REVIEW

from the local scientific supervisor

PhD, associate professor Matveyeva Ilona Valeriyevna

for the thesis of Nursapina Nurgul Armankyzy

"Entering of natural radionuclides in soil and root crops with mineral fertilizers and their distribution in "soil-plant" system"

submitted for the degree of Doctor of Philosophy (PhD) in the specialty "8D05301 – Chemistry"

Food plays the crucial role in life of all living organisms, including humans. The quality of the consuming food results to general health of the population. The territory of Kazakhstan is contaminated by big range of different contaminants, which negatively reflects to agricultural products, produced in our country. One of the widely spread contaminants are natural radionuclides of uranium and thorium series.

The thesis work of Nursapina Nurgul specifies at the distribution of natural radionuclides in soils and root crops, grown on it under the influence of different fertilizers. The application of fertilizers results not only on the content of nutrients, but also can be a source of radionuclides and can lead to change of chemical species of already contained radionuclides. In the thesis are presented the data of several vegetation experiments of radish and carrot. During growing different fertilizers were applied. After harvesting soil and root crops were investigated on the content of radionuclides in them. For detailed understanding of migration processes the sequential extraction of soil was done. As the result, detailed investigation of the processes occurring in the "soil-root plants" system was performed.

The work was realized in frame of the project of the Ministry of Education and Science of the Republic of Kazakhstan (grant number AP08052224), Erasmus+ program and Sandwich Training Educational Program.

Research results obtained by Nursapina Nurgul were reflected in one monograph and 10 scientific publications, including one article in an international peer-reviewed journal with non-zero impact factor (IF=1.9, Q3, SJR 0.621) according to the Web of Science database, three articles in scientific journals recommended by the Committee for Quality Assurance in the Field of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan, six abstracts at international conferences.

During the writing of the thesis work, Nurgul proved herself to be a responsible, hardworking and organized young scientist. She has all the necessary qualities to work in science,

she was not afraid to put forward her proposals and actively discussed the current results with scientific supervisors.

I firmly believe that Nurgul Nursapina shows great promise as a specialist in this field and the results obtained by her have scientific significance and practical application. Thesis results obtained by candidate fully meets all the requirements of the Committee for Control on the Field of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan. The author deserves awarding of the PhD degree in the specialty "8D05301 – Chemistry".

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