup> The evaluation reports "sont signés par le président du comité". (Article 11, alinéa 2) – « are signed by the president of the committee » (article11, alinea 2)

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# I. NATIONAL CONTEXT AND INSTITUTION IDENTITY SHEET

## GENERAL CONTEXT AND HIGHER EDUCATION

Ahmadu Bello University, Zaria, founded in 1962, is a public university and at the moment the largest in Nigeria. The main campus is located in Samaru on a land covering 7000 hectares. The University consists of 16 Faculties, 100 Academic Departments, 6 Research Institutes and 5 specialized centres. Currently the University has about 50,000 students with over 10,000 postgraduate students. The Faculty of Life Sciences is one of the 16 Faculties consisting of the Departments of Biochemistry, Biology, Botany, Microbiology and Zoology. The programmes were accredited by the National Universities Commission (NUC) the government agency that has statutory mandate to accredit academic programmes in all Nigerian Universities. Pursuant to this mandate and in consonance with the provisions of Government approved guidelines, the NUC organized in March 2017 the accreditation of postgraduate academic programmes of African Centres of Excellence (ACEs) at the Ahmadu Bello University, Zaria.

## INSTITUTION

1. University/institution: Faculty of Life Sciences, Ahmadu Bello University, Zaria, Nigeria
2. Component, faculty or department concerned: Biochemistry Department
3. Programme's title: PhD Biotechnology
4. Training/speciality: Biotechnology
5. Year of creation and context: Programme mounted in April 2014 and received accreditation in 2017 from National Universities Commission (NUC) of Nigeria
6. Site(s) where the programme is taught (Town and campus): Department of Biochemistry and Centre for Biotechnology Research and Training, Ahmadu Bello University (ABU), Zaria, Kaduna State, Nigeria
7. Programme director:
  - a. Surname, first name: Shuaibu, Mohammed Nasir
  - b. Profession and grade: Professor of Biochemistry and Molecular Parasitology and Head of Department
  - c. Main subject taught: Biochemistry, Molecular Biology, Pathobiology, Biotechnology

## METHODS AND RESULTS OF THE PREVIOUS ACCREDITATION(S)

8. Methodology and agency

Resource verification and programme accreditation carried out at same time by a panel of two Professors of Biotechnology on behalf of the National Universities Commission in March, 2017

Results

Scored 83%, Accredited.

## HUMAN AND MATERIAL RESOURCES DEDICATED TO THE PROGRAMME

9. Human resources

Teaching staff: 34 (16 Professors, 4 Readers, 5 Senior Lecturers, 8 Lecturers, 1 principal Research Officer)

Non-teaching staff: 13

8 national and international academic partners involved in education and research

9 national and international socioeconomic partners

## 10. Material resources

Overall impressive access to resources for the students:

- Use of computers for administrative and management functions across the university;
- Department linked to the university internet and wide area network;
- Extensive fibre optic network that forms the main backbone of internet services in the University;
- Access for students to digital library and bioinformatics facility;
- Wireless internet, dedicated website/web-page linked to the University website for dissemination of information to student and other stakeholders;
- Access into a network of libraries across universities in Nigeria based on the NgREN platform that offers access to research documents in other universities in Nigeria;
- Subscription to Elsevier/Science Direct /SCOPUS digital resources on an annual basis;
- Access to Health Internetwork Digital resources (WHO/HINARI) and the AGORA that provide thousands of journals and scientific publications;
- Main Kashim Ibrahim Library (KIL) is well over 1000 sq. m, contains a hybrid collection of printed materials, and other e-resources such as e-journals, e-books, electronic theses and dissertations (ETD), technical reports of research organizations, and bibliographic databases;
- Over five hundred computers connected to internet, digitizers and photocopiers;
- Several hotspots where wireless services are available for users of tablets, handsets, and laptops;
- Departmental Library has sets of computers and servers with internet facilities and shelves with hard copy books;
- Two lecture venues of 170.80 and 100.70 sq. m of 40 and 21 students capacities respectively, located at the Department of Biochemistry and one other venue (10.70 sq. m of 40 students);
- Each class room is equipped with a multimedia projector and in some with smart boards for interactive learning;
- Centre for Biotechnology Research and Training Library has 25 seating capacity with sets of computers, each set of computer has internet connectivity and is linked to the University main Library for access to on-line journals and books.

## STUDENT POPULATION: EVOLUTION AND TYPOLOGY OVER THE LAST 4 YEARS

S/No	YEAR	FEMALES	MALES	INTERNATIONAL STUDENTS	NATIONAL STUDENTS	TOTAL
1	2014/2015	-	2	-	2	2
2	2015/2016	3	1	-	4	4
3	2016/2017	1	1	-	2	2
4	2017/2018	2	3	-	5	5

## II. EVALUATION PROCEDURE

### COMPOSITION OF THE EXPERTS PANEL

Dominique LAURAIN-MATTAR, Professor, University of Lorraine, committee leader

Valérie SCHINI-KERTH, Professor, Strasbourg University

Frédéric RELAX, Professor, Paris-Est University

Mathilde COLAS, Student graduated from University of Technology of Troyes.

Hcéres was represented by Pierre COURTELLEMONT, Science advisor.

