

Teaching Biochemistry and Molecular Biology in the Faculty of Sciences and Technology, University of Abomey-Calavi, Cotonou, Benin.

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A) Types of teaching

First-degree programme in UAC as well as in other FC in Africa takes place in two years and offers "Diplôme Universitaire d'études supérieures" (DUES) degree in science.

- The teaching of biochemistry starts in 2nd years in (FAST),

• Theoretical biochemistry: structural biochemistry, bioenergetics and general enzymology.

*Practical classe: isolation, characterization of different macromolecules that make up the living cell.

Postgraduate programme takes two years. It could be as a general or specialized lecturer.

- Specialization in biochemistry and molecular biology was created in FAST in 1992.

- Degree awarded a "licence" ie bachelor degree and a "Maitrise" ie pre-master degree.

Biochemistry is taught in other institutions of University of Abomey including:

- Faculty of Health Sciences
- Faculty of Agronomy
- Polytechnic of Abomey-Calvavi

In the faculty of health sciences, biochemistry is taught in first and second year in Undergraduate level. It consists of teaching structural biochemistry, general enzymology, biochemical pathways and metabolites, and semiology is taught in second year. Practical classes for students are organized for the characterization of components of biological macrometabolites. Also, students may have industrial training in the Laboratory of biochemical analysis of the National University teaching Hospital (CNHU), Cotonou.

In the Faculty of Agronomy, they study structural and metabolite biochemistry notably study of principal components of cell organic matters (Carbohydrates, lipids, proteins, amino acids and vitamins); Processes of biochemical transformation (fermentation, decomposition) in nutrition. Teaching is also on study of biological agents such as microorganisms of interest in agro-alimentation.

The Polytechnic of Abomey is a professional school, which form technicians capable in entering active life. Biochemistry is taught in biomedical analyses, construction and management of environment, and animal production. The timetable is run in three years and students are taught structural and metabolite biochemistry, enzymology, clinical and different methods of biochemical analyses used in medicine and different methods of biochemical analyses used in medicine, in environment and in the area of animals production.

B) Admission of Students

* Students admitted in "Licence" degree are drawn from a fold of applicants with diploma (UES) and at least 60 per cent average score in validating all courses.

* 44 were admitted in 1992 and this was reduced to 12 in the last 3 years; In fact, practical classes and teaching of biochemistry and molecular biology are very costly and the university only supported the Department with one million Fcfa for teaching and research. Practical classes were done with the support IBMC grant of University of Strasbourg, France.

C) Academic Syllabus

• The syllabus contained four main courses (Unit values) values in biochemistry and two organic chemistry.

• Whether for the award of "Licence" or "Maitrise" degree in biochemistry and molecular biology, students must pass four (4) unity of values (courses). Three of the four courses are compulsory.

1 – Principal disciplines

1.1 Bachelor in Biochemistry

Courses	Designation	Weekly	Annual duration
UV1	Etabolic biochemistry	3 hours	75 hours
UV2	Enzymology	4 hours	100 hours
	Physical methods and Biomembranes		
	General enzymology & Physical methods	2 hours	50 hours
	Molecular enzymology Biomembranes	1 hour	25 hours
		1 hour	25 hours

Courses	Designation	Weekly	Annual duration
UV5	Nucleicacids & Proteins synthesis	4 hours	100 hours
	Metabolism of nucleic acids	15 mins	6.15 hours
	Replication	03 hours	75 hours
	Translation		
	Maturation of rRNA		
	Ribosomes and proteins synthesis and sorting		
	Genetic Engineering	45 mins	75 Hours
UV6	Mechanism of regulation	3 hours	75 hours
	Allosterics	1 hour	25 hours
	Hormonal	1 hour	25 hours
	Genes expression	1 hours	25 hours

2. Auxiliary Disciplines

2.1 Bachelor in Biochemistry “Licence”

- a) Immunology
 - Humoral Immunology
 - Cellular Immunology
- b) Microbiology
- c) Organic chemistry I:
 - Descriptive chemistry of principal functions
 - Chemical reactions

2.2 “Maltrise” in Biochemistry

- a) Organic chemistry II
 - Chemical synthesis
 - Spectrometry
- b) Chemistry of natural substances
- c) Genetics, Species and Evolution

D) Practical classes

Practical classes, students in “Licence” degree are concentrated in peptide sequencing, isolation and characterization of proteins in cellular extracts using chromatographic and electrophoresis based on genetic engineering. It consists in:

- mapping of some plasmids by restriction enzymes,
- initiation in cloning and expression of fluorescent protein
- initiation in Polymerase Chain Reaction (PCR) and Restriction Fragment length Polymorphic (REL P) techniques.

E) Teaching aids

theoretical lectures in biochemistry and molecular biology are offered by five lecturers from Benin (1 professor and 4 lecturers); assisted by five other visiting professors (4 Prof; from Stasbourg and 1 Prof. From Paris VI).

Practical classes are organised by 4 lectures, assisted by 2 technicians.

F) Constraints

* Practical classes are done by a special support of ULP of Strasbourg. Meagre finances are received from government.

* Fairly used equipments and reagents for practical classes are been offered graciously but still insufficient G)

Recommendations

Based on different priorities of Africa government mainly on primary health care; auto sufficiency alimentary, construction of schools and roads infrastructures. We believe that Scientists in these countries can contribute meaningfully on common goals and networking in biochemistry and molecular biology. This will enhance synergism. Emulation, mutual help, focus and better management on funds in capacity building of young scientists and new health policy formulation in Africa.