PHOSPHORUS STATUS IN INTENSIVELY USED SOILS IN KRAKOW

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Phosphorus is a particularly sensitive and persistent indicator of the former human settlement and activities. In the soil environment soluble phosphates are rapidly moving in insoluble forms through the chemical adsorption. In acid soils insoluble aluminum and iron phosphates are formed, and in alkaline soils calcium and magnesium phosphates. **Soils of urban areas**, because of strong human impact, are usually characterized by a large enrichment in phosphorus compounds. Soils of Krakow, a city with more than a thousand years of history - located in the south-eastern Poland, were also exposed to strong anthropopressure. **Convent gardens** are these places in Krakow, where in the soils, as a result of the impact of the urban environment and horticultural use, occurred accumulation of anthropogenic phosphorus.

The convent garden of St. Bernard's Order

The convent garden of Capuchins

Hortic Anthrosols (Eutric) [WRB 2007]

Carmelites garden

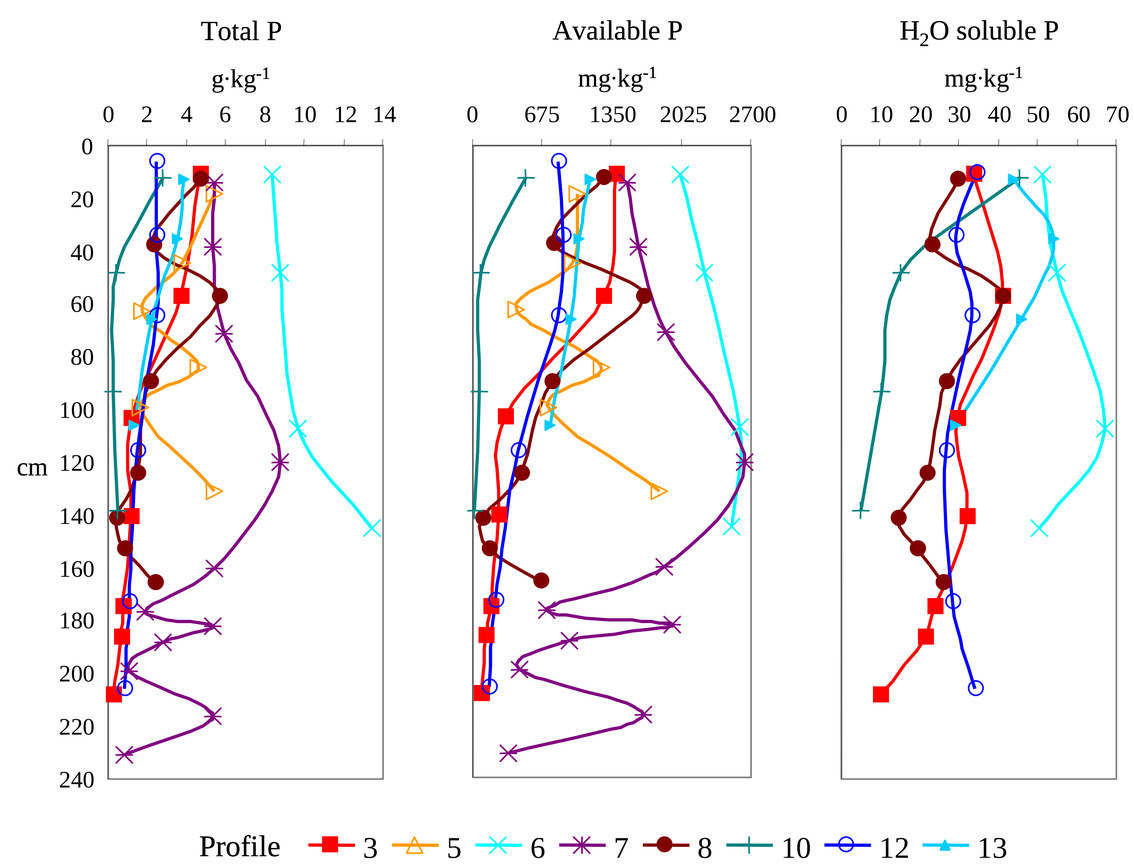
Capuchins garden

Benedictines garden

The contents of various phosphorus forms were determined in the soil samples representing all distinguished horizons and anthropogenic layers of convent garden soils (here presented only): total phosphorus, available - with Egner-Riehm method for carbonate soils and water-soluble P.

Analyzed soils from convent gardens in Krakow, especially situated in the city center, revealed very high content of total phosphorus, reaching 13,4 g·kg^{-1}.

Very high content of available phosphorus were detected in all analyzed soils. The content of water-extracted phosphorus reached 67,2 mg·kg^{-1}.



[Gąsiorek 2007]

May contribute urban soils with high phosphorus content to water eutrophication?

Experiment with the use of vacuum soil water samplers established in spring 2010 in convent gardens - results are compiled.