## ON-SITE VISIT DESCRIPTION

- Date of the visit: June 10<sup>th</sup>, 2019.
- Organization of the visit: the visit was made the 10<sup>th</sup> of June, on the NUC site, during one day. On-site meetings with the management team, academic staff, closed meetings by videoconferencing with partners, alumni and students.
- Cooperation of study programme and institution to be accredited: perfect cooperation by all stakeholders, with the support of NUC team.
- People met (on NUC site):  
 Y.K.E Ibrahim, Centre leader  
 Aminu Mohammed, Post-graduate Teaching, coordinator,  
 Mohamed Nasir Shuabu, Head of Department  
 I.S. Ndams, Professor, Principal Investigator, Filariasis and Onchocerciasis  
 Sari Ibrahim, Professor, Principal Investigator, Forensic Biotechnology  
 Mohammed Mamman, Professor, Deputy Centre Leader and Principal Investigator, Trypanosomiasis  
 Junaid Kabir, project coordinator  
 H.M. Inuwa, director CBRT

11 students (David Yila Lakabra, Issa Funsho Habeeb, Eze Godson Ofobuke, Musa Muhammed Shaibu, Agee Jerry Tersoo, Kanu Brenda, Lamin Dibba, Kashim Aishat Shola, Ogbu Loina Chinyere, Maryam Sani Lawal (PhD), Raihana Abdullahi Idriss (PhD)) from MSc and PhD programmes

Partners:

Dr Sunday isiyaku, country director of sight saver, Nigeria & Ghana

Hazeez Durosomu, Inqaba Biotec Inc representative, West Africa, by video conferencing

Alumni (Funmilola Elizabeth Audu, Suleiman Mukhtar Adeiza, MSc graduates, PhD students and Assistant Lecturers)

## III. PRESENTATION OF THE STUDY PROGRAMME

### 1 – PRESENTATION OF THE STUDY PROGRAMME

- The Africa Centre of Excellence in Neglected Tropical Diseases and Forensic Biotechnology (ACENTDFB) is one of the universities across Africa selected to setting up programs that will attract national and regional students aiming to concentrate resources and expertise in specific areas in order to improve the quality of postgraduate training and research in Africa.
- The postgraduate programme is part of a project that is intended to set up Centres of Excellence in Africa in selected thematic areas including health. ACE NTDFB focuses on using molecular biology and biotechnology tools and research outputs to improve the control of Neglected Tropical Diseases (NTDs) in Africa.
- The PhD Biotechnology is entirely focused on studying the epidemiology of NTDs, answering key research questions relevant to field NTD control and eradication and utilizing molecular biology methods in developing novel preventive and treatment options. The NTD component of the project started in 2015 with disease research on Trypanosomiasis, Filariasis/Onchocerciasis and Rabies (high socioeconomic importance of these diseases in Nigeria). In 2019, the ACE NTDFB extended the project to cover three additional NTDs: Schistosomiasis, Trachoma and Dengue. The extension has been granted by the World Bank for another five years commencing in 2019.
- The aims of the PhD Biotechnology are to train skilled manpower for the diagnosis, management and prevention of neglected tropical diseases, provide baseline data on the epidemiological status of a number of neglected tropical diseases prevalent in the study region (West and Central Africa), and development and produce of vaccines and drugs for prevention and treatment of neglected tropical diseases.

## 2 - PRESENTATION OF THE PROGRAMME'S SELF-EVALUATION APPROACH

The Project Management Committee of the Centre, headed by the Centre Leader constituted the International Accreditation Committee for processing the self-assessment application. The Composition of the Committee was:

1. Prof Mohammed Nasir Shuaibu, HOD Biochemistry, Chairman
2. Prof Junaid Kabir, ACENTDFB Project Coordinator, Member
3. Prof Sani Ibrahim, Director, University Research and Innovation, Member
4. Dr E.O. Balogun, Staff of Biochemistry, Member
5. Dr Aliyu Salihu, Biotechnology Programme Postgraduate Coordinator, Member
6. Dr Aminu Mohammed, Biotechnology Programme Teaching Coordinator, Member

The Committee met several times to collate all relevant documents and presented them to the Management Committee. Following consideration, the filled form with the documents were approved for submission to HCERES.

## IV. EVALUATION REPORT

### AREA 1 – THE POSITIONING OF THE DOCTORATE

The objectives of the PhD Biotechnology study programme are clearly stated and available in the Student Handbook that provides an opportunity for students to have access to required/necessary information about the training programme. The doctorate content can be easily identified and is clear with regard to the scientific scope covered. The doctorate's target audience is clearly identified, being a follow-up of the Msc Biotechnology, in keeping with the institution's scientific policy. The objectives of the doctorate are clearly defined. Graduation requirements are clearly outlined. While the name of the study programme is in line with its objectives and content, one can regret the lack of NTDs focus in the name. The Student Handbook provides information on Research on neglected tropical diseases. 5 on-site research laboratories provide state of the art and recent equipment, despite a total reliance on imported reagents, consumables and equipment with very few capacities for maintenance and a lack of well-trained laboratory technologists. The outcome in terms of job opportunities are clearly stated, with excellent success in employment as academic and governmental staff in Nigeria and neighboring countries. The general positioning of the PhD Biotechnology training programme appears excellent.

