A biological testing synthetic heterocyclic compounds – perchlorates (thio)pyrylium differing nature of the heteroatom (O, S) and alternate character (CH3, Cl, OCH3, C6H5) in the cation halkogenopyrylium. The concentration of substances established by the molecular weight, in the three specific to physiologically active substances acting doses: 10−6 M, 10−9 M, 10−12 M. The objects of the study were the seedlings of spring wheat *Triticum aestivum L.*

To study the effect of heterocyclic compounds on the growth and development of the first leaf using the following parameters: the length of the lamina and sheath, which is calculated on the basis of the absolute growth rate. All of heterocyclic compounds have a stimulating effect on the growth of the first leaf sheath. Positive effects of test compounds on the growth of the leaf lamina is less pronounced. In a number of cases was observed inhibition of growth of the leaf lamina. Despite the different effects of heterocyclic compounds on growth of parts of the first leaf, significant differences in the length of the first sheet of the experimental and control plants was observed. Analysis of growth rate showed that the presence of compounds of the oxygen atom as the heteroatom, resulting reduction of the growth period of leaf lamina. The effect of the test substances on the quantitative composition of photosynthetic pigments in the lamina of the first leaf. The action of the test solutions (with some exceptions) increases the ratio of chlorophyll *a/b*. Determination of quantitative content of chlorophyll *a* and *b* in the lamina suggests that the inhibitory effect of the compounds on the and chlorophyll *b* and the stimulatory effect on chlorophyll *a* is associated with the presence of O as a hetero atom and Cl as a substituent.

Analysis of the results leads to the conclusion that the tested synthetic heterocyclic compounds – perchlorates (thio)pyrylium have regulatory activity. Laboratory research can serve as a basis for further studies the physiological properties of these compounds.