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Comparision of results of diferent instrumental methodics (MP-AES, UV-Vis spectrometry) for determination of available forms of soil phosphorus.

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The content of easily extractable forms of phosphorus (P) in soils is important as on the environmental viewpoint and also from agronomical side. For determination of plant available P there is several extraction methods developed. Due to big variations in soil properties, it is very complicated to find the best method for P extractions from soil. For determination of P content in extracts during the years Vis-spectroscopy was used as simple and economic method. During the last decade the role of atomic emission spectroscopic (AES) methods started to grow rapidly. The advantage of this method is accuracy and shorter time of analysis.

For the plant growth it is important that the content of P is in phosphate form. This can be determined by phosphate-molybdate method Vis spectrometrically. AES method measured total content of P, including P in organic compound and therefore give a overestimated results of plant available P.

The aim of our work was to investigate the possibility of the use of MP-AES spectrometry for determination of plant avalable P in soil.

In work more than 100 soil samples with very diferent properties were used. For extraction Mehlich 3, acetate-lactate (AL), double lactate (DL) and calcium lactate (CAL) extragents were used. The content of extracted P was determined by molybdatemethod using Vis spectrometer and microplate reader and also the MP-AES (microwave plasma atomic emission spectrometer).

The detection limits and limits of quantification for P is calculated. Comparision of analysed by Vis spectroscopy and MP AES P content is provided. Also the influence of soil pH and organic matter content to the results of analysis was reported.