#### Area 1-1: The doctorate's distinct features and objectives are clearly defined

The objectives of the PhD Biotechnology study programme are clearly stated and available in the Student Handbook that provides an opportunity for students to have access to required/necessary information about the Department of Biochemistry and the Centre for Biotechnology Research and Training at Ahmadu Bello University. Communication about the study programme appears good, via website, regional collaborating institution. Admissions requirements are clearly indicated.

The goal of the Centre of excellence is to evolve into a reference centre for neglected tropical diseases, providing core facilities (sample depositories, databases, vaccine development). The PhD programme is instrumental for this achievement. The doctorate content can be easily identified and is clear with regard to the scientific scope covered. The doctorate's target audience is clearly identified, being a follow-up of the Msc Biotechnology, in keeping with the institution's scientific policy. The objectives of the doctorate are clearly defined, formulated and brought to the attention of all stakeholders. The PhD dissertation should be at least 12 months duration; should have at least 5 clear objectives; be capable of generating three publications; should include any 2 or more of - issuance of questionnaires, field work and or extensive laboratory/studio work; make 3 tangible contribution to knowledge; should involve a modern analytical or laboratory technique- sub cellular or molecular studies (where applicable). Graduation requirements are clearly outlined. While the name of the study programme is in line with its objectives and content, one can regret the lack of NTDs focus in the name.

## Area 1-2: The positioning of the doctorate is consistent with its environment

The Student Handbook provides information on Research on neglected tropical diseases, specifically Trypanosomiasis, Lymphatic Filariasis, Oncocerciasis and Rabies. The training facilities in modern biology techniques include recombinant DNA technology, cell and tissue culture and immunology, to postgraduate and post-doctoral students, molecular diagnostic facilities for the University teaching hospital and other referral hospitals in the region. On-site research laboratories provide state of the art and recent equipment, despite a total reliance on imported reagents, consumables and equipment with limited capacity for maintenance and a lack of well-trained laboratory technologists. The Centre has five laboratories (Genetic Engineering, Immunology, Tissue Culture, Bioinformatics and General Lab), a conference room, cold room, and library with e-learning facility. The interaction with research units is not detailed in the document.

The outcome in terms of job opportunities are clearly stated, with excellent success in employment as academic and governmental staff in Nigeria and neighboring countries. International links with foreign institutions and/or research units/centres have been established and the doctorate has a clear and operational policy on international orientation which benefits doctoral students. The Centre of excellence provides opportunities for research students to carry out internship or laboratory works in some of the collaborating institutions. Participating Academic Units in the University have been identified (Departments of Biochemistry, Zoology, Pharmaceutics and Pharmaceutical Microbiology, Veterinary Public Health and Preventive Medicine, Human Pathology, Civil Law, Veterinary Parasitology and Entomology, Pharmacology and Toxicology). Appropriate national collaborations include the National Institute for Trypanosomiasis (and Onchocerciasis) Research (NITR), Kaduna, Nigeria, the National Institute for Medical Research (NIMR), Lagos, Nigeria, SightSavers Nigeria, Kaduna, Nigeria, Africa Field Epidemiology Network (AFENET), Nigeria, Friends for Global Health Initiative, Abuja, Nigeria, Inqaba Biotec West Africa, DNA Labs, Kaduna, Nigeria. Collaborations have also been established with regional (University of Ngaoundere, Yaounde, Cameroon, Institute for Agricultural Research for Development (IRAD), Yaounde, Cameroon, Kumasi Centre for Collaborative Research (KCCR), Kwame Nkrumah University of Science and Technology, Ghana and Centre International de Recherche-Development sur l'Elevage en zone Subhumide (CIRDES), Bobo-Doulasso, Burkina Faso) and international institutions (University of Bremen, Germany, Institute of Tropical Medicine, Nagasaki University, Japan, J-WEL, MIT, Cambridge, Boston, USA, Centre for Science and Technology for Non Aligned Movement and other Developing Countries (NAM S & T), Delhi, India and BVGH- Bio Venture for Global Health, USA). The nature of the research interaction is clearly stated.

The study programme explicitly states the added value of its partnerships with foreign higher education institutions. For instance, following successful ERASMUS Grant Joint research proposal submission, 2 students have performed bench work at the University of Bremen (Germany) in 2018, and 4 in 2019. In this context a biotechnology practical manual has been developed and Student research supervision has been joint. Similarly, at 2 students will perform lab work at Nagasaki University, (NEKKEN) Japan in 2019. The general positioning of the PhD Biotechnology training programme appears excellent.

## AREA 2 – ORGANIZATION AND MANAGEMENT OF THE DOCTORATE

The composition, role and responsibilities of members of the scientific, teaching and administrative teams are clearly defined. The doctorate's organizational structure is implemented by a formally identified teaching team, role and responsibilities of members of the teaching team are clearly defined. Management is based on clearly defined rules. The proportion, skills and responsibility level are overall consistent with the aims of the teaching programme. Several clearly identified committees are involved in training management. While student numbers and the different enrolment regimes for the study programme are clearly identified, there is a low number of international students. Improving the recruitment and appeal to foreigners would strengthen the training programme. Communication of the study programme appears good, via internet, regional collaborating institutions and distance Learning Centre Platform. Selection process is based on qualifying examination and oral interview. Selection criteria include performance and availability of supervisory teams. Appropriate internal quality assurance mechanisms are in place within the doctorate. Explicitly stated and precise rules for recruitment have been established. Gender access policy is enforced in selection process that is based on quality level, requirement and motivation. Specific support has been established. There are general mechanisms to assist students in training exchange. Overall, the organization and management of the doctorate is outstanding.

