&Eriz. According to V. Menabde, this species is an amphidiploid one and developed as a result of spontaneous hybridization of CheltaZanduri and GvatsaZanduri. Chelta, unlike Zanduri, has a less dense and elongated head,and it grows taller. The species adapts well to high humidity, it is more sensitive to drought than Zanduri. It is characterized by open flowering. With high protein content of 23.6%, lysine - 2.9%, and has high bread baking ability. It is also a carrier of the CMS gene, is distinguished by immunity to fungal diseases. By crossing this species with a soft wheat, a very interesting breeding starting material of soft wheat is obtained.

Conclusions: Endemic species and varieties of Georgia are characterized by unique genetic and breeding properties, the use of which makes it possible to obtain a modern wheat of intensive type. Georgian species are characterized by immunity to fungal diseases, drought resistance, resistance to high humidity,with high quality indicators, have cytoplasmic male sterility genes and represent the best selection of starting material for the creation of new forms.

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FUROPYRIMIDINE DERIVATIVES AS NEW WHEAT GROWTH REGULATORS

Introduction. Growing one of the main cereal crops - wheat (*Triticum aestivum* L.) under environmental stress conditions such as increased ozone levels, soil salinization and heavy metal pollution, drought, waterlogging, temperature fluctuations that negative affect wheat growth at vegetative and reproductive stages, is an urgent problem in modern agriculture [1, 2]. The creation of new effective and

*Scientific adviser – Tsygankova V. A., Dr. Biol. Sci., Principal researcher, Senior Staff Scientist environmentally friendly wheat growth regulators is a priority task for the successful development of modern agriculture in economically developed countries. The newest strategy is the development of new effective wheat growth regulators based on synthetic low-molecular weight azaheterocyclic compounds, pyrimidine derivatives, which exhibit physiological effects similar to plant hormones auxins and cytokinins [3, 4, 5].

Studies carried out on wheat and other agricultural crops have shown that newsynthetic azaheterocycliccompounds, pyrimidine derivatives improve seed germination and the formation and growth of plant shoots and roots, enhance photosynthetic processes in plant leaves, increase plant productivity and their adaptation to abiotic stresses [4, 5].Using synthetic azaheterocycliccompounds, pyrimidine derivatives as new wheat growth regulators will reduce the use of toxic chemical herbicides, pesticides, and fungicides that accumulate in soil, plants, and end up in human and animal food. Considering all the important aspects mentioned above, the use of synthetic compounds, pyrimidine derivatives as wheat growth regulators will have a significant economic effect and contribute to the solution of ecological problems for the environment.

This work is aimed at the screening of new wheat growth regulators among synthetic compounds, furopyrimidine derivatives [6].

Materials and methods. The regulatory effect of new furopyrimidine derivatives (compounds № 1 – 12)on wheat growth was compared with the effect of known synthetic compounds, derivatives of sodium and potassium salts of 6-methyl-2-mercapto-4-hydroxypyrimidine (Methyur, Kamethur) and plant hormone auxin IAA (1*H*-indol-3-yl)acetic acid). All chemical compounds studied in the work were synthesized at the Department for Chemistry of Bioactive Nitrogen-Containing Heterocyclic Compounds, V.P. Kukhar Institute of Bioorganic Chemistry and Petrochemistry of the National Academy of Sciences of Ukraine. Auxin IAA (1*H*-indol-3-yl)acetic acid) was manufactured by Sigma-Aldrich, USA. The chemical structures of new furopyrimidine derivatives(compounds № 1 – 12)are described in our published work [6].

To study the regulatory effect of synthetic compounds, furopyrimidine derivatives (compounds № 1 – 12) on the growth ofwinter wheat (*Triticum aestivum* L.) variety Tyra, seeds were sterilized with 1 % $KMnO_4$ solution for 15 min, then treated with 96 % ethanol solution for 1 min, after which they were washed three times with sterile distilled water. After this procedure, wheat seeds were placed in the plastic cuvettes (each containing 25 - 30 seeds) on the perlite moistened with distilled water (control sample), or water solutions of auxin IAA (1*H*-indol-3-yl)acetic acid), or synthetic compounds, derivatives of sodium and potassium salts of 6-methyl-2-mercapto-4-hydroxypyrimidine (Methyur, Kamethur), or furopyrimidine derivatives (compounds № 1 – 12), used in a concentration of 10^{-7}M (experimental samples). Then the wheat seeds were placed in a thermostat for germination in the dark at a temperature of 20 - 22 °C. After 48 hours, wheatseedlings were placed in a climate chamber, where they were grown at 16/8 h light/dark conditions, at a temperature of 20 - 22 °C, light intensity of 3000 lux, and air humidity 60 - 80 %. Morphometric parameters of wheat plants (average length of shoots (mm) and average length of roots (mm)) were measured after 4 weeks. The morphometric parameters determined on the experimental wheat plants were compared with similar parameters of control plants and expressed in (%).Each experiment was performed three times. Statistical processing of the experimental data was carried out using Student's t-test with a significance level of $P \leq 0.05$; mean values ± standard deviation (± SD).

Results and Discussion. Our current study revealed that new furopyrimidine derivatives exhibit a regulatory effect similar to the effect of auxin IAA and known synthetic compounds, derivatives of 6-methyl-2-mercapto-4-hydroxypyrimidine (Methyur, Kamethur) on the growth and development of wheat roots and shoots in the vegetative stage.Morphometric parameters of wheat plants (average length of roots (mm) and average length of shoots (mm)), treated with synthetic compounds, furopyrimidine derivatives in a concentration of 10^{-7}M, significantly increased as compared to control wheat plants treated with distilled water.

