INNOVATIVE METHODS OF DEVELOPING COMPETENCE OF STUDENTS IN BIOCHEMISTRY

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The implementation of the competence-based approach in the training of specialists implies the organization of the process of mastering academic subjects that ensures the necessary level of professional qualification of students of higher education institutions. For this, it is necessary, firstly, to determine the contribution of a certain subject to the general educational results, and secondly, to develop the appropriate methodology for the formation of student competence, including targeted, meaningful, procedural and assessment-effective components.

Our research is devoted to the development of a methodological system that ensures the formation of students' competence in various areas of teaching biochemistry. According to experts in the field, there is currently no field of theoretical or applied biology and medicine that is not closely related to biochemistry. Modern biological chemistry is located at the intersection of many natural sciences: organic chemistry, physical chemistry, physiology, immunology, microbiology, etc. are among them.

Biological chemistry studies the structure of important biological substances in relation to the functions they perform, and changes in these compounds at the molecular, cellular, tissue, and organismal levels. A. Leninger called biochemistry "the molecular logical science of living things." Biochemistry can be considered the main basis of all natural sciences, because it studies the laws of structure and metabolism common to all organisms. At the same time, biological chemistry forms the theoretical basis of medicine, agriculture, nanobiotechnology, genetic engineering and a number of industries. In the last decade, the biochemical approach has become important in solving many problems of human and animal physiology, plant physiology, immunology, cytology and histology. Biochemical analysis methods, in particular, types of chromatography and electrophoresis, are the instrumental basis of scientific research and are widely used in natural environment, quality control of food products, and laboratory diagnostics. According to the results of the questionnaire received by us, we conducted interviews with biochemistry teachers of three medical higher education institutions in Bukhara on a total of nine educational areas. Among the main difficulties are the low level of basic preparation of students in chemistry, they consider biological chemistry as a very difficult academic subject for students, the training allocated for the development of biochemistry insufficient number of hours and low educational motivation of students.

According to all respondents, biochemistry as a major subject is characterized by low variability, since the cognitive component is very important in it. Understanding the nature of metabolic reactions inside the cell, their interrelationship, the mechanisms of regulation of life processes and energy supply of organisms is necessary for future biologists, ecologists, chemists and doctors.

Therefore, it is necessary to ensure not only the necessary level of competence of students in biochemistry (it is obvious that competence requires very deep scientific

knowledge), but also the interdisciplinary integration of biological sciences with chemistry, its close connection with almost all branches of modern biology and ecology, and medicine. should also show.

If we analyze in detail the problem of terminological unity in defining the concepts of "competence" and "competence" in education, Yu. Based on the work of G. Tatur and N. M. Boritko, we understand the readiness and ability of a specialist to successfully perform functions related to professional activity by professional competence. In accordance with the new educational standards, the final result of studying at a medical higher education institution is the formation of a declared set of general cultural and professional competencies in a student that corresponds to the state educational standard of higher professional education in this field and the level of training. . Taking into account the above, we understand competencies as planned results, requirements for mastering educational programs. A number of authors, in particular Yu.V. Frolov, M.V. Noskov, S.N. Lysenkos agree on the need to adapt the student's competence to the direction of science training, because traditionally local higher education is carried out through subject-science education [1]. At the same time, in the context of the competence approach, it is important to analyze the interpenetration and interdependence of the content of educational subjects, to ensure the consistency of both the working programs of the subjects and the technologies of their implementation. Interdisciplinary integration in higher professional education is considered in detail in the works of A. Zunnunov, M. Shamin, K. Hoshimov [2-5]. The need to analyze and purposefully strengthen interdisciplinary integrations between biochemistry and other sciences becomes more evident if we consider the processes of integration in modern science. Recent decades have been characterized by the emergence of fundamental breakthroughs in the field of interdisciplinary scientific research, for example, in the field of nanobiotechnology.

As a result of studying the main part of this test program, the student:

- should know:

modern basics of cell biology (cytology, histology, biophysics, biochemistry, membranology, molecular biology);

- must have:

presentation of basic general professional information and critical analysis;

- must have:

set of laboratory and field methods of research;

- must have the following professional competencies in biochemistry and molecular biology:

- demonstrates knowledge of the cell structure, biophysical and biochemical foundations of biological objects, membrane processes and molecular mechanisms of life activity;

- presents modern ideas about the basics of biotechnology and genetic engineering, nanobiotechnology, molecular modeling (PK-11). In the formation of the competencies that are necessary to know and acquire above, we used the taxonomy of goals proposed by M. V. Rijakov, according to which cognitive goals are formed as requirements of different levels of complexity: in particular, description, comparison, analysis, explanation, prediction. This taxonomy is very convenient for diagnosing the level of achievement of the planned results and is based on the gradual increase in the complexity of the educational and cognitive

activities of students. The use of elements of modular teaching technology makes it possible to make the process of formation of students' competencies in biochemistry manageable and flexible. By module we mean a logically integral part of the content of the academic subject, the study of which should be completed by an appropriate form of control of disciplinary competences formed by students as a result of mastering this module. The modular principle of understanding the content ensures individualization of learning in terms of the speed of mastering the learning material, the level of independence of the student's educational activity, implies the independent performance of tasks of different levels of complexity, creative works.

We conditionally divided the process of studying biochemistry into two stages. The first stage is mainly devoted to studying the composition, structure and properties of biologically important compounds, primarily proteins, including enzymes and nucleic acids.

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