

ANNOTATION

**Annotation of the thesis of Batayeva Dariga Serikkyzy on the subject
“Formation of the future teachers' professional competence in the teaching
process through the application of methods for salt tolerance rice” presented
on the competition of degree of the doctor of philosophy (PhD) in the specialty
"6D011300 – Biology"**

Relevance of the research. For improving the quality of education and compliance to the best international educational standards training the specialists conforming to the best international requirements and have high level of quality of the gained knowledge for the solution of problems of industrial and innovative development of the country is necessary. A top trend of development of the higher education is improvement of quality of training the specialists, providing the new directions of preparation, innovative development, integration with intensive research activity, close connection of university researches with requirements of society by means of improving the technologies in the educational and information areas.

With his annual Message to the people of Kazakhstan “Increase in welfare of Kazakhstan: improvement of quality of income and the standard of living” (on October 5, 2018) the Leader of the nation N.A. Nazarbayev noted that “focus in education is shifted towards the following model: development of creativity, critical thinking, communicate skills and ability to work in team”. The need of improvement of quality of training of specialists and increase in responsibility for training the future experts are the main priorities of the higher education. Key questions in the field of education are the improvement of quality of professional training of future teachers, cardinal updating the scientific and methodical education system, change of forms and methods of training, elimination of the prevailing educational and pedagogical practice and satisfaction of the requirements of the modern society, through increasing the role in ensuring the continuity in the course of improvement and in the high level of use of modern digital technologies.

One of the most difficult and important task in pedagogical universities is training the students for their future professions, development of professional qualifications, creation of a new system of professional education and training the qualified and competent experts. It is necessary to intensify the training process and to improve new forms and methods of training the future teachers. For development of such approach it is necessary to resolve such issues as improvement of pedagogical researches, formation of scientific base for updating the educational process, creation of the real mechanism of innovation in education. Transition to use of new technologies even in everyday life demands the revision of the concept “what we teach” in an education system onto “how we should teach it”.

At present in Kazakhstan the formation of new education system focused on entering the country into the world educational space is taking place. This process is followed by significant changes in the pedagogical theory and practice of

teaching and educational process. Sh.T. Taubayeva and S.N. Laktionova consider that the innovative method of training nowadays is proved as a new didactic concept. Also, at present the modernization of the Kazakhstan education system connected with transition to competence-based approach. Works of such scientists as Zhadrina M.Zh., Nurakhmetov N.N., Konakova K.U., Mukanova S.D., Tokbergenova U.K., Kazakbayeva D.M., Karbayeva Sh.Sh. and others are devoted to researches of theoretical and practical aspects of formation of professional competence in Kazakhstan.

One of the main priorities in the message of the Leader of the nation N.Nazarbayev “The third modernization of Kazakhstan: the global competitiveness” emphasizes that “the main objective of the Kazakhstan education is to make education the central link of new model of economic growth”. In this regard, use of new innovative technologies in development of the agrarian sector of Kazakhstan promotes the introduction into production of the rice cultivars adapted to climatic conditions of the country steady against abiotic factors, highly productive and salt-tolerant. According to this the theoretical and practical training the students the methods of determination of salt tolerant of rice is urgent.

Studying the condition of training the future biology teachers allowed us to reveal the essential contradictions formed between use of methods of determination of salt tolerance of rice in educational process and weak readiness of methodical bases of formation of professional competence of future biology teachers. The specified contradictions are interconnected and can be resolved by development of a special technique of training the future experts - biologists where the formation of professional competence will be one of the main objectives. According to this the relevance of the problem solved by us connected with justification and development of theoretical and methodical bases of development of professional competence of future teachers using the methods of receiving the salt-resistant lines of rice was defined. The relevance of the chosen subject of our research was defined by requirements of the social order of society to training the future specialists biologists. All this caused the choice of the thesis subject: **“Formation of the future teachers' professional competence in the teaching process through the application of methods for salt tolerance rice”**.

Research object: process of biology training in pedagogical universities.

Subject of the research: the technique of training the future biology teachers using the methods of determination of salt tolerance of rice.

Research objective: definition of theoretical bases of formation of professional competence of future teachers in the in the teaching process through the application of methods for salt tolerance rice and development of the methodical system, its approbation during the experimental work.

Research tasks:

- to prove theoretically studying the methods of receiving salt tolerance lines of rice and to define formation of professional competence of future teachers in the course of training;

- to develop structural and substantial model of training of future biology teachers to the methods of determination of salt tolerance of rice;

- to develop the technique of training to the methods of salt tolerance of rice in formation of professional competence of future teachers;

- to check experimentally the efficiency of the technique of formation of professional competence, to introduce it into the educational process.

Scientific hypothesis of the research: *if*, when forming professional competence of future biology teachers in the course of training using the methods of salt-resistance of rice the structural and substantial model of training will be theoretically proved and introduced, *then it* will allow to create the professional competence of future teachers where the organization of laboratory researches will be a component of biological education.

Research methods:

- theoretical methods: studying the special scientific and psychology and pedagogical literature, the analysis of the published psychology and pedagogical, biological articles on problems of the research and the results of pedagogical experiences;

- empirical methods: (questioning, goal-setting, observation) chosen as innovative methods of the research;

- private empirical methods complemented with the general methods: experimental work (methods of determination of salt-resistance of plants, physiology-biochemical researches, TVEL method of pollination, PCR method for identification of genes of salt tolerance, method of SSR markers), the pedagogical experiment, ways of psychological diagnostics.