Auxin IAA Methyur and Kamethur showed a high regulatory effect, the average length of shoots (mm) increased: in wheat plants treated with auxin IAA - by9,47 %, in wheat plants treated with Methyur - by 18,84%, in wheat plants treated with Kamethur - by 11,69 %, according to the control plants.Auxin IAA, Methyur and Kamethur also showed a high regulatory effect, the average length of roots (mm) increased: in wheat plants treated with auxin IAA - by20,49 %, in wheat plants treated with Methyur - by 25,02%, in wheat plants treated with Kamethur - by 39,3 %, according to the control plants.

Synthetic compounds, furopyrimidine derivatives № 2–4, 6–12 showed the highest regulatory effect on the parameters of roots (mm) of 4-week-old winter wheat (*Triticum aestivum* L.) variety Tyra, and the least – compounds № 1 and 5.The average length of roots (mm) increased: in wheat plants treated with compounds № 2–4, 6–12 - by 21,72–39,08 %, and in wheat plants treated with compounds № 1 and 5 - by 9,8–15,48%, according to the control plants.

Synthetic compounds, furopyrimidine derivatives № 3, 7–11 showed the highest regulatory effect on the parameters of shoots (mm) of 4-week-old winter wheat (*Triticum aestivum* L.) variety Tyra, and the least – compounds № 1 and5.The average length of shoots (mm) increased: in wheat plants treated with compounds № 3, 7–11 - by 7,37–24,51 %, and in wheat plants treated with compounds № 1 and 5 - by 4,21–5,15 %, according to the control plants.At the same time, the average length of shoots (mm) in wheat plants treated with compounds № 2, 4, 6, and 12 did not statistically significantly differ from the control plants.

Summarizing the obtained data, it should be noted that synthetic compounds, furopyrimidine derivatives № 2 – 4, 6, 8 – 12 showed the highest regulatory effect on the average length of roots (mm) in wheat plants, and synthetic compounds, furopyrimidine derivatives № 3, 7–11showed the highest regulatory effect on the average length of shoots (mm) in wheat plants. Their regulatory effect was similar to the effect of auxin IAA, or synthetic compounds, derivatives of sodium and potassium salts of 6-methyl-2-mercapto-4-hydroxypyrimidine (Methyur, Kamethur), which are known as auxin-like and cytokinin-like compounds due to their regulatory effect on the growth of plant shoots and roots. Analyzing the relationship between chemical structure and regulatory effect of synthetic compounds, furopyrimidine derivatives on the morphometric and biochemical parameters of wheat plants, it can be assumed that their regulatory effect on the growth and photosynthesis of wheat plants is related to the presence of substituents in their chemical structure.

It is possible that the high regulatory effect of most active synthetic compounds, furopyrimidine derivatives № 2–4, 6–12 on the growth of wheat plants, is associated with the presence of substituents in their chemical structure: compound № 2 contains a 2-methoxyethyl substituent in position 3, a methyl group in position 6, and a carboxylic acid ethyl estergroup in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring; compound № 3 contains a furan-2-ylmethyl substituent in position 3, a methyl group in position 6, and a carboxyl group in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring; compound № 4 contains a cyclohexyl substituent in position 3, a methyl group in position 6, and a carboxyl group in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring; compound № 6 contains a cyclohexyl substituent in position 3, a methyl group in position 6, and a *N*-(4-chlorophenyl)amidesubstituent in position 5 of the 4-oxofuro [2,3-*d*] pyrimidine ring; compound № 7 contains a benzyl substituent in position 3, a methyl group in position 6, and a methyl 4-amidobenzoate substituent in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring; compound № 8 contains a benzyl substituent in position 3, a methyl group in position 6, and a *N*-(4-chlorophenyl)amidesubstituent in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring; compound № 9 contains a benzyl group in position 3, a methyl group in position 6, and a 4-ethylphenylamide group in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring; compound № 10 contains a benzyl group in position 3, a methyl group in position 6, and a *N*-(3,4-dimethylphenyl)amide group in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring; compound № 11 contains a benzyl group in position 3, a methyl group in position 6, and a 4-methylphenylamide group in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring.The decrease of the regulatory effect of synthetic compounds, furopyrimidine derivatives № 1 and 5 on the growth and photosynthesis of wheat plants can be explained by the presence of substituents in their chemical structures: compound № 1 contains a 2-methoxyethyl substituent in position 3, a methyl group in position 6, and a carboxyl group in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring; compound № 5 contains a cyclohexyl substituent in position 3, a methyl group in position 6, and a *N*-(naphthalen-1-yl)amide substituent in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring; compound № 12 contains a benzyl group in position 3, a methyl group in position 6, and a carboxyl group in position 5 of the 4-oxofuro[2,3-*d*]pyrimidine ring.

Based on the obtained morphometric parameters of wheat plants, it is possible to propose the practical use of synthetic compounds, derivatives of sodium and potassium salts of 6-methyl-2-mercapto-4-hydroxypyrimidine (Methyur, Kamethur), and most active furopyrimidine derivatives № 2 – 4, 6 – 12 in a concentration of 10^{-7}M for improving the growth of roots and shoots in winter wheat (*Triticum aestivum* L.) variety Tyra during the vegetative stage.

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PHYTOSANITARY CONTROL OF VINEYARDS IN THE SYRDARYA REGION OF THE REPUBLIC OF UZBEKISTAN

Introduction. Large-scale research is being conducted around the world to improve agrobiotechnology for growing grapes. In these studies, much attention is paid to ensuring moderate growth of the grape plant and protecting it from various microbiological diseases and pests by determining the composition and types of microorganisms in the rhizosphere, phyllosphere and endosphere of the grape plant, as well as determining their natural activity [1].

In our republic, especially after gaining independence, certain scientific results are achieved in the fight against microbiological diseases and various harmful insects that have a great impact on the productivity of grape vines, due to the widespread