## Area 2-1: Effective organization and management is in place for the doctorate

The doctorate's organizational structure is based on scientific, teaching and administrative teams that are clearly defined. Management is based on clearly defined rules, which detailed procedures for general operation of the doctorate and are brought to the attention of users in the *Prospectus of Postgraduate Programmes*. The doctorate has material and human resources, including pooled resources, which are consistent with its objectives (premises, staff, digital platform and dedicated software, information systems, digital document resources). The complete list of active national teaching staff, including name, qualification, rank, status, area of specialization are provided. International academic partners involved in education and research are indicated, with name, Institution and Location, the nature of partnership, the email and telephone contacts. The proportion, skills and responsibility level are overall consistent with the aims of the teaching programme. Support to faculty members include for national and International workshops & conferences, Faculty exchange, Short research visits to regional and international laboratories and internship in industries, Payment for publications (page charge) and support for grant writing. Administrative and teaching resources appear appropriate.

Several clearly identified committees are involved in training management, including Project Management Committee, Project Academic Committee, Audit Committee and Procurement Committee. The student numbers and the different enrolment regimes for the study programme are clearly identified. However, there is a low number of international students. Improving the recruitment and appeal to foreigners would strengthen the training programme.

Communication of the study programme appears good, via internet website of the School of Postgraduate Studies of the University, regional collaborating institutions and distance Learning Centre Platform. Selection process is based on qualifying examination and oral interview. Selection criteria include performance and availability of supervisory teams. Foreign applicants are assessed for need for English language support and deficiencies remediation. Specific Foreign Student Recruitment Channels have been established (Nigerian Embassies through the University's Distance Learning Centre platform, Regional Collaborating Institutions, Institute for Agricultural Research for Development (IRAD), Yaoundé, Cameroon, Centre International e Recherche-Développement sur l'Elevage en zone Subhumide (CIRDES), Bobo-Doulasso, Burkina Faso, Africa Field Epidemiology Network (AFENET), Nigeria).

Internal quality assurance mechanisms are in place within the doctorate, notably through continuous assessment and semester examinations, assignments and term papers grading, seminar presentations, external vetting of examination questions and students responses, external examination of thesis and dissertations.

## Area 2-2: There is an explicit policy for recruiting and funding doctoral students, which is adapted to the PhD program

Precise rules for recruitment have been established. The procedures adopted are explicitly stated in the *Prospectus of Postgraduate Programmes*. A general University policy with clearly stated guidelines is governing admission and graduation requirements. Gender access policy is enforced in selection process that is based on quality level, requirement and motivation. Specific support has been established, including Payment of school fees for foreign students, Sponsorship of students for Field work, sponsorship to Scientific Conferences & Workshops, provision of chemical and reagents to students, provision of free hostel accommodation for foreign students, support for Grant writing, language support for regional foreign students, financial support for bench works at research labs of regional and international collaborating partners. Other supports include processing of visa and travels documents, provision of initial access to communication facilities (mobile phone lines, modems for internet facilities, etc.). There are general mechanisms to assist students in training exchange, for instance following successful ERASMUS Grant Joint research proposal submission, 2 students have performed bench work at the University of Bremen (Germany).

## AREA 3 – SUPERVISION AND TRAINING FOR DOCTORAL STUDENTS

The PhD Biotechnology study programme is based on a publicly available quality assurance under the oversight of the School of Postgraduate Studies. The doctorate includes individual and regular follow-up of doctoral students, with clearly defined, coherent and transparent procedures for doctoral students and thesis supervisors. Students are assigned supervisors from a body of expert Faculty (including from other universities within or outside the country) from who would guide the student in the course of their studies and research. The study programme has defined and implemented anti-fraud, anti-plagiarism measures. Overall, Quality insurance and ethics policy is outstanding. There is a clearly defined reciprocal commitments of doctoral students and thesis supervisors. Overall, the follow-up measures thesis progress via evaluation of proposal, seminars, internal and external examiners are excellent. The doctorate programme includes a committee for preventing any forms of conflict, discrimination and harassment. Doctoral students have access to scientific teaching and professional training. Methods for accessing and validating this teaching (test of knowledge acquired, required/recommended number of teaching hours before thesis defence, etc.) are clearly defined and known by users. Organisation rules are defined in a fair and transparent manner for thesis defence and communicated to doctoral students and supervisors. Supervision and training for doctoral students are outstanding.

### Area 3-1: The doctorate applies a strict doctoral student supervision and follow-up policy

The PhD Biotechnology study programme is based on a publicly available quality assurance under the oversight of the School of Postgraduate Studies (SPGS), which is an independent unit of the University. All new programs are channeled for approval of the University Senate through the SPGS and the Directorate of Academic Planning which vet at their own levels all submissions from departments and faculties. A PhD workplan is established for every student. The doctorate includes individual and regular follow-up of doctoral students, with clearly defined, coherent and transparent procedures for doctoral students and thesis supervisors. Students are assigned supervisors from a body of expert Faculty who would guide the student in the course of their studies and research. Supervisory committees usually consist of a Faculty within the Department and another/other from an external relevant Department in order to ensure diversity as a means of ensuring quality. In some instances students are also assigned supervisors in other universities within or outside the country. Postgraduate student arrange for a meeting of his/her postgraduate supervision committee (and serve as the Secretary of such a Committee) (1) Prior to his proposal seminar (2) Once per semester (3) On completion of his/her work, (4) Before the final seminar/internal defence, (5) Before forwarding his/her project/thesis/dissertation to the Chairman of the Supervisory Committee.

