UDK 543.2+543.06:631.414

RESEARCH OF CHEMICAL AND PHYSICOCHEMICAL CHANGES OF DISPERSIBLE SYSTEMS OF BLACK SOIL AT LONG INFLUENCE OF APPLYING FERTILIZERS

V. Svitovyi, ***Uman national university of horticulture***

It is known, that the transformation of clay minerals of the soil is influenced by the soil acidity and other factors of the environment. Fertilizing also can influence the transformation of clay minerals. We can reliably estimate the direction and nature of these changes only with the help of long-term experiments. The aim of the work was to find out changes of chemical and physico-chemical properties of soil dispersion systems by using examples of soil, which were taken from research areas. These areas were fertilized by significant amounts of mineral and organic fertilizers.

The IR spectrum we received is similar to the one, received by other researchers from the areas with content of clay minerals. By comparing received spectrums with published data we can identify the presence of clay minerals, particularly montmorillonite - broad band 2800-3700 cm-1 with max on 3400 cm-1 and 1635cm-1. Also we identified kaolinite with max on 3695, 3620cm-1 and 908cm-1. Carbonates are present – 1425 cm-1. Quartz determined by triplet – 795, 775, 695 cm-1. Uniquely identify maxima at 505-514, 445-455, 405-415 cm-1 is difficult, although similar in frequency fluctuations are feldspars 410 and 646 cm-1. Spectra for pure kaolinite and hipsyte are maxima of frequencies close to 445-455, 405-415 cm-1. Organic carbon is usually identified by absorption bands 2850-2855, 2925-2930 cm-1. But we do not have maxims in these limits. During comparing spectrums of different examples overall similarity in graphs is observed, except some differences for maxims 445-455, 405-417 cm-1. Maybe it says about transformation of clay minerals by prolonged chemical exposure.

Gross content elements in research areas were analyzed by Roentgen-Fluorescent method. Difference is marked by content of Al, Si, Ca, Fe. These items are not made with fertilizers so the cause of such changes is leaching processes relevant for the increased acidity of the soil for a long time fertilizing. However, changes in Zn, Rb, Y gross content in research areas are difficult to explain.

According to the research, it is found that long-term chemical effects of fertilizers reduces the absorption capacity of soil colloids with increasing exchange and hydrolytic acidity and reduces the number of eaten bases.

Conclusions. Under the influence of introducing high standards of mineral and organic fertilizers total gross of chemical elements, mineralogical composition and adsorption properties of organo-mineral dispersion systems of podsolic soil are changing. One of the main factors of these changes considered to be increasing of soil acidity due to prolonged high standards making fertilizers.