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 physiological activity of the test compounds used the quantitative account of the growth and development of the root system of the seedling: measured the length of the main root, the total length of the root system, the dry weight of the root system. It was found that the heterocyclic compounds largely influenced the growth and development of the root system of the seedling. The test compounds have positive effects on the root-maintenance and the length of the root system of seedlings. The greatest stimulatory effect on the length of the root system of the seedling have a concentration 10−12M compound having S as heteroatom. Solutions of certain concentrations of heterocyclic compounds with similar substituents in the cation, have an inhibitory effect on the growth of the main root seedling, however, the total length of the root system does not differ from the control values.

To study the effect of heterocyclic compounds on the growth and development of the shoot using the following parameters: the length of the lamina and the sheath of the first leaf, the dry weight of the shoot. 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 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