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# Comparison of Mehlich 3, AL and artificial root exudates containing extractants for soil phosphorus analysis

**Tonu Tonutare**[1], Gert Kaldmae[1], Tiina Köster[2], Kadri Krebstein, and Ako Rodima[1]
[1]Estonian University of Life Sciences, Tartu, Estonia (tonu.tonutare@gmail.com)
[2]Agricultural Research Center, Saku, Estonia

Due to increase of fertilizers prices and tightening of environmental protection requirements the need for efficient use of fertilizers has increased. At moment over the word huge number of different methods for determination of soil plant available phosphorus (PAP) are in use. Due to unequal extraction ability of extractants have each method own specific gradation to evaluate the soil P class. Allmost all widely used PAP extraction methods are developed in last century, mostly more than fifty years ago and often there is not possible to found information how the P status classes and fertilizer recommendations are determined for each method is determined.

The content of PAP in soil is difficult to estimate because soil pH has a strong effect to soil - solution chemistry. Therefore extracting soils with higly buffered solutions as for example Mehlich 3 can give overestimated results. The acidic Mehlich 3 extactant can solubilize relatively insoluble Ca- Fe- and Al phosphates. Also the AL (acetate-lactate) method uses the buffered extraction solution and may influence the amount of extracted PAP. The most realistic conditions for PAP extraction can give the extraction solution which mimic the soil environment that has actively growing roots.

The aim of our research was to investigate the extraction of PAP with extragent similar by chemical composition to soil solution with root exudates proposed by Haney et al (2010). The obtained results were compared with Mehlich 3 and AL methods results.

Ref.: Haney, R.L., Haney, E.B., Hossner, L.R., Arnold, J,G. 2010. Modification to the New Soil Extractant H3A-1: A Multinutrient Extractant. Communications in Soil Science and Plant Analysis, 41:1513-1523.