



## **Assessment of the chemical and physicochemical properties of soils, lack of nutrients for plants and product quality**

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### **Abstract**

The work shows the feasibility of assessing the supply of biophilic chemical elements to soils and plants using modern physicochemical methods of analysis – near infrared spectroscopy, scanning electron microscopy with an energy dispersive spectrometer, differential thermal analysis. Experimental data on the assessment of the content of chemical elements in the soils of an agricultural enterprise on the territory of the Belogorsk region of the Republic of Crimea are presented. A chemical analysis of soils from the fields on which winter wheat and lavender are grown in a crop rotation using traditional technology and organic farming technology has been carried out. The assessment of the content of macro- and microelements in soil particles less than 0.5 mm, 0.5-1 mm, 1-2 mm and 2-7 mm in size was carried out. Differences in the concentrations of O, P, K, C, Ca, Mg, S, Cl, Na, Ti, Si, Zn, Cu, Al and the ratios between chemical elements for soils of different fields with particles of different sizes are shown. Information on the chemical composition is necessary for compiling databases, assessing the yield and quality of agricultural products, assessing the needs of plants for nutrients, the content of positively and negatively charged complex compounds of metal ions in plants, the dynamics of the transition of ions from soil and soil solution to plants, depending on the species, varieties, phases of development.

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