Scientific novelty and theoretical importance of the research:

- studying the methods of receiving the salt tolerant lines of rice was theoretically proved and the formation of professional competence of future teachers in the course of training was defined;

- the structural and substantial model of training the future biology teachers for the methods of determination of salt tolerance of rice was constructed;

- the technique of training in methods of determination of salt-endurance of rice in formation of professional competence of future teachers of biologists is developed;

- the efficiency of a technique of formation of professional competence is experimentally checked and introduced in educational process.

Practical importance of the research. The theoretical statements and conclusions which were contained in the research created the prerequisites for updating the content of education in the form of creating:

- the updated training program of the elective course "Breeding the Cereals" and "Physiology of Plants" for students in the specialty 5B011300 – Biology;

- educational and methodical course *“Күріштің тұзға төзімділігін анықтауға арналған зертханалық сабақтар және оларды жүргізу әдістемесі”*;

- model experiments on studying the influence of various types of salinization (chloride, carbonate, sulphate) on morphological and physiological and biochemical indicators at initial cultivars in an early phase of ontogenesis, for the purpose of breeding the most perspective salt tolerant samples for selection;

- Kazakhstan salt-resistant forms of rice with involvement of salt tolerant genotypes of IRRI (Los-Banyos, Philippines) and the All-Russian Research Institute (Krasnodar, the Russian Federation) by transfer of genes of salt-endurance, with application of modern methods of biotechnology (MAS marker assisted selection) in combination with traditional selection for the accelerated creation of salt tolerant lines of rice (by means of molecular markers the genotypes carrying the salt tolerance genes were selected).

The obtained data can be used in the system of comprehensive, specialized secondary and higher pedagogical education.

Reliability and reasonableness of results of the research: the present thesis was performed according to theoretical and methodical norms; the content of the research corresponds to the scientific apparatus; in our work the effective methods corresponding to the object of research were used; in our research the planned character of the experimental work and also the reliability and efficiency of the received results were noted.

The basic statements of the thesis submitted to defense:

- theoretical foundation of studying the methods of receiving the salt tolerant lines of rice and its use in the course of training of students that will allow to create professional competence of future teachers;

- design of structural and substantial model of training the future biology teachers. Methods of determination of salt tolerance of rice are directed to specification of features of the technique of biology training;

- methodical conditions of formation of professional competence of future biology teachers;

- the experimental foundation proving the efficiency of the technique of formation of professional competence of future biologists confirms reliability of the statements submitted to defense.

Research base: experience and experimental works and implementation of the results of our research were carried out at the Kazakh state women's teacher training University at the biology department; researches were also carried out at the Institute of plant biology and biotechnology of MES RK and at the International research institute of rice (IRRI, Philippines) in the laboratory of selection, genetics and biotechnology of plants.

The methodological and theoretical basis of our research was made of general statements of the theory of knowledge, sciences of pedagogical education and its potential, the rules of the fundamental philosophical, sociological, general scientific and pedagogical knowledge having methodological value (theories, concepts, hypotheses); science of methods of pedagogical knowledge (methodology in narrow value); biological scientific theoretical statements.

Research sources: The law of the Republic of Kazakhstan “About Education”, state programs of development of education and science in the Republic of Kazakhstan, the state obligatory standard of postgraduate education of RK and the programme for development of rural complex in the Republic of Kazakhstan for 2013-2020 “Agrobusiness-2020” and also other state documents having a legal power in the field of education; works of Kazakhstan scientists, and

scientists of the closest and far abroad, connected with the studied problem, experience of the author of the thesis in research work.

Testing and implementation of the results of the research:

23 articles on the dissertation theme were published, 5 of which were printed in the journals recommended by the Committee for Supervision over Education and Science under the Ministry of Education and Science of the Republic of Kazakhstan (“Bulletin KazNU”. Biology Series, 2014, 2015; “Bulletin KazNU”. Ecology series, 2015; “Bulletin of the Academy of Pedagogical Sciences of Kazakhstan”, 2015), 10 - among the materials of the international conferences in the country and abroad, 1 - among the materials of an international forum, 1 – in the Russian scientific and production journal (“Rice growing”, Krasnodar, 2013), 4 - in the journals of the Scopus and Thomson Reuters database (Russian Journal of Genetics, 2017; Japan Agricultural Research Quarterly: JARQ, 2017; Agricultural Biology, Russia, 2017; BMC Genetics, 2018).

The dissertation results were presented, reported and discussed at international scientific conferences: “Innovative inventions of young scientists - for the development of the agro-industrial complex of Russia and CIS countries” (Krasnodar, 2014), at the international forum “Qualitative Education and Science Development – the imperatives of our era ”(Almaty, 2014), “ Innovative biotechnologies in the development of the agro-industrial complex ”(Krasnodar, 2015), “ Fundamental and applied problems of modern experimental plant biology”, Institute of Plant Physiology named after K. Timiryazev, RAS (Moscow, 2015), International conference "Achievements and prospects of rice breeding and cultivation in temperate countries" (Krasnodar, 2015), "Current issues and prospects for the development of engineering and technology" (Sterlitamak, 2015), “Trends and prospects for the development of science and education in the context of globalization” (Ukraine, Pereyaslav-Khmelnytsky, 2015), “The role of the seed industry in ensuring food security” (Tajikistan, Dushanbe, 2015), “Educational integration and differentiation at small staffing school” (Almaty, 2016), “Formation of innovation environment in youth associations of universities” (Almaty, 2017)“, Modern preschool and primary education: theory, methods and experience” (Almaty, 2017), in the Russian scientific and production journal (“Rice growing”, Krasnodar, 2013).