The study programme has defined and implemented anti-fraud, anti-plagiarism measures. Overall, Quality insurance and ethics policy is outstanding. There is a clearly defined reciprocal commitments of doctoral students and thesis supervisors. Overall, the follow-up measures thesis progress via evaluation of proposal, seminars, internal and external examiners are excellent. The doctorate programme includes a committee for preventing any forms of conflict, discrimination and harassment.

### Area 3-2: The doctorate offers diverse teaching and organizes supplementary events

The teaching proposed is based on the expertise of research units and socio-economic partners associated with the doctorate. Doctoral students have access to scientific teaching and professional training. Methods for accessing and validating this teaching (test of knowledge acquired, required/recommended number of teaching hours before thesis defence, etc.) are clearly defined and known by the students and supervisors (Student Handbook and *Prospectus of Postgraduate Programmes*).

### Area 3-3: The doctorate is based on explicit rules for thesis duration and defence

The doctorate has set clear and suitable objectives with regard to the duration of theses and re-enrolment of doctoral students each year. Organisation rules for thesis defence (composition of the examination board and role of its members, convening notice, manuscript submission, etc.) are communicated to doctoral students and supervisors. These rules are defined in a fair and transparent manner.

## AREA 4 – INTEGRATION OF DOCTORS INTO THE JOB MARKET

The Student Handbook provides data for prospective students on the programme objectives and job prospects. The outcome in term of job opportunities are clearly stated, with employment as academic and governmental staff in Nigeria and neighboring countries, or specialized governmental or partner structures. Overall, job outcome possibilities are excellent considering the national and regional environment. The programme is recent and only a few students have entered the programme, and data collection has not started yet. Integration of doctors into the job market are outstanding.

### Area 4-1: The doctorate includes mechanisms to promote the integration of doctors into the job market

The Student Handbook provides data for prospective students on the programme objectives and job prospects. The outcome in term of job opportunities are clearly stated, with employment as academic and governmental staff in Nigeria and neighboring countries, or specialized governmental or partner structures. These include Federal and State Ministries (Education, Health, Science and Technologies), Research Institutes and Agencies (NABDA, NAFDAC, NVRI, etc.), Security Agencies, Universities and other tertiary institutions, Non-Governmental Organisations (NGOs) and Private Sector. Overall, job outcome possibilities are excellent considering the national and regional environment. Practical work prepares the students for employment, including understanding the world of research and its results. The study programme is transdisciplinary and with a unique focus on providing an excellent position in the local, regional, national or international environment.

### Area 4-2: The doctorate has effective monitoring of the integration of doctors into the job market

The programme is recent and only a few students have entered the programme, 1 PhD awaiting external defence.

### Area 4-3: The data collected is analyzed, communicated and used

The programme is still young, and data collection has not started yet.

## V. CONCLUSION

Neglected Tropical Diseases (NTDs) include a large (currently stands at 20, WHO, 2018) and diverse group of diseases that disproportionately affect health and livelihood of the poor in the developing world of the tropics and subtropics. They typically lack attention and funding for research and development. Monitoring and treating NTDs is an important public health challenge for Nigeria and regional countries. Absence of reliable national NTD surveillance data and structural instabilities such as security, power supply, changing government priorities and policies on funding education and research are challenging. The aim of the MSc Biotechnology training programme is to provide a reliable template to address problems of NTDs and related issues and their impacts on the socio-economic and health of the community in developing countries. The current research themes are on Trypanosomiasis, Filariasis, Onchocerciasis, and Rabies with an ongoing focus expansion focus to Trachoma, Dengue Fever and Schistosomiasis.

The objectives of the PhD Biotechnology study programme are clearly stated and available in the Student Handbook. The doctorate content can be easily identified and is clear with regard to the scientific scope covered. The doctorate's target audience is clearly identified, being a follow-up of the Msc Biotechnology, in keeping with the institution's scientific policy. The objectives of the doctorate are clearly defined. Graduation requirements are clearly outlined. While the name of the study programme is in line with its objectives and content, one can regret the lack of NTDs focus in the name.

5 on-site research laboratories provide state of the art and recent equipment, despite a total reliance on imported reagents, consumables and equipment with limited capacity for maintenance and a lack of well-trained laboratory technologists.

The outcome in terms of job opportunities are clearly stated, with excellent success in employment as academic and governmental staff in Nigeria and neighboring countries. The general positioning of the PhD Biotechnology training programme appears excellent.

The doctorate's organisational structure is based on scientific, teaching and administrative teams that are clearly defined. The doctorate has material and human resources, including pooled resources, that are consistent with its objectives. The proportion, skills and responsibility level are overall consistent with the aims of the teaching programme. Support to faculty members is excellent. Administrative and teaching resources appear appropriate. Clearly identified committees are involved in training management. Despite the establishment of foreign recruitment, improving the recruitment and appeal to foreigners (which is currently low) would strengthen the training programme.

Communication of the study programme via internet, regional collaborating institutions and distance Learning Centre Platform is appropriate. Selection process based on qualifying examination, oral interview, and availability of supervisory teams is pertinent. Internal quality assurance mechanisms are excellent via continuous assessment and semester examination, assignments and term papers grading, seminar presentations, external vetting of examination questions and students responses, external examination of thesis and dissertations. Recruitment and graduation procedures are explicitly stated. Gender access policy is enforced in selection process that is based on quality level, requirement and motivation. Specific support has been established, notably for training exchange.

The PhD Biotechnology study programme is based on a publicly available quality assurance. A PhD workplan is established for every student. The doctorate includes individual and regular follow-up of doctoral students, with clearly defined, coherent and transparent procedures for doctoral students and thesis supervisors. Students are assigned supervisors as guide in the course of their studies and research. The study programme has defined and implemented anti-fraud, anti-plagiarism measures. Overall, Quality insurance and ethics policy is outstanding. There is a clearly defined reciprocal commitment of doctoral students and thesis supervisors. Overall, the follow-up measures thesis progress via evaluation of proposal, seminars, internal and external examiners are excellent. The doctorate programme includes a committee for preventing any forms of conflict, discrimination and harassment.

Doctoral students have access to scientific teaching and professional training. The methods for accessing and validating this teaching are clearly defined and known by the students. Organisational rules for thesis defence are communicated to doctoral students and supervisors. These rules are defined in a fair and transparent manner. The Student Handbook provides data for prospective students on the programme objectives and job prospects.

The outcome in terms of job opportunities are clearly stated, with employment as academic and governmental staff in Nigeria and neighboring countries, or specialized governmental or partner structures. Overall job outcome possibilities are excellent considering the national and regional environment. The programme is recent and only a few students have entered the programme, and data collection has not started yet. The overall assessment of the PhD. Biotechnology is outstanding.

## PAST ACHIEVEMENTS

- PhD Awaiting External Defence
- Established systems for large-scale purification of complex II from Trypanosome parasites
- Provision of molecular epidemiological basis for some of the NTDs in the region
- Isolation of a probable new species of trypanosome from exotic birds in Central Region of Nigeria- genomic sequencing ongoing at Universität Bremen
- Established systems for large-scale purification of complex II from Trypanosome parasites
- Provision of molecular epidemiological basis for some of the NTDs in the region
- Faculty involved in the Centre have published over thirty journal articles in the area of research focus
-

## TODAY'S CHALLENGES

- Expand training and research on 3 additional NTDs
- Competition with other training programs and research quality
- High consumable cost for research
- Improve links with Industry.

## OUTLOOK TO THE FUTURE

- Improve national, regional and international visibility Africa Center of Excellence in Neglected Tropical Diseases and Forensic Biotechnology.
- Provide sufficient trained manpower to fill in the gaps in higher education for molecular biosciences and technologies in West Africa
- Improve the knowledge and databases on the distribution and burden of NTDs
- Improve and develop appropriate diagnostic tools for the identification of most of the diseases
- Provide efficient drugs and treatment for NTDs.

## STRENGTHS

- Unique training programme in the West African region
- Outstanding individual support for students (Supervisory Committee)
- Availability of well-equipped research laboratories and support facilities
- Importance of NTDs in Nigerian health care and across the continent
- Extension and expansion of the project in 2019 to cover three additional NTDs (Schistosomiasis, Trachoma and Dengue), boosting the capacity of the Centre both in terms of research facilities, manpower, partnerships and field engagement in the control of these diseases
- Diverse Faculty trained in universities across the world, Extensive collaborations with national and international academic institutions
- Large reservoir of applicants for postgraduate training in Nigeria, with a growing interest and importance of molecular biology in biosciences
- Multi-cultural learning environment
- Availability of a French Department language conversion course in the University for French speaking students.

## WEAKNESSES

- Low number of international students
- Absence of reliable national NTD surveillance data
- Structural instabilities such as security, power supply, changing government priorities and policies on funding education and research
- Lack of well-trained laboratory technologists and total reliance on imported reagents, consumables and equipment with limited capacity for maintenance.

## RECOMMENDATIONS

- Increase the number of international students by improving the programme recruitment and appeal to foreigners
- Increase number (currently 6) of NTDs selected for research in order to attract additional research grants
- Involve the University in improving national NTD surveillance data, if necessary by setting up specific collaborations/partnerships
- Improve access to innovative digital technologies
- Provide formal communication to candidates regarding work opportunities
- Increase/improve multidisciplinary collaborations in research
- Improve to interaction with French-speaking neighboring academic countries
- Improve follow-up of students
- Include NTDs focus in the name of the training programme
- Increase the number of industry partners and investors in NTD research and control.

## VI. COMMENTS OF THE INSTITUTION

ACE NTDFB



**AFRICA CENTRE OF EXCELLENCE FOR NEGLECTED TROPICAL DISEASES AND FORENSIC BIOTECHNOLOGY**  
**AHMADU BEELO UNIVERSITY, ZARIA, NIGERIA**  
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**VICE CHANCELLOR:** Prof Ibrahim Garba, BSc (Hons) Geology, MSc (Mineral Exploration), ABU, PhD Geol. (London)

**CENTRE LEADER:** Prof Y.K.E. IBRAHIM, B.Sc. Pharm., M.Sc. Pharm. (ABU), Dr. sc. hum. (Heidelberg)

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25<sup>th</sup> August, 2019

Pr. Dominique Laurain-Mattar  
President of the Committee of Experts  
HCERES  
2, rue Albert Einstein  
F-75013 PARIS

### **Response to the Draft HCERES MSc and PhD Biotechnology Programmes Accreditation Reports and their Recommendations**

The report provided is adjudged to be comprehensive and very fair. The strengths, weaknesses and recommendations are noted and well received. Overall, ACENTDFB is in agreement with the main thrust and conclusion of the report.

The recommendations, shall guide the Centre in its review of its programme plan management including strategic objectives and scheduling of activities. The Centre is cognizant of its weaknesses and is putting in place, measures to implement the recommendations.

- Expansion of the thematic NTD focus areas is a continuous process by the Centre and is guided by availability of expert for a more effective research direction and supervision and is also stakeholders driven as was the case with SighSavers. Also, two students are currently working on sickle cells anaemia, a newly classified NTD and are being supervised by one of our researcher presently with NIH, Bethesda, USA. Efforts is being made to bring experts in other NTDs to key into the Centre's research programme. Following consultation with and presentation to the Federal Ministry of Health, a new unit, Centre for Anti-snake venom production has been established in the University and incorporated into the Centre. As a result, the Centre now has an additional Programme Leader for Anti-Snake venom research. Venomous snake bite is another recently classified NTD.
- Efforts are being made to recruit more foreign students. In the new academic session, six Cameroonians (3 MSc and 3 PhD) and one Sierra Leonean were recruited through one of

collaborators, Dr Daniel Achukwi formally an employee of IRAD, Yaounde. Five of them have since resumed. Arrangement is being made with CIRDES also in this regard for Nigerien and Burkinabe students. Training workshop on Bioinformatics and Trypanosomal DNA extraction is scheduled to take place in September, in Bobo Dioulasso. The workshop will be used as a platform for student recruitment.

- The Centre has recently recruited an Administration and Student Officer whose terms of reference includes providing needed information such as work place opportunities, internship placement, etc.
- On the issue of capacity for maintenance of the Lab equipment, a Lab Manager (Mr Auwal Usman) who has wide experience on equipment use, standardisation and maintenance was employed this year. His engagement had resulted in the re-training of the junior technical staff and technologists and review of GLP and SOP guidelines of the Centre (CV of Lab Manager). The Centre also entered into agreements with one of the major equipment vendors, Inqaba Biotec Inc. West Africa for the routine and periodic maintenance of the Lab equipment. Arrangement is being made with the Equipment Maintenance and Development Centre of the University to train the Lab technical Assistants of the Centre for Biotechnology Research and Training (CBRT) which houses the Labs facilities of ACENTDFB, on Basic Maintenance Skills and Equipment Calibrations.
- ACENTDFB intends to reactivate its collaboration with DNA Labs in Kaduna, Nigeria while discussion is ongoing with African Biosciences, Ibadan for a more productive and win-win partnerships. These two private organizations will expand internship placement opportunities to the students.
- At the institutional level, the Centre is linking up with the Distance Learning Centre as well as the Information and Communication Technology Centre (ICICT) of the University for the development of online platforms and deployment of course modules for students.



Prof Y.K.E. Ibrahim  
Centre Leader

cc.

- Michel Cosnard, President, HCERES
- Francois Pernot, HCERES Representative
- Pierre Courtellemont, HCERES
- Michelle Houppé, HCERES

## ACCREDITATION DECISION

### **Ph.D. Biotechnology**

Africa Center of Excellence in Neglected  
Tropical Diseases and Forensic Biotechnology  
(ACENTDFB),  
Ahmadu Bello University, Zaria, Nigeria

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**September 2019**

## SCOPE OF THE ACCREDITATION GRANTED BY HCÉRES

Hcéres has built its evaluation process based on a set of objectives that Higher Education Institution must pursue to ensure recognised quality within France and Europe. These objectives are divided up into six fields among which are the accreditation criteria.

As for the « External Evaluation Standards », the accreditation criteria have been specifically designed for foreign HEI. The accreditation criteria were adopted by the Board on June 2016 and are available on the Hcéres website ([hceres.fr](http://hceres.fr)).

The accreditation committee, meeting his accreditation decision, has wholly taken into account the final evaluation report of the HEI. This accreditation decision is the result of a collegial and reasoned process.

The accreditation decision issued by Hcéres shall not grant any rights whatsoever, whether in France or abroad. The decision to accredit an institution confers an accreditation label and does not infer recognition in France of the qualifications issued by the accredited institution. The Hcéres accreditation process therefore has no impact on the qualifications recognition process in France.

# FULFILLMENT OF THE ACCREDITATION CRITERIA

## AREA 1: THE POSITIONING OF THE DOCTORATE

### Accreditation criterion

The positioning, the content and the objectives of the doctorate are clearly defined. Its interactions with the stakeholders (lead institution(s), foreign partners, socio-economic environment) are formally set out and effective. Its links with the research units and the institution's scientific policy are effective.

### Criterion assessment

The objectives of the PhD Biotechnology study programme are clearly stated and available in the Student Handbook that provides an opportunity for students to have access to required/necessary information about the training programme. The doctorate content can be easily identified and is clear with regard to the scientific scope covered. The doctorate's target audience is clearly identified, being a follow-up of the Msc Biotechnology, in keeping with the institution's scientific policy. The objectives of the doctorate are clearly defined. Graduation requirements are clearly outlined. While the name of the study programme is in line with its objectives and content, one can regret the lack of NTDs focus in the name. The Student Handbook provide information on Research on neglected tropical diseases. 5 on-site research laboratories provide state of the art and recent equipments, despite a total reliance on imported reagents, consumables and equipment with very few capacity for maintenance and a lack of well trained laboratory technologists. The outcome in term of job opportunities are clearly stated, with excellent success in employment as academic and governmental staff in Nigeria and neighboring countries. The general positioning of the PhD Biotechnology training programme appears excellent.

## AREA 2: ORGANIZATION AND MANAGEMENT OF THE DOCTORATE

### Accreditation criterion

The doctorate's organisation and management are clearly defined and rely on material and human resources adapted to the requirements of programmes at ISCED level 8. Internal quality assurance mechanisms are in place and effectively used in order to improve continuously the doctorate. The doctoral students recruiting is formally set out, their funding is fair and sustainable.

### Criterion assessment

The composition, role and responsibilities of members of the scientific, teaching and administrative teams are clearly defined. The doctorate's organisational structure is implemented by a formally identified teaching team, role and responsibilities of members of the teaching team are clearly defined. Management is based on clearly defined rules. The proportion, skills and responsibility level are overall consistent with the aims of the training programme. Several clearly identified committees are involved in training management. While student numbers and the different enrolment regimes for the study programme are clearly identified, there is a low number of international students. Improving the recruitment and appeal to foreigners would strengthen the training programme. Communication of the study programme appears good, via internet, regional collaborating institutions and distance Learning Centre Platform. Selection process is based on qualifying examination and oral interview. Selection criteria include performance and availability of supervisory teams. Appropriate internal quality assurance mechanisms are in place within the doctorate. Explicitly stated and precise rules for recruitment have been established. Gender access policy is enforced in selection process that is based on quality level, requirement and motivation. Specific support have been established. There are general mechanisms to assist students in training exchange. Overall, the organization and management of the doctorate is outstanding.

## AREA 3: SUPERVISION AND TRAINING FOR DOCTORAL STUDENTS

### Accreditation criterion

A strict policy of supervising and follow-up of doctoral students is set. Doctoral students have access to various teaching and professional trainings and take part in scientific/professional actions. Explicit rules are defined concerning the thesis duration and defence. Measures to combat fraud, plagiarism and corruption are applied within the doctorate.

### **Criterion assessment**

The PhD Biotechnology study programme is based on a publicly available quality assurance under the oversight of the School of Postgraduate Studies. The doctorate includes individual and regular follow-up of doctoral students, with clearly defined, coherent and transparent procedures for doctoral students and thesis supervisors. Students are assigned supervisors from a body of expert Faculty (including from other universities within or outside the country) from who would guide the student in the course of their studies and research. The study programme has defined and implemented anti-fraud, anti-plagiarism measures. Overall, Quality insurance and ethics policy is outstanding. There are clearly defined reciprocal commitments of doctoral students and thesis supervisors. Overall, the follow-up measures thesis progress via evaluation of proposal, seminars, internal and external examiners are excellent. The doctorate programme includes a committee for preventing any forms of conflict, discrimination and harassment. Doctoral students have access to scientific teaching and professional training. Methods for accessing and validating this teaching (test of knowledge acquired, required/recommended number of teaching hours before thesis defence, etc.) are clearly defined and known by users. Organisation rules are defined in a fair and transparent manner for thesis defence and communicated to doctoral students and supervisors. Supervision and training for doctoral students are outstanding.

## **AREA 4: INTEGRATION OF DOCTORS INTO THE JOB MARKET**

### **Accreditation criterion**

The doctorate implements systems to promote the doctorate and the integration of doctors into the job market. The integration monitoring and analysis are effective and used to perform the continuous improvement of the doctorate.

### **Criterion assessment**

The Student Handbook provides data for prospective students on the programme objectives and job prospects. The outcome in term of job opportunities are clearly stated, with employment as academic and governmental staff in Nigeria and neighboring countries, or specialized governmental or partner structures. Overall, job outcome possibilities are excellent considering the national and regional environment. The programme is recent and only a few students have entered the programme, and data collection has not started yet. Integration of doctors into the job market are outstanding.

## ACCREDITATION DECISION

Considering the accreditation criteria analysis detailed above, the accreditation commission takes the following decision:

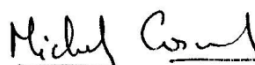
### **“Five-year unreserved accreditation decision”**

and draws attention to the various recommendations made by the committee of experts in its evaluation report:

- Increase number (currently 6) of NTDs selected for research in order to attract additional research grants.
- Include NTDs focus in the name of the training programme.
- Increase the number of industry partners and investors in NTD research and control.

### **SIGNATURE**

For HCERES and on behalf of



Michel COSNARD,

President

Date: Paris, September 4<sup>th</sup>, 2019

Les rapports d'évaluation du Hcéres  
sont consultables en ligne : [www.hceres.fr](http://www.hceres.fr)

Évaluation des coordinations territoriales  
Évaluation des établissements  
Évaluation de la recherche  
Évaluation des écoles doctorales  
Évaluation des formations  
Évaluation et accréditation